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Product Specifications Reference

Version 543, June 2019

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Lenovo ThinkPad Laptops

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Version 543, June 2019

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Summary of Changes

This section describes the technical changes made in this edition.

This edition might also include minor corrections and editorial changes which are not identified.

June 5, 2019 - Version 543

Additions in this update

► **New product(s)**

ThinkPad L490 announced June 2019

ThinkPad L590 announced June 2019

ThinkPad T495 announced May 2019

ThinkPad T495s announced June 2019

ThinkPad X395 announced June 2019

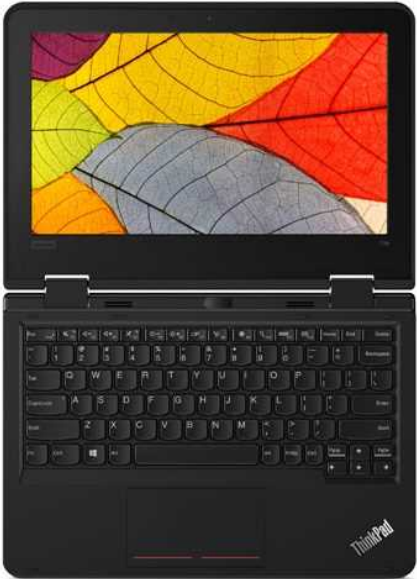
► **Others**

None

Withdrawals in this update

► **Withdrawn product(s)**

None



ThinkPad 11e (5th Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ m / i5 Processor, Intel Celeron® processor, or Intel Pentium® Silver processor							Dimensions	<i>WxDxH:</i> 11.81" x 8.27" x 0.86"; 300mm x 210mm x 21.9mm																																
								Weight	Starting at 2.99 lb (1.36 kg)																																
								Case color	Black																																
								Case material	<i>Display cover:</i> PC/ABS+GF; <i>Bottom:</i> PC/ABS plastic																																
	<table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Burst Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>m3-7Y30</td> <td rowspan="2">2</td> <td rowspan="2">4</td> <td>1.0 GHz</td> <td>2.6 GHz</td> <td>4MB</td> <td rowspan="2">LPDDR3-1866</td> <td rowspan="2">Intel HD Graphics 615</td> </tr> <tr> <td>i5-7Y54</td> <td>1.2 GHz</td> <td>3.2 GHz</td> <td>4MB</td> </tr> <tr> <td>Celeron N4100</td> <td rowspan="2">4</td> <td rowspan="2">4</td> <td>1.1 GHz</td> <td>2.4 GHz</td> <td>4MB</td> <td rowspan="2">DDR4-2400</td> <td>Intel UHD Graphics 600</td> </tr> <tr> <td>Pentium Silver N5000</td> <td>1.1 GHz</td> <td>2.7 GHz</td> <td>4MB</td> <td>Intel UHD Graphics 605</td> </tr> </tbody> </table>							Processor Number	# of Cores	# of Threads	Base Frequency	Burst Frequency	Cache	Memory Types	Processor Graphics	m3-7Y30	2	4	1.0 GHz	2.6 GHz	4MB	LPDDR3-1866	Intel HD Graphics 615	i5-7Y54	1.2 GHz	3.2 GHz	4MB	Celeron N4100	4	4	1.1 GHz	2.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 600	Pentium Silver N5000	1.1 GHz	2.7 GHz	4MB	Intel UHD Graphics 605	Media reader
Processor Number	# of Cores	# of Threads	Base Frequency	Burst Frequency	Cache	Memory Types	Processor Graphics																																		
m3-7Y30	2	4	1.0 GHz	2.6 GHz	4MB	LPDDR3-1866	Intel HD Graphics 615																																		
i5-7Y54			1.2 GHz	3.2 GHz	4MB																																				
Celeron N4100	4	4	1.1 GHz	2.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 600																																		
Pentium Silver N5000			1.1 GHz	2.7 GHz	4MB		Intel UHD Graphics 605																																		
							Ports	Two USB 3.1 Gen 1, one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>																																	
							Camera	HD720p camera, fixed focus																																	
							Audio support	HD Audio, Realtek® ALC3287 codec, stereo speakers, 2W x 2, Dolby® Audio™, monaural digital microphone, combo audio/microphone jack																																	
Graphics	Intel HD Graphics 615, Intel UHD Graphics 600 or 605 in processor, supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 3840x2160@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Keyboard	6-row, spill-resistant, multimedia Fn keys																																
Chipset	Intel SoC (System on Chip) platform							Touchpad	Buttonless Mylar surface touchpad below keyboard, multi-touch																																
Memory	4GB or 8GB / 1866MHz LPDDR3 or 2400MHz DDR4 / soldered to systemboard, no sockets							Security	Power-on password, supervisor password, security keyhole																																
Display	<i>Some:</i> 11.6" (295mm) HD (1366x768), anti-glare, LED backlight, 250 nits, 16:9 aspect ratio, 400:1 or 500:1 contrast ratio							Security chip	Discrete TPM 2.0, TCG Certified																																
	<i>Some:</i> 11.6" (295mm) HD (1366x768), anti-glare, LED backlight, IPS, multi-touch, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle							vPro	None																																
Multi-touch	Capacitive-type multi-touch, supports 10-finger gesture (HD IPS only)							Fingerprint reader	None																																
Storage	eMMC flash memory on board or M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s							NFC	None																																
	Optane™ memory	None						Battery	Integrated Li-ion 42Wh battery																																
Optical	None							Max battery life	<i>MobileMark® 2014:</i> 13.9 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>																																
Ethernet	Realtek RTL8111GUS Gigabit Network Connection							AC adapter	45W or 65W slim tip AC adapter																																
WLAN + Bluetooth™	<i>One of the following, configurable by model:</i> • Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card • Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card (US only)							Preload	Windows® 10 Home 64 or Windows 10 Pro 64																																
WWAN	None							Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service																																
							Mil-Spec test	MIL-STD-810G military certification																																	
							Environment	EPEAT™ Silver; ENERGY STAR® 6.1; RoHS-compliant																																	

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April 2019



ThinkPad A275 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD PRO A-Series APUs								Smart card reader Media reader Ports	<i>Optional:</i> Smart card reader 4-in-1 reader (MMC, SD, SDHC, SDXC) Two USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45) <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>								
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics										
	PRO A10-8730B	4	4	2.4 GHz	3.3 GHz	2MB	DDR4-1866	AMD Radeon™ R5 Graphics										
	PRO A12-8830B			2.5 GHz	3.4 GHz			AMD Radeon R7 Graphics										
	PRO A10-9700B			2.5 GHz	3.4 GHz													
PRO A12-9800B	2.7 GHz			3.6 GHz														
<i>* Windows 7 is only supported by PRO A10-8730B and PRO A12-8830B</i>																		
Graphics	AMD Radeon R5 or R7 Graphics in processor only; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2160@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)								Monitor cable (optional)	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter								
Chipset	AMD SoC (System on Chip) platform								Camera (optional)	HD720p resolution, fixed focus								
Memory	16Gb max / 1866MHz DDR4, one DDR4 SO-DIMM socket								Audio support	HD Audio, Realtek ALC3268 codec / stereo speakers, 1.5W x 2 / dual array microphone, combo audio/microphone jack								
Display	<i>Some:</i> 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio <i>Some:</i> 12.5" (317.5mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle								Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight								
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only, US only)								UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad								
Storage	<i>System has one HDD slot or one M.2 slot exclusively for storage</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s								Security	Power-on password, hard disk password, supervisor password, security keyhole								
Optical	None								Security chip	<i>dTPM 1.2:</i> discrete TPM 1.2, TCG Certified <i>dTPM 2.0:</i> discrete TPM 2.0, TCG Certified								
Ethernet	Realtek® RTL8111EPV Gigabit Ethernet connection								Fingerprint reader	<i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest								
WLAN	Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card								NFC	None								
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter								Internal battery	<i>Optional:</i> Integrated Li-ion or Li-Polymer 3-cell (23Wh)								
WWAN (optional)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Wireless WAN upgradable Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455) <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>								External battery	Li-ion 3-cell (23Wh) or 6-cell (48Wh)								
SIM card (opt)	Micro-SIM card slot, opt Verizon LTE (US) SIM card								Max battery life (MobileMark® 2014)	<table border="1"> <thead> <tr> <th>Models</th> <th>No + 3-cell</th> <th>3-cell + 3-cell</th> <th>3-cell + 6-cell 48Wh</th> </tr> </thead> <tbody> <tr> <td>Max battery life</td> <td>5.05 hr</td> <td>10.1 hr</td> <td>15.6 hr</td> </tr> </tbody> </table>	Models	No + 3-cell	3-cell + 3-cell	3-cell + 6-cell 48Wh	Max battery life	5.05 hr	10.1 hr	15.6 hr
Models	No + 3-cell	3-cell + 3-cell	3-cell + 6-cell 48Wh															
Max battery life	5.05 hr	10.1 hr	15.6 hr															
Dimensions	<i>WxDxH:</i> 12.03" x 8.21" x 0.80"; 305.5mm x 208.5mm x 20.3mm								<i>* Battery life varies significantly with settings, usage, & other factors</i>									
Weight	<table border="1"> <thead> <tr> <th>Models</th> <th>No + 3-cell</th> <th>3-cell + 3-cell</th> <th>3 + 6-cell</th> </tr> </thead> <tbody> <tr> <td>Weight</td> <td>2.79 lb / 1.27 kg</td> <td>2.98 lb / 1.36 kg</td> <td>3.33 lb / 1.52 kg</td> </tr> </tbody> </table>								Models	No + 3-cell	3-cell + 3-cell	3 + 6-cell	Weight	2.79 lb / 1.27 kg	2.98 lb / 1.36 kg	3.33 lb / 1.52 kg	AC adapter	45W slim tip AC adapter or 45W USB Type-C AC adapter
Models	No + 3-cell	3-cell + 3-cell	3 + 6-cell															
Weight	2.79 lb / 1.27 kg	2.98 lb / 1.36 kg	3.33 lb / 1.52 kg															
Case color	Black								Preload	Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64 <ul style="list-style-type: none"> Lenovo Solution Center Lenovo PowerEngage ThinkVantage Product Recovery ThinkVantage System Update Adobe® Reader® Microsoft® Office preloaded; purchase a product key to activate McAfee® LiveSafe™ (30-day trial) 								
Case material	Glass-Fiber Reinforced Plastic								Limited warranty	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service 								
Mil-Spec test									MIL-STD-810G military certification									
Environment									EEPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant									

Note: The specifications above may not be available in all regions.

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ThinkPad A285 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics	Smart card reader Media reader Ports	Optional: Smart card reader MicroSD card reader, in the combo slot with nano-SIM card One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2, two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet extension connector, combo slot of nano-SIM card (WWAN models) and microSD card reader, headphone / microphone combo jack, optional smart card reader, side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>																										
	<table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>Ryzen 3 PRO 2300U</td> <td rowspan="3">4</td> <td>4</td> <td>2.0 GHz</td> <td>3.4 GHz</td> <td rowspan="3">2MB L2 / 4MB L3</td> <td rowspan="3">DDR4-2400</td> <td>Radeon Vega 6 Graphics</td> </tr> <tr> <td>Ryzen 5 PRO 2500U</td> <td>8</td> <td>2.0 GHz</td> <td>3.6 GHz</td> <td>Radeon Vega 8 Graphics</td> </tr> <tr> <td>Ryzen 7 PRO 2700U</td> <td>8</td> <td>2.2 GHz</td> <td>3.8 GHz</td> <td>Radeon Vega 10 Graphics</td> </tr> </tbody> </table>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Ryzen 3 PRO 2300U	4	4	2.0 GHz	3.4 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 6 Graphics	Ryzen 5 PRO 2500U	8	2.0 GHz	3.6 GHz	Radeon Vega 8 Graphics	Ryzen 7 PRO 2700U	8	2.2 GHz	3.8 GHz	Radeon Vega 10 Graphics	Monitor cable (optional) Bundled Accy	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter Optional: ThinkPad Ethernet Extension Adapter Gen 2
Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics																						
Ryzen 3 PRO 2300U	4	4	2.0 GHz	3.4 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 6 Graphics																						
Ryzen 5 PRO 2500U		8	2.0 GHz	3.6 GHz			Radeon Vega 8 Graphics																						
Ryzen 7 PRO 2700U		8	2.2 GHz	3.8 GHz			Radeon Vega 10 Graphics																						
Graphics	AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor only; supports external digital monitor via HDMI or USB Type-C; supports four independent displays; Max resolution: 5120x2880@60Hz (USB Type-C); 4096x2160@60Hz (HDMI)	Camera (optional)	One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus																										
Chipset	AMD SoC (System on Chip) platform	Audio support	HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack																										
Memory	8GB or 16GB / 2400MHz DDR4, soldered to systemboard, no sockets	Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight																										
Display	Some: 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio Some: 12.5" (317.5mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle	UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad																										
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)	Security	Power-on password, hard disk password, supervisor password, security keyhole																										
Storage	One of the following, configurable by model: • M.2 SSD / SATA 6.0Gb/s • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s	Security chip	Discrete TPM 2.0, TCG Certified																										
Optical	None	System Mgt	DASH Management																										
Ethernet	Gigabit Ethernet connection via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2	Fingerprint reader	Optional: Touch style match on chip fingerprint reader on the palm rest																										
WLAN	Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card	NFC	None																										
Bluetooth™	Bluetooth 4.2 wireless, integrated in Wi-Fi + Bluetooth combo adapter	Battery	Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter																										
WWAN (optional)	Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>	Max battery life	MobileMark® 2014: 10.55 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>																										
SIM card (opt)	Nano-SIM card slot, in the combo slot with microSD card reader, optional Verizon LTE (US) SIM card	AC adapter	45W or 65W USB Type-C AC adapter																										
Dimensions	WxDxH (HD & FHD multi-touch): 12.11" x 8.26" x 0.69"; 307.7mm x 209.8mm x 17.4mm WxDxH (FHD non-touch): 12.11" x 8.26" x 0.70"; 307.7mm x 209.8mm x 17.8mm	Preload	Windows® 10 Home 64 or Windows 10 Pro 64																										
Weight	FHD non-touch model: 2.49 lb / 1.13 kg; HD non-touch model: 2.78 lb / 1.26 kg; FHD multi-touch model: 2.79 lb / 1.27 kg	Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service																										
Case color	Black	Mil-Spec test	MIL-STD-810G military certification																										
Case material	Display cover: Carbon Fiber (FHD non-touch model) or PPS (HD & FHD multi-touch model); Bottom: Magnesium/Aluminum	Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant																										

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad A475 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD PRO A-Series APUs							Smart card reader Media reader Ports	Optional: Smart card reader 4-in-1 reader (MMC, SD, SDHC, SDXC), supports SD 3.0, UHS-I Three USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), Dock connector * Depending on many factors, actual data transfer speed may be lower than theoretical speed										
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types			Processor Graphics									
	PRO A10-8730B	4	4	2.4 GHz	3.3 GHz	2MB	DDR4-1866			AMD Radeon™ R5 Graphics									
	PRO A12-8830B			2.5 GHz	3.4 GHz					AMD Radeon™ R7 Graphics									
	PRO A10-9700B			2.5 GHz	3.4 GHz														
PRO A12-9800B	2.7 GHz			3.6 GHz															
* Windows 7 is only supported by PRO A10-8730B and PRO A12-8830B								Monitor cable	Optional: Lenovo USB-C to VGA Adapter										
Graphics	AMD Radeon R5 or R7 Graphics in processor only; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2160@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Camera (optional)	HD720p resolution, fixed focus										
	Chipset	AMD SoC (System on Chip) platform							Audio support	HD Audio, Realtek ALC3268 codec / stereo speakers, 2W x 2 / dual array microphone, combo audio/microphone jack									
Memory	32GB max / 1866MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets							Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight										
Display	Some: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 350:1 contrast ratio Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle							UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad										
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only, US only)							Security	Power-on password, hard disk password, supervisor password, security keyhole										
Storage	System has one HDD slot or one M.2 2280 slot exclusively for storage Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s							Security chip	dTPM 1.2: discrete TPM 1.2, TCG Certified dTPM 2.0: discrete TPM 2.0, TCG Certified										
Optical	None							Fingerprint reader	Optional: Touch style match on chip fingerprint reader on the keyboard bezel										
Ethernet	Realtek® RTL8111EPV Gigabit Ethernet connection							NFC	None										
WLAN	Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card							Internal battery	Optional: Integrated Li-Polymer 3-cell (24Wh)										
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter							External battery	Li-Polymer 3-cell (24Wh) or Li-ion 6-cell (48Wh)										
WWAN (optional)	One of the following, configurable by model: • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455) * For non-WWAN model, it means the model is NOT WWAN upgradable							Max battery life (MobileMark® 2014)	<table border="1"> <thead> <tr> <th>Models</th> <th>3-cell</th> <th>3 + 3-cell</th> <th>6-cell 48Wh</th> <th>3 + 6-cell 48Wh</th> </tr> </thead> <tbody> <tr> <td>Max battery life</td> <td>5.13 hr</td> <td>10.26 hr</td> <td>10.26 hr</td> <td>15.4 hr</td> </tr> </tbody> </table>	Models	3-cell	3 + 3-cell	6-cell 48Wh	3 + 6-cell 48Wh	Max battery life	5.13 hr	10.26 hr	10.26 hr	15.4 hr
Models	3-cell	3 + 3-cell	6-cell 48Wh	3 + 6-cell 48Wh															
Max battery life	5.13 hr	10.26 hr	10.26 hr	15.4 hr															
SIM card (opt)	Micro-SIM card slot, opt Verizon LTE (US) SIM card							* Battery life varies significantly with settings, usage, & other factors											
Dimensions	WxDxH: 13.25" x 9.15" x 0.79"; 336.6mm x 232.5mm x 19.95mm							AC adapter	45W or 65W slim tip AC adapter, 45W or 65W USB Type-C AC adapter										
Weight	Models		3-cell or 3 + 3-cell		6-cell or 3 + 6-cell			Preload	Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64 • Lenovo Solution Center • Lenovo PowerEngage • ThinkVantage Product Recovery • ThinkVantage System Update • Adobe® Reader® • Microsoft® Office preloaded; purchase a product key to activate • McAfee® LiveSafe™ (30-day trial)										
Case color	Magnesium		3.49 lb / 1.58 kg		3.92 lb / 1.78 kg			Some: Windows 10 Home 64 Some: Windows 10 Pro 64 • Lenovo Companion • Lenovo Setting • Microsoft Office preloaded; purchase a product key to activate											
	PPS		3.63 lb / 1.65 kg		4.35 lb / 1.85 kg														
	Black																		
Case material	Display cover: Magnesium Hybrid or PPS (Magnesium Hybrid for US only); Bottom: Glass-Fiber Reinforced Plastic							Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service										
Note: The specifications above may not be available in all regions.								Mil-Spec test	MIL-STD-810G military certification										
								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant										

Lenovo
April 2019



ThinkPad A485 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics	Smart card reader Media reader Ports	Optional: Smart card reader 4-in-1 reader (MMC, SD, SDHC, SDXC), supports SD 3.0, UHS-I One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2, two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 media reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>																										
	<table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>Ryzen 3 PRO 2300U</td> <td rowspan="3">4</td> <td>4</td> <td>2.0 GHz</td> <td>3.4 GHz</td> <td rowspan="3">2MB L2 / 4MB L3</td> <td rowspan="3">DDR4-2400</td> <td>Radeon Vega 6 Graphics</td> </tr> <tr> <td>Ryzen 5 PRO 2500U</td> <td>8</td> <td>2.0 GHz</td> <td>3.6 GHz</td> <td>Radeon Vega 8 Graphics</td> </tr> <tr> <td>Ryzen 7 PRO 2700U</td> <td>8</td> <td>2.2 GHz</td> <td>3.8 GHz</td> <td>Radeon Vega 10 Graphics</td> </tr> </tbody> </table>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Ryzen 3 PRO 2300U	4	4	2.0 GHz	3.4 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 6 Graphics	Ryzen 5 PRO 2500U	8	2.0 GHz	3.6 GHz	Radeon Vega 8 Graphics	Ryzen 7 PRO 2700U	8	2.2 GHz	3.8 GHz	Radeon Vega 10 Graphics	Monitor cable (opt) Bundled Accy Camera (optional)	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter None <i>One of the following, configurable by model:</i>
Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics																						
Ryzen 3 PRO 2300U	4	4	2.0 GHz	3.4 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 6 Graphics																						
Ryzen 5 PRO 2500U		8	2.0 GHz	3.6 GHz			Radeon Vega 8 Graphics																						
Ryzen 7 PRO 2700U		8	2.2 GHz	3.8 GHz			Radeon Vega 10 Graphics																						
Graphics	AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor only; supports external digital monitor via HDMI or USB Type-C; supports four independent displays; Max resolution: 5120x2880@60Hz (USB Type-C); 4096x2160@60Hz (HDMI)	Audio support	<ul style="list-style-type: none"> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack																										
Chipset	AMD SoC (System on Chip) platform	Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad																										
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* Installed DIMMs are actually 2666MHz but run at 2400MHz due to AMD limitation</i>	Security	Power-on password, hard disk password, supervisor password, security keyhole																										
Display	Some: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle	Security chip	Discrete TPM 2.0, TCG Certified																										
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)	System Mgt	DASH Management																										
Storage	System has one HDD slot or one M.2 2280 slot exclusively for storage Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4 Some: 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, in WWAN slot as 2nd Storage, mutually exclusive with WWAN <i>* Installed M.2 SSD is PCIe 3.0 x 4 but run at PCIe 3.0 x 2 due to M.2 SSD adapter limitation</i>	Fingerprint reader	Optional: Touch style match on chip fingerprint reader on the keyboard bezel																										
Optical	None	NFC	None																										
Ethernet	Realtek® RTL8111GUL Gigabit Ethernet connection	Battery	Integrated Li-ion 24Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery																										
WLAN	Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card	Max battery life (MobileMark® 2014)	<table border="1"> <thead> <tr> <th>Models</th> <th>24Wh</th> <th>48Wh</th> <th>72Wh</th> <th>24Wh + 24Wh</th> <th>24Wh + 48Wh</th> <th>24Wh + 72Wh</th> </tr> </thead> <tbody> <tr> <td>Max battery life</td> <td>5.37 hr</td> <td>10.76 hr</td> <td>16.4 hr</td> <td>10.76 hr</td> <td>16.4 hr</td> <td>22.15 hr</td> </tr> </tbody> </table>	Models	24Wh	48Wh	72Wh	24Wh + 24Wh	24Wh + 48Wh	24Wh + 72Wh	Max battery life	5.37 hr	10.76 hr	16.4 hr	10.76 hr	16.4 hr	22.15 hr												
Models	24Wh	48Wh	72Wh	24Wh + 24Wh	24Wh + 48Wh	24Wh + 72Wh																							
Max battery life	5.37 hr	10.76 hr	16.4 hr	10.76 hr	16.4 hr	22.15 hr																							
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter	AC adapter	45W or 65W USB Type-C AC adapter																										
WWAN (optional)	Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>	Preload	Windows® 10 Home 64 or Windows 10 Pro 64																										
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card	Limited warranty	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service 																										
Dimensions	WxDxH: 13.25" x 9.15" x 0.79"; 336.6mm x 232.5mm x 19.95mm	Mil-Spec test	MIL-STD-810G military certification																										
Weight	<table border="1"> <thead> <tr> <th>Models</th> <th>24Wh or 24Wh + 24Wh</th> <th>48Wh, 72Wh, or 24Wh + 48Wh / 72Wh</th> </tr> </thead> <tbody> <tr> <td>Magnesium</td> <td>3.49 lb / 1.58 kg</td> <td>3.92 lb / 1.78 kg</td> </tr> <tr> <td>PPS</td> <td>3.63 lb / 1.65 kg</td> <td>4.08 lb / 1.85 kg</td> </tr> </tbody> </table>	Models	24Wh or 24Wh + 24Wh	48Wh, 72Wh, or 24Wh + 48Wh / 72Wh	Magnesium	3.49 lb / 1.58 kg	3.92 lb / 1.78 kg	PPS	3.63 lb / 1.65 kg	4.08 lb / 1.85 kg	Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant																	
Models	24Wh or 24Wh + 24Wh	48Wh, 72Wh, or 24Wh + 48Wh / 72Wh																											
Magnesium	3.49 lb / 1.58 kg	3.92 lb / 1.78 kg																											
PPS	3.63 lb / 1.65 kg	4.08 lb / 1.85 kg																											
Case color	Black																												
Case material	Display cover: Magnesium Hybrid or PPS; Bottom: Glass-Fiber Reinforced Plastic																												

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



ThinkPad E480 Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ i3 / i5 Processor (i3-7130U is NOT available in US and EMEA) or	Dimensions	Aluminum (WxDxH): 12.96" x 9.53" x 0.78"; 329mm x 242mm x 19.9mm PC/ABS (WxDxH): 12.96" x 9.53" x 0.83"; 329mm x 242mm x 21.9mm																										
	<table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i3-7020U</td> <td rowspan="3">2</td> <td rowspan="3">4</td> <td>2.3 GHz</td> <td>-</td> <td>3MB</td> <td rowspan="3">DDR4-2133</td> <td rowspan="3">Intel HD Graphics 620</td> </tr> <tr> <td>i3-7130U</td> <td>2.7 GHz</td> <td>-</td> <td>3MB</td> </tr> <tr> <td>i5-7200U</td> <td>2.5 GHz</td> <td>3.1 GHz</td> <td>3MB</td> </tr> </tbody> </table>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i3-7020U	2	4	2.3 GHz	-	3MB	DDR4-2133	Intel HD Graphics 620	i3-7130U	2.7 GHz	-	3MB	i5-7200U	2.5 GHz	3.1 GHz	3MB	Weight	Starting at 3.87 lb / 1.75kg		
Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics																						
i3-7020U	2	4	2.3 GHz	-	3MB	DDR4-2133	Intel HD Graphics 620																						
i3-7130U			2.7 GHz	-	3MB																								
i5-7200U			2.5 GHz	3.1 GHz	3MB																								
	8th Generation Intel Core i3 / i5 / i7 Processor	Case color	Black or silver																										
	<table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i3-8130U</td> <td rowspan="2">2</td> <td rowspan="2">4</td> <td>2.2 GHz</td> <td>3.4 GHz</td> <td>4MB</td> <td rowspan="3">DDR4-2400</td> <td rowspan="3">Intel UHD Graphics 620</td> </tr> <tr> <td>i5-8250U</td> <td>1.6 GHz</td> <td>3.4 GHz</td> <td>6MB</td> </tr> <tr> <td>i7-8550U</td> <td>4</td> <td>8</td> <td>1.8 GHz</td> <td>4.0 GHz</td> <td>8MB</td> </tr> </tbody> </table>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i3-8130U	2	4	2.2 GHz	3.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	i5-8250U	1.6 GHz	3.4 GHz	6MB	i7-8550U	4	8	1.8 GHz	4.0 GHz	8MB	Case material	Display cover: Aluminum or PC/ABS plastic; Bottom: PC/ABS plastic
Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics																						
i3-8130U	2	4	2.2 GHz	3.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 620																						
i5-8250U			1.6 GHz	3.4 GHz	6MB																								
i7-8550U	4	8	1.8 GHz	4.0 GHz	8MB																								
		Smart card reader	None																										
		Media reader	MicroSD card reader																										
		Ports	One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed																										
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and AMD Radeon RX 550 Graphics, 2GB DDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 1920x1080 (HDMI) @60Hz	Camera	HD720p camera, fixed focus																										
Chipset	Intel SoC (System on Chip) platform	Audio support	HD Audio, Conexant® CX11852 codec / stereo speakers, 1.5W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack																										
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * System clocks down for processors with lower memory controller	Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight																										
Display	Some: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 400:1 contrast ratio	UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad																										
Multi-touch	None	Security	Power-on password, hard disk password, supervisor password, security keyhole																										
Storage	Up to 2 drives (one M.2 SSD and one HDD) Some: HDD / SATA 6.0Gb/s, 2.5" wide, removable, upgradable, Active Protection System™ Some: M.2 SSD / PCIe NVMe	Security chip (opt)	Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified																										
Optane™ memory	Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2	vPro	None																										
Optical	None	Fingerprint reader	Optional: Touch style fingerprint reader on the palm rest																										
Ethernet	Gigabit Ethernet Connection, Realtek R8111GUS	NFC	None																										
WLAN + Bluetooth™	One of the following, configurable by model: • Realtek® RTL8821CE, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card • Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card • Intel Dual Band Wireless-AC 3165, 1x1, Wi-Fi + Bluetooth 4.1, M.2 Card * Intel 3165ac card supports BT4.2 but is limited to BT4.1 by Windows OS	Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter																										
WWAN	None	Max battery life	MobileMark® 2014: 13.51 hr * Battery life varies significantly with settings, usage, & other factors																										
SIM card	None	AC adapter	45W or 65W USB Type-C AC adapter																										
		Preload (optional)	Windows® 10 Home 64 or Windows 10 Pro 64																										
		Limited warranty	1-year depot repair service																										
		Mil-Spec test	MIL-STD-810G military certification																										
		Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant																										

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad E485 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ Mobile Processors with Radeon™ Vega Graphics							Dimensions <i>Aluminum (WxDxH):</i> 12.96" x 9.53" x 0.78"; 329mm x 242mm x 19.9mm <i>PC/ABS (WxDxH):</i> 12.96" x 9.53" x 0.86"; 329mm x 242mm x 21.9mm	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Controller		Processor Graphics
	Ryzen 3 2200U	2	4	2.5 GHz	3.4 GHz	1MB L2 / 4MB L3	DDR4-2400		Radeon Vega 3 Graphics
	Ryzen 5 2500U	4	8	2.0 GHz	3.6 GHz	2MB L2 / 4MB L3			Radeon Vega 8 Graphics
Ryzen 7 2700U	2.2 GHz			3.8 GHz	2MB L2 / 4MB L3	Radeon RX Vega 10 Graphics			
Graphics	AMD Radeon Vega 3, Vega 8, or RX Vega 10 Graphics in processor; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 1920x1080 (HDMI) @60Hz							Weight Case color Case material	
Chipset	AMD SoC (System on Chip) platform							Smart card reader Media reader Ports	
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets							None MicroSD card reader One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>	
Display	<i>Some:</i> 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio <i>Some:</i> 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 400:1 contrast ratio							Camera Audio support	
Multi-touch	None							HD720p camera, fixed focus HD Audio, Conexant® CX11852 codec / stereo speakers, 1.5W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack	
Storage	<i>Up to 2 drives (one M.2 SSD and one HDD)</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, removable, upgradable, Active Protection System™ <i>Some:</i> M.2 SSD / PCIe NVMe							Keyboard UltraNav™	
Optical	None							6-row, spill-resistant, multimedia Fn keys TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad	
Ethernet	Gigabit Ethernet Connection, Realtek RTL8111GUS							Security Security chip Fingerprint reader NFC	
WLAN + Bluetooth™	<i>One of the following, configurable by model:</i> • Qualcomm QCNFA435, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card • Realtek® RTL8821CE, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card • Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card							Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified None None	
WWAN SIM card	None None							Battery Max battery life AC adapter	
None								Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter <i>MobileMark® 2014:</i> 9.37 hr <i>* Battery life varies significantly with settings, usage, & other factors</i> 45W or 65W USB Type-C AC adapter	
None								Preload (<i>optional</i>) Windows® 10 Home 64 or Windows 10 Pro 64	
None								Limited warranty 1-year depot repair service	
None								Mil-Spec test None	
None								Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant	

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad E490 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i3 / i5 / i7 Processor								Dimensions <i>Aluminum (WxDxH):</i> 12.96" x 9.53" x 0.78"; 329mm x 242mm x 19.9mm <i>PC/ABS (WxDxH):</i> 12.96" x 9.53" x 0.83"; 329mm x 242mm x 21.9mm
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	
	i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB			
i7-8565U	1.8 GHz			4.6 GHz	8MB				
Graphics	Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 550X Graphics, 2GB DDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)								Weight Case color Case material
Chipset	Intel SoC (System on Chip) platform								Smart card reader
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation</i>								Media reader Ports
Display	Size / Resolution	Surface	Type	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Multi-touch	Monitor cable Bundled Accy
	14.0" HD (1366x768)	Anti-glare	TN	220 nits	16:9	400:1	90°	Non-touch	
	14.0" FHD (1920x1080)	Anti-glare	IPS	250 nits	16:9	600:1	170°	Non-touch	
Multi-touch	None								Camera Audio support
Storage	Up to two drives (one M.2 SSD and one HDD) • HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ • M.2 2280 SSD / SATA 6.0Gb/s • M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 2 • M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2								Keyboard UltraNav™
Optane™ memory	Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2								Security Security chip
Optical	None								System Mgt Fingerprint reader NFC
Ethernet	Gigabit Ethernet Connection, Realtek R8111GUS								Battery
WLAN + Bluetooth™	One of the following, configurable by model: • Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card • Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card								Max battery life AC adapter
WWAN	None								Preload (optional)
SIM card	None								Limited warranty
									Mil-Spec test
									Environment

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



ThinkPad E490s Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor								Dimensions	WxDxH: 12.96" x 9.13" x 0.70"; 329mm x 232mm x 17.9mm	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	Starting at 3.68 lb / 1.67 kg	
	i5-8265U i7-8565U	4	8	1.6 GHz 1.8 GHz	3.9 GHz 4.5 GHz	6MB 8MB	DDR4-2400	Intel UHD Graphics 620	Case color	Black or silver	
								Case material	Aluminum		
Graphics	Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 540X Graphics, 2GB DDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent display; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)								Smart card reader	None	
									Media reader	MicroSD card reader	
Chipset	Intel SoC (System on Chip) platform 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation</i>								Ports	One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>	
									Memory		
Display	Size / Resolution	Surface	Type	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Multi-touch	Camera	HD720p camera, fixed focus	
	14.0" FHD (1920x1080)	Anti-glare	TN	220 nits	16:9	400:1	90°	Non-touch	Audio support	HD Audio, Conexant® CX11880 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack	
	14.0" FHD (1920x1080)	Anti-glare	IPS	250 nits	16:9	600:1	170°	Non-touch	Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight	
Multi-touch	None								UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad	
Storage	One of the following, configurable by model: • M.2 2280 SSD / SATA 6.0Gb/s • M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2								Security	Power-on password, hard disk password, supervisor password, security keyhole	
									Security chip	<i>Integrated model:</i> discrete TPM 2.0, TCG Certified <i>Discrete model:</i> firmware TPM 2.0 integrated in chipset	
Optane™ memory	None								System Mgt	None	
Optical	None								Fingerprint reader	Touch style fingerprint reader on the palm rest	
Ethernet	Gigabit Ethernet Connection, Realtek R8111GUS								NFC	None	
WLAN + Bluetooth™	One of the following, configurable by model: • Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card • Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card								Battery	Integrated Li-ion 42Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter	
WWAN	None								Max battery life	<i>MobileMark® 2014:</i> 11.5 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>	
SIM card	None								AC adapter	45W or 65W USB Type-C AC adapter	
									Preload (optional)	Windows® 10 Home 64 or Windows 10 Pro 64	
									Limited warranty	1-year depot repair service	
									Mil-Spec test	MIL-STD-810G military certification	
									Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant	

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



ThinkPad E495 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ Mobile Processors with Radeon™ Vega Graphics								Dimensions <i>Aluminum (WxDxH):</i> 12.96" x 9.53" x 0.78"; 329mm x 242mm x 19.9mm <i>PC/ABS (WxDxH):</i> 12.96" x 9.53" x 0.83"; 329mm x 242mm x 21.9mm																							
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Controller	Processor Graphics		Weight Starting at 3.87 lb / 1.75 kg Case color Black Case material <i>Display cover:</i> Aluminum or PC/ABS plastic; <i>Bottom:</i> PC/ABS plastic																						
	Ryzen 3 3200U	2	4	2.6 GHz	3.5 GHz	1MB L2 / 4MB L3	DDR4-2400	Radeon Vega 3 Graphics																								
	Ryzen 5 3500U	4	8	2.1 GHz	3.7 GHz	2MB L2 / 4MB L3		Radeon Vega 8 Graphics																								
Ryzen 7 3700U	2.3 GHz			4.0 GHz	2MB L2 / 4MB L3	Radeon RX Vega 10 Graphics																										
Graphics	AMD Radeon Vega 3, Vega 8, or RX Vega 10 Graphics in processor; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 3840x2160@60Hz (USB Type-C); 3840x2160@30Hz (HDMI)								Smart card reader None Media reader MicroSD card reader Ports One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i> Monitor cable None Bundled Accy None Camera HD720p camera, fixed focus Audio support HD Audio, Conexant® CX11880 codec / stereo speakers, 1.5W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack																							
Chipset	AMD SoC (System on Chip) platform																															
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation</i>																															
Display	<table border="1"> <thead> <tr> <th>Size / Resolution</th> <th>Surface</th> <th>Type</th> <th>Brightness</th> <th>Aspect Ratio</th> <th>Contrast Ratio</th> <th>Viewing Angle</th> <th>Multi-touch</th> </tr> </thead> <tbody> <tr> <td>14.0" HD (1366x768)</td> <td>Anti-glare</td> <td>TN</td> <td>220 nits</td> <td>16:9</td> <td>400:1</td> <td>90°</td> <td>Non-touch</td> </tr> <tr> <td>14.0" FHD (1920x1080)</td> <td>Anti-glare</td> <td>IPS</td> <td>250 nits</td> <td>16:9</td> <td>600:1</td> <td>170°</td> <td>Non-touch</td> </tr> </tbody> </table>									Size / Resolution	Surface	Type	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Multi-touch	14.0" HD (1366x768)	Anti-glare	TN	220 nits	16:9	400:1	90°	Non-touch	14.0" FHD (1920x1080)	Anti-glare	IPS	250 nits	16:9	600:1	170°
Size / Resolution	Surface	Type	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Multi-touch																									
14.0" HD (1366x768)	Anti-glare	TN	220 nits	16:9	400:1	90°	Non-touch																									
14.0" FHD (1920x1080)	Anti-glare	IPS	250 nits	16:9	600:1	170°	Non-touch																									
Multi-touch	None								Keyboard 6-row, spill-resistant, multimedia Fn keys UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad Security Power-on password, hard disk password, supervisor password, security keyhole Security chip Discrete TPM 2.0, TCG Certified Fingerprint reader None NFC None Battery Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter Max battery life <i>MobileMark® 2014:</i> 11 hr <i>* Battery life varies significantly with settings, usage, & other factors</i> AC adapter 45W or 65W USB Type-C AC adapter Preload (optional) Windows® 10 Home 64 or Windows 10 Pro 64 Limited warranty 1-year depot repair service Mil-Spec test None Environment EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant																							
Storage	Up to two drives (one M.2 SSD and one HDD) • HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ • M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 or PCIe 3.0 x 4																															
Optical	None																															
Ethernet	Gigabit Ethernet Connection, Realtek R8111GUS																															
WLAN + Bluetooth™	One of the following, configurable by model: • Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card • Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card																															
WWAN	None																															
SIM card	None																															

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad E580 Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ i3 / i5 Processor or							WLAN + Bluetooth™ <i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> • Realtek® RTL8821CE, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card • Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card • Intel Dual Band Wireless-AC 3165, 1x1, Wi-Fi + Bluetooth 4.1, M.2 Card * Intel 3165ac card supports BT4.2 but is limited to BT4.1 by Windows OS
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	
	i3-7020U	2	4	2.3 GHz	-	3MB	DDR4-2133	
	i3-7130U			2.7 GHz	-	3MB		
i5-7200U	2.5 GHz			3.1 GHz	3MB			
8th Generation Intel Core i3 / i5 / i7 Processor							WLAN + Bluetooth™ <i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> • Realtek® RTL8821CE, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card • Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card • Intel Dual Band Wireless-AC 3165, 1x1, Wi-Fi + Bluetooth 4.1, M.2 Card * Intel 3165ac card supports BT4.2 but is limited to BT4.1 by Windows OS 	
Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types		
i3-8130U	2	4	2.2 GHz	3.4 GHz	4MB	DDR4-2400		
i5-8250U			1.6 GHz	3.4 GHz	6MB			
i7-8550U			1.8 GHz	4.0 GHz	8MB			
* i3-7130U is NOT available in US and EMEA							Processor Graphics	
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and AMD Radeon RX 550 Graphics, 2GB DDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 1920x1080 (HDMI) @60Hz							Dimensions Weight Case color Case material
	Intel SoC (System on Chip) platform 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * System clocks down for processors with lower memory controller							Smart card reader Media reader Ports
Chipset	Intel SoC (System on Chip) platform 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * System clocks down for processors with lower memory controller							None
Memory	Intel SoC (System on Chip) platform 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * System clocks down for processors with lower memory controller							MicroSD card reader One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed
Display	<i>Some:</i> 15.6" (396mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio <i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 600:1 contrast ratio							Camera Audio support
Multi-touch	None							HD720p camera, fixed focus HD Audio, Conexant® CX11852 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack
Storage	<i>Up to 2 drives (one M.2 SSD and one HDD)</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, removable, upgradable, Active Protection System™ <i>Some:</i> M.2 SSD / PCIe NVMe							Keyboard UltraNav™
Optane™ memory	Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2							6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Optical	None							Security Security chip (opt)
Ethernet	Gigabit Ethernet Connection, Realtek R8111GUS							Power-on password, hard disk password, supervisor password, security keyhole Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified
								vPro Fingerprint reader NFC
								None Optional: Touch style fingerprint reader on the palm rest None
								Battery
								Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
								Max battery life
								MobileMark® 2014: 12.23 hr * Battery life varies significantly with settings, usage, & other factors
								AC adapter
								45W or 65W USB Type-C AC adapter
								Preload (optional)
								Windows® 10 Home 64 or Windows 10 Pro 64
								Limited warranty
								1-year depot repair service
								Mil-Spec test
								MIL-STD-810G military certification
								Environment
								EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad E585 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ Mobile Processors with Radeon™ Vega Graphics							Dimensions	<i>WxDxH:</i> 14.53" x 9.92" x 0.79"; 369mm x 252mm x 19.95mm	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Controller	Processor Graphics	Weight	Starting at 4.7 lb / 2.1kg
	Ryzen 3 2200U	2	4	2.5 GHz	3.4 GHz	1MB L2 / 4MB L3	DDR4-2400	Radeon Vega 3 Graphics	Case color	Black
	Ryzen 5 2500U	4	8	2.0 GHz	3.6 GHz	2MB L2 / 4MB L3		Radeon Vega 8 Graphics	Case material	<i>Display cover:</i> Aluminum; <i>Bottom:</i> PC/ABS plastic
Ryzen 7 2700U	2.2 GHz			3.8 GHz	2MB L2 / 4MB L3	Radeon RX Vega 10 Graphics		Smart card reader	None	
Graphics	AMD Radeon Vega 3, Vega 8, or RX Vega 10 Graphics in processor only; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 1920x1080 (HDMI) @60Hz							Media reader	MicroSD card reader	
Chipset	AMD SoC (System on Chip) platform							Ports	One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>	
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets							Camera	HD720p camera, fixed focus	
Display	<i>Some:</i> 15.6" (396mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio (NOT available in EMEA) <i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 600:1 contrast ratio							Audio support	HD Audio, Conexant® CX11852 codec / stereo speakers, 1.5W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack	
Multi-touch	None							Keyboard	6-row, spill-resistant, multimedia Fn keys	
Storage	<i>Up to 2 drives (one M.2 SSD and one HDD)</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, removable, upgradable, Active Protection System™ <i>Some:</i> M.2 SSD / PCIe NVMe							UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad	
Optical	None							Security	Power-on password, hard disk password, supervisor password, security keyhole	
Ethernet	Gigabit Ethernet Connection, Realtek RTL8111GUS							Security chip	Discrete TPM 2.0, TCG Certified	
WLAN + Bluetooth™	<i>One of the following, configurable by model:</i> • Qualcomm QCNFA435, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card • Realtek® RTL8821CE, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card • Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card							Fingerprint reader	None	
WWAN	None							NFC	None	
SIM card	None							Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter	
								Max battery life	<i>MobileMark® 2014:</i> 8.63 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>	
								AC adapter	45W or 65W USB Type-C AC adapter	
								Preload (optional)	Windows® 10 Home 64 or Windows 10 Pro 64	
								Limited warranty	1-year depot repair service	
								Mil-Spec test	None	
								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant	

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad E590 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i3 / i5 / i7 Processor								Dimensions	<i>WxDxH:</i> 14.53" x 9.94" x 0.78"; 369mm x 252.5mm x 19.9mm	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	Starting at 4.68 lb / 2.12 kg	
	i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	Case color	Black or silver	
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB			Case material	<i>Display cover:</i> Aluminum; <i>Bottom:</i> PC/ABS plastic	
i7-8565U	1.8 GHz			4.6 GHz	8MB	Smart card reader			None		
Graphics	Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 550X Graphics, 2GB DDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)								Media reader	MicroSD card reader	
Chipset	Intel SoC (System on Chip) platform								Ports	One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>	
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation</i>								Monitor cable	None	
Display	Size / Resolution		Surface	Type	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Multi-touch	Bundled Accy	None
	15.6" HD (1366x768)		Anti-glare	TN	220 nits	16:9	400:1	90°	Non-touch	Camera	HD720p camera, fixed focus
	15.6" FHD (1920x1080)		Anti-glare	IPS	250 nits	16:9	600:1	170°	Non-touch	Audio support	HD Audio, Conexant® CX11880 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack
Multi-touch	None								Keyboard	6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight	
Storage	Up to two drives (one M.2 SSD and one HDD)								UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad	
	<ul style="list-style-type: none"> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ M.2 2280 SSD / SATA 6.0Gb/s M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 2 M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 								Security	Power-on password, hard disk password, supervisor password, security keyhole	
Optane™ memory	Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2								Security chip	<i>Integrated model:</i> discrete TPM 2.0, TCG Certified <i>Discrete model:</i> firmware TPM 2.0 integrated in chipset	
Optical	None								System Mgt	None	
Ethernet	Gigabit Ethernet Connection, Realtek R8111GUS								Fingerprint reader	Optional: Touch style fingerprint reader on the palm rest	
WLAN + Bluetooth™	One of the following, configurable by model: <ul style="list-style-type: none"> Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card 								NFC	None	
WWAN	None								Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter	
SIM card	None								Max battery life	<i>MobileMark® 2014:</i> 11 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>	
									AC adapter	45W or 65W USB Type-C AC adapter	
									Preload (optional)	Windows® 10 Home 64 or Windows 10 Pro 64	
									Limited warranty	1-year depot repair service	
									Mil-Spec test	MIL-STD-810G military certification	
									Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant	

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



ThinkPad E595 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ Mobile Processors with Radeon™ Vega Graphics								Dimensions	WxDxH: 14.53" x 9.92" x 0.78"; 369mm x 252mm x 19.9mm		
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Controller	Processor Graphics	Weight	Starting at 4.7 lb / 2.1kg		
	Ryzen 3 3200U	2	4	2.6 GHz	3.5 GHz	1MB L2 / 4MB L3	DDR4-2400	Radeon Vega 3 Graphics	Case color	Black		
	Ryzen 5 3500U	4	8	2.1 GHz	3.7 GHz	2MB L2 / 4MB L3		Radeon Vega 8 Graphics	Case material	Display cover: Aluminum; Bottom: PC/ABS plastic		
Ryzen 7 3700U	2.3 GHz			4.0 GHz	2MB L2 / 4MB L3	Radeon RX Vega 10 Graphics		Smart card reader	None			
Graphics	AMD Radeon Vega 3, Vega 8, or RX Vega 10 Graphics in processor; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 3840x2160@60Hz (USB Type-C); 3840x2160@30Hz (HDMI)								Media reader	MicroSD card reader		
Chipset	AMD SoC (System on Chip) platform								Ports	One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>		
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation</i>								Monitor cable	None		
Display	Size / Resolution		Surface	Type	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Bundled Accy	None		
	15.6" HD (1366x768)		Anti-glare	TN	220 nits	16:9	400:1	90°	Camera	HD720p camera, fixed focus		
	15.6" FHD (1920x1080)		Anti-glare	IPS	250 nits	16:9	600:1	170°	Audio support	HD Audio, Conexant® CX11880 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack		
Multi-touch	None								Keyboard	6-row, spill-resistant, multimedia Fn keys		
Storage	Up to two drives (one M.2 SSD and one HDD) • HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ • M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 or PCIe 3.0 x 4								UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad		
Optical	None								Security	Power-on password, hard disk password, supervisor password, security keyhole		
Ethernet	Gigabit Ethernet Connection, Realtek R8111GUS								Security chip	Discrete TPM 2.0, TCG Certified		
WLAN + Bluetooth™	One of the following, configurable by model: • Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card • Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card								Fingerprint reader	None		
WWAN	None								NFC	None		
SIM card	None								Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter		
									Max battery life	MobileMark® 2014: 10.3 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>		
									AC adapter	45W or 65W USB Type-C AC adapter		
									Preload (optional)	Windows® 10 Home 64 or Windows 10 Pro 64		
									Limited warranty	1-year depot repair service		
									Mil-Spec test	None		
									Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant		

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad L380 Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron® Processor, 7th Generation Intel Core™ i3 / i5 Processor or							Dimensions	<i>WxDxH:</i> 12.67" x 8.83" x 0.74"; 321.8mm x 224.2mm x 18.8mm		
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	Starting at 3.22 lb / 1.46 kg	
	Cel 3965U	2	2	2.2 GHz	-	2MB	DDR4-2133	Intel HD Graphics 610	Case color	Black or Silver	
	i3-7130U		4	2.7 GHz	-	3MB		Intel HD Graphics 620	Case material	<i>Display cover:</i> Aluminum <i>Bottom:</i> GFRP	
i5-7200U			2.5 GHz	3.1 GHz	3MB			Smart card reader	None		
8th Generation Intel Core i5 / i7 Processor									Media reader	MicroSD card reader	
Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Ports	Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, microSD card reader, security keyhole		
i3-8130U	2	4	2.2 GHz	3.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	Monitor cable (optional)	* Depending on many factors, actual data transfer speed may be lower than theoretical speed		
i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB				HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter		
i5-8350U			1.7 GHz	3.6 GHz	6MB				USB-C to VGA: Lenovo USB-C to VGA Adapter		
i7-8550U			1.8 GHz	4.0 GHz	8MB				USB-C to DP: Lenovo USB-C to DisplayPort Adapter		
								Bundled Accy	Optional: ThinkPad Ethernet Extension Cable		
Graphics	Intel HD Graphics 610, 620 or Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Camera	HD720p camera, fixed focus		
Chipset	Intel SoC (System on Chip) platform							Audio support	HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ / dual array microphone, headphone / microphone combo jack		
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * System clocks down for processors with lower memory controller							Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight		
Display	<i>Some:</i> 13.3" (338mm) HD (1366x768), anti-glare, LED backlight, 250 nits, 16:9 aspect ratio, 500:1 contrast ratio							UltraNav™	TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch		
	<i>Some:</i> 13.3" (338mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle							Security	Power-on password, hard disk password, supervisor password, security keyhole		
	<i>Some:</i> 13.3" (338mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle, on-cell touch							Security chip	Discrete TPM 2.0, TCG Certified		
Multi-touch (opt)	on-cell touch, supports 10-finger gesture							vPro (optional)	Intel vPro Technology		
Storage	<i>One of the following, configurable by model:</i> • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)							Fingerprint reader	Optional: Touch style fingerprint reader on the keyboard bezel, anti-spoofing technology		
Optane™ memory	None							NFC (optional)	Near Field Communication		
Optical	None							Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter		
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Cable							Max battery life	MobileMark® 2014: 16.1 hr * Battery life varies significantly with settings, usage, & other factors		
WLAN + Bluetooth™	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS							AC adapter	45W or 65W USB Type-C AC adapter		
WWAN	None							Preload	Windows® 10 Home 64 or Windows 10 Pro 64		
SIM card	None							Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service		
							Mil-Spec test	MIL-STD-810G military certification			
							Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant			

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad L390 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i3 / i5 / i7 Processor								Smart card reader	None
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Media reader	MicroSD card reader
	i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	Ports	Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, microSD card reader, security keyhole
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB				
	i5-8365U			1.6 GHz	4.1 GHz	6MB				
	i7-8565U			1.8 GHz	4.6 GHz	8MB				
Graphics	Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)								Monitor cable (optional)	<ul style="list-style-type: none"> USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to VGA + Power Adapter: Lenovo USB-C to VGA plus Power Adapter USB-C to HDMI: Lenovo USB-C to HDMI Adapter USB-C to HDMI + Power Adapter: Lenovo USB-C to HDMI plus Power Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter USB-C to RJ45: Lenovo USB-C to Ethernet Adapter USB-C to USB-A: Lenovo USB-C to USB-A Adapter USB-C to USB-C: Lenovo USB-C to USB-C Cable 2M
Chipset	Intel SoC (System on Chip) platform								Bundled Accessories (optional)	
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation								Camera	HD720p camera, fixed focus
Display	Size	Resolution	Surface	Type	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Audio support	HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack
	13.3"	HD (1366x768)	Anti-glare	TN	250 nits	16:9	500:1	90°	Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight
	13.3"	FHD (1920x1080)	Anti-glare	IPS	250 nits	16:9	700:1 (non-touch) 800:1 (multi-touch)	170°	UltraNav™	TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)								Security	Power-on password, hard disk password, supervisor password, security keyhole
Storage	One of the following, configurable by model: <ul style="list-style-type: none"> M.2 2280 SSD / SATA 6.0Gb/s M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 								Security chip	Discrete TPM 2.0, TCG Certified
Optane™ memory	None								System Mgt	None
Optical	None								Fingerprint reader	Optional: Touch style fingerprint reader on the palm rest
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Cable or Lenovo USB-C to Ethernet Adapter								NFC (optional)	Near Field Communication
WLAN	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card								Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter								Max battery life	MobileMark® 2014: 14.61 hr * Battery life varies significantly with settings, usage, & other factors
WWAN	None								AC adapter	45W or 65W USB Type-C AC adapter
SIM card	None								Preload	Windows® 10 Home 64 or Windows 10 Pro 64
Dimensions	WxDxH: 12.67" x 8.83" x 0.74"; 321.8mm x 224.2mm x 18.8mm								Limited warranty	One of the following, configurable by model: <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
Weight	Starting at 3.22 lb / 1.46 kg								Mil-Spec test	MIL-STD-810G military certification
Case color	Black or Silver								Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant
Case material	Display cover: Aluminum Bottom: GFRP									

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



ThinkPad L470 Platform Specifications

Product Specifications Reference (PSREF)

Processor	6th Generation Intel® Core™ i3 / i5 / i7 Processor or								WWAN (optional) <i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Wireless WAN upgradable Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card Integrated Mobile Broadband 4G LTE, Intel XMM™ 7160 (Fibocom L831-EAU), M.2 card (EMEA only) SIM card (opt) Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	
	i3-6006U	2	4	2.0 GHz	-	3MB	DDR4-2133	Intel HD Graphics 520	
	i3-6100U			2.3 GHz	-	3MB			
	i5-6200U			2.3 GHz	2.8 GHz	3MB			
	i5-6300U			2.4 GHz	3.0 GHz	3MB			
	Intel Celeron® Processor or 7th Generation Intel Core i3 / i5 / i7 Processor								
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	
	Cel 3965U	2	4	2.2 GHz	-	2MB	DDR4-2133	Intel HD Graphics 610	
	i3-7100U			2.4 GHz	-	3MB		Intel HD Graphics 620	
	i5-7200U			2.5 GHz	3.1 GHz	3MB			
	i5-7300U			2.6 GHz	3.5 GHz	3MB			
	i7-7500U			2.7 GHz	3.5 GHz	4MB			
	i7-7600U			2.8 GHz	3.9 GHz	4MB			
	* i7 processor is NOT available in EMEA								
Graphics	Intel HD Graphics 610 or 620 in processor only, or Intel HD Graphics 620 in processor and AMD Radeon™ R5 M430, 2GB memory; supports external analog monitor via VGA and digital monitor via Mini DisplayPort; supports three independent displays; Max resolution: 3840x2160@60Hz (DP via mDP cable); 1920x1200@60Hz (VGA)								
Chipset	Intel SoC (System on Chip) platform								
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * System clocks down for processors with lower memory controller								
Display	Some: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle								
Multi-touch	None								
Storage	System has one HDD slot or one M.2 2280 slot exclusively for storage Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm or 9.5mm high, Active Protection System™ Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s Some: 128GB M.2 SSD / SATA 6.0Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN								
Optical	None								
Ethernet	Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) vPro model: Intel Ethernet Connection I219-LM (Jacksonville)								
WLAN	One of the following, configurable by model: <ul style="list-style-type: none"> Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter * Intel 8260ac / 8265ac card support BT4.2 but is limited to BT4.1 by Windows OS								
Bluetooth™									
Camera (optional)	HD720p resolution, fixed focus								
Audio support	HD Audio, Realtek ALC3268 codec / stereo speakers, 1W x 2 / dual array microphone, combo audio/microphone jack								
Keyboard	6-row, spill-resistant, multimedia Fn keys								
UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad								
Security	Power-on password, hard disk password, supervisor password, security keyhole								
Security chip	Discrete TPM 2.0, TCG Certified								
vPro (optional)	Intel vPro Technology								
Fingerprint reader	Optional: Swipe style fingerprint reader on the keyboard bezel								
NFC	None								
Battery	Li-ion 3-cell (24Wh) or 6-cell (48Wh or 72Wh)								
Max battery life ¹⁰ (MobileMark® 2014)	Models	3-cell	6-cell 48Wh	6-cell 72Wh					
	Integrated model	7.24 hr	14.48 hr	21.72 hr					
	Discrete model	4.34 hr	8.68 hr	13.02 hr					
	* Battery life varies significantly with settings, usage, & other factors								
AC adapter	45W or 65W slim tip AC adapter								
Preload	Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64				Some: Windows 10 Home 64 Some: Windows 10 Pro 64				
	<ul style="list-style-type: none"> Lenovo Solution Center Lenovo PowerEngage ThinkVantage Product Recovery ThinkVantage System Update Adobe® Reader® Microsoft® Office preloaded; purchase a product key to activate McAfee® LiveSafe™ (30-day trial) 				<ul style="list-style-type: none"> Lenovo Companion Lenovo Setting Microsoft Office preloaded; purchase a product key to activate 				
Limited warranty	One of the following, configurable by model: <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service 								
Mil-Spec test	MIL-STD-810G military certification								
Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant								

Note: The specifications above may not be available in all regions.

Lenovo
September 2018



ThinkPad L480 Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ i3 / i5 Processor or								WWAN (optional) <i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i> Nano-SIM card slot, optional Verizon LTE (US) SIM card
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	
	i3-7130U	2	4	2.7 GHz	-	3MB	DDR4-2133	Intel HD Graphics 620	
	i5-7200U			2.5 GHz	3.1 GHz	3MB			
	i5-7300U			2.6 GHz	3.5 GHz	3MB			
	8th Generation Intel Core i3 / i5 / i7 Processor								
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	
	i3-8130U	2	4	2.2 GHz	3.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	
	i5-8250U			1.6 GHz	3.4 GHz	6MB			
	i5-8350U			4	8	1.7 GHz			3.6 GHz
	i7-8550U	1.8 GHz	4.0 GHz			8MB			
	<i>* i3-7130U is NOT available in US and EMEA</i>								
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and AMD Radeon 530, 2GB GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)								
Chipset	Intel SoC (System on Chip) platform								
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* System clocks down for processors with lower memory controller</i>								
Display	<i>Some:</i> 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio <i>Some:</i> 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle								
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)								
Storage	<i>System has one HDD slot or one M.2 2280 slot exclusively for storage</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s <i>Some:</i> 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN								
Optane™ memory	None								
Optical	None								
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)								
WLAN + Bluetooth™ (optional)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card (US only) Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card <i>* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS</i>								
	Dimensions	WxDxH: 13.19" x 9.25" x 0.89"; 335mm x 235mm x 22.5mm							
	Weight	Starting at 3.71 lb / 1.68 kg							
	Case color	Black							
	Case material	PC/ABS plastic							
	Smart card reader	<i>Optional:</i> Smart card reader							
	Media reader	MicroSD card reader							
	Ports	Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>							
	Monitor cable (optional)	<i>HDMI to VGA:</i> Lenovo HDMI to VGA Monitor Adapter <i>USB-C to VGA:</i> Lenovo USB-C to VGA Adapter							
	Camera (optional)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> HD720p camera, fixed focus IR camera and HD720p camera, fixed focus 							
	Audio support	HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ / dual array microphone, headphone / microphone combo jack							
	Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight							
	UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad							
	Security	Power-on password, hard disk password, supervisor password, security keyhole							
	Security chip	Discrete TPM 2.0, TCG Certified							
	vPro (optional)	Intel vPro Technology							
	Fingerprint reader	<i>Optional:</i> Touch style match on chip fingerprint reader on the keyboard bezel, anti-spoofing technology							
	NFC (optional)	Near Field Communication							
	Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter							
	Max battery life	<i>MobileMark® 2014:</i> 12.2 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>							
	AC adapter	45W or 65W USB Type-C AC adapter							
	Preload	Windows® 10 Home 64 or Windows 10 Pro 64							
	Limited warranty	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service 							
	Mil-Spec test	MIL-STD-810G military certification							
	Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant							

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad L490 Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron® Processor or 8th Generation Intel Core™ i3 / i5 / i7 Processor									Dimensions	<i>WxDxH:</i> 13.19" x 9.25" x 0.89"; 335mm x 235mm x 22.5mm
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		Weight	Starting at 3.72 lb / 1.69 kg
	Cel 4305U	2	2	2.2 GHz	-	2MB	DDR4-2133	Intel UHD Graphics 610		Case color	Black
	i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics 620		Case material	PC/ABS plastic
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB				Smart card reader	<i>Optional:</i> Smart card reader
	i5-8365U	4	8	1.6 GHz	4.1 GHz	6MB				Media reader	MicroSD card reader
i7-8565U	4	8	1.8 GHz	4.6 GHz	8MB	Ports				Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole	
i7-8665U	4	8	1.9 GHz	4.8 GHz	8MB			* Depending on many factors, actual data transfer speed may be lower than theoretical speed			
Graphics	Intel UHD Graphics 610 or 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon 535, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)									Monitor cable (optional)	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter
Chipset	Intel SoC (System on Chip) platform									Camera (optional)	<i>One of the following, configurable by model:</i>
Memory	64GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * Installed memory is actually 2666MHz but run at 2133MHz or 2400MHz due to Intel limitation									Audio support	• HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack
Display	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
	14.0"	HD (1366x768)	TN	Anti-glare	220 nits	16:9	400:1	45%	90°		
	14.0"	FHD (1920x1080)	IPS	Anti-glare	250 nits	16:9	700:1	45%	170°	Security	Power-on password, hard disk password, supervisor password, security keyhole
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)									Security chip	Discrete TPM 2.0, TCG Certified
Storage	<ul style="list-style-type: none"> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 * Installed M.2 2280 SSD is PCIe 3x4 but run at PCIe 3x2 due to M.2 SSD adapter limitation									System Mgt (opt)	Intel vPro Technology
Optane™ memory	Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2									Fingerprint reader	<i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest
Optical	None									NFC (optional)	Near Field Communication
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)									Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
WLAN + Bluetooth™ (optional)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0 Intel Wireless-AX 22260, Wi-Fi 2x2 802.11ax + Bluetooth 5.0 									Max battery life	<i>MobileMark® 2014:</i> 15 hr * Battery life varies significantly with settings, usage, & other factors
WWAN (optional)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Wireless WAN upgradable Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable									AC adapter	45W or 65W USB Type-C AC adapter
SIM card	None									Preload	Windows® 10 Home 64 or Windows 10 Pro 64
										Limited warranty	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service
										Mil-Spec test	None
										Environment	EPEAT™ Bronze; ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
June 2019



ThinkPad L570 Platform Specifications

Product Specifications Reference (PSREF)

Processor	6th Generation Intel® Core™ i3 / i5 / i7 Processor or							WWAN (optional) <i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Wireless WAN upgradable Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card Integrated Mobile Broadband 4G LTE, Intel XMM™ 7160 (Fibocom L831-EAU), M.2 card (EMEA only) SIM card (opt) Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	
	i3-6006U	2	4	2.0 GHz	-	3MB	DDR4-2133	Intel HD Graphics 520
	i3-6100U			2.3 GHz	-	3MB		
	i5-6200U			2.3 GHz	2.8 GHz	3MB		
	i5-6300U			2.4 GHz	3.0 GHz	3MB		
	i7-6500U			2.5 GHz	3.1 GHz	4MB		
	i7-6600U			2.6 GHz	3.4 GHz	4MB		
	Intel Celeron® Processor or 7th Generation Intel Core i3 / i5 / i7 Processor							ExpressCard (opt) One slot (ExpressCard/34) Smart card reader <i>Optional:</i> Smart card reader Media reader 4-in-1 reader (MMC, SD, SDHC, SDXC) Ports Four USB 3.1 Gen 1 (USB 3.0, one Always On), VGA, Mini DisplayPort, Ethernet (RJ-45), Dock connector <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i> Monitor cable <i>Optional:</i> Lenovo Mini-DisplayPort to DisplayPort Monitor Cable (MiniDP to DP)
Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	
	Cel 3965U	2	4	2.2 GHz	-	2MB	DDR4-2133	Intel HD Graphics 610
	i3-7100U			2.4 GHz	-	3MB		
	i5-7200U			2.5 GHz	3.1 GHz	3MB		
	i5-7300U			2.6 GHz	3.5 GHz	3MB		
	i7-7500U			2.7 GHz	3.5 GHz	4MB		
	i7-7600U			2.8 GHz	3.9 GHz	4MB		
	<i>* i7 processor is NOT available in EMEA</i>							Camera (optional) HD720p resolution, fixed focus Audio support HD Audio, Realtek® ALC3245 codec / stereo speakers, 1.5W x 2 / dual array microphone, combo audio/microphone jack
Graphics	Intel HD Graphics 520, 610, or 620 in processor only; supports external analog monitor via VGA and digital monitor via Mini DisplayPort; supports three independent displays; Max resolution: 3840x2160@60Hz (DP via mDP cable); 1920x1200@60Hz (VGA)							Keyboard 6-row, spill-resistant, multimedia Fn keys, numeric keypad UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Chipset Memory	Intel SoC (System on Chip) platform 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* System clocks down for processors with lower memory controller</i>							Security chip Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified vPro (optional) Intel vPro Technology Fingerprint reader <i>Optional:</i> Swipe style fingerprint reader on the palm rest NFC None
Display	<i>Some:</i> 15.6" (396mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 350:1 contrast ratio <i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 or 500:1 contrast ratio <i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 600:1 contrast ratio, 160° viewing angle							Battery Li-ion 6-cell (48Wh) Max battery life <i>MobileMark® 2014:</i> 14.8 hr <i>* Battery life varies significantly with settings, usage, & other factors</i> AC adapter 45W slim tip AC adapter
Multi-touch	None							Preload Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64 <i>Some:</i> Windows 10 Home 64 <i>Some:</i> Windows 10 Pro 64 <ul style="list-style-type: none"> Lenovo Companion Lenovo Setting Microsoft Office preloaded; purchase a product key to activate
Storage	<i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s <i>Some:</i> 128GB M.2 SSD / SATA 6.0Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN							Limited warranty <i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
Optical (optional)	DVD-ROM or DVD burner, 9mm high, fixed, not removable, tray-in							Mil-Spec test MIL-STD-810G military certification
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)							Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant
WLAN	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card (US only) Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Bluetooth™ 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter <i>* Intel 8260ac / 8265ac card support BT4.2 but is limited to BT4.1 by Windows OS</i>							

Note: The specifications above may not be available in all regions.

Lenovo
September 2018



ThinkPad L580 Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron® Processor, 7th Generation Intel Core™ i3 / i5 Processor or							WWAN (optional) <i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i> SIM card (opt) Nano-SIM card slot, optional Verizon LTE (US) SIM card
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	
	Cel 3965U	2	2	2.2 GHz	-	2MB	DDR4-2133	Intel HD Graphics 610
	i3-7130U		2.7 GHz	-	3MB	Intel HD Graphics 620		
	i5-7200U	4	4	2.5 GHz	3.1 GHz	3MB		
	i5-7300U		2.6 GHz	3.5 GHz	3MB			
	8th Generation Intel Core i3 / i5 / i7 Processor							
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
	i3-8130U	2	4	2.2 GHz	3.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 620
	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB		
	i5-8350U			1.7 GHz	3.6 GHz	6MB		
	i7-8550U			1.8 GHz	4.0 GHz	8MB		
	<i>* i3-7130U is NOT available in US and EMEA</i>							
Graphics	Intel HD Graphics 610, 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and AMD Radeon 530, 2GB GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Monitor cable (optional) HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter
Chipset	Intel SoC (System on Chip) platform							Camera (optional) HD720p camera, fixed focus
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* System clocks down for processors with lower memory controller</i>							Audio support HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ / dual array microphone, headphone / microphone combo jack
Display	<i>Some:</i> 15.6" (396mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio <i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle							Keyboard 6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Multi-touch	None							Security Power-on password, hard disk password, supervisor password, security keyhole Security chip Discrete TPM 2.0, TCG Certified vPro (optional) Intel vPro Technology Fingerprint reader (optional) Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology
Storage	<i>System has one HDD slot or one M.2 2280 slot exclusively for storage</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s <i>Some:</i> 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN							NFC (optional) Near Field Communication
Optane™ memory	None							Battery Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
Optical	None							Max battery life <i>MobileMark® 2014: 12 hr</i> <i>* Battery life varies significantly with settings, usage, & other factors</i>
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)							AC adapter 45W or 65W USB Type-C AC adapter
WLAN + Bluetooth™ (optional)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card (US only) Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card <i>* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS</i>							Preload Windows® 10 Home 64 or Windows 10 Pro 64
								Limited warranty <i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
								Mil-Spec test MIL-STD-810G military certification
								Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad L590 Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron® Processor or 8th Generation Intel Core™ i3 / i5 / i7 Processor									Dimensions	<i>WxDxH:</i> 14.82" x 10.02" x 0.90"; 376.5mm x 254.5mm x 22.95mm	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	Starting at 4.48 lb / 2.03 kg		
	Cel 4305U	2	2	2.2 GHz	-	2MB	DDR4-2133	Intel UHD Graphics 610	Case color	Black		
	i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	Case material	PC/ABS plastic		
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB			Smart card reader	<i>Optional:</i> Smart card reader		
	i5-8365U	4	8	1.6 GHz	4.1 GHz	6MB			Media reader	MicroSD card reader		
i7-8565U	4	8	1.8 GHz	4.6 GHz	8MB	Ports			Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole			
i7-8665U	4	8	1.9 GHz	4.8 GHz	8MB			* Depending on many factors, actual data transfer speed may be lower than theoretical speed				
Graphics	Intel UHD Graphics 610 or 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon 535, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)									Monitor cable (optional)	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter	
Chipset	Intel SoC (System on Chip) platform									Camera (optional)	One of the following, configurable by model:	
Memory	64GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * Installed memory is actually 2666MHz but run at 2133MHz or 2400MHz due to Intel limitation									Audio support	HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack	
Display	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	Keyboard	6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight	
	15.6"	HD (1366x768)	TN	Anti-glare	220 nits	16:9	400:1	45%	90°		UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Multi-touch	None									Security	Power-on password, hard disk password, supervisor password, security keyhole	
Storage	<ul style="list-style-type: none"> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 * Installed M.2 2280 SSD is PCIe 3x4 but run at PCIe 3x2 due to M.2 SSD adapter limitation									Security chip	Discrete TPM 2.0, TCG Certified	
										System Mgt (opt)	Intel vPro Technology	
Optane™ memory	Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2									Fingerprint reader	<i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest	
Optical	None									NFC (optional)	Near Field Communication	
Ethernet	Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) vPro model: Intel Ethernet Connection I219-LM (Jacksonville)									Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter	
WLAN + Bluetooth™ (optional)	One of the following, configurable by model: <ul style="list-style-type: none"> Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0 Intel Wireless-AX 22260, Wi-Fi 2x2 802.11ax + Bluetooth 5.0 									Max battery life	MobileMark® 2014: 13.3 hr * Battery life varies significantly with settings, usage, & other factors	
WWAN (optional)	One of the following, configurable by model: <ul style="list-style-type: none"> Wireless WAN upgradable Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable									AC adapter	45W or 65W USB Type-C AC adapter	
SIM card	None									Preload	Windows® 10 Home 64 or Windows 10 Pro 64	
										Limited warranty	One of the following, configurable by model: <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 	
										Mil-Spec test	None	
										Environment	EPEAT™ Bronze; ENERGY STAR® 7.1; RoHS-compliant	

Note: The specifications above may not be available in all regions.

Lenovo
June 2019



ThinkPad P1 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor or Intel Xeon® E Processor								Smart card reader ExpressCard Media reader Ports	<i>Optional:</i> Smart card reader None SD Card reader (SD, SDHC, SDXC), supports UHS-II SD card Two USB 3.1 Gen 1 (one Always On), two USB Type-C / Thunderbolt 3 (with the function of Power Delivery and DP), HDMI 2.0, Ethernet extension connector, headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole * Power Delivery only supports power-out for charging peripherals * Depending on many factors, actual data transfer speed may be lower than theoretical speed HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter <i>Optional:</i> ThinkPad Ethernet Extension Cable
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		
	i5-8400H	4	8	2.5 GHz	4.2 GHz	8MB	DDR4-2666	Intel UHD Graphics 630		
	i7-8750H	6	12	2.2 GHz	4.1 GHz	9MB				
	i7-8850H			2.6 GHz	4.3 GHz	9MB				
E-2176M	2.7 GHz			4.4 GHz	12MB					
Graphics	Intel UHD Graphics 630 in processor and NVIDIA® Quadro® P1000 or P2000 Max-Q, 4GB GDDR5 memory; supports external digital monitor via HDMI or Thunderbolt™; supports four independent displays; Max resolution: 5120x2880@30Hz (Thunderbolt); 4096x2160@60Hz (HDMI)								Monitor cable (optional) Bundled Accy	<i>Optional:</i> ThinkPad Ethernet Extension Cable Camera (optional) One of the following, configurable by model:
Chipset Memory	Mobile Intel CM246 Chipset 64GB max / 2666MHz DDR4, ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, two DDR4 SO-DIMM sockets								Audio support	• HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus HD Audio, Realtek® ALC3286 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone
Display	<i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle <i>Some:</i> 15.6" (396mm) UHD (3840x2160), anti-glare, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1200:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch, anti-reflection (AR)								Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, LED backlight TrackPoint® pointing device and buttonless glass surface multi-touch touchpad
Multi-touch (opt) Pen	Capacitive-type multi-touch, supports 10-finger gesture (4K only) Supports pen accessory, please see the accessory compatibility for details								Security Security chip vPro (optional) Fingerprint reader	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology Touch style match on chip fingerprint reader on the keyboard bezel
Storage	Up to 2 drives (two M.2 SSD) M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s								Color calibration NFC	None None
Optane™ memory RAID (optional) Optical	None RAID 0/1 support None								Battery Max battery life (MobileMark 2014) AC adapter	Integrated Li-ion 80Wh battery, supports Rapid Charge (charge up to 80% in 1hr) Discrete mode: 7.36 hr; Hybrid mode: 13.87 hr * Battery life varies significantly with settings, usage, & other factors 135W slim tip AC adapter
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Cable								Preload	One of the following, configurable by model: <ul style="list-style-type: none"> Windows® 10 Home 64 Windows 10 Pro 64 Windows 10 Pro 64 for Workstations
WLAN Bluetooth™	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter								Limited warranty	One of the following, configurable by model: <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
WWAN SIM card	None None								Mil-Spec test	MIL-STD-810G military certification
Dimensions	<i>WxDxH (non-touch):</i> 14.24" x 9.67" x 0.72"; 361.8mm x 245.7mm x 18.4mm <i>WxDxH (multi-touch):</i> 14.24" x 9.67" x 0.74"; 361.8mm x 245.7mm x 18.7mm								Environment	EPPEAT™ Gold; ENERGY STAR® 6.1; RoHS-compliant
Weight	<i>Non-touch model:</i> starting at 3.76 lb (1.7 kg); <i>Multi-touch model:</i> starting at 4.06 lb (1.8 kg)									
Case color	Black									
Case material	<i>Display cover:</i> CFRP/GFRP hybrid; <i>Bottom:</i> Aluminum alloy									

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



ThinkPad P51 Platform Specifications

Product Specifications Reference (PSREF)

Processor	6th or 7th Generation Intel® Core™ i7 Processor or Intel Xeon® Processor E3 v5 or v6 Family							Dimensions	<i>WxDxH:</i> 14.86" x 9.93" x 0.96-1.16"; 377.4mm x 252.3mm x 24.5-29.4mm <i>WxDxH(Touch):</i> 14.86" x 9.93" x 1.02-1.21"; 377.4mm x 252.3mm x 25.8-30.7mm											
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	<table border="1"> <thead> <tr> <th>Models</th> <th>4-cell</th> <th>6-cell</th> </tr> </thead> <tbody> <tr> <td>Non-touch</td> <td>5.6 lb / 2.55kg</td> <td>5.9 lb / 2.67kg</td> </tr> <tr> <td>Multi-touch</td> <td>6.2 lb / 2.82kg</td> <td>6.4 lb / 2.90kg</td> </tr> </tbody> </table>			Models	4-cell	6-cell	Non-touch	5.6 lb / 2.55kg	5.9 lb / 2.67kg	Multi-touch	6.2 lb / 2.82kg
Models	4-cell	6-cell																		
Non-touch	5.6 lb / 2.55kg	5.9 lb / 2.67kg																		
Multi-touch	6.2 lb / 2.82kg	6.4 lb / 2.90kg																		
	i7-6820HQ	4	8	2.7 GHz	3.6 GHz	8MB	DDR4-2133	Intel HD Graphics 530	Case color	Black										
	E3-1505M v5			2.8 GHz	3.7 GHz			Intel HD Graphics P530	Case material	<i>Display cover:</i> Glass-Fiber Reinforced Plastic; <i>Bottom:</i> Magnesium/Aluminum										
	i7-7700HQ			2.8 GHz	3.8 GHz			6MB	DDR4-2400	Intel HD Graphics 630	Smart card reader	<i>Optional:</i> Smart card reader								
	i7-7820HQ			2.9 GHz	3.9 GHz	8MB	Intel HD Graphics P630	ExpressCard		One slot (ExpressCard/34)										
	E3-1505M v6			3.0 GHz	4.0 GHz		Intel HD Graphics P630	Media reader		4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD card										
	E3-1535M v6			3.1 GHz	4.2 GHz	Ports	Four USB 3.1 Gen 1 (USB 3.0, one Always On), USB Type-C / Thunderbolt 3, Mini DisplayPort 1.2a, HDMI 1.4b, Ethernet (RJ-45), Dock connector <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>													
Graphics	Intel HD Graphics 530, 630, P530, or P630 in processor and NVIDIA Quadro® M1200 or M2200, 4GB memory; supports external digital monitor via HDMI, Mini DisplayPort, or Thunderbolt™; supports four independent displays; Max resolution: 3840x2160@60Hz (DisplayPort via Mini DisplayPort cable); 3840x2160@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI)							Camera (<i>optional</i>)	HD720p resolution, fixed focus											
Chipset	Mobile Intel CM238 Chipset							Audio support	HD Audio, Realtek® ALC3268 codec / stereo speakers, 2W x 2 / dual array microphone, combo audio/microphone jack											
Memory	64GB max / 2400MHz DDR4, ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, four DDR4 SO-DIMM sockets <i>* System clocks down for processors with lower memory controller</i>							Keyboard	6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight											
Display	<i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 160° viewing angle <i>Some:</i> 15.6" (396mm) 4K (3840x2160), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 100% gamut, 170° viewing angle							UltraNav™	3-button TrackPoint® pointing device and 3-button Mylar surface multi-touch touchpad											
Multi-touch (<i>opt</i>)	Capacitive-type multi-touch, supports 10-finger gesture, 220 nits (FHD only)							Security	Power-on password, hard disk password, supervisor password, security keyhole											
Pen (<i>optional</i>)	ThinkPad Pen Pro, active pen for multi-touch display							Security chip	Discrete TPM 2.0, TCG Certified											
Storage	<i>Up to 3 drives (two M.2 SSD and one HDD)</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s							vPro (<i>optional</i>)	Intel vPro Technology											
RAID (<i>optional</i>)	RAID 0/1 support							Fingerprint reader	Touch style match on chip fingerprint reader on the palm rest											
Optical	None							Color calibration	<i>Optional:</i> Pantone® color calibrator by X-Rite® color calibration sensor in palm rest											
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)							NFC	None											
WLAN	<i>One of the following, configurable by model:</i> • Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card • Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card							Battery	Lithium Polymer 4-cell (66Wh) or 6-cell (90Wh)											
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter <i>* Intel 8260ac / 8265ac card support BT4.2 but is limited to BT4.1 by Windows OS</i>							Max battery life ¹⁰	<table border="1"> <thead> <tr> <th>Model</th> <th>4-cell</th> <th>6-cell</th> </tr> </thead> <tbody> <tr> <td>Discrete Graphics</td> <td>4.5 hr</td> <td>6.1 hr</td> </tr> <tr> <td>Hybrid Graphics</td> <td>6.5 hr</td> <td>8.9 hr</td> </tr> </tbody> </table>			Model	4-cell	6-cell	Discrete Graphics	4.5 hr	6.1 hr	Hybrid Graphics	6.5 hr	8.9 hr
Model	4-cell	6-cell																		
Discrete Graphics	4.5 hr	6.1 hr																		
Hybrid Graphics	6.5 hr	8.9 hr																		
WWAN (<i>optional</i>)	<i>One of the following, configurable by model:</i> • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card							(<i>MobileMark® 2014</i>)	<i>* Battery life varies significantly with settings, usage, & other factors</i>											
SIM card (<i>opt</i>)	Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card							AC adapter	170W slim tip AC adapter											
								Preload	<i>One of the following, configurable by model:</i> • Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64 • Windows® 10 Home 64 • Windows 10 Pro 64 • Windows 10 Pro 64 for Workstations											
								Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service											
								Mil-Spec test	MIL-STD-810G military certification											
								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant											

Note: The specifications above may not be available in all regions.

Lenovo
September 2018



ThinkPad P52 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i7 / i9 Processor or Intel Xeon® E Processor								Dimensions	<i>WxDxH:</i> 14.86" x 9.93" x 0.96-1.16"; 377.4mm x 252.3mm x 24.5-29.4mm <i>WxDxH(Touch):</i> 14.86" x 9.93" x 1.02-1.21"; 377.4mm x 252.3mm x 25.8-30.7mm <i>Non-touch model:</i> starting at 5.4 lb (2.45kg); <i>Multi-touch model:</i> starting at 6.4 lb (2.9kg)
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	Black <i>Display cover:</i> PPS; <i>Bottom:</i> Magnesium/Aluminum
	i7-8750H	6	12	2.2 GHz	4.1 GHz	9MB	DDR4-2400	Intel UHD Graphics 630	Case color	Black
	i7-8850H			2.6 GHz	4.3 GHz	9MB			Case material	<i>Display cover:</i> PPS; <i>Bottom:</i> Magnesium/Aluminum
	i9-8950HK			2.9 GHz	4.8 GHz	12MB		Smart card reader	<i>Optional:</i> Smart card reader	
E-2176M	2.7 GHz			4.4 GHz	12MB	ExpressCard		None		
Graphics	Intel UHD Graphics 630 or P630 in processor and NVIDIA Quadro® P1000 (4GB memory), P2000 (4GB memory), or P3200 (6GB memory, VR ready); supports external digital monitor via HDMI, Mini DisplayPort, or Thunderbolt™; supports four independent displays; Max resolution: 3840X2160@60Hz (DisplayPort via Mini DisplayPort cable); 5120X2880@30Hz (Thunderbolt); 4096x2160@60Hz (HDMI)								Media reader	4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD card
Chipset	Mobile Intel CM246 Chipset								Ports	Three USB 3.1 Gen 1 (one Always On), two USB Type-C / Thunderbolt 3 (with the function of Power Delivery and DP), Mini DisplayPort 1.4, HDMI 2.0, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole <i>* Power Delivery only supports power-out for charging peripherals</i> <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>
Memory	128GB non-ECC or 64GB ECC max / 2400MHz DDR4 (ECC function supported only on Xeon processor), dual-channel capable, four DDR4 SO-DIMM sockets <i>* Installed DIMMs are actually 2666MHz but run at 2400MHz due to Intel limitation</i> <i>* 128GB non-ECC memory for special bid only</i>								Camera (optional)	<i>One of the following, configurable by model:</i> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus
Display	<i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 160° viewing angle <i>Some:</i> 15.6" (396mm) 4K (3840x2160), anti-glare, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch								Audio support	HD Audio, Realtek® ALC3286 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone
Multi-touch (opt)	Capacitive-type multi-touch, supports 10-finger gesture (4K only)								Keyboard	6-row, spill-resistant, multimedia Fn keys, numeric keypad, LED backlight
Pen	Supports pen accessory, please see the accessory compatibility for details								UltraNav™	3-button TrackPoint® pointing device and 3-button Mylar surface multi-touch touchpad
Storage	<i>Up to 3 drives (two M.2 SSD and one HDD)</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s								Security	Power-on password, hard disk password, supervisor password, security keyhole
Optane™ memory	<i>Optional:</i> Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2								Security chip	Discrete TPM 2.0, TCG Certified
RAID (optional)	RAID 0/1 support								vPro (optional)	Intel vPro Technology
Optical	None								Fingerprint reader	Touch style match on chip fingerprint reader on the palm rest
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)								Color calibration	None
WLAN	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card								NFC (optional)	Near Field Communication
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter								Battery	Li-ion 90Wh battery
WWAN (optional)	Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card								Max battery life	<i>Discrete mode:</i> 6.1 hr; <i>Hybrid mode:</i> 8.9 hr <i>(MobileMark® 2014)</i> * Battery life varies significantly with settings, usage, & other factors
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card								AC adapter	170W slim tip AC adapter
									Preload	<i>One of the following, configurable by model:</i> • Windows® 10 Home 64 • Windows 10 Pro 64 • Windows 10 Pro 64 for Workstations
									Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service
									Mil-Spec test	MIL-STD-810G military certification
									Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

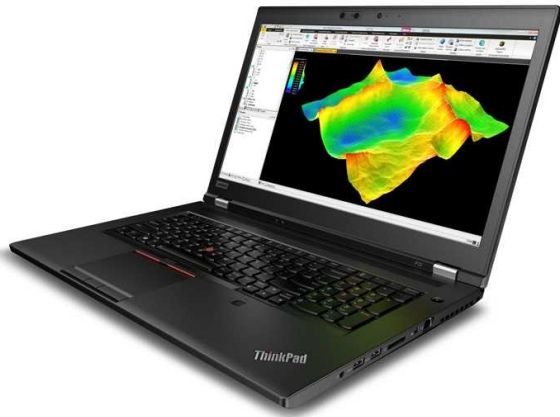
Lenovo
May 2019



ThinkPad P52s Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor								Dimensions	<i>WxDxH:</i> 14.40" x 9.95" x 0.79-0.80"; 365.8mm x 252.8mm x 19.95-20.2mm																		
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	starting at 4.39 lb / 1.99 kg																		
	i5-8350U	4	8	1.7 GHz	3.6 GHz	6MB	DDR4-2400	Intel UHD Graphics 620	Case color	Black																		
	i7-8550U			Case material	<i>Display cover:</i> Glass-Fiber Reinforced Plastic (PPS); <i>Bottom:</i> Glass-Fiber Reinforced Plastic																							
i7-8650U	1.9 GHz			4.2 GHz	8MB	Smart card reader			<i>Optional:</i> Smart card reader																			
Graphics	Intel UHD Graphics 620 in processor and NVIDIA Quadro® P500, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)								Media reader	4-in-1 reader (MMC, SD, SDHC, SDXC)																		
Chipset	Intel SoC (System on Chip) platform								Ports	Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole																		
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* System clocks down for processors with lower memory controller</i>								Monitor cable (optional)	<i>HDMI to VGA:</i> Lenovo HDMI to VGA Monitor Adapter <i>USB-C to DP:</i> Lenovo USB-C to DisplayPort Adapter																		
Display	<i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle <i>Some:</i> 15.6" (396mm) UHD (3840x2160), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 72% gamut, 170° viewing angle								Camera (optional)	<i>One of the following, configurable by model:</i> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus																		
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)								Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack																		
Storage	<i>System has one HDD slot or one M.2 2280 slot exclusively for storage</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s <i>Some:</i> 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN								Keyboard	6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight																		
Optane™ memory	<i>Optional:</i> Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2								UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad																		
Optical	None								Security	Power-on password, hard disk password, supervisor password, security keyhole																		
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)								Security chip	Discrete TPM 2.0, TCG Certified																		
WLAN + Bluetooth™	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card <i>* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS</i>								vPro (optional)	Intel vPro Technology																		
WWAN (optional)	<i>One of the following, configurable by model:</i> • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) • Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>								Fingerprint reader	<i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest anti-spoofing technology																		
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card								NFC (optional)	Near Field Communication																		
									Battery	Optional integrated Li-ion 32Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery																		
									Max battery life (MobileMark® 2014)	<table border="1"> <thead> <tr> <th>Models</th> <th>48Wh</th> <th>72Wh</th> <th>32Wh + 24Wh</th> <th>32Wh + 48Wh</th> <th>32Wh + 72Wh</th> </tr> </thead> <tbody> <tr> <td><i>Max battery life</i></td> <td>12.2 hr</td> <td>18.5 hr</td> <td>13.5 hr</td> <td>20.1 hr</td> <td>26.3 hr</td> </tr> </tbody> </table>	Models	48Wh	72Wh	32Wh + 24Wh	32Wh + 48Wh	32Wh + 72Wh	<i>Max battery life</i>	12.2 hr	18.5 hr	13.5 hr	20.1 hr	26.3 hr	<i>* Battery life varies significantly with settings, usage, & other factors</i>					
Models	48Wh	72Wh	32Wh + 24Wh	32Wh + 48Wh	32Wh + 72Wh																							
<i>Max battery life</i>	12.2 hr	18.5 hr	13.5 hr	20.1 hr	26.3 hr																							
									AC adapter	65W USB Type-C AC adapter																		
									Preload	Windows® 10 Home 64 or Windows 10 Pro 64																		
									Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service																		
									Mil-Spec test	MIL-STD-810G military certification																		
									Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant																		



ThinkPad P72 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i7 Processor or Intel Xeon® E Processor								Dimensions	<i>WxDxH:</i> 16.38" x 11.06" x 0.96-1.16"; 416mm x 281mm x 24.5-29.4mm
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	Starting at 7.5 lb (3.4kg)
	i7-8750H	6	12	2.2 GHz	4.1 GHz	9MB	DDR4-2400	Intel UHD Graphics 630	Case color	Black
	i7-8850H			2.6 GHz	4.3 GHz	9MB		Intel UHD Graphics P630	Case material	<i>Display cover:</i> GFRP + PPS; <i>Bottom:</i> Magnesium/Aluminum
	E-2176M			2.7 GHz	4.4 GHz	12MB		Intel UHD Graphics P630	Smart card reader	<i>Optional:</i> Smart card reader
E-2186M	2.9 GHz			4.8 GHz	12MB	ExpressCard		None		
Graphics	Intel UHD Graphics 630 or P630 in processor and NVIDIA Quadro® P600 (4GB memory), P2000 (4GB memory), P3200 (6GB memory), P4200 (8GB memory), or P5200 (16GB memory); supports external digital monitor via HDMI, Mini DisplayPort, or Thunderbolt™; supports four independent displays; Max resolution: 3840X2160@60Hz (DisplayPort via Mini DisplayPort cable); 5120X2880@30Hz (Thunderbolt); 4096x2160@60Hz (HDMI)								Media reader	4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD card
Chipset	Mobile Intel CM246 Chipset								Ports	Four USB 3.1 Gen 1 (one Always On), two USB Type-C / Thunderbolt 3 (with the function of Power Delivery and DP), Mini DisplayPort 1.4, HDMI 2.0, Ethernet (RJ-45), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole <i>* Power Delivery only supports power-out for charging peripherals</i> <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>
Memory	128GB non-ECC or 64GB ECC max / 2400MHz DDR4 (ECC function supported only on Xeon processor), dual-channel capable, four DDR4 SO-DIMM sockets <i>* Installed DIMMs are actually 2666MHz but run at 2400MHz due to Intel limitation</i>								Monitor cable	<i>Optional:</i> Lenovo Mini-DisplayPort to DisplayPort Monitor Cable
Display	<i>Some:</i> 17.3" (439mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 72% gamut, 170° viewing angle <i>Some:</i> 17.3" (439mm) 4K (3840x2160), anti-glare, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 100% Adobe CG, 170° viewing angle								Camera (<i>optional</i>)	IR camera and HD720p camera, fixed focus
Multi-touch Pen	None Supports pen accessory, please see the accessory compatibility for details								Audio support	HD Audio, Realtek® ALC3286 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone
Storage	<i>Up to 3 drives (two M.2 SSD and one HDD)</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s								Keyboard	6-row, spill-resistant, multimedia Fn keys, numeric keypad, LED backlight
Optane™ memory	<i>Optional:</i> Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2								UltraNav™	3-button TrackPoint® pointing device and 3-button Mylar surface multi-touch touchpad
RAID (<i>optional</i>)	RAID 0/1 support								Security	Power-on password, hard disk password, supervisor password, security keyhole
Optical	None								Security chip	Discrete TPM 2.0, TCG Certified
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)								vPro (<i>optional</i>)	Intel vPro Technology
WLAN	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card								Fingerprint reader	Touch style match on chip fingerprint reader on the palm rest
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter								Color calibration	None
WWAN	None								NFC (<i>optional</i>)	Near Field Communication
SIM card	None								Battery	Li-ion 99Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
									Max battery life	<i>MobileMark® 2014:</i> 18 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>
									AC adapter	230W slim tip AC adapter
									Preload	<i>One of the following, configurable by model:</i> • Windows® 10 Home 64 • Windows 10 Pro 64 • Windows 10 Pro 64 for Workstations
									Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service
									Mil-Spec test	MIL-STD-810G military certification
									Environment	EPPEAT™ Gold (US only); ENERGY STAR® 7.0; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



ThinkPad T470 Platform Specifications

Product Specifications Reference (PSREF)

<p>Processor</p> <p>6th Generation Intel® Core™ i5 / i7 Processor or</p> <table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i5-6200U</td> <td rowspan="4">2</td> <td rowspan="4">4</td> <td>2.3 GHz</td> <td>2.8 GHz</td> <td>3MB</td> <td rowspan="4">DDR4-2133</td> <td rowspan="4">Intel HD Graphics 520</td> </tr> <tr> <td>i5-6300U</td> <td>2.4 GHz</td> <td>3.0 GHz</td> <td>3MB</td> </tr> <tr> <td>i7-6500U</td> <td>2.5 GHz</td> <td>3.1 GHz</td> <td>4MB</td> </tr> <tr> <td>i7-6600U</td> <td>2.6 GHz</td> <td>3.4 GHz</td> <td>4MB</td> </tr> </tbody> </table>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i5-6200U	2	4	2.3 GHz	2.8 GHz	3MB	DDR4-2133	Intel HD Graphics 520	i5-6300U	2.4 GHz	3.0 GHz	3MB	i7-6500U	2.5 GHz	3.1 GHz	4MB	i7-6600U	2.6 GHz	3.4 GHz	4MB	<p>Dimensions <i>WxDxH:</i> 13.25" x 9.15" x 0.79"; 336.6mm x 232.5mm x 19.95mm</p> <p>Weight</p> <table border="1"> <thead> <tr> <th>Models</th> <th>3-cell or 3 + 3-cell</th> <th>6-cell or 3 + 6-cell</th> </tr> </thead> <tbody> <tr> <td>Magnesium</td> <td>3.49 lb / 1.58 kg</td> <td>3.92 lb / 1.78 kg</td> </tr> <tr> <td>PPS</td> <td>3.63 lb / 1.65 kg</td> <td>4.35 lb / 1.85 kg</td> </tr> </tbody> </table> <p>Case color Case material</p> <p>Black Display cover: Magnesium Hybrid or PPS; Bottom: Glass-Fiber Reinforced Plastic</p>	Models	3-cell or 3 + 3-cell	6-cell or 3 + 6-cell	Magnesium	3.49 lb / 1.58 kg	3.92 lb / 1.78 kg	PPS	3.63 lb / 1.65 kg	4.35 lb / 1.85 kg
Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics																															
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i7-6500U			2.5 GHz	3.1 GHz	4MB																																	
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<p>7th Generation Intel Core i3 / i5 / i7 Processor</p> <table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i3-7100U</td> <td rowspan="5">2</td> <td rowspan="5">4</td> <td>2.4 GHz</td> <td>-</td> <td>3MB</td> <td rowspan="5">DDR4-2133</td> <td rowspan="5">Intel HD Graphics 620</td> </tr> <tr> <td>i5-7200U</td> <td>2.5 GHz</td> <td>3.1 GHz</td> <td>3MB</td> </tr> <tr> <td>i5-7300U</td> <td>2.6 GHz</td> <td>3.5 GHz</td> <td>3MB</td> </tr> <tr> <td>i7-7500U</td> <td>2.7 GHz</td> <td>3.5 GHz</td> <td>4MB</td> </tr> <tr> <td>i7-7600U</td> <td>2.8 GHz</td> <td>3.9 GHz</td> <td>4MB</td> </tr> </tbody> </table> <p><i>* i7-6500U is NOT available in EMEA</i></p>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i3-7100U	2	4	2.4 GHz	-	3MB	DDR4-2133	Intel HD Graphics 620	i5-7200U	2.5 GHz	3.1 GHz	3MB	i5-7300U	2.6 GHz	3.5 GHz	3MB	i7-7500U	2.7 GHz	3.5 GHz	4MB	i7-7600U	2.8 GHz	3.9 GHz	4MB	<p>Smart card reader Media reader Ports</p> <p><i>Optional:</i> Smart card reader 4-in-1 reader (MMC, SD, SDHC, SDXC), supports SD 3.0, UHS-I Three USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 2 / Thunderbolt 3 (w/ the function of Power Delivery and DP), HDMI 1.4b, Ethernet (RJ-45), Dock connector <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i></p> <p>WiGig dock (opt) Monitor cable</p> <p>ThinkPad WiGig dock <i>Optional:</i> Lenovo USB-C to VGA Adapter</p>					
Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics																															
i3-7100U	2	4	2.4 GHz	-	3MB	DDR4-2133	Intel HD Graphics 620																															
i5-7200U			2.5 GHz	3.1 GHz	3MB																																	
i5-7300U			2.6 GHz	3.5 GHz	3MB																																	
i7-7500U			2.7 GHz	3.5 GHz	4MB																																	
i7-7600U			2.8 GHz	3.9 GHz	4MB																																	
<p>Graphics</p> <p>Intel HD Graphics 520 or 620 in processor only, or Intel HD Graphics 620 in processor and NVIDIA GeForce® 940MX, 2GB 2.5GHz GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)</p>	<p>Camera (optional) Audio support</p> <p>720p: HD720p resolution, fixed focus IR & 720p: IR camera and HD720p camera (mutually exclusive with WiGig) HD Audio, Realtek ALC3268 codec / stereo speakers, 2W x 2 / dual array microphone, combo audio/microphone jack</p>																																					
<p>Chipset Memory</p> <p>Intel SoC (System on Chip) platform 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* System clocks down for processors with lower memory controller</i></p>	<p>Keyboard Security Security chip vPro (optional) Fingerprint reader NFC (optional)</p> <p>6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology <i>Optional:</i> Touch style match on chip fingerprint reader on the keyboard bezel Near Field Communication</p>																																					
<p>Display</p> <p><i>Some:</i> 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio <i>Some:</i> 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 or 500:1 contrast ratio <i>Some:</i> 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle</p> <p>Multi-touch (opt) On-cell touch, supports 10-finger gesture (FHD IPS panel with PPS cover only)</p>	<p>Internal battery External battery Max battery life (MobileMark® 2014)</p> <p><i>Optional:</i> Integrated Li-Polymer 3-cell (24Wh) Li-Polymer 3-cell (24Wh) or Li-ion 6-cell (48Wh or 72Wh)</p> <table border="1"> <thead> <tr> <th>Models</th> <th>3-cell</th> <th>3 + 3-cell</th> <th>6-cell 48Wh</th> <th>6-cell 72Wh</th> <th>3 + 6-cell 48Wh</th> <th>3 + 6-cell 72Wh</th> </tr> </thead> <tbody> <tr> <td>Integrated</td> <td>6.9 hr</td> <td>13.9 hr</td> <td>13.9 hr</td> <td>20.9 hr</td> <td>20.9 hr</td> <td>27.1 hr</td> </tr> <tr> <td>Discrete</td> <td>6.9 hr</td> <td>13.9 hr</td> <td>14.3 hr</td> <td>21.6 hr</td> <td>21.2 hr</td> <td>28.6 hr</td> </tr> </tbody> </table> <p><i>* Battery life varies significantly with settings, usage, & other factors</i></p>	Models	3-cell	3 + 3-cell	6-cell 48Wh	6-cell 72Wh	3 + 6-cell 48Wh	3 + 6-cell 72Wh	Integrated	6.9 hr	13.9 hr	13.9 hr	20.9 hr	20.9 hr	27.1 hr	Discrete	6.9 hr	13.9 hr	14.3 hr	21.6 hr	21.2 hr	28.6 hr																
Models	3-cell	3 + 3-cell	6-cell 48Wh	6-cell 72Wh	3 + 6-cell 48Wh	3 + 6-cell 72Wh																																
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<p>Storage</p> <p><i>System has one HDD slot or one M.2 2280 slot exclusively for storage</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s <i>Some:</i> 128GB M.2 SSD / SATA 6.0Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN and WiGig</p>	<p>AC adapter Preload</p> <p>45W or 65W slim tip AC adapter, 45W or 65W USB Type-C AC adapter Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64 <i>Some:</i> Windows 10 Home 64 <i>Some:</i> Windows 10 Pro 64 • Lenovo Solution Center • Lenovo PowerEngage • ThinkVantage Product Recovery • ThinkVantage System Update • Adobe® Reader® • Microsoft® Office preloaded; purchase a product key to activate • McAfee® LiveSafe™ (30-day trial)</p>																																					
<p>Optical Ethernet</p> <p>None <i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)</p>	<p>Limited warranty</p> <p><i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service</p>																																					
<p>WLAN</p> <p><i>One of the following, configurable by model (WiGig can coexist with WWAN):</i> • Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card • Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card • Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card • Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1, M.2 card</p> <p>Bluetooth™ Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter <i>* Intel 8265ac / 18265ac card support BT4.2 but is limited to BT4.1 by Windows OS</i></p>	<p>Mil-Spec test Environment</p> <p>MIL-STD-810G military certification EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant</p>																																					
<p>WWAN (optional) <i>One of the following, configurable by model (WWAN can coexist with WiGig):</i> • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card • Integrated Mobile Broadband 4G LTE, Intel XMM™ 7160 (Fibocom L831-EAU), M.2 card (EMEA only)</p> <p>SIM card (opt) Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card</p>																																						



ThinkPad T470s Platform Specifications

Product Specifications Reference (PSREF)

Processor	6th Generation Intel® Core™ i5 / i7 Processor								Dimensions Weight Case color Case material	<i>WxDxH:</i> 13.03" x 8.93" x 0.67-0.74"; 331mm x 226.8mm x 16.9-18.8mm Starting at 2.9 lb (1.32kg) Black or Silver <i>Display cover:</i> CFRP Hybrid; <i>Bottom:</i> Magnesium
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		
	i5-6200U	2	4	2.3 GHz	2.8 GHz	3MB	DDR4-2133	Intel HD Graphics 520	Smart card reader Media reader Ports	<i>Optional:</i> Smart card reader 4-in-1 reader (MMC, SD, SDHC, SDXC) Three USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 2 / Thunderbolt 3 (w/ the function of Power Delivery and DP), HDMI 1.4b, Ethernet (RJ-45), Dock connector <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>
	i5-6300U			2.4 GHz	3.0 GHz	3MB				
	i7-6600U			2.6 GHz	3.4 GHz	4MB				
	or 7th Generation Intel Core i5 / i7 Processor								WiGig dock (opt) Monitor cable (optional) Camera (optional)	ThinkPad WiGig dock, mutually exclusive with WWAN <i>HDMI to VGA:</i> Lenovo HDMI to VGA Monitor Adapter <i>USB-C to VGA:</i> Lenovo USB-C to VGA Adapter HD720p resolution, fixed focus (models without camera are NOT available in EMEA)
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		
	i5-7200U	2	4	2.5 GHz	3.1 GHz	3MB	DDR4-2133	Intel HD Graphics 620	HD Audio, Realtek® ALC3268 codec / stereo speakers, 1W x 2 / dual array microphone, combo audio/microphone jack 6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad	
	i5-7300U			2.6 GHz	3.5 GHz	3MB				
	i7-7500U			2.7 GHz	3.5 GHz	4MB				
	i7-7600U			2.8 GHz	3.9 GHz	4MB				
Graphics	Intel HD Graphics 520 or 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)								Audio support	
Chipset	Intel SoC (System on Chip) platform								Keyboard	
Memory	20GB or 24GB max ⁷ / 2400MHz DDR4, dual-channel capable, 4GB or 8GB memory soldered to systemboard, one DDR4 SO-DIMM socket <i>* System clocks down for processors with lower memory controller</i>								UltraNav™	
Display	<i>Some:</i> 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 160° viewing angle <i>Some:</i> 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 160° viewing angle								Security	
Multi-touch (opt)	On-cell touch, supports 10-finger gesture, 250 nits (FHD only)								Security chip	
Storage	<i>One of the following, configurable by model:</i> • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)								vPro (optional)	
Optical	None								Fingerprint reader	
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)								NFC (optional)	
WLAN	<i>One of the following, configurable by model (WiGig is mutually exclusive with WWAN):</i> • Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card • Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card • Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1, M.2 card								Internal battery	
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter <i>* Intel 8265ac / 18265ac card support BT4.2 but is limited to BT4.1 by Windows OS</i>								Max battery life	
WWAN (optional)	<i>One of the following, configurable by model (mutually exclusive with WiGig):</i> • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card • Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card								AC adapter	
SIM card (opt)									Preload	
									Limited warranty	
									Mil-Spec test	
									Environment	



ThinkPad T480 Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ i5 Processor							Dimensions Weight	WxDxH: 13.25" x 9.15" x 0.79"; 336.6mm x 232.5mm x 19.95mm						
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types		Processor Graphics	Models	24Wh or 24Wh + 24Wh	48Wh, 72Wh, or 24Wh + 48Wh / 72Wh			
	i5-7200U	2	4	2.5 GHz	3.1 GHz	3MB	DDR4-2133	Intel HD Graphics 620	Integrated Magnesium	3.49 lb / 1.58 kg	3.92 lb / 1.78 kg				
	i5-7300U			2.6 GHz	3.5 GHz	3MB			Integrated PPS	3.63 lb / 1.65 kg	4.08 lb / 1.85 kg				
	or 8th Generation Intel Core i3 / i5 / i7 Processor							Case color Case material	Black Display cover: Magnesium Hybrid or PPS; Bottom: Glass-Fiber Reinforced Plastic						
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types		Processor Graphics	Smart card reader	Optional: Smart card reader				
	i3-8130U	4	8	2.2 GHz	3.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	Media reader	4-in-1 reader (MMC, SD, SDHC, SDXC)					
	i5-8250U			1.6 GHz	3.4 GHz	6MB			Ports	Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 media reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole					
	i5-8350U			1.7 GHz	3.6 GHz	6MB			Monitor cable (optional)	* Depending on many factors, actual data transfer speed may be lower than theoretical speed HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter					
	i7-8550U			1.8 GHz	4.0 GHz	8MB			Camera (optional)	One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus					
	i7-8650U			1.9 GHz	4.2 GHz	8MB			Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack					
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and NVIDIA® GeForce® MX150, 2GB GDDR5 memory (discrete graphics is available only on i7 models in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad						
Chipset	Intel SoC (System on Chip) platform							Security	Power-on password, hard disk password, supervisor password, security keyhole						
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * System clocks down for processors with lower memory controller							Security chip	Discrete TPM 2.0, TCG Certified						
Display	Some: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle Some: 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle							vPro (optional)	Intel vPro Technology						
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)							Fingerprint reader	Optional: Touch style match on chip fingerprint reader on the keyboard bezel, anti-spoofing technology						
Storage	System has one HDD slot or one M.2 2280 slot exclusively for storage Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4 Some: 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, in WWAN slot as 2nd Storage, mutually exclusive with WWAN * Installed M.2 SSD is PCIe 3.0 x 4 but run at PCIe 3.0 x 2 due to M.2 SSD adapter limitation							NFC (optional)	Near Field Communication						
Optane™ memory	Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2							Battery	Optional integrated Li-ion 24Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery						
Optical	None							Max battery life (MobileMark® 2014)	Models	24Wh	48Wh	72Wh	24Wh + 24Wh	24Wh + 48Wh	24Wh + 72Wh
Ethernet	Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) vPro model: Intel Ethernet Connection I219-LM (Jacksonville)							AC adapter	45W or 65W USB Type-C AC adapter						
WLAN + Bluetooth™	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS							Preload	Windows® 10 Home 64 or Windows 10 Pro 64						
WWAN (optional)	One of the following, configurable by model (mutually exclusive with Intel Optane memory): • Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) • Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable							Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service						
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card							Mil-Spec test	MIL-STD-810G military certification						
								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant						

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



ThinkPad T480s Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ i5 Processor							Dimensions Weight Case color Case material	<i>WxDxH:</i> 13.03" x 8.93" x 0.73"; 331mm x 226.8mm x 18.45mm Starting at 2.9 lb (1.32kg) Black or Silver <i>Display cover:</i> CFRP Hybrid; <i>Bottom:</i> Magnesium
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types		
	i5-7200U	2	4	2.5 GHz	3.1 GHz	3MB	DDR4-2133	Intel HD Graphics 620	
	i5-7300U			2.6 GHz	3.5 GHz	3MB			
	or 8th Generation Intel Core i5 / i7 Processor							Smart card reader Media reader Ports	<i>Optional:</i> Smart card reader 4-in-1 reader (MMC, SD, SDHC, SDXC) Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types		
	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB	DDR4-2400	Intel UHD Graphics 620	
	i5-8350U			1.7 GHz	3.6 GHz	6MB			
	i7-8550U			1.8 GHz	4.0 GHz	8MB			
	i7-8650U			1.9 GHz	4.2 GHz	8MB			
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and NVIDIA® GeForce® MX150, 2GB GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Monitor cable (optional)	USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter
Chipset	Intel SoC (System on Chip) platform							Camera	One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus
Memory	20GB or 24GB max / 2400MHz DDR4, dual-channel capable, 4GB or 8GB memory soldered to systemboard, one DDR4 SO-DIMM socket <i>* System clocks down for processors with lower memory controller</i>							Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack
Display	Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle, supports ThinkPad Privacy Guard on some models Some: 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle							Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight
Multi-touch (opt)	On-cell touch, supports 10-finger gesture, 250 nits (FHD only)							UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Storage	One of the following, configurable by model: • M.2 SSD / SATA 6.0Gb/s • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s							Security	Power-on password, hard disk password, supervisor password, security keyhole
Optane™ memory	None							Security chip	Discrete TPM 2.0, TCG Certified
Optical	None							vPro (optional)	Intel vPro Technology
Ethernet	Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) vPro model: Intel Ethernet Connection I219-LM (Jacksonville)							Fingerprint reader	Optional: Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology
WLAN + Bluetooth™	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS							NFC (optional)	Near Field Communication
WWAN (optional)	One of the following, configurable by model: • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) • Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card							Battery	Integrated Li-ion 57Wh battery, supports Rapid Charge (0-80% in 60 mins) with 65W USB Type-C AC adapter Max battery life MobileMark® 2014: 15.6 hr * Battery life varies significantly with settings, usage, & other factors
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card							AC adapter	45W or 65W USB Type-C AC adapter
								Operating system	Windows® 10 Home 64 or Windows 10 Pro 64
								Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service
								Mil-Spec test	MIL-STD-810G military certification
								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad T490 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor								Dimensions Weight	WxDxH: 12.95" x 8.94" x 0.70"; 329mm x 227mm x 17.9mm		
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		Models	FHD	FHD Low Power / WQHD
Graphics	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB	DDR4-2400	Intel UHD Graphics 620	Case color Case material	Black		
	i5-8365U			1.6 GHz	4.1 GHz	6MB				Display cover: PPS / 50% GF;		
	i7-8565U			1.8 GHz	4.6 GHz	8MB				Bottom: PA / 50% GF		
	i7-8665U			1.9 GHz	4.8 GHz	8MB						
Chipset	Intel SoC (System on Chip) platform								Smart card reader	Optional: Smart card reader		
Memory	48GB max / 2400MHz DDR4, dual-channel capable, 8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket * Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation								Media reader	MicroSD card reader		
Display	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	Ports	Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed	
	14.0"	HD (1366x768)	TN	Anti-glare	220 nits	16:9	400:1	45%	90°	Monitor cable (optional)	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to HDMI: Lenovo USB-C to HDMI Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter	
	14.0"	FHD (1920x1080)	IPS	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°	Bundled Accy	None	
	14.0"	FHD (1920x1080) Low Power	IPS	Anti-glare	400 nits	16:9	800:1	72%	170°	Camera (optional)	One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus	
	14.0"	FHD (1920x1080) ThinkPad Privacy Guard	IPS	Anti-glare	400 nits	16:9	1000:1	72%	170°	Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack	
	14.0"	WQHD (2560x1440) Dolby Vision™ HDR	IPS	Glossy	500 nits	16:9	1500:1	100% Adobe	170°	Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad	
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)								Security	Power-on password, hard disk password, supervisor password, security keyhole		
Storage	<ul style="list-style-type: none"> M.2 2280 SSD / SATA 6.0Gb/s M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 								Security chip	Discrete TPM 2.0, TCG Certified		
Optane™ memory	Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2								System Mgt (opt)	Intel vPro Technology		
Optical	None								Fingerprint reader	Optional: Touch style match on chip fingerprint reader on the palm rest		
Ethernet	Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) vPro model: Intel Ethernet Connection I219-LM (Jacksonville)								NFC (optional)	Near Field Communication		
WLAN (optional)	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0								Battery	Integrated Li-ion 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr)		
Bluetooth™ (opt)	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter								Max battery life	MobileMark® 2014: 16.11 hr * Battery life varies significantly with settings, usage, & other factors		
WWAN (optional)	One of the following, configurable by model: <ul style="list-style-type: none"> Wireless WAN upgradable Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card Integrated Mobile Broadband 4G LTE-A, Fibocom L860-GL, MIMO 4x4, M.2 card 								AC adapter	45W or 65W USB Type-C AC adapter		
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card								Preload	Windows® 10 Home 64 or Windows 10 Pro 64		
									Limited warranty	One of the following, configurable by model: <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service 		
									Mil-Spec test	MIL-STD-810G military certification		
									Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant		

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



ThinkPad T490s Platform Specifications

Product Specifications Reference (PSREF)

<p>Processor 8th Generation Intel® Core™ i5 / i7 Processor</p> <table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i5-8265U</td> <td rowspan="4">4</td> <td rowspan="4">8</td> <td>1.6 GHz</td> <td>3.9 GHz</td> <td>6MB</td> <td rowspan="4">DDR4-2400</td> <td rowspan="4">Intel UHD Graphics 620</td> </tr> <tr> <td>i5-8365U</td> <td>1.6 GHz</td> <td>4.1 GHz</td> <td>6MB</td> </tr> <tr> <td>i7-8565U</td> <td>1.8 GHz</td> <td>4.6 GHz</td> <td>8MB</td> </tr> <tr> <td>i7-8665U</td> <td>1.9 GHz</td> <td>4.8 GHz</td> <td>8MB</td> </tr> </tbody> </table>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB	DDR4-2400	Intel UHD Graphics 620	i5-8365U	1.6 GHz	4.1 GHz	6MB	i7-8565U	1.8 GHz	4.6 GHz	8MB	i7-8665U	1.9 GHz	4.8 GHz	8MB	<p>Dimensions <i>WxDxH (black with FHD / Privacy Guard):</i> 12.95" x 8.90" x 0.66"; 329.0mm x 226.15mm x 16.7mm <i>WxDxH (black with FHD Low Power / WQHD):</i> 12.94" x 8.89" x 0.63"; 328.8mm x 225.8mm x 16.1mm <i>WxDxH (silver):</i> 12.96" x 8.92" x 0.68"; 329.15mm x 226.45mm x 17.2mm</p> <p>Weight</p> <table border="1"> <thead> <tr> <th>Models</th> <th>Black with FHD</th> <th>Black with FHD Low Power / WQHD / Privacy Guard</th> <th>Silver</th> </tr> </thead> <tbody> <tr> <td>Weight</td> <td>2.98 lb / 1.35 kg</td> <td>2.81 lb / 1.27 kg</td> <td>3.29 lb / 1.49 kg</td> </tr> </tbody> </table>	Models	Black with FHD	Black with FHD Low Power / WQHD / Privacy Guard	Silver	Weight	2.98 lb / 1.35 kg	2.81 lb / 1.27 kg	3.29 lb / 1.49 kg									
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<p>Graphics Intel UHD Graphics 620 in processor only; supports external digital monitor via HDMI or Thunderbolt; supports three independent displays; Max resolution: 4096x2304@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI)</p>	<p>Case color Black or Silver Case material <i>Display cover:</i> CFRP Hybrid (black) or Aluminum (silver); <i>Bottom:</i> Magnesium</p>																																													
<p>Chipset Intel SoC (System on Chip) platform Memory 8GB, 16GB or 32GB / 2400MHz DDR4 / soldered to systemboard, no sockets <i>* Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation</i></p>	<p>Smart card reader <i>Optional:</i> Smart card reader Media reader MicroSD card reader Ports Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i></p>																																													
<p>Display</p> <table border="1"> <thead> <tr> <th>Size</th> <th>Resolution</th> <th>Type</th> <th>Surface</th> <th>Brightness</th> <th>Aspect Ratio</th> <th>Contrast Ratio</th> <th>Color Gamut</th> <th>Viewing Angle</th> </tr> </thead> <tbody> <tr> <td>14.0"</td> <td>FHD (1920x1080)</td> <td>IPS</td> <td>Anti-glare</td> <td>250 nits (non-touch) 300 nits (multi-touch)</td> <td>16:9</td> <td>700:1</td> <td>45%</td> <td>170°</td> </tr> <tr> <td>14.0"</td> <td>FHD (1920x1080) Low Power</td> <td>IPS</td> <td>Anti-glare</td> <td>400 nits</td> <td>16:9</td> <td>800:1</td> <td>72%</td> <td>170°</td> </tr> <tr> <td>14.0"</td> <td>FHD (1920x1080) ThinkPad Privacy Guard</td> <td>IPS</td> <td>Anti-glare</td> <td>400 nits</td> <td>16:9</td> <td>1000:1</td> <td>72%</td> <td>170°</td> </tr> <tr> <td>14.0"</td> <td>WQHD (2560x1440) Dolby Vision™ HDR</td> <td>IPS</td> <td>Glossy</td> <td>500 nits</td> <td>16:9</td> <td>1500:1</td> <td>100% Adobe</td> <td>170°</td> </tr> </tbody> </table>	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	14.0"	FHD (1920x1080)	IPS	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°	14.0"	FHD (1920x1080) Low Power	IPS	Anti-glare	400 nits	16:9	800:1	72%	170°	14.0"	FHD (1920x1080) ThinkPad Privacy Guard	IPS	Anti-glare	400 nits	16:9	1000:1	72%	170°	14.0"	WQHD (2560x1440) Dolby Vision™ HDR	IPS	Glossy	500 nits	16:9	1500:1	100% Adobe	170°	<p>Monitor cable (optional) <i>HDMI to VGA:</i> Lenovo HDMI to VGA Monitor Adapter <i>USB-C to VGA:</i> Lenovo USB-C to VGA Adapter <i>USB-C to DP:</i> Lenovo USB-C to DisplayPort Adapter <i>Optional:</i> ThinkPad Ethernet Extension Adapter Gen 2</p> <p>Bundled Accy <i>Optional:</i> ThinkPad Ethernet Extension Adapter Gen 2</p> <p>Camera <i>One of the following, configurable by model:</i> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus</p> <p>Audio support HD Audio, Realtek® ALC3287 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack</p>
Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle																																						
14.0"	FHD (1920x1080)	IPS	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°																																						
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14.0"	WQHD (2560x1440) Dolby Vision™ HDR	IPS	Glossy	500 nits	16:9	1500:1	100% Adobe	170°																																						
<p>Multi-touch (opt) On-cell touch, supports 10-finger gesture (FHD only)</p>																																														
<p>Storage</p> <ul style="list-style-type: none"> • M.2 2280 SSD / SATA 6.0Gb/s • M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 • M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 	<p>Keyboard 6-row, spill-resistant, multimedia Fn keys, optional LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad</p>																																													
<p>Optane™ memory <i>Optional:</i> Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2 Optical None</p>	<p>Security Power-on password, hard disk password, supervisor password, security keyhole Security chip Discrete TPM 2.0, TCG Certified</p>																																													
<p>Ethernet Native Intel Ethernet Connection I219-V (<i>Non-vPro</i>) or I219-LM (<i>vPro</i>) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2</p>	<p>System Mgt (opt) Intel vPro Technology Fingerprint reader <i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest NFC (optional) Near Field Communication</p>																																													
<p>WLAN + Bluetooth™ (optional) <i>One of the following, configurable by model:</i> • Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0 • Intel Wireless-AX 22260, Wi-Fi 2x2 802.11ax + Bluetooth 5.0</p>	<p>Battery Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) Max battery life <i>MobileMark® 2014:</i> 20 hr <i>* Battery life varies significantly with settings, usage, & other factors</i></p>																																													
<p>WWAN (optional) <i>One of the following, configurable by model:</i> • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only) • Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i></p>	<p>AC adapter 45W or 65W USB Type-C AC adapter Preload Windows® 10 Home 64 or Windows 10 Pro 64</p>																																													
<p>SIM card (opt) Nano-SIM card slot, optional Verizon LTE (US) SIM card</p>	<p>Limited warranty <i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service</p> <p>Mil-Spec test MIL-STD-810G military certification Environment EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant</p>																																													

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



AMD



AMD



AMD



AMD



AMD



AMD

ThinkPad T495 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics									Dimensions WxDxH: 12.95" x 8.94" x 0.70"; 329mm x 227mm x 17.9mm
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Controller	Processor Graphics		
	Ryzen 3 Pro 3300U	4	4	2.1 GHz	3.5 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 6 Graphics		
	Ryzen 5 Pro 3500U	4	8	2.1 GHz	3.7 GHz	2MB L2 / 4MB L3		Radeon Vega 8 Graphics		
Ryzen 7 Pro 3700U	4	8	2.3 GHz	4.0 GHz	2MB L2 / 4MB L3	Radeon Vega 10 Graphics				
Graphics	AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor; supports external digital monitor via USB-C or HDMI; supports four independent displays; Max resolution: 5120x2880@60Hz (USB-C); 4096x2160@60Hz (HDMI)									Case color Black Case material Display cover: PPS / 50% GF; Bottom: PA / 50% GF
Chipset	AMD SoC (System on Chip) platform									
Memory	32GB max / 2400MHz DDR4, dual-channel capable, 8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket * Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation									
Display	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	
	14.0"	HD (1366x768)	TN	Anti-glare	220 nits	16:9	400:1	45%	90°	
	14.0"	FHD (1920x1080)	IPS	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°	
	14.0"	FHD (1920x1080) Low Power	IPS	Anti-glare	400 nits	16:9	800:1	72%	170°	
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)									Smart card reader Optional: Smart card reader Media reader MicroSD card reader Ports One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2, two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed Monitor cable (optional) HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter Bundled Accy None
Storage	<ul style="list-style-type: none"> M.2 2280 SSD / SATA 6.0Gb/s M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 									
Optical	None									
Ethernet	Realtek® RTL8111 Gigabit Ethernet connection									
WLAN	Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0									Camera (optional) One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus Audio support HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack Keyboard 6-row, spill-resistant, multimedia Fn keys, optional LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad Security Power-on password, hard disk password, supervisor password, security keyhole Security chip Discrete TPM 2.0, TCG Certified System Mgt DASH Management Fingerprint reader Optional: Touch style match on chip fingerprint reader on the palm rest NFC None Battery Integrated Li-ion 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr) Max battery life MobileMark® 2014: 13.4 hr * Battery life varies significantly with settings, usage, & other factors AC adapter 45W or 65W USB Type-C AC adapter Preload Windows® 10 Home 64 or Windows 10 Pro 64 Limited warranty One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service Mil-Spec test MIL-STD-810G military certification Environment EPEAT™ Bronze; ENERGY STAR® 7.1; RoHS-compliant
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter									
WWAN (optional)	One of the following, configurable by model: <ul style="list-style-type: none"> Wireless WAN upgradable Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable									
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card									

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



AMD



AMD



AMD



AMD



AMD



AMD

ThinkPad T495s Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics									Dimensions	<i>WxDxH (FHD / Privacy Guard):</i> 12.95" x 8.90" x 0.66"; 329.0mm x 226.15mm x 16.7mm			
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Controller	Processor Graphics			<i>WxDxH (Low Power):</i> 12.94" x 8.89" x 0.63"; 328.8mm x 225.8mm x 16.1mm			
Graphics	Ryzen 5 Pro 3500U	4	8	2.1 GHz	3.7 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 8 Graphics		Weight	Models	FHD	FHD Low Power	FHD Privacy Guard
	Ryzen 7 Pro 3700U	4	8	2.3 GHz	4.0 GHz	2MB L2 / 4MB L3		Radeon Vega 10 Graphics			Weight	2.92 lb / 1.33 kg	2.76 lb / 1.25 kg	2.89 lb / 1.31 kg
Chipset	AMD SoC (System on Chip) platform									Case color	Black			
Memory	8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets <i>* Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation</i>									Case material	<i>Display cover:</i> CFRP Hybrid; <i>Bottom:</i> Magnesium/Aluminum			
Display	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	Smart card reader	Optional: Smart card reader			
	14.0"	FHD (1920x1080)	IPS	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°	Media reader	MicroSD card reader			
	14.0"	FHD (1920x1080) Low Power	IPS	Anti-glare	400 nits	16:9	800:1	72%	170°	Ports	One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2, two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>			
	14.0"	FHD (1920x1080) ThinkPad Privacy Guard	IPS	Anti-glare	400 nits	16:9	1000:1	72%	170°	Monitor cable (optional)	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter Optional: ThinkPad Ethernet Extension Adapter Gen 2			
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)									Camera	<i>One of the following, configurable by model:</i> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus			
Storage	M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4									Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack			
Optical	None									Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight			
Ethernet	Native Intel Ethernet Connection I219-V (<i>Non-vPro</i>) or I219-LM (<i>vPro</i>) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2									UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad			
WLAN (optional)	Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0									Security	Power-on password, hard disk password, supervisor password, security keyhole			
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter									Security chip	Discrete TPM 2.0, TCG Certified			
WWAN (optional)	<i>One of the following, configurable by model:</i> • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>									System Mgt	DASH Management			
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card									Fingerprint reader	Optional: Touch style match on chip fingerprint reader on the palm rest			
										NFC	None			
										Battery	Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr)			
										Max battery life	<i>MobileMark® 2014:</i> 16.4 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>			
										AC adapter	45W or 65W USB Type-C AC adapter			
										Preload	Windows® 10 Home 64 or Windows 10 Pro 64			
										Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service			
										Mil-Spec test	MIL-STD-810G military certification			
										Environment	EPEAT™ Bronze; ENERGY STAR® 7.1; RoHS-compliant			

Note: The specifications above may not be available in all regions.

Lenovo
June 2019



ThinkPad T580 Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ i5 Processor							Dimensions Weight	<i>WxDxH:</i> 14.40" x 9.95" x 0.79-0.80"; 365.8mm x 252.8mm x 19.95-20.2mm <i>Integrated model:</i> starting at 4.29 lb / 1.95 kg; <i>Discrete model:</i> starting at 4.39 lb / 1.99 kg																			
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types		Processor Graphics	Case color	Black																	
	i5-7200U	2	4	2.5 GHz	3.1 GHz	3MB	DDR4-2133	Intel HD Graphics 620	Case material	<i>Display cover:</i> Glass-Fiber Reinforced Plastic (PPS); <i>Bottom:</i> Glass-Fiber Reinforced Plastic																		
	i5-7300U			2.6 GHz	3.5 GHz	3MB																						
	or 8th Generation Intel Core i5 / i7 Processor							Smart card reader	<i>Optional:</i> Smart card reader																			
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Media reader	4-in-1 reader (MMC, SD, SDHC, SDXC)																		
	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB	DDR4-2400	Intel UHD Graphics 620	Ports	Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>																		
	i5-8350U			1.7 GHz	3.6 GHz	6MB																						
	i7-8550U			1.8 GHz	4.0 GHz	8MB																						
	i7-8650U			1.9 GHz	4.2 GHz	8MB																						
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and NVIDIA® GeForce® MX150, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Monitor cable (optional)	<i>HDMI to VGA:</i> Lenovo HDMI to VGA Monitor Adapter <i>USB-C to DP:</i> Lenovo USB-C to DisplayPort Adapter																			
Chipset	Intel SoC (System on Chip) platform							Camera (optional)	<i>One of the following, configurable by model:</i> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus																			
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* System clocks down for processors with lower memory controller</i>							Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack																			
Display	<i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle <i>Some:</i> 15.6" (396mm) UHD (3840x2160), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 72% gamut, 170° viewing angle							Keyboard	6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad																			
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)							Security	Power-on password, hard disk password, supervisor password, security keyhole																			
Storage	<i>System has one HDD slot or one M.2 2280 slot exclusively for storage</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s <i>Some:</i> 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN							Security chip	Discrete TPM 2.0, TCG Certified																			
Optane™ memory	<i>Optional:</i> Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2							vPro (optional)	Intel vPro Technology																			
Optical	None							Fingerprint reader	<i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology																			
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)							NFC (optional)	Near Field Communication																			
WLAN + Bluetooth™	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card <i>* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS</i>							Battery	Optional integrated Li-ion 32Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery																			
WWAN (optional)	<i>One of the following, configurable by model:</i> • Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) • Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>							Max battery life (MobileMark® 2014)	<table border="1"> <thead> <tr> <th>Models</th> <th>24Wh</th> <th>48Wh</th> <th>72Wh</th> <th>32Wh + 24Wh</th> <th>32Wh + 48Wh</th> <th>32Wh + 72Wh</th> </tr> </thead> <tbody> <tr> <td><i>Max battery life</i></td> <td>5.8 hr</td> <td>12.5 hr</td> <td>18.1 hr</td> <td>13.8 hr</td> <td>20.3 hr</td> <td>26.1 hr</td> </tr> </tbody> </table> <i>* Battery life varies significantly with settings, usage, & other factors</i>						Models	24Wh	48Wh	72Wh	32Wh + 24Wh	32Wh + 48Wh	32Wh + 72Wh	<i>Max battery life</i>	5.8 hr	12.5 hr	18.1 hr	13.8 hr	20.3 hr	26.1 hr
Models	24Wh	48Wh	72Wh	32Wh + 24Wh	32Wh + 48Wh	32Wh + 72Wh																						
<i>Max battery life</i>	5.8 hr	12.5 hr	18.1 hr	13.8 hr	20.3 hr	26.1 hr																						
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card							AC adapter	45W or 65W USB Type-C AC adapter																			
								Preload	Windows® 10 Home 64 or Windows 10 Pro 64																			
								Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service																			
								Mil-Spec test	MIL-STD-810G military certification																			
								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant																			

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



ThinkPad T590 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor									Dimensions Weight Case color Case material	<i>WxDxH:</i> 14.40" x 9.76" x 0.79"; 365.8mm x 248.0mm x 19.95mm <i>FHD model:</i> 3.87 lb / 1.75 kg; <i>UHD model:</i> 3.86 lb / 1.75 kg Black <i>Display cover:</i> PPS / 50% GF; <i>Bottom:</i> PA / 50% GF
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics			
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB	DDR4-2400	Intel UHD Graphics 620			
	i5-8365U			1.6 GHz	4.1 GHz	6MB					
	i7-8565U			1.8 GHz	4.6 GHz	8MB					
i7-8665U	1.9 GHz			4.8 GHz	8MB						
Graphics	Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and NVIDIA® GeForce® MX250, 2GB GDDR5 memory; supports external digital monitor via HDMI or Thunderbolt; supports three independent displays; Max resolution: 4096x2304@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI)									Smart card reader Media reader Ports Monitor cable (optional) Bundled Accy Camera (optional) Audio support Keyboard UltraNav™ Security Security chip System Mgt (opt) Fingerprint reader NFC (optional) Battery Max battery life AC adapter Preload Limited warranty Mil-Spec test Environment	
Chipset	Intel SoC (System on Chip) platform										
Memory	48GB max / 2400MHz DDR4, dual-channel capable, 8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket * Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation										
Display	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle		
	15.6"	FHD (1920x1080)	IPS	Anti-glare	250 nits	16:9	700:1	45%	170°		
	15.6"	UHD (3840x2160) Dolby Vision™ HDR	IPS	Anti-glare	500 nits	16:9	1200:1	100% Adobe	170°		
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)										
Storage	<ul style="list-style-type: none"> M.2 2280 SSD / SATA 6.0Gb/s M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 										
Optane™ memory	Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2										
Optical	None										
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)										
WLAN (optional) Bluetooth™	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0 Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter										
WWAN (optional)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Wireless WAN upgradable Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable										
SIM card	None										
Note: The specifications above may not be available in all regions.											



ThinkPad X1 Carbon (5th Gen) Platform Specifications

Product Specifications Reference (PSREF)

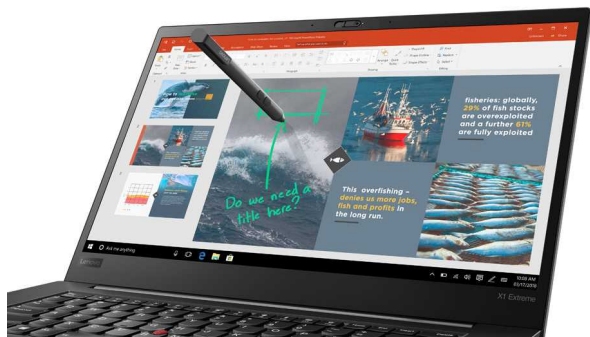
Processor	6th Generation Intel® Core™ i5 / i7 Processor (EMEA has only i5-6300U and i7-6600U)								Smart card reader	None									
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Media reader	MicroSD card reader, supports UHS-II microSD card									
	i5-6200U	2	4	2.3 GHz	2.8 GHz	3MB	LPDDR3-1866	Intel HD Graphics 520	Ports	Two USB 3.1 Gen 1 (USB 3.0, one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector									
	i5-6300U			2.4 GHz	3.0 GHz	3MB			* Depending on many factors, actual data transfer speed may be lower than theoretical speed										
	i7-6500U			2.5 GHz	3.1 GHz	4MB													
	i7-6600U			2.6 GHz	3.4 GHz	4MB													
	or 7th Generation Intel Core i5 / i7 Processor								WiGig dock (opt)	ThinkPad WiGig dock									
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Monitor cable (optional)	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter									
	i5-7200U	2	4	2.5 GHz	3.1 GHz	3MB	LPDDR3-1866	Intel HD Graphics 620	Bundled Accy	Optional: ThinkPad Ethernet Extension Cable									
	i5-7300U			2.6 GHz	3.5 GHz	3MB													
	i7-7500U			2.7 GHz	3.5 GHz	4MB													
	i7-7600U			2.8 GHz	3.9 GHz	4MB													
Graphics	Intel HD Graphics 520 or 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)								Camera (optional)	720p: HD720p resolution, fixed focus IR & 720p: IR camera and HD720p camera									
Chipset	Intel SoC (System on Chip) platform								Audio support	HD Audio, Conexant® CX11871 codec / stereo speakers, 2W x 2 / dual array microphone, combo audio/microphone jack									
Memory	8GB or 16GB / 1866MHz LPDDR3 / soldered to systemboard, no sockets								Keyboard	6-row, spill-resistant, multimedia Fn keys, LED backlight									
Display	Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle Some: 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle								UltraNav™	TrackPoint® pointing device and buttonless Glass surface multi-touch touchpad									
Multi-touch	None								Security	Power-on password, hard disk password, supervisor password, security keyhole									
Storage	One of the following, configurable by model: • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)								Security chip vPro (optional)	Discrete TPM 2.0, TCG Certified									
Optical	None								Fingerprint reader	Intel vPro Technology Touch style match on chip fingerprint reader on the palm rest									
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Cable								NFC (optional)	Near Field Communication									
WLAN	One of the following, configurable by model (WiGig can coexist with WWAN): • Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card • Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card • Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1, M.2 card								Battery	Integrated Li-Polymer 3-cell (57Wh) RapidCharge battery									
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter * Intel 8265ac / 18265ac card support BT4.2 but is limited to BT4.1 by Windows OS								Max battery life	MobileMark® 2014: 15.5 hr * Battery life varies significantly with settings, usage, & other factors									
WWAN (optional)	Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455)								AC adapter	45W or 65W USB Type-C AC adapter									
SIM card (opt)	Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card								RapidCharge	<table border="1"> <tr> <td>AC adapter</td> <td>45W USB-C</td> <td>65W USB-C</td> </tr> <tr> <td>Charge to 80%</td> <td>Not support</td> <td>1.0 hr</td> </tr> <tr> <td>Charge to 100%</td> <td>Not support</td> <td>2.5 hr</td> </tr> </table>	AC adapter	45W USB-C	65W USB-C	Charge to 80%	Not support	1.0 hr	Charge to 100%	Not support	2.5 hr
AC adapter	45W USB-C	65W USB-C																	
Charge to 80%	Not support	1.0 hr																	
Charge to 100%	Not support	2.5 hr																	
Dimensions	WxDxH: 12.74" x 8.55" x 0.63"; 323.5mm x 217.1mm x 15.95mm								Preload	Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64 • Lenovo Solution Center • Lenovo PowerEngage • ThinkVantage Product Recovery • ThinkVantage System Update • Adobe® Reader® • Microsoft® Office preloaded; purchase a product key to activate • McAfee® LiveSafe™ (30-day trial)									
Weight	Starting at 2.49 lb / 1.13 kg								Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service									
Case color	Black or Silver (silver is NOT available in EMEA)								Mil-Spec test	MIL-STD-810G military certification									
Case material	Display cover: CFRP/GFRP hybrid; Bottom: magnesium alloy hybrid								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant									



ThinkPad X1 Carbon (6th Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ i5 Processor								Dimensions Weight Case color Case material	<i>WxDxH:</i> 12.74" x 8.55" x 0.63"; 323.5mm x 217.1mm x 15.95mm Starting at 2.49 lb / 1.13 kg Black or Silver (silver case is NOT available in EMEA) <i>Display cover:</i> CFRP/GFRP hybrid; <i>Bottom:</i> magnesium alloy / PPS hybrid
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		
	i5-7300U	2	4	2.6 GHz	3.5 GHz	3MB	LPDDR3-1866	Intel HD Graphics 620		
	or 8th Generation Intel Core i5 / i7 Processor									
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		
	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB	LPDDR3-2133	Intel UHD Graphics 620		
	i5-8350U			1.7 GHz	3.6 GHz	6MB				
	i7-8550U			1.8 GHz	4.0 GHz	8MB				
	i7-8650U			1.9 GHz	4.2 GHz	8MB				
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 5120x2880@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)								Smart card reader Media reader Ports Monitor cable (optional) Bundled Accy	None MicroSD card reader, supports UHS-II Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, microSD card reader, side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i> HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter Optional: ThinkPad Ethernet Extension Adapter Gen 2
Chipset Memory	Intel SoC (System on Chip) platform 8GB or 16GB / 2133MHz LPDDR3 / soldered to systemboard, no sockets <i>* System clocks down for processors with lower memory controller</i>								Camera (optional) Audio support	One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus HD Audio, Realtek® ALC3286 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby® Atmos™ via headphones
Display	One of the following, configurable by model: • 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle • 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle • 14.0" (355mm) HDR WQHD (2560x1440) with Dolby Vision™, glossy, LED backlight, IPS, 500 nits, 16:9 aspect ratio, 1500:1 contrast ratio, 100% gamut, 170° viewing angle								Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, LED backlight TrackPoint® pointing device and buttonless Glass surface multi-touch touchpad
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)								Security Security chip vPro (optional) Fingerprint reader	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology
Storage	One of the following, configurable by model: • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)								NFC (optional)	Near Field Communication
Optane™ memory Optical	None None								Battery Max battery life AC adapter	Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter MobileMark® 2014: 19.3 hr <i>* Battery life varies significantly with settings, usage, & other factors</i> 45W or 65W USB Type-C AC adapter
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2								Preload	Windows® 10 Home 64 or Windows 10 Pro 64
WLAN + Bluetooth™	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card <i>* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS</i>								Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service
WWAN (optional)	Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>								Mil-Spec test	MIL-STD-810G military certification
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant



ThinkPad X1 Extreme Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor								Smart card reader Media reader Ports	<i>Optional:</i> Smart card reader SD Card reader (SD, SDHC, SDXC), supports UHS-II SD card Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet extension connector, headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		
	i5-8300H	4	8	2.3 GHz	4.0 GHz	8MB	DDR4-2666	Intel UHD Graphics 630		
	i5-8400H			2.5 GHz	4.2 GHz					
	i7-8750H	6	12	2.2 GHz	4.1 GHz	9MB				
i7-8850H	2.6 GHz			4.3 GHz						
Graphics	Intel UHD Graphics 630 in processor and NVIDIA® GeForce® GTX 1050 Ti Max-Q, 4GB GDDR5 memory; supports external digital monitor via HDMI or Thunderbolt™; supports four independent displays; Max resolution: 5120x2880@30Hz (Thunderbolt); 4096x2160@60Hz (HDMI)								Monitor cable (optional) Bundled Accy	(optional) Smart card reader HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter (optional) ThinkPad Ethernet Extension Cable
Chipset	Mobile Intel CM246 Chipset								Camera (optional)	One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus
Memory	64GB max / 2666MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets								Audio support	HD Audio, Realtek® ALC3286 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone
Display	<i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle <i>Some:</i> 15.6" (396mm) HDR 4K (3840x2160) with Dolby Vision™, anti-glare, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1200:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch, anti-reflection (AR)								Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, LED backlight TrackPoint® pointing device and buttonless glass surface multi-touch touchpad
Multi-touch (opt)	Capacitive-type multi-touch, supports 10-finger gesture (4K only)								Security	Power-on password, hard disk password, supervisor password, security keyhole
Pen	Supports pen accessory, please see the accessory compatibility for details								Security chip vPro (optional)	Discrete TPM 2.0, TCG Certified Intel vPro Technology
Storage	Up to 2 drives (two M.2 SSD) • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)								Fingerprint reader	Touch style match on chip fingerprint reader on the keyboard bezel
Optane™ memory	None								Color calibration	None
RAID (optional)	RAID 0/1 support								NFC	None
Optical	None								Battery	Integrated Li-ion 80Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Cable								Max battery life (MobileMark 2014)	Discrete mode: 9.5 hr; Hybrid mode: 14.9 hr * Battery life varies significantly with settings, usage, & other factors
WLAN	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card								AC adapter	135W slim tip AC adapter
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter								Preload	Windows® 10 Home 64 or Windows 10 Pro 64
WWAN	None								Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service
SIM card	None								Mil-Spec test	MIL-STD-810G military certification
Dimensions	WxDxH (non-touch): 14.24" x 9.67" x 0.72"; 361.8mm x 245.7mm x 18.4mm WxDxH (multi-ouch): 14.24" x 9.67" x 0.74"; 361.8mm x 245.7mm x 18.7mm								Environment	EPEAT™ Gold (US only); ENERGY STAR® 7.0; RoHS-compliant
Weight	Non-touch model: starting at 3.76 lb (1.7 kg); Multi-touch model: starting at 4.06 lb (1.8 kg)									
Case color	Black									
Case material	Display cover: CFRP/GFRP hybrid; Bottom: Aluminum alloy									

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad X270 Platform Specifications

Product Specifications Reference (PSREF)

<p>Processor 6th Generation Intel® Core™ i3 / i5 / i7 Processor</p> <table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i3-6006U</td> <td rowspan="6">2</td> <td rowspan="6">4</td> <td>2.0 GHz</td> <td>-</td> <td>3MB</td> <td rowspan="6">DDR4-2133</td> <td rowspan="6">Intel HD Graphics 520</td> </tr> <tr> <td>i3-6100U</td> <td>2.3 GHz</td> <td>-</td> <td>3MB</td> </tr> <tr> <td>i5-6200U</td> <td>2.3 GHz</td> <td>2.8 GHz</td> <td>3MB</td> </tr> <tr> <td>i5-6300U</td> <td>2.4 GHz</td> <td>3.0 GHz</td> <td>3MB</td> </tr> <tr> <td>i7-6500U</td> <td>2.5 GHz</td> <td>3.1 GHz</td> <td>4MB</td> </tr> <tr> <td>i7-6600U</td> <td>2.6 GHz</td> <td>3.4 GHz</td> <td>4MB</td> </tr> </tbody> </table> <p>or 7th Generation Intel Core i3 / i5 / i7 Processor</p> <table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i3-7100U</td> <td rowspan="6">2</td> <td rowspan="6">4</td> <td>2.4 GHz</td> <td>-</td> <td>3MB</td> <td rowspan="6">DDR4-2133</td> <td rowspan="6">Intel HD Graphics 620</td> </tr> <tr> <td>i5-7200U</td> <td>2.5 GHz</td> <td>3.1 GHz</td> <td>3MB</td> </tr> <tr> <td>i5-7300U</td> <td>2.6 GHz</td> <td>3.5 GHz</td> <td>3MB</td> </tr> <tr> <td>i7-7500U</td> <td>2.7 GHz</td> <td>3.5 GHz</td> <td>4MB</td> </tr> <tr> <td>i7-7600U</td> <td>2.8 GHz</td> <td>3.9 GHz</td> <td>4MB</td> </tr> </tbody> </table>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i3-6006U	2	4	2.0 GHz	-	3MB	DDR4-2133	Intel HD Graphics 520	i3-6100U	2.3 GHz	-	3MB	i5-6200U	2.3 GHz	2.8 GHz	3MB	i5-6300U	2.4 GHz	3.0 GHz	3MB	i7-6500U	2.5 GHz	3.1 GHz	4MB	i7-6600U	2.6 GHz	3.4 GHz	4MB	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i3-7100U	2	4	2.4 GHz	-	3MB	DDR4-2133	Intel HD Graphics 620	i5-7200U	2.5 GHz	3.1 GHz	3MB	i5-7300U	2.6 GHz	3.5 GHz	3MB	i7-7500U	2.7 GHz	3.5 GHz	4MB	i7-7600U	2.8 GHz	3.9 GHz	4MB	<p>Dimensions <i>WxDxH:</i> 12.03" x 8.21" x 0.80"; 305.5mm x 208.5mm x 20.3mm</p> <table border="1"> <thead> <tr> <th>Models</th> <th>No + 3-cell</th> <th>3-cell + 3-cell</th> <th>3 + 6-cell</th> </tr> </thead> <tbody> <tr> <td><i>Weight</i></td> <td>2.79 lb / 1.27 kg</td> <td>2.98 lb / 1.36 kg</td> <td>3.33 lb / 1.52 kg</td> </tr> </tbody> </table> <p>Case color Black Case material <i>Display cover:</i> Glass-Fiber Reinforced Plastic; <i>Bottom:</i> Glass-Fiber Reinforced Plastic</p> <p>Smart card reader Optional: Smart card reader</p> <p>Media reader 4-in-1 reader (MMC, SD, SDHC, SDXC)</p> <p>Ports Two USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), Dock connector <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i></p> <p>WiGig dock (opt) ThinkPad WiGig dock, mutually exclusive with WWAN (US only)</p> <p>Monitor cable (optional) <i>HDMI to VGA:</i> Lenovo HDMI to VGA Monitor Adapter <i>USB-C to VGA:</i> Lenovo USB-C to VGA Adapter <i>USB-C to DP:</i> Lenovo USB-C to DisplayPort Adapter</p> <p>Camera (optional) HD720p resolution, fixed focus</p> <p>Audio support HD Audio, Realtek ALC3268 codec / stereo speakers, 1.5W x 2 / dual array microphone, combo audio/microphone jack</p>	Models	No + 3-cell	3-cell + 3-cell	3 + 6-cell	<i>Weight</i>	2.79 lb / 1.27 kg	2.98 lb / 1.36 kg	3.33 lb / 1.52 kg
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<p>Graphics Intel HD Graphics 520 or 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2160@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)</p>	<p>Keyboard 6-row, spill-resistant, multimedia Fn keys, optional LED backlight UltraNav™ TrackPoint™ pointing device and buttonless Mylar surface multi-touch touchpad</p> <p>Security Power-on password, hard disk password, supervisor password, security keyhole</p> <p>Security chip Discrete TPM 2.0, TCG Certified</p> <p>vPro (optional) Intel vPro Technology</p> <p>Fingerprint reader Optional: Touch style match on chip fingerprint reader on the palm rest</p> <p>NFC (optional) Near Field Communication</p>																																																																												
<p>Chipset Intel SoC (System on Chip) platform</p> <p>Memory 16GB max / 2400MHz DDR4, one DDR4 SO-DIMM socket <i>* System clocks down for processors with lower memory controller</i></p>	<p>Internal battery Optional: Integrated Li-ion or Li-Polymer 3-cell (23Wh)</p> <p>External battery Li-ion 3-cell (23Wh) or 6-cell (48Wh or 72Wh)</p> <table border="1"> <thead> <tr> <th>Models</th> <th>No + 3-cell</th> <th>3-cell + 3-cell</th> <th>3-cell + 6-cell 48Wh</th> <th>3-cell + 6-cell 72Wh</th> </tr> </thead> <tbody> <tr> <td><i>Max battery life (MobileMark® 2014)</i></td> <td>6.52 hr</td> <td>13.04 hr</td> <td>20.1 hr</td> <td>26.9 hr</td> </tr> </tbody> </table> <p><i>* Battery life varies significantly with settings, usage, & other factors</i></p> <p>AC adapter 45W slim tip AC adapter or 45W USB Type-C AC adapter</p>	Models	No + 3-cell	3-cell + 3-cell	3-cell + 6-cell 48Wh	3-cell + 6-cell 72Wh	<i>Max battery life (MobileMark® 2014)</i>	6.52 hr	13.04 hr	20.1 hr	26.9 hr																																																																		
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<p>Display <i>Some:</i> 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio <i>Some:</i> 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle <i>Some:</i> 12.5" (317.5mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle</p> <p>Multi-touch (opt) On-cell touch, supports 10-finger gesture (FHD only)</p>	<p>Preload Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64</p> <p><i>Some:</i> Windows 10 Home 64</p> <ul style="list-style-type: none"> • Lenovo Companion • Lenovo Setting • Microsoft Office preloaded; purchase a product key to activate 																																																																												
<p>Storage <i>System has one HDD slot or one M.2 2280 slot exclusively for storage</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s <i>Some:</i> 128GB M.2 SSD / SATA 6.0Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN and WiGig</p>	<p>Limited warranty <i>One of the following, configurable by model:</i></p> <ul style="list-style-type: none"> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service 																																																																												
<p>Optical None</p>	<p>Mil-Spec test MIL-STD-810G military certification</p>																																																																												
<p>Ethernet <i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)</p>	<p>Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant</p>																																																																												
<p>WLAN <i>One of the following, configurable by model (WiGig is mutually exclusive with WWAN):</i></p> <ul style="list-style-type: none"> • Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1 • Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1 • Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1 • Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1 (US only) 	<p>Mil-Spec test MIL-STD-810G military certification</p>																																																																												
<p>Bluetooth™ Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter <i>* Intel 8265ac / 18265ac card support BT4.2 but is limited to BT4.1 by Windows OS</i></p>	<p>Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant</p>																																																																												
<p>WWAN (optional) <i>One of the following, configurable by model (mutually exclusive with WiGig):</i></p> <ul style="list-style-type: none"> • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455) • Integrated Mobile Broadband 4G LTE, Intel XMM™ 7160 (Fibocom L831-EAU) (EMEA only) 	<p>Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant</p>																																																																												
<p>SIM card (opt) Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card</p>	<p>Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant</p>																																																																												



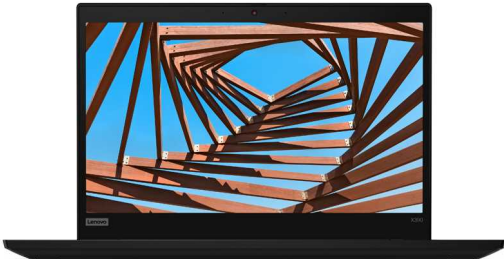
ThinkPad X280 Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ i3 / i5 Processor * i3-7130U is NOT available in US and EMEA; i5-7200U is NOT available in US							Dimensions	WxDxH: 12.11" x 8.26" x 0.69-0.70"; 307.7mm x 209.8mm x 17.4-17.8mm	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	FHD non-touch model: 2.49 lb / 1.13 kg; HD non-touch model: 2.78 lb / 1.26 kg; FHD multi-touch model: 2.79 lb / 1.27 kg
	i3-7130U	2	4	2.7 GHz	-	3MB	DDR4-2133	Intel HD Graphics 620	Case color	Black
	i5-7200U			2.5 GHz	3.1 GHz	3MB			Case material	Display cover: Carbon Fiber (FHD non-touch model) or Glass Fiber (HD & FHD multi-touch model);
	i5-7300U			2.6 GHz	3.5 GHz	3MB			Bottom: Magnesium/Aluminum	
	or 8th Generation Intel Core i3 / i5 / i7 Processor							Smart card reader	Optional: Smart card reader	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Media reader	MicroSD card reader, in the combo slot with nano-SIM card
	i3-8130U	4	8	2.2 GHz	3.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	Ports	Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet extension connector, combo slot of nano-SIM card (WWAN models) and microSD card reader, headphone / microphone combo jack, optional smart card reader, side docking connector, security keyhole
	i5-8250U			1.6 GHz	3.4 GHz	6MB			* Depending on many factors, actual data transfer speed may be lower than theoretical speed	
	i5-8350U			1.7 GHz	3.6 GHz	6MB			HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter	
	i7-8550U			1.8 GHz	4.0 GHz	8MB			USB-C to VGA: Lenovo USB-C to VGA Adapter	
	i7-8650U	1.9 GHz	4.2 GHz	8MB	USB-C to DP: Lenovo USB-C to DisplayPort Adapter	Optional: ThinkPad Ethernet Extension Adapter Gen 2				
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Monitor cable (optional)	Optional: ThinkPad Ethernet Extension Adapter Gen 2	
Chipset	Intel SoC (System on Chip) platform							Camera (optional)	One of the following, configurable by model:	
Memory	4GB, 8GB, or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets * 4GB memory is NOT available in US and EMEA * System clocks down for processors with lower memory controller							Audio support	<ul style="list-style-type: none"> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack	
Display	Some: 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio Some: 12.5" (317.5mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle							Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight	
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only) * FHD non-touch model is NOT available in US							UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad	
Storage	One of the following, configurable by model: • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)							Security	Power-on password, hard disk password, supervisor password, security keyhole	
Optane™ memory	None							Security chip	Discrete TPM 2.0, TCG Certified	
Optical	None							vPro (optional)	Intel vPro Technology	
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2							Fingerprint reader	Optional: Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology	
WLAN + Bluetooth™	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS							NFC (optional)	Near Field Communication	
WWAN (optional)	One of the following, configurable by model: • Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) • Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable							Battery	Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter	
SIM card (opt)	Nano-SIM card slot, in the combo slot with microSD card reader, optional Verizon LTE (US) SIM card							Max battery life	MobileMark® 2014: 16.6 hr * Battery life varies significantly with settings, usage, & other factors	
								AC adapter	45W or 65W USB Type-C AC adapter	
								Preload	Windows® 10 Home 64 or Windows 10 Pro 64	
								Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service	
								Mil-Spec test	MIL-STD-810G military certification	
								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant	

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



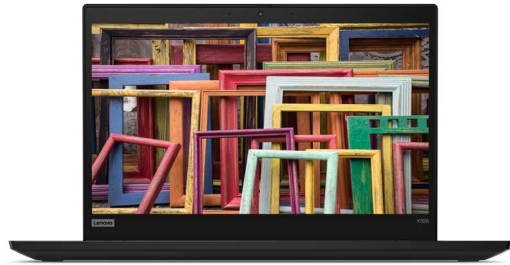
ThinkPad X390 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i3 / i5 / i7 Processor <table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i3-8145U</td> <td>2</td> <td>4</td> <td>2.1 GHz</td> <td>3.9 GHz</td> <td>4MB</td> <td rowspan="5">DDR4-2400</td> <td rowspan="5">Intel UHD Graphics 620</td> </tr> <tr> <td>i5-8265U</td> <td rowspan="4">4</td> <td rowspan="4">8</td> <td>1.6 GHz</td> <td>3.9 GHz</td> <td>6MB</td> </tr> <tr> <td>i5-8365U</td> <td>1.6 GHz</td> <td>4.1 GHz</td> <td>6MB</td> </tr> <tr> <td>i7-8565U</td> <td>1.8 GHz</td> <td>4.6 GHz</td> <td>8MB</td> </tr> <tr> <td>i7-8665U</td> <td>1.9 GHz</td> <td>4.8 GHz</td> <td>8MB</td> </tr> </tbody> </table>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB	i5-8365U	1.6 GHz	4.1 GHz	6MB	i7-8565U	1.8 GHz	4.6 GHz	8MB	i7-8665U	1.9 GHz	4.8 GHz	8MB	Dimensions	<table border="1"> <thead> <tr> <th>Models</th> <th>FHD Non-touch</th> <th colspan="2">HD / FHD Multi-touch</th> </tr> </thead> <tbody> <tr> <td>Carbon Fiber</td> <td>311.9mm x 217.0mm x 16.5mm 12.28" x 8.54" x 0.65"</td> <td colspan="2">-</td> </tr> <tr> <td>PPS</td> <td>312.0mm x 217.2mm x 16.9mm 12.28" x 8.55" x 0.67"</td> <td colspan="2">312mm x 217.2mm x 16.9mm 12.28" x 8.55" x 0.67"</td> </tr> </tbody> </table>	Models	FHD Non-touch	HD / FHD Multi-touch		Carbon Fiber	311.9mm x 217.0mm x 16.5mm 12.28" x 8.54" x 0.65"	-		PPS	312.0mm x 217.2mm x 16.9mm 12.28" x 8.55" x 0.67"	312mm x 217.2mm x 16.9mm 12.28" x 8.55" x 0.67"	
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PPS	2.85 lb / 1.29 kg	2.93 lb / 1.33 kg	2.84 lb / 1.28 kg																																														
Chipset Memory	Intel SoC (System on Chip) platform 8GB, 16GB or 32GB / 2400MHz DDR4 / soldered to systemboard, no sockets * Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation	Case color Case material	Black Display cover: Carbon Fiber (FHD non-touch only) or PPS; Bottom: Magnesium/Aluminum																																														
Display	<table border="1"> <thead> <tr> <th>Size</th> <th>Resolution</th> <th>Type</th> <th>Surface</th> <th>Brightness</th> <th>Aspect Ratio</th> <th>Contrast Ratio</th> <th>Color Gamut</th> <th>Viewing Angle</th> </tr> </thead> <tbody> <tr> <td>13.3"</td> <td>HD (1366x768)</td> <td>TN</td> <td>Anti-glare</td> <td>250 nits</td> <td>16:9</td> <td>500:1</td> <td>45%</td> <td>90°</td> </tr> <tr> <td>13.3"</td> <td>FHD (1920x1080)</td> <td>IPS</td> <td>Anti-glare</td> <td>300 nits</td> <td>16:9</td> <td>800:1 (non-touch) 700:1 (multi-touch)</td> <td>72%</td> <td>170°</td> </tr> <tr> <td>13.3"</td> <td>FHD (1920x1080) ThinkPad Privacy Guard</td> <td>IPS</td> <td>Anti-glare</td> <td>400 nits</td> <td>16:9</td> <td>1000:1</td> <td>72%</td> <td>178°</td> </tr> </tbody> </table>	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	13.3"	HD (1366x768)	TN	Anti-glare	250 nits	16:9	500:1	45%	90°	13.3"	FHD (1920x1080)	IPS	Anti-glare	300 nits	16:9	800:1 (non-touch) 700:1 (multi-touch)	72%	170°	13.3"	FHD (1920x1080) ThinkPad Privacy Guard	IPS	Anti-glare	400 nits	16:9	1000:1	72%	178°	Smart card reader Media reader Ports	Optional: Smart card reader MicroSD card reader, in the combo slot with nano-SIM card Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet extension connector, combo slot of nano-SIM card (WWAN models) and microSD card reader, headphone / microphone combo jack, optional smart card reader, side docking connector, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed Monitor cable (optional) HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter Bundled Accy Optional: ThinkPad Ethernet Extension Adapter Gen 2										
Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle																																									
13.3"	HD (1366x768)	TN	Anti-glare	250 nits	16:9	500:1	45%	90°																																									
13.3"	FHD (1920x1080)	IPS	Anti-glare	300 nits	16:9	800:1 (non-touch) 700:1 (multi-touch)	72%	170°																																									
13.3"	FHD (1920x1080) ThinkPad Privacy Guard	IPS	Anti-glare	400 nits	16:9	1000:1	72%	178°																																									
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)	Camera (optional)	One of the following, configurable by model: <ul style="list-style-type: none"> HD720p camera with ThinkShutter camera privacy, fixed focus IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus 																																														
Storage	<ul style="list-style-type: none"> M.2 2280 SSD / SATA 6.0Gb/s M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 	Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack																																														
Optane™ memory Optical	Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2 None	Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad																																														
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2	Security Security chip System Mgt (opt) Fingerprint reader NFC (optional)	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology Optional: Touch style match on chip fingerprint reader on the palm rest Near Field Communication																																														
WLAN (optional)	One of the following, configurable by model: <ul style="list-style-type: none"> Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0 Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0 	Battery	Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter																																														
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter	Max battery life AC adapter	MobileMark® 2014: 17.6 hr * Battery life varies significantly with settings, usage, & other factors 45W or 65W USB Type-C AC adapter																																														
WWAN (optional)	One of the following, configurable by model: <ul style="list-style-type: none"> Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable	Preload Limited warranty	Windows® 10 Home 64 or Windows 10 Pro 64 One of the following, configurable by model: <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service 																																														
Mil-Spec test		Environment	MIL-STD-810G military certification EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant																																														

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



AMD



AMD



AMD



AMD



AMD



AMD

ThinkPad X395 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics								Dimensions WxDxH: 12.28" x 8.55" x 0.67"; 311.9mm x 217.2mm x 16.9mm	Weight	<table border="1"> <tr> <th>Models</th> <th>HD / FHD multi-touch</th> <th>FHD non-touch</th> <th>FHD Privacy Guard</th> </tr> <tr> <td></td> <td>2.91 lb / 1.32 kg</td> <td>2.82 lb / 1.28 kg</td> <td>3.01 lb / 1.37 kg</td> </tr> </table>				Models	HD / FHD multi-touch	FHD non-touch	FHD Privacy Guard		2.91 lb / 1.32 kg	2.82 lb / 1.28 kg	3.01 lb / 1.37 kg
	Models	HD / FHD multi-touch	FHD non-touch	FHD Privacy Guard																		
		2.91 lb / 1.32 kg	2.82 lb / 1.28 kg	3.01 lb / 1.37 kg																		
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Controller	Processor Graphics			Case color Black Case material Display cover: PPS/GF; Bottom: Magnesium/Aluminum											
Ryzen 3 Pro 3300U	4	4	2.1 GHz	3.5 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 6 Graphics															
Ryzen 5 Pro 3500U	4	8	2.1 GHz	3.7 GHz	2MB L2 / 4MB L3		Radeon Vega 8 Graphics															
Ryzen 7 Pro 3700U	4	8	2.3 GHz	4.0 GHz	2MB L2 / 4MB L3		Radeon Vega 10 Graphics															
Graphics	AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor; supports external digital monitor via USB-C or HDMI; supports three independent displays; Max resolution: 4096x2304@60Hz (USB-C); 4096x2160@24Hz (HDMI)								Smart card reader Optional: Smart card reader	Media reader MicroSD card reader, in the combo slot with nano-SIM card	Ports One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2, two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet extension connector, combo slot of nano-SIM card (WWAN models) and microSD card reader, headphone / microphone combo jack, optional smart card reader, side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>											
Chipset	AMD SoC (System on Chip) platform								Monitor cable (optional) HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter	Bundled Accy Optional: ThinkPad Ethernet Extension Adapter Gen 2												
Memory	8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets <i>* Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation</i>								Camera (optional) <i>One of the following, configurable by model:</i>	Audio support • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus HD Audio, Realtek® ALC3287 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack												
Display	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle													
	13.3"	HD (1366x768)	TN	Anti-glare	250 nits	16:9	300:1	45%	90°													
	13.3"	FHD (1920x1080)	IPS	Anti-glare	300 nits	16:9	800:1 (non-touch) 700:1 (multi-touch)	72%	170°													
13.3"	FHD (1920x1080) ThinkPad Privacy Guard	IPS	Anti-glare	400 nits	16:9	1000:1	72%	178°														
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)								Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad												
Storage	<ul style="list-style-type: none"> M.2 2280 SSD / SATA 6.0Gb/s M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 								Security Security chip System Mgt Fingerprint reader NFC	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified DASH Management <i>Optional: Touch style match on chip fingerprint reader on the palm rest</i> None												
Optical	None								Battery	Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter												
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2								Max battery life	<i>MobileMark® 2014: 14.5 hr</i> <i>* Battery life varies significantly with settings, usage, & other factors</i>												
WLAN (optional)	Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0								AC adapter	45W or 65W USB Type-C AC adapter												
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter								Preload	Windows® 10 Home 64 or Windows 10 Pro 64												
WWAN (optional)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Wireless WAN upgradable Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>								Limited warranty	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 												
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card								Mil-Spec test	MIL-STD-810G military certification												
									Environment	EPEAT™ Bronze; ENERGY STAR® 7.1; RoHS-compliant												

Note: The specifications above may not be available in all regions.

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June 2019

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Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

Lenovo Services:

Carry-in or Mail-in Service: Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.

Depot or Courier Service: Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Expedited Depot: Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Onsite / In-home Service: Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.

International Warranty Service (IWS): PC repair coverage for customers who require a critical warranty repair while travelling internationally. Visit www.lenovo.com/internationalwarranty for details. Visit www.lenovo.com/warranty for Lenovo Warranty Services terms and conditions for complete details and restrictions.

Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.

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Lenovo™ **ThinkPad**® Tablets
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PSREF



Product Specifications Reference

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Summary of Changes

This section describes the technical changes made in this edition.

This edition might also include minor corrections and editorial changes which are not identified.

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Additions in this update

▶ **New product(s)**

None

▶ **New model(s)**

None

▶ **Others**

None

Changes in this update

▶ None

Withdrawals in this update

▶ **Withdrawn product(s)**

None



ThinkPad X1 Tablet (3rd Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor								Control buttons	Power button, volume control button, reset switch
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Dock	Optional: Hybrid dock
	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB	LPDDR3-2133	Intel UHD Graphics 620	Monitor cable (opt)	None
	i5-8350U			1.7 GHz	3.6 GHz	6MB			Adapter (optional)	USB-C to RJ45: Lenovo USB-C to Ethernet Adapter
	i7-8550U			1.8 GHz	4.0 GHz	8MB			USB-C to VGA: Lenovo USB C to VGA Plus Power Adapter	
i7-8650U	1.9 GHz			4.2 GHz	8MB	USB-C to HDMI: Lenovo USB-C to HDMI Plus Power Adapter				
Graphics	Intel UHD Graphics 620 in processor, supports external digital monitor via USB Type-C								Camera	Front camera: 2.0-megapixel, fixed focus Rear camera: 8.0-megapixel, auto focus
Chipset	Intel SoC (System on Chip) platform								IR Camera	Optional: IR camera, fixed focus (Not available with NFC)
Memory	8GB, or 16GB / 2133MHz LPDDR3 / soldered to systemboard, no sockets								Audio support	Realtek® ALC3278 codec / stereo speakers, 1W x 2 / two microphones, combo audio/microphone jack
Display	13.0" (330mm) QHD+ (3000x2000), glossy, LED backlight, IPS, anti-fingerprint display with Corning® Gorilla® Glass, WideView (160° viewing), 400 nits, 3:2 aspect ratio, 1200:1 contrast ratio								Pogo keyboard	Magnetic attached thin keyboard, with TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch, backlit
Multi-touch Pen	Capacitive touch panel, supports ten-finger gesture Optional: Lenovo Pen Pro or Lenovo Active Pen (ThinkPad Pen Pro) for multi-touch display								Keyboard color	Black
Kick stand	Opening angle up to 170 degrees								Security	Kensington lock slot
Storage	Some: M.2 SSD / SATA 6.0Gb/s (e.g. xxxG SSD) Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxG SSD PCIe NVMe)								Security chip	Discrete TPM 2.0 TCG Certified
Optical	None								vPro (optional)	Intel vPro Technology
Storage extension	One microSD card reader, in the combo slot with nano-SIM card, support USH-I, microSDHC, microSDXC								Fingerprint reader	Optional: Touch style Fingerprint reader
Ethernet	None								NFC (optional)	Near Field Communication (Not available with the IR camera)
WLAN	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS								Battery	Integrated Li-Ion 42Wh battery
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter								Max battery life	MobileMark® 2014: 9.5 hr * Battery life varies significantly with settings, usage, & other factors
WWAN (optional)	Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455)								AC adapter	45W or 65W USB Type-C AC adapter
SIM card (opt)	Nano-SIM card slot, in the combo slot with microSD card reader								Light sensor	Ambient Light Sensor
Dimensions	Tablet only: 11.97" x 8.9" x 0.35"; 304.1mm x 226mm x 8.9mm Tablet + keyboard: 11.97" x 8.9" x 0.57"; 304.1mm x 226mm x 14.4mm								G-sensor	3D accelerometer
Weight	Tablet only: starting at 1.96 lb (0.89kg) Tablet+keyboard: starting at 2.8 lb (1.27kg)								Compass	3D compass
Case color	Black								Gyroscope	3D gyrometer
Case material	Magnesium/Aluminum								GPS	GPS function is integrated into WWAN module
Smart card reader	None								Preload	Some: Windows 10 Pro 64 Some: Windows 10 Home 64
Ports	Two USB 3.1 Type-C Gen 1 / Thunderbolt 3 / Power Delivery 3.0, one Pogo keyboard connector, one Pen holder slot, headphone / microphone combo jack, combo slot of nano-SIM card (WWAN models) and microSD card reader * Depending on many factors, actual data transfer speed may be lower than theoretical speed								Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service
									Mil-Spec test	MIL-STD-810G military certification
									Environment	EPeAT™ Gold, GREENGUARD, Low Halogen, RoHS



ThinkPad L380 Yoga Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron® Processor, 7th Generation Intel Core™ i3 / i5 Processor								Dimensions	<i>WxDxH:</i> 12.67" x 8.82" x 0.74"; 322mm x 224.2mm x 18.8mm
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	Starting at 3.44 lb / 1.56 kg
	i5-7200U	2	4	2.5 GHz	3.1 GHz	3MB	DDR4-2133	Intel HD Graphics 620	Case color	Black or Silver
	or 8th Generation Intel Core i5 / i7 Processor								Case material	<i>Display cover:</i> Aluminum <i>Bottom:</i> GFRP
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)								Smart card reader	None
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Media reader	MicroSD card reader
	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB	DDR4-2400	Intel UHD Graphics 620	Ports	Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1, HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, microSD card reader, security keyhole
	i5-8350U			1.7 GHz	3.6 GHz	6MB			* <i>Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>	
i7-8550U	1.8 GHz			4.0 GHz	8MB	Monitor cable (optional)			HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter	
Chipset	Intel SoC (System on Chip) platform								Camera	<i>720p:</i> HD720p resolution, low light sensitive, fixed focus <i>IR & 720p:</i> IR camera and HD720p camera, fixed focus
Memory	Up to 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * System clocks down for processors with lower memory controller								Audio support	HD Audio, Realtek ALC3287 codec, Dolby® Advance / stereo speakers, 2W x 2 / dual array microphone, headphone / microphone combo jack
Display	<i>Some:</i> 13.3" (338mm) FHD (1920x1080), glossy, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle								Keyboard	6-row, multimedia Fn keys, optional LED backlight
Multi-touch (opt)	Capacitive-type multi-touch, AR (anti-reflection), supports 10-finger gesture								UltraNav™	TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch
Hinge	Yoga hinge, 360 degree								Security	Power-on password, hard disk password, supervisor password, security keyhole
Convert-mode	Laptop, tent, stand, yoga and tablet								Security chip	Discrete TPM 2.0, TCG Certified
Pen	ThinkPad Pen Pro, active pen for multi-touch display, on-board garage								vPro (optional)	Intel vPro Technology
Storage	<i>One of the following, configurable by model:</i> • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)								Fingerprint reader	<i>Optional:</i> Touch style fingerprint reader on the keyboard bezel, anti-spoofing technology
Optane Memory	None								NFC (optional)	Near Field Communication (mutually exclusive with smart card reader)
Optical	None								Battery	Integrated Li-Ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Cable Gen 2								Max battery life	<i>MobileMark® 2014:</i> 12.85 hr * <i>Battery life varies significantly with settings, usage, & other factors</i>
WLAN + Bluetooth™	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card * <i>Wireless card supports BT4.2 but is limited to BT4.1 by Windows OS</i>								AC adapter	45W or 65W USB Type-C AC adapter
WWAN	None								Preload	Windows® 10 Home 64 or Windows 10 Pro 64
SIM card	None								Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service
									Mil-Spec test	MIL-STD-810G military certification
									Environment	EPPEAT™ Gold; ENERGY STAR® 6.1; RoHS-compliant



ThinkPad L390 Yoga Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i3 / i5 / i7 Processor							Dimensions	WxDxH: 12.67" x 8.82" x 0.74"; 321.8mm x 224.2mm x 18.8mm	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	Starting at 3.44 lbs / 1.56 kg
	i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	Case color	Black or Silver
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB			Case material	Display cover: Magnesium / Aluminum
i7-8565U	4	8	1.8 GHz	4.6 GHz	8MB	Bottom: GFRP				
Graphics	Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Smart card reader	None	
Chipset	Intel SoC (System on Chip) platform							Media reader	MicroSD card reader	
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets							Ports	Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1, HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, microSD card reader, security keyhole	
Display	13.3" (338mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 72% gamut, 170° viewing angle							Monitor cable (optional)	<ul style="list-style-type: none"> USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to VGA + Power Adapter: Lenovo USB-C to VGA plus Power Adapter USB-C to HDMI: Lenovo USB-C to HDMI Adapter USB-C to HDMI + Power Adapter: Lenovo USB-C to HDMI plus Power Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter USB-C to RJ45: Lenovo USB-C to Ethernet Adapter USB-C to USB-A: Lenovo USB-C to USB-A Adapter USB-C to USB-C: Lenovo USB-C to USB-C Cable 2M 	
Multi-touch	Capacitive-type multi-touch, AR (anti-reflection), supports 10-finger gesture							Bundled Accessories (optional)	None	
Hinge	Yoga hinge, 360 degree							Camera	<ul style="list-style-type: none"> 720p: HD720p resolution, low light sensitive, fixed focus IR & 720p: IR camera and HD720p camera, fixed focus (black model only) World facing: 5MP resolution, auto focus (mutually exclusive with fingerprint reader) 	
Multi-mode	Notebook, stand, tent, tablet							Audio support	HD Audio, Realtek ALC3287 codec, Dolby® Audio™ Premium / stereo speakers, 2W x 2 / dual array microphone, headphone / microphone combo jack	
Pen (optional)	ThinkPad Pen Pro, active pen for multi-touch display, on-board garage							Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight	
Storage	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> M.2 SSD / SATA 6.0Gb/s M.2 (2242) SSD / PCIe NVMe, PCIe 3.0 x 2 M.2 (2280) SSD / PCIe NVMe, PCIe 3.0 x 4 							UltraNav™	TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch	
Optical	None							Security	Power-on password, hard disk password, supervisor password, security keyhole	
Optane Memory	None							Security chip vPro	Discrete TPM 2.0, TCG Certified	
Storage	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe) 							Fingerprint reader	Optional: Touch style fingerprint reader on the palm rest (mutually exclusive with World facing camera)	
Optical	None							NFC (optional)	Near Field Communication	
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Cable or Lenovo USB-C to Ethernet Adapter							Battery	Integrated Li-Ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter	
WLAN	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card							Max battery life	MobileMark® 2014: 12.17 hr	
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter							AC adapter	45W or 65W USB Type-C AC adapter	
WWAN	None							Preload	Windows® 10 Home 64 or Windows 10 Pro 64	
								Limited warranty	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service 	
								Mil-Spec test	MIL-STD-810G military certification	
								Environment	ENERGY STAR® 7.0; RoHS-compliant	



ThinkPad X1 Yoga (3rd Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor	Smart card reader	None																												
	<table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i5-8250U</td> <td rowspan="4">4</td> <td rowspan="4">8</td> <td>1.6 GHz</td> <td>3.4 GHz</td> <td>6MB</td> <td rowspan="4">LPDDR3-2133</td> <td rowspan="4">Intel UHD Graphics 620</td> </tr> <tr> <td>i5-8350U</td> <td>1.7 GHz</td> <td>3.6 GHz</td> <td>6MB</td> </tr> <tr> <td>i7-8550U</td> <td>1.8 GHz</td> <td>4.0 GHz</td> <td>8MB</td> </tr> <tr> <td>i7-8650U</td> <td>1.9 GHz</td> <td>4.2 GHz</td> <td>8MB</td> </tr> </tbody> </table>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB	LPDDR3-2133	Intel UHD Graphics 620	i5-8350U	1.7 GHz	3.6 GHz	6MB	i7-8550U	1.8 GHz	4.0 GHz	8MB	i7-8650U	1.9 GHz	4.2 GHz	8MB	Media reader Ports	MicroSD card reader, supports UHS-II Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3, HDMI 1.4, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, microSD card reader <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>
Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics																								
i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB	LPDDR3-2133	Intel UHD Graphics 620																								
i5-8350U			1.7 GHz	3.6 GHz	6MB																										
i7-8550U			1.8 GHz	4.0 GHz	8MB																										
i7-8650U			1.9 GHz	4.2 GHz	8MB																										
Graphics	Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 5120x2880@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)	WiGig dock	None																												
Chipset	Intel SoC (System on Chip) platform	Monitor cable (optional)	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter																												
Memory	8GB or 16GB / 2133MHz LPDDR3 / soldered to systemboard, no sockets	Camera (optional)	One of the following, configurable by model: 720p: HD720p camera with ThinkShutter camera privacy, fixed focus IR & 720p: IR camera and HD720p camera, fixed focus <i>* WWAN models and HDR panel models can not support IR camera</i>																												
Display	<p><i>Some:</i> 14.0" (355mm) FHD (1920x1080), LED backlight, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle, IPS</p> <p><i>Some:</i> 14.0" (355mm) WQHD (2560x1440), LED backlight, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle, IPS</p> <p><i>Some:</i> 14.0" (355mm) HDR WQHD (2560x1440) with Dolby Vision™, LED backlight, 500 nits, 16:9 aspect ratio, 1500:1 contrast ratio, 100% gamut, 170° viewing angle, IPS</p>	Audio support	HD Audio, Realtek® ALC3286 codec, Dolby® Audio™ Premium / stereo speakers, 1W x 2 / dual array microphone, headphone / microphone combo jack																												
Multi-touch	Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture, reduces overall display brightness by 10%	Keyboard	6-row wave keyboard (rise & fall), spill-resistant, multimedia Fn keys, LED backlit																												
Hinge	Yoga hinge, 360 degree	UltraNav™	TrackPoint® pointing device and 3+2 buttons multi-touch clickpad																												
Convert-mode	Laptop, tent, stand, and tablet	Security	Power-on password, hard disk password, supervisor password, security keyhole																												
Pen (optional)	ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable	Security chip	Discrete TPM 2.0 TCG Certified																												
Storage	<p><i>Some:</i> M.2 SSD / SATA 6.0Gb/s (e.g. xxxG SSD)</p> <p><i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxG SSD PCIe NVMe)</p>	vPro (optional)	Intel vPro Technology																												
Optical	None	Fingerprint reader	Touch style match on chip fingerprint reader on the palm rest																												
Ethernet	Native Intel Ethernet Connection WGI219-LM (vPro) via optional ThinkPad Ethernet Extension Cable	NFC (optional)	Near Field Communication																												
WLAN	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card <i>* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS</i>	Battery	Integrated Li-Ion 54Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter																												
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter	Max battery life	MobileMark® 2014: 15.4 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>																												
WWAN (optional)	Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card	AC adapter	45W or 65W USB Type-C AC adapter																												
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card	Light sensor	Ambient Light Sensor																												
Dimensions	WxDxH: 13.11" x 9.02" x 0.67"; 333mm x 229mm x 17.05mm	G-sensor	3D accelerometer and 3D magnetometer																												
Weight	Starting at 3.08 lb (1.4kg)	Compass	None																												
Case color	Black or silver	Gyroscope	3D gyrometer																												
Case material	<p><i>Display cover:</i> Carbon-Fiber and Glass-Fiber hybrid;</p> <p><i>Bottom:</i> magnesium-PPS hybrid</p>	Preload	Windows 10 Pro 64																												
		Limited warranty	One of the following, configurable by model: <ul style="list-style-type: none"> • 1-year depot repair service • 3-year/1-yr battery depot repair service 																												
		Mil-Spec test	MIL-STD-810G military certification																												
		Environment	EPEAT™ Gold; ENERGY STAR®; RoHS-compliant																												



ThinkPad X380 Yoga Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor								Dimensions WxDxH: 12.34" x 8.75" x 0.72"; 313.5mm x 222.2mm x 18.2mm Weight Starting at 3.17 lb (1.43kg) Case color Black or silver Case Material Carbon-Fiber Hybrid
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	
	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB	DDR4-2400	Intel UHD Graphics 620	
	i5-8350U			1.7 GHz	3.6 GHz	6MB			
	i7-8550U			1.8 GHz	4.0 GHz	8MB			
i7-8650U	1.9 GHz			4.2 GHz	8MB				
Graphics	Intel UHD Graphics 620 in processor only; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)								Smart card reader <i>Optional</i> : Smart card reader (mutually exclusive with NFC) Media reader One microSD card slot (microSD, microSDHC, microSDXC), UHS-I Ports Two USB 3.1 Gen 1 (one Always On), Ethernet extension connector, one USB 3.1 Type-C Gen 2 / Thunderbolt 3, HDMI 1.4b, microSD card reader, nano-SIM card slot (WWAN models), headphone / microphone combo jack <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i> WiGig dock None Monitor cable (optional) <i>USB-C to VGA</i> : Lenovo USB-C to VGA Plus Power Adapter <i>USB-C to DP</i> : Lenovo USB-C to DisplayPort Adapter <i>HDMI to VGA</i> : Lenovo HDMI to VGA Monitor Adapter
Chipset	Intel SoC (System on Chip) platform								
Memory	8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets <i>* System clocks down for processors with lower memory controller</i>								
Display	13.3" (337.8mm) FHD (1920x1080), LED backlight, IPS 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle								
Multi-touch	Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture								
Hinge	Yoga hinge, 360 degree								
Convert-mode	Laptop, tent, stand, yoga and tablet								
Pen	ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable								
Storage	<i>Some</i> : M.2 SSD / SATA 6.0Gb/s (e.g. xxxG SSD) <i>Some</i> : M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxG SSD PCIe NVMe)								
Optical	None								
Optane Memory	None								
Ethernet	Native Intel Ethernet Connection I219-V (<i>Non-vPro</i>) or I219-LM (<i>vPro</i>) via optional ThinkPad Ethernet Extension Cable								
WLAN	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card <i>* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS</i>								
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter								
WWAN (<i>optional</i>)	Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only)								
SIM card (<i>opt</i>)	Nano-SIM card slot								
Battery	Li-Ion 51Wh battery Max battery life <i>MobileMark® 2014</i> : 13.6 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>								
AC adapter	45W or 65W AC adapter (slim tip), 45W or 65W USB Type-C AC adapter								
Light sensor	Ambient Light Sensor								
G-sensor/ eCompass	3D accelerometer and 3D magnetometer 3D compass								
Gyroscope	3D gyrometer								
Preload	<i>Some</i> : Windows 10 Home 64 <i>Some</i> : Windows 10 Pro 64								
Limited warranty	<i>One of the following, configurable by model</i> : • 1-year depot repair service • 3-year/1-yr battery depot repair service								
Mil-Spec test	MIL-STD-810G military certification								
Environment	EPEAT™ Gold; ENERGY STAR®; RoHS-compliant								



ThinkPad X390 Yoga Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor								Smart card reader Media reader Ports
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB	DDR4-2400	Intel UHD Graphics 620	
	i5-8365U	4	8	1.6 GHz	4.1 GHz	6MB			
	i7-8565U	4	8	1.8 GHz	4.6 GHz	8MB			
i7-8665U	4	8	1.9 GHz	4.8 GHz	8MB				
Graphics	Intel UHD Graphics 620 in processor only; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160 @24Hz (HDMI)								Optional: Smart card reader MicroSD card reader, in the combo slot with nano-SIM card Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and Display Port), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet extension connector, combo slot of nano-SIM card (WWAN models) and microSD card reader, headphone / microphone combo jack, optional smart card reader, side docking connector, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed
Chipset	Intel SoC (System on Chip) platform								Monitor cable (optional)
Memory	8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets * Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation								USB-C to HDMI: Lenovo USB-C to HDMI Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter Optional: ThinkPad Ethernet Extension Adapter Gen 2
Display	13.3" (337.8mm) FHD (1920x1080), LED backlight, IPS, Glossy, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, Color Gamut 72%, 170° viewing angle, capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge)								Bundled Accy
Multi-touch	supports 10-finger gesture								Camera
Hinge	Yoga hinge, 360 degree								Audio support
Convert-mode	Laptop, tent, stand and tablet								Keyboard
Pen	ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable								UltraNav™
Storage	<ul style="list-style-type: none"> M.2 2280 SSD / SATA 6.0Gb/s M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 								TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Optane™ memory	Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2								Security
Optical	None								Security chip
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2								Discrete TPM 2.0 TCG Certified
WLAN	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0 Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0 								vPro (optional)
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter								Intel vPro Technology
WWAN (optional)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>								Fingerprint reader
Dimensions	WxDxH: 12.22" x 8.62" x 0.63"; 310.4mm x 219mm x 15.95mm								Touch style match on chip fingerprint reader on the palm rest
Weight	Starting at 2.85 lb (1.29kg)								NFC (optional)
Case color	Black or silver								Near Field Communication
Case Material	Display cover: Carbon-Fiber Hybrid Bottom: Carbon-Fiber Hybrid								Battery
									Integrated Li-ion 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
									Max battery life
									MobileMark® 2014: 14.5 hrs * Battery life varies significantly with settings, usage, & other factors
									AC adapter
									45W or 65W USB Type-C AC adapter
									Light sensor
									None
									G-sensor
									3D accelerometer
									Gyroscope
									3D gyrometer
									Preload
									Windows® 10 Home 64 or Windows 10 Pro 64
									Limited warranty
									<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
									Mil-Spec test
									MIL-STD-810G military certification
									Environment
									EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant



ThinkPad Yoga 11e (5th Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ m / i5 Processor, Intel Celeron® processor, or Intel Pentium® Silver processor							Dimensions	WxDxH: 11.81" x 8.27" x 0.89"; 300mm x 210mm x 22.5mm	
								Weight	from 3.4 lb (1.54kg)	
								Case color	Black	
								Case material	Display cover: PC/ABS+GF; Bottom: PC/ABS plastic	
	Processor Number	# of Cores	# of Threads	Base Frequency	Burst Frequency	Cache	Memory Controller	Processor Graphics	Media reader	MicroSD card reader
m3-7Y30	2	4	1.0 GHz	2.6 GHz	4MB	LPDDR3-1866	Intel HD Graphics 615	Ports	Two USB 3.1 Gen 1, one USB 3.1 Type-C Gen 1, HDMI 1.4, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole	
i5-7Y54			1.2 GHz	3.2 GHz	4MB		Intel UHD Graphics 600	* Depending on many factors, actual data transfer speed may be lower than theoretical speed		
Cel N4100	4	4	1.1 GHz	2.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 605	Control buttons	Power button, volume control button	
Pen N5000			1.1 GHz	2.7 GHz	4MB					
Graphics	Intel HD Graphics 615, Intel UHD Graphics 600 or 605 in processor, supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 3840x2160@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Camera	One of the following, configurable by model: 720p: HD720p resolution, low light sensitive, fixed focus World facing: Rear camera, 5MP resolution, auto focuss	
Chipset	Intel SoC (System on Chip) platform 4GB or 8GB / 1866MHz LPDDR3 or 2400MHz DDR4 / soldered to systemboard, no sockets							Audio support	HD Audio, Realtek® ALC3287 codec Dolby Audio / stereo speakers, 2W x 2 / monaural microphone, headphone / microphone combo jack	
Memory								Keyboard	6-row, multimedia Fn keys	
Display	11.6" (295mm) HD (1366x768), anti-glare, LED backlight, IPS 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle							UltraNav™	Two buttons click pad below keyboard, multi-touch	
MultiTouch	Capacitive-type multi-touch, support 10 fingers							Security	Power-on password, hard disk password, supervisor password, security keyhole	
Hinge	Yoga hinge, 360 degree							Security chip	Discrete TPM 2.0, TCG Certified	
Convertible mode	Laptop, tent, stand and tablet							vPro	None	
Pen	Some: Active pen, batteries required, on-board garage							Fingerprint reader	None	
Storage	eMMC flash memory on board or M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s							Battery	Integrated Li-Ion 42Wh battery	
Optical	None							Max battery life	MobileMark® 2014: 12 hr * Battery life varies significantly with settings, usage, & other factors	
Ethernet	Realtek RTL8111GUS-CG Gigabit Network Connection							AC adapter	45W or 65W slim tip AC adapter or USB Type-C AC adapter	
WLAN	One of the following, configurable by model: • Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card • Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card							Preload	Some: Windows 10 Home 64 Some: Windows 10 Pro 64	
Bluetooth™	Bluetooth wireless, integrated in Wi-Fi + Bluetooth combo adapter							Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year depot repair service	
WWAN	None							Mil-Spec test	MIL-STD-810G military certification	
								Environment	EPEAT™ Gold; ENERGY STAR® 6.1; RoHS-compliant	

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Expedited Depot: Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Onsite / In-home Service: Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.

International Warranty Service (IWS): PC repair coverage for customers who require a critical warranty repair while travelling internationally. Visit www.lenovo.com/internationalwarranty for details. Visit www.lenovo.com/warranty for Lenovo Warranty Services terms and conditions for complete details and restrictions.

Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.

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Summary of Changes

This section describes the technical changes made in this edition.

This edition might also include minor corrections and editorial changes which are not identified.

May 2019 - Version 542

Additions in this update

▶ **New product(s)**

None

▶ **New model(s)**

None

▶ **Others**

None

Remove ThinkCentre M920 SFF model pages, move to online version

Remove ThinkCentre M920 Tower model pages, move to online version

Remove ThinkCentre M720 SFF model pages, move to online version

Remove ThinkCentre M720 Tower model pages, move to online version

Remove ThinkCentre M630e Tiny model pages, move to online version

Remove ThinkCentre M625 Tiny model pages, move to online version

Remove ThinkCentre M625 Tiny Thin Client model pages, move to online version

Remove ThinkCentre M715 Tiny (2nd Gen) model pages, move to online version

Remove ThinkCentre M715 Tiny Thin Client (2nd Gen) model pages, move to online version

Withdrawals in this update

▶ **Withdrawn product(s)**

None

▶ **Withdrawn model(s)**

None



ThinkCentre M810z Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6th / 7th Gen Intel Core™ i3 / i5 / i7 Processor						Security features	<ul style="list-style-type: none"> Security slot (in rear for attachment of optional Kensington® MicroSaver® cable; Kensington lock also locks chassis) Smart USB protection, allows keyboard/mouse only, blocks all storage devices Optional cable lock to physically lock keyboard and mouse 	<ul style="list-style-type: none"> Power-on, admin, hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional Chassis intrusion switch
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics			
	Pentium G4400	2 / 2	3.3G	3 MB	DDR4-2133	HD 510			
	Pentium G4560	2 / 4	3.5G	3 MB	DDR4-2400	HD 610			
	Pentium G4600	2 / 4	3.6G	3 MB	DDR4-2400	HD 630			
	Core i3-6100	2 / 4	3.7G	3 MB	DDR4-2133	HD 530			
	Core i5-6500	4 / 4	3.2G / 3.6G	6 MB	DDR4-2133	HD 530			
	Core i7-6700	4 / 8	3.4G / 4.0G	8 MB	DDR4-2133	HD 530			
	Core i3-7100	2 / 4	3.9G	3 MB	DDR4-2400	HD 630			
	Core i5-7400	4 / 4	3.0G / 3.5G	6 MB	DDR4-2400	HD 630			
Core i5-7500	4 / 4	3.4G / 3.8G	6 MB	DDR4-2400	HD 630				
Core i5-7600	4 / 4	3.5G / 4.1G	6 MB	DDR4-2400	HD 630				
Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630				
Memory	32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, dual-channel capable * System clocks down for the processors with lower memory controller						Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black	Mouse <ul style="list-style-type: none"> Business black color Toolless stand Support VESA mount (100mm)
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s <i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.5mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.5mm)								
Optical	Optional 9-in-1 media card reader								
Media reader	Optional 9-in-1 media card reader								
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, external monitor support via DisplayPort™; <i>Max resolution:</i> 4096x2304 (DP)@60Hz, 1920x1080 (Panel)@60Hz 21.5" (546.1mm) Full HD 1080p (1920x1080) TFT color , MVA panel, wide viewing angle (+/- 89°), LED backlight, 250 nits, 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, support Low Blue Light Mode								
Display	Optional Projected Capacitive Touch (PCT) technology, supports 10-point touch Optional 1080p camera, fixed focus, with dual microphone, LED indicator, physical switch on/off								
Multi-touch	Physical buttons for Microphone mute, brightness up/down, and power on/off								
Camera	Physical buttons for Microphone mute, brightness up/down, and power on/off								
Controls	Physical buttons for Microphone mute, brightness up/down, and power on/off								
Chipset	Intel B250 Chipset								
Rear ports*	Four USB 3.1 Gen1, ethernet (RJ-45), DisplayPort, optional serial (9-pin), Two USB 3.1 Gen1 (one is Always On and fast charge), optional card reader, one headphone / microphone combo jack (3.5mm)								
Side ports*	* Depending on many factors, actual data transfer speed may be lower than theoretical speed								
M.2 card slot	Two M.2 Card slots (one for WLAN, one for SSD/Optane)								
Audio support	High Definition (HD) Audio, Realtek ALC233 / two internal speakers (2W x 2), Dolby® Audio™ certified								
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2								
Bluetooth™	<i>Some:</i> Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter								
Ethernet	Gigabit ethernet, Realtek RTL8111G, Wake on LAN®								
Manageability	None								
Security chip	TPM (Trusted Platform Module) 2.0, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS								
Power supply	150 watts, autosensing, 85% PSU								
Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot repair service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available								
Preload	Preloaded operating system <i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit								
Environment	Preloaded applications (only some listed) <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate - Only for Window 10 Lenovo Companion - Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools ThinkVantage System Update Create Recovery Media Adobe® Reader® Cyberlink PowerDVD Create (DVD±RW) 								
Environment	EPEAT™ Gold rating (North America); ENERGY STAR® 6.1; TCO AIO Computer Certified; ErP Lot 3; GREENGUARD® certified; RoHS-compliant								
MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock)								
Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com								

See footnotes for more detailed information



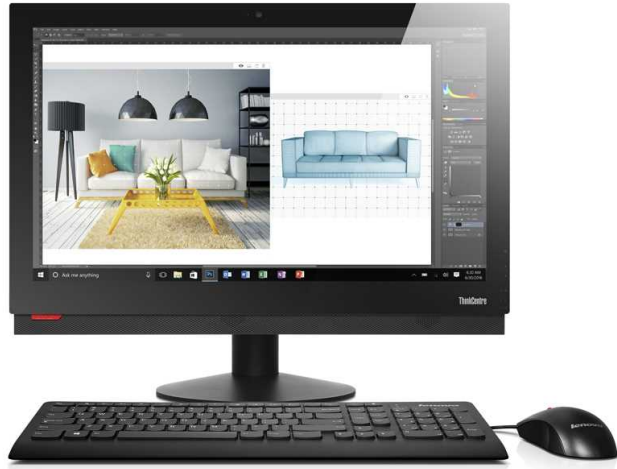
ThinkCentre M820z Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 8th Generation Intel Core™ i3 / i5 / i7 Processor						Security features <ul style="list-style-type: none"> • Security slot (in rear for attachment of optional Kensington® MicroSaver® cable; Kensington lock also locks chassis) • Smart USB protection, allows keyboard/mouse only, blocks all storage devices • Power-on, admin, hard disk password • Boot sequence control • Boot without keyboard and mouse • Individual USB port disablement • Optional Chassis intrusion switch 																				
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics																					
	Celeron G4900	2 / 2	3.1G	2 MB	DDR4-2400	UHD 610																					
	Celeron G4920	2 / 2	3.2G	2 MB	DDR4-2400	UHD 610																					
	Pentium Gold G5400	2 / 4	3.7G	4 MB	DDR4-2400	UHD 610																					
	Pentium Gold G5500	2 / 4	3.8G	4 MB	DDR4-2400	UHD 630																					
	Pentium Gold G5600	2 / 4	3.9G	4 MB	DDR4-2400	UHD 630																					
	Core i3-8100	4 / 4	3.6G	6 MB	DDR4-2400	UHD 630																					
	Core i3-8300	4 / 4	3.7G	8 MB	DDR4-2400	UHD 630																					
	Core i5-8400	6 / 6	2.8G / 4.0G	9 MB	DDR4-2666	UHD 630																					
Core i5-8500	6 / 6	3.0G / 4.1G	9 MB	DDR4-2666	UHD 630																						
Core i5-8600	6 / 6	3.1G / 4.3G	9 MB	DDR4-2666	UHD 630																						
Core i7-8700	6 / 12	3.2G / 4.6G	12 MB	DDR4-2666	UHD 630																						
Memory	32GB max, DDR4-2666*, two 260-pin SO-DIMM sockets, dual-channel capable * System clocks down for the processors with lower memory controller																										
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s <i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2 <i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)																										
Optical	Optional 3-in-1 media card reader																										
Media reader	Optional 3-in-1 media card reader																										
Graphics	Intel HD Graphics 610/630 in processor, uses main memory, DirectX® 12, external monitor support via DisplayPort™;																										
Display	<i>Max resolution:</i> 4096x2304 (DP)@60Hz, 1920x1080 (Panel)@60Hz 21.5" (546.1mm) Full HD 1080p (1920x1080) TFT color , Borderless design, MVA panel, wide viewing angle (+/- 89°), LED backlight, 250 nits, 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, support Low Blue Light Mode																										
Multi-touch	Optional multi-touch, supports 10-point, AIT (Advanced In-cell Touch) technology																										
Camera	Optional 1080p camera, with dual microphone, LED indicator, physical switch on/off, supports multi-degree rotation (horizontal 0° to 180°, vertical -25° to 25°)																										
Controls	Physical buttons on side for microphone mute and power on/off																										
Chipset	Intel B360 Chipset																										
Rear ports*	Four USB 3.1 Gen1 (one supports Smart Power On), one ethernet (RJ-45), one DisplayPort, one optional serial (9-pin),																										
Side ports*	one USB 3.1 Gen2 (one is Always On and fast charge), one USB 3.1 Type-C Gen 1, one optional card reader, one headphone / microphone combo jack (3.5mm)																										
M.2 card slot	* Depending on many factors, actual data transfer speed may be lower than theoretical speed Two M.2 Card slots (one for WLAN, one for SSD/Optane)																										
Audio support	High Definition (HD) Audio, Realtek ALC233 / two internal speakers (2W x 2), Dolby® Audio™ Premium																										
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2																										
Bluetooth™	<i>Some:</i> Bluetooth 4.2/5.0 wireless, integrated in Wi-Fi + BT combo adapter																										
Ethernet	Gigabit ethernet, Realtek RTL8111G, Wake on LAN®																										
Manageability	None																										
Security chip	Discrete TPM 2.0, TCG Certified																										
<table border="1"> <thead> <tr> <th>Dimensions (WxDxH)</th> <th>Max weight (lb / kg)</th> <th>Adjustments</th> </tr> </thead> <tbody> <tr> <td colspan="3">Without stand (No camera):</td> </tr> <tr> <td>19.3 X 1.9 X 13.5 (inch) 491 X 49 X 342 (mm)</td> <td>(Touch) 11.6 / 5.25 (Non-touch) 11.1 / 5.05</td> <td>N/A</td> </tr> <tr> <td colspan="3">With Full Function Monitor stand (No camera):</td> </tr> <tr> <td>19.3 X 9.9 X 14.8 to 19.1 (inch) 491 X 252 X 377 to 486 (mm)</td> <td>(Non-touch) 15.8 / 7.18</td> <td>Tilt: 45° back, -5° forward; Lift: 110mm; Swivel: +/-45°</td> </tr> <tr> <td colspan="3">With UltraFlex III stand (No camera):</td> </tr> <tr> <td>19.3 X 9.9 X 16.4 (highest) (inch) 491 X 252 X 416 (highest) (mm)</td> <td>(Touch) 17.3 / 7.85 (Non-touch) 16.9 / 7.65</td> <td>Tilt: 70° back, -5° forward; Lift: 136mm; Swivel: +/-45°</td> </tr> </tbody> </table>							Dimensions (WxDxH)	Max weight (lb / kg)	Adjustments	Without stand (No camera):			19.3 X 1.9 X 13.5 (inch) 491 X 49 X 342 (mm)	(Touch) 11.6 / 5.25 (Non-touch) 11.1 / 5.05	N/A	With Full Function Monitor stand (No camera):			19.3 X 9.9 X 14.8 to 19.1 (inch) 491 X 252 X 377 to 486 (mm)	(Non-touch) 15.8 / 7.18	Tilt: 45° back, -5° forward; Lift: 110mm; Swivel: +/-45°	With UltraFlex III stand (No camera):			19.3 X 9.9 X 16.4 (highest) (inch) 491 X 252 X 416 (highest) (mm)	(Touch) 17.3 / 7.85 (Non-touch) 16.9 / 7.65	Tilt: 70° back, -5° forward; Lift: 136mm; Swivel: +/-45°
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Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black																										
Mouse	<i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black																										
Mechanical	<ul style="list-style-type: none"> • Business black color • Toolless back cover, stand, memory removal • Support VESA mount (100mm) 																										
Power supply	150 watts, autosensing, 90% PSU																										
Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot repair service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available																										
Preload	Preloaded operating system <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> • Lenovo Vantage • Microsoft Office preloaded; purchase a product key to activate • Cyberlink PowerDVD (only for models with DVD / DVD±RW) • Cyberlink Power2GO (only for models with DVD±RW) • LinkedIn 																										
Environment	ENERGY STAR® 7.0*, EPEAT™ Gold rating* (*not for non-OS models), ErP Lot 3, TCO AIO Computer certified, GREENGUARD® certified, TUV Eye comfort certified (for Full Function Monitor Stand only), TUV Low Blue Light certified, TUV Ultra Low Noise certified (on some models), RoHS-compliant																										
MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus)																										
Accessories	For compatible accessories, please go to http://smartfind.lenovo.com																										

Note: The specifications above may not be available in all regions.

Lenovo, July 2018



ThinkCentre M910z Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6th / 7th Gen Intel Core™ i3 / i5 / i7 Processor	Security chip	TPM (Trusted Platform Module) 2.0, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS																																																						
	<table border="1"> <thead> <tr> <th>Processor</th> <th>Cores / Threads</th> <th>Frequency Base/Max(GHz)</th> <th>Cache</th> <th>Memory Support (Up to)</th> <th>Integrated Graphics</th> </tr> </thead> <tbody> <tr> <td>Core i3-6100</td> <td>2 / 4</td> <td>3.7G</td> <td>3 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i5-6500</td> <td>4 / 4</td> <td>3.2G / 3.6G</td> <td>6 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i7-6700</td> <td>4 / 8</td> <td>3.4G / 4.0G</td> <td>8 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i3-7100</td> <td>2 / 4</td> <td>3.9G</td> <td>3 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7400</td> <td>4 / 4</td> <td>3.0G / 3.5G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7500</td> <td>4 / 4</td> <td>3.4G / 3.8G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7600</td> <td>4 / 4</td> <td>3.5G / 4.1G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i7-7700</td> <td>4 / 8</td> <td>3.6G / 4.2G</td> <td>8 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> </tbody> </table>	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	Core i3-6100	2 / 4	3.7G	3 MB	DDR4-2133	HD 530	Core i5-6500	4 / 4	3.2G / 3.6G	6 MB	DDR4-2133	HD 530	Core i7-6700	4 / 8	3.4G / 4.0G	8 MB	DDR4-2133	HD 530	Core i3-7100	2 / 4	3.9G	3 MB	DDR4-2400	HD 630	Core i5-7400	4 / 4	3.0G / 3.5G	6 MB	DDR4-2400	HD 630	Core i5-7500	4 / 4	3.4G / 3.8G	6 MB	DDR4-2400	HD 630	Core i5-7600	4 / 4	3.5G / 4.1G	6 MB	DDR4-2400	HD 630	Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630	Security features	<ul style="list-style-type: none"> Security slot (in rear for attachment of optional Kensington® MicroSaver® cable; Kensington lock also locks chassis) Smart USB protection, allows keyboard/mouse only, blocks all storage devices Optional cable lock to physically lock keyboard and mouse Power-on, admin, hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional Chassis intrusion switch
Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics																																																				
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Core i7-6700	4 / 8	3.4G / 4.0G	8 MB	DDR4-2133	HD 530																																																				
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Core i5-7400	4 / 4	3.0G / 3.5G	6 MB	DDR4-2400	HD 630																																																				
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Core i5-7600	4 / 4	3.5G / 4.1G	6 MB	DDR4-2400	HD 630																																																				
Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630																																																				
Memory	32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, dual-channel capable * System clocks down for the processors with lower memory controller	Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black																																																						
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s <i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.5mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.5mm)	Mouse																																																							
Optical	Optional 9-in-1 media card reader	Mechanical	<ul style="list-style-type: none"> Business black color Toolless back cover, stand, disk, memory removal Support VESA mount (100mm) <table border="1"> <thead> <tr> <th></th> <th>Dimensions (WxDxH)</th> <th>Max weight (lb / kg)</th> <th>Adjustments</th> </tr> </thead> <tbody> <tr> <td>Without stand:</td> <td>23.0 X 1.8 X 15.4 (inch); 584 X 45 X 390 (mm)</td> <td>(Touch) 17.2 / 7.8 (Non-touch) 15.0 / 6.8</td> <td>N/A</td> </tr> <tr> <td>With Basic Monitor stand:</td> <td>23.0 X 9.6 X 18.0 (inch); 584 X 245 X 458 (mm)</td> <td>(Non-touch) 19.4 / 8.8</td> <td>Tilt: 45° back, -5° forward</td> </tr> <tr> <td>With UltraFlex II stand:</td> <td>23.0X 10.0 X 19.9 (inch); 584 X 253 X 505 (mm)</td> <td>(Touch) 22.7 / 10.3 (Non-touch) 20.7 / 9.4</td> <td>Tilt: 61° back, -5° forward; Lift: 110mm; Swivel: +/-45°</td> </tr> </tbody> </table>		Dimensions (WxDxH)	Max weight (lb / kg)	Adjustments	Without stand:	23.0 X 1.8 X 15.4 (inch); 584 X 45 X 390 (mm)	(Touch) 17.2 / 7.8 (Non-touch) 15.0 / 6.8	N/A	With Basic Monitor stand:	23.0 X 9.6 X 18.0 (inch); 584 X 245 X 458 (mm)	(Non-touch) 19.4 / 8.8	Tilt: 45° back, -5° forward	With UltraFlex II stand:	23.0X 10.0 X 19.9 (inch); 584 X 253 X 505 (mm)	(Touch) 22.7 / 10.3 (Non-touch) 20.7 / 9.4	Tilt: 61° back, -5° forward; Lift: 110mm; Swivel: +/-45°																																						
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Media reader	Optional 9-in-1 media card reader	Power supply	150 watts, autosensing, 85% PSU																																																						
Graphics	Intel HD Graphics 530/630 in processor, uses main memory, DirectX® 12, external monitor support via DisplayPort™; Max resolution: 4096x2304 (DP)@60Hz, 1920x1080 (Panel)@60Hz	Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot repair service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available																																																						
Display	23.8" (604.5mm) Full HD 1080p (1920x1080) TFT color, WVA panel, wide viewing angle (+/- 89°), LED backlight, 250 nits, 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, support Low Blue Light Mode, work as standalone monitor via DisplayPort (DP in / out combo)	Preload	Preloaded operating system <i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate Only for Window 10 Lenovo Companion Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools ThinkVantage System Update Create Recovery Media Adobe® Reader® Cyberlink PowerDVD Create (DVD±RW) 																																																						
Multi-touch	Optional Projected Capacitive Touch (PCT) technology, supports 10-point touch	Environment	EPEAT™ Gold rating (North America); ENERGY STAR® 6.1; TCO AIO Computer Certified; ULE Gold; ErP Lot 3; GREENGUARD® certified; RoHS-compliant																																																						
Camera	Optional 1080p camera, fixed focus, with dual microphone, LED indicator, physical switch on/off	MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock)																																																						
Controls	Physical buttons for Microphone mute, monitor mode switch, brightness up/down, and power on/off	Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com																																																						
Chipset	Intel Q270 Chipset																																																								
Rear ports*	Four USB 3.1 Gen1, ethernet (RJ-45), DisplayPort in/out combo port, optional serial (9-pin)																																																								
Side ports*	Two USB 3.1 Gen1 (one is Always On and fast charge), optional card reader, one headphone / microphone combo jack (3.5mm), optional USB 3.1 Type-C Gen1																																																								
M.2 card slot	* Depending on many factors, actual data transfer speed may be lower than theoretical speed Two M.2 Card slots (one for WLAN, one for SSD/Optane)																																																								
Audio support	High Definition (HD) Audio, Realtek ALC233 / two internal speakers (3W x 2), Dolby® Audio™ certified																																																								
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, Intel vPro technology support, 2x2																																																								
Bluetooth™	<i>Some:</i> Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter																																																								
Ethernet	Gigabit ethernet, Intel Ethernet Connection I219-LM (Jacksonville), Wake on LAN®																																																								
Manageability	Intel Active Management Technology 11.0 (Intel AMT 11.0); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)																																																								

See footnotes for more detailed information



ThinkCentre M920z Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 8th Generation Intel Core™ i3 / i5 / i7 Processor						Manageability Intel Active Management Technology 12.0 (Intel AMT 12.0); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection) Discrete TPM 2.0, TCG Certified
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	
	Celeron G4900	2 / 2	3.1G	2 MB	DDR4-2400	UHD 610	
	Celeron G4920	2 / 2	3.2G	2 MB	DDR4-2400	UHD 610	
	Pentium Gold G5400	2 / 4	3.7G	4 MB	DDR4-2400	UHD 610	
	Pentium Gold G5500	2 / 4	3.8G	4 MB	DDR4-2400	UHD 630	
	Pentium Gold G5600	2 / 4	3.9G	4 MB	DDR4-2400	UHD 630	
	Core i3-8100	4 / 4	3.6G	6 MB	DDR4-2400	UHD 630	
	Core i3-8300	4 / 4	3.7G	8 MB	DDR4-2400	UHD 630	
	Core i5-8400	6 / 6	2.8G / 4.0G	9 MB	DDR4-2666	UHD 630	
Core i5-8500	6 / 6	3.0G / 4.1G	9 MB	DDR4-2666	UHD 630		
Core i5-8600	6 / 6	3.1G / 4.3G	9 MB	DDR4-2666	UHD 630		
Core i7-8700	6 / 12	3.2G / 4.6G	12 MB	DDR4-2666	UHD 630		
Memory	32GB max, DDR4-2666*, two 260-pin SO-DIMM sockets, dual-channel capable * System clocks down for the processors with lower memory controller						Security chip Security features <ul style="list-style-type: none"> • Security slot (in rear for attachment of optional Kensington® MicroSaver® cable; Kensington lock also locks chassis) • Smart USB protection, allows keyboard/mouse only, blocks all storage devices • Power-on, admin, hard disk password • Boot sequence control • Boot without keyboard and mouse • Individual USB port disablement • Optional Chassis intrusion switch Keyboard <i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black Mouse <i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm, supports up to two HDDs (2nd HDD occupies ODD bay), RAID0/1 support (RAID preset only available via special bid model) <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s <i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2 <i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)						
Optical	Optional 3-in-1 media card reader						
Media reader	Optional 3-in-1 media card reader						
Graphics	Intel HD Graphics 610/630 in processor, uses main memory, DirectX® 12, external monitor support via DisplayPort™; Max resolution: 4096x2304 (DP)@60Hz, 1920x1080 (Panel)@60Hz 23.8" (604.5mm) Full HD 1080p (1920x1080) TFT color , Borderless design, WVA panel, wide viewing angle (+/- 89°), LED backlight, 250 nits, 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, support Low Blue Light Mode, work as standalone monitor via DisplayPort (DP in / out combo)						
Display	Optional multi-touch, supports 10-point, AIT (Advanced In-cell Touch) technology <i>Some:</i> 1080p camera, with dual microphone, LED indicator, physical switch on/off, supports multi-degree rotation (horizontal 0° to 180°, vertical -25° to 25°) <i>Some:</i> RGBIR camera, 1080p, with dual microphone, physical switch on/off, supports multi-degree rotation (horizontal 0° to 180°, vertical -25° to 25°) Windows Hello support, only available via special bid models						
Multi-touch	Optional multi-touch, supports 10-point, AIT (Advanced In-cell Touch) technology						
Camera	Optional multi-touch, supports 10-point, AIT (Advanced In-cell Touch) technology <i>Some:</i> 1080p camera, with dual microphone, LED indicator, physical switch on/off, supports multi-degree rotation (horizontal 0° to 180°, vertical -25° to 25°) <i>Some:</i> RGBIR camera, 1080p, with dual microphone, physical switch on/off, supports multi-degree rotation (horizontal 0° to 180°, vertical -25° to 25°) Windows Hello support, only available via special bid models						
Controls	Physical buttons on side for microphone mute and power on/off						
Chipset	Intel Q370 Chipset						
Rear ports	Four USB 3.1 Gen1 (one supports Smart Power On), one ethernet (RJ-45), one DisplayPort in/out combo port, one optional serial (9-pin)						
Side ports	one USB 3.1 Gen2 (one is Always On and fast charge), one USB 3.1 Gen1, one USB 3.1 Type-C Gen 1, one optional card reader, one headphone / microphone combo jack (3.5mm)						
M.2 card slot	Two M.2 Card slots (one for WLAN, one for SSD/Optane)						
Audio support	High Definition (HD) Audio, Realtek ALC233 / two internal speakers (3W x 2), Dolby® Audio™ Premium						
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, Intel vPro technology support, 2x2						
Bluetooth™	<i>Some:</i> Bluetooth 4.2/5.0 wireless, integrated in Wi-Fi + BT combo adapter						
Ethernet	Gigabit ethernet, Intel Ethernet Connection I219-LM (Jacksonville), Wake on LAN®						
Power supply 150 watts, autosensing, 90% PSU Limited warranty ³ <i>Some:</i> 1-year or 3-year, depot repair service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available Preload Preloaded operating system <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> • Lenovo Vantage • Microsoft Office preloaded; purchase a product key to activate • Cyberlink Power2GO (only for models with DVD / DVD±RW) • Cyberlink Power2GO (only for models with DVD±RW) • LinkedIn Environment ENERGY STAR® 7.0*, EPEAT™ Gold rating* (*not for non-OS models), ErP Lot 3, TCO AIO Computer certified, GREENGUARD® certified, TUV Eye comfort certified, TUV Low Blue Light certified, TUV Ultra Low Noise certified (on some models), RoHS-compliant MIL-SPEC test MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus) Accessories For compatible accessories, please go to http://smartfind.lenovo.com							

Note: The specifications above may not be available in all regions.

Lenovo, July 2018



ThinkCentre M600 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron® Processor N3000 Series or Intel Pentium® Processor N3000 Series						Keyboard <i>Some:</i> Preferred Pro USB Keyboard (USB connector), Lenovo logo <i>Some:</i> Lenovo USB Fingerprint Keyboard (USB connector) <i>Some:</i> Ultralim Plus Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> Enhanced Optical USB Mouse, black, Lenovo logo <i>Some:</i> Ultralim Plus Wireless Mouse (2.4GHz via USB receiver), black												
	Processor	Cores / Threads	Frequency (Base/Max)	Cache	Memory Types	Integrated Graphics													
	Celeron N3050	2 / 2	1.6 / 2.16 GHz	2MB	DDR3L-1600	Intel HD													
	Celeron J3060	2 / 2	1.6 / 2.48 GHz	2MB	DDR3L-1600	Intel HD 400													
	Pentium N3700	4 / 4	1.6 / 2.4 GHz	2MB	DDR3L-1600	Intel HD													
	Pentium J3710	4 / 4	1.6 / 2.64 GHz	2MB	DDR3L-1600	Intel HD 405													
Chipset	Intel Architecture (IA) SoC that integrates Intel processor core, graphics, memory controller, and I/O interfaces into a single system-on-chip solution						Mechanical • Tiny (1L), black color, metal case <table border="1"> <thead> <tr> <th></th> <th>Dimensions (WxDxH)</th> <th>Max weight (lb / kg)</th> </tr> </thead> <tbody> <tr> <td>M600 Tiny only (1L)</td> <td>7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm</td> <td>2.9 lb (1.3 kg)</td> </tr> <tr> <td>M600 Tiny (1L) with VESA mount & ODD box</td> <td>7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm</td> <td>4.12 lb (1.87 kg)</td> </tr> <tr> <td>M600 Tiny (1L) with VESA mount & I/O box</td> <td>7.42" X 7.30" X 2.62" 188.4mm X 185.38mm X 66.6mm</td> <td>3.53 lb (1.6 kg)</td> </tr> </tbody> </table>		Dimensions (WxDxH)	Max weight (lb / kg)	M600 Tiny only (1L)	7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm	2.9 lb (1.3 kg)	M600 Tiny (1L) with VESA mount & ODD box	7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm	4.12 lb (1.87 kg)	M600 Tiny (1L) with VESA mount & I/O box	7.42" X 7.30" X 2.62" 188.4mm X 185.38mm X 66.6mm	3.53 lb (1.6 kg)
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Graphics	Intel HD Graphics in processor, uses main memory, DirectX® 11.1, twoDisplayPort™, one optional 3rd DP (not support DP to HDMI dongle) or VGA, supports triple independent display; Maximum resolution: 3840x2160(DP)@30Hz; 1920x1200(optional VGA)@60Hz; 1920x1080(DP to VGA dongle)@60Hz; 1920x1080(DP to DVI dongle)@60Hz; 3840x2160(DP to HDMI dongle)@30Hz																		
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle																		
Memory	8GB max / DDR3 Low Voltage, DDR3L-1600, non-parity, one 204-pin SO-DIMM socket																		
Storage	<i>Some:</i> hard disk, 5400 or 7200 rpm, SATA 6.0Gb/s, 2.5" Wide <i>Some:</i> 500GB (5400 rpm) Solid State Hybrid Drive (SSHD) / with 8GB MLC NAND flash memory, SATA 6.0Gb/s, 2.5" wide																		
Optical	<i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" Wide <i>Some:</i> external ODD box with DVD-ROM, 9.5mm high, via USB <i>Some:</i> external ODD box with DVD±RW, 9.5mm high, via USB <i>Some:</i> external ODD box (for TIO) with DVD-ROM, 9.5mm high, via USB <i>Some:</i> external ODD box (for TIO) with DVD±RW, 9.5mm high, via USB																		
Onboard SATA Media reader	SATA 6.0Gb/s controller, one connectors on planar None																		
Front ports*	Two USB 3.0 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)																		
Rear ports*	Two USB 2.0, two USB 3.0 (optional external optical box or I/O box occupies one or two specific USB on some models), ethernet (RJ-45), two DisplayPort, one optional port (VGA, 3rd DP, or serial on some models), one headphone																		
I/O box*	Optional external I/O box, extends two USB 2.0, two USB 3.0, and one serial on rear, two USB 2.0 on front, via USB (occupy two specific USB 3.0 of M600 Tiny) * Depending on many factors, actual data transfer speed may be lower than theoretical speed																		
Audio support	High Definition (HD) Audio, Realtek ALC223 / optional internal speaker (1 watt)																		
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.0 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8260, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2																		
Bluetooth™	<i>Some:</i> Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter																		
Ethernet	One gigabit ethernet port, Realtek RTL8111GN, Wake on LAN®																		
Modem	None																		
Manageability	None																		
Security chip	Trusted Platform Module, TCG 1.2-compliant																		
Security features	<ul style="list-style-type: none"> • Security slot (in rear for optional Kensington® MicroSaver® cable) • Padlock loop • Smart USB protection, allows keyboard/mouse only, blocks all storage devices • Power-on password • Administrator password • Hard disk password • Boot sequence control • Boot without keyboard and mouse • Individual USB port disablement • Chassis intrusion switch 																		
Environment	ENERGY STAR® 6.0*, EPEAT™ Gold rating* (*not for non-OS models); GREENGUARD®; RoHS-compliant; Cisco EnergyWise compatible; ErP Lot 3																		
Accessories	For compatible accessories, please go to TC-AQP sheet																		

See footnotes for more detailed information

Lenovo, November 2017



ThinkCentre M600 Tiny Thin Client Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron® Processor N3000 Series or Intel Pentium® Processor N3000 Series						Keyboard <i>Some:</i> PS/2 Keyboard (PS/2 connector), Lenovo logo (for 2L models) <i>Some:</i> Preferred Pro USB Keyboard (USB connector), Lenovo logo <i>Some:</i> Ultralim Plus Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> PS/2 Optical Wheel Mouse, black, Lenovo logo (for 2L models) <i>Some:</i> Enhanced Optical USB Mouse, black, Lenovo logo <i>Some:</i> Ultralim Plus Wireless Mouse (2.4GHz via USB receiver), black									
	Processor	Cores / Threads	Frequency (Base/Max)	Cache	Memory Types	Integrated Graphics										
	Celeron N3000	2 / 2	1.04 / 2.08 GHz	2MB	DDR3L-1600	Intel HD										
	Celeron N3010	2 / 2	1.04 / 2.24 GHz	2MB	DDR3L-1600	Intel HD 400										
Chipset	Intel Architecture (IA) SoC that integrates Intel processor core, graphics, memory controller, and I/O interfaces into a single system-on-chip solution						Mechanical • Tiny (1L or 2L), black color, metal case <table border="1"> <thead> <tr> <th></th> <th>Dimensions (WxDxH)</th> <th>Max weight (lb / kg)</th> </tr> </thead> <tbody> <tr> <td>M600 Tiny only (1L)</td> <td>7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm</td> <td>2.9 lb (1.3 kg)</td> </tr> <tr> <td>M600 Tiny only (2L)</td> <td>7.05" X 7.20" X 3.15" 179mm X 182.9mm X 80mm</td> <td>4.2 lb (1.9 kg)</td> </tr> </tbody> </table>		Dimensions (WxDxH)	Max weight (lb / kg)	M600 Tiny only (1L)	7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm	2.9 lb (1.3 kg)	M600 Tiny only (2L)	7.05" X 7.20" X 3.15" 179mm X 182.9mm X 80mm	4.2 lb (1.9 kg)
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M600 Tiny only (1L)	7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm	2.9 lb (1.3 kg)														
M600 Tiny only (2L)	7.05" X 7.20" X 3.15" 179mm X 182.9mm X 80mm	4.2 lb (1.9 kg)														
Graphics	Intel HD Graphics in processor, uses main memory, DirectX® 11.1, twoDisplayPort™, one optional 3rd DP (not support DP to HDMI dongle) or VGA, supports triple independent display; Maximum resolution: 3840x2160(DP)@30Hz; 1920x1200(optional VGA)@60Hz; 1920x1080(DP to VGA dongle)@60Hz; 1920x1080(DP to DVI dongle)@60Hz; 3840x2160(DP to HDMI dongle)@30Hz															
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle															
Memory	8GB max / DDR3 Low Voltage, DDR3L-1600, non-parity, one 204-pin SO-DIMM socket						VESA mount Optional VESA mount bracket kit, supports VESA 75mm and 100mm									
Storage	16GB, 32GB, or 128GB M.2 Solid State Drive (SSD), SATA interface						Floor Stand Optional system floor stand for vertical orientation									
Optical	None						Power supply 65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)									
Onboard SATA	SATA 6.0Gb/s controller, one connectors on planar						Limited warranty ³ <i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available <i>Some:</i> 3-year, limited onsite service, OID (Onsite International Delivery) / service upgrades available <i>For Lenovo service upgrade options, please go to S-TC sheet</i>									
Media reader	None															
Front ports*	Two USB 3.0 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)															
Rear ports*	Two USB 2.0, two USB 3.0, ethernet (RJ-45), two DisplayPort, one optional port (VGA, 3rd DP, or serial on some models), one headphone; additional four serial (9-pin), one parallel (25-pin), and two PS/2 ports on 2L models * Depending on many factors, actual data transfer speed may be lower than theoretical speed						Preload <i>Some:</i> Windows Embedded Standard 7 (WES 7) <i>Some:</i> Windows Embedded Standard 7 V2 (WES 7 V2) <i>Some:</i> Windows 10 IoT Enterprise <i>Some:</i> LeTOS (Lenovo Terminal Operating System, Linux-based) <i>Some:</i> LeTOS V2 (Lenovo Terminal Operating System, Linux-based)									
I/O box	None						Environment ENERGY STAR® 6.0*, EPEAT™ Gold rating* (*not for non-OS models); GREENGUARD®; RoHS-compliant; Cisco EnergyWise compatible; ErP Lot 3									
Audio support	High Definition (HD) Audio, Realtek ALC223 / optional internal speaker (1 watt)						Accessories For compatible accessories, please go to TC-AQP sheet									
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.0 combo adapter, 1x1 (only for 1L models)															
Bluetooth™	<i>Some:</i> Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter															
Ethernet	One gigabit ethernet port, Realtek RTL8111GN, Wake on LAN®															
Modem	None															
Manageability	None															
Security chip	Trusted Platform Module, TCG 1.2-compliant															
Security features	<ul style="list-style-type: none"> • Security slot (in rear for optional Kensington® MicroSaver® cable) • Padlock loop • Smart USB protection, allows keyboard/mouse only, blocks all storage devices • Power-on password • Administrator password • Hard disk password • Boot sequence control • Boot without keyboard and mouse • Individual USB port disablement • Chassis intrusion switch 															

Note: The specifications above may not be available in all regions.

Lenovo, November 2017



ThinkCentre M625 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD A9 series APU						Keyboard Mouse	Some: Fullsize USB Keyboard (USB connector), black, Lenovo logo Some: USB Optical Wheel Mouse, black, Lenovo logo	
	APU	Cores	Frequency Base/Max	L2 Cache	Memory Support (Up to)	Integrated Graphics		Mechanical	Tiny (1L), black color; metal case • Toolless chassis open (for models with optional toolless chassis screw) • Toolless HDD, SSD, memory, Wi-Fi removal • Optional dust filter M625 Tiny only: 7.05" W X 7.20" D X 1.36" H 179mm W X 182.9mm D X 34.5mm H 2.9 lb (1.3 kg), weight may vary by configuration VESA mount Optional VESA mount bracket kit, supports VESA 75mm and 100mm Floor Stand Optional system floor stand for vertical orientation
Memory	8GB max, DDR4-2666, one 260-pin SO-DIMM socket * System frequency automatically clocks down for the lower capability of memory controller in processor						VESA mount Floor Stand		Power supply
Disk	Some: SATA 6.0Gb/s, 2.5" Wide, 5400 rpm or 7200 rpm Some: 128GB M.2 Solid State Drive (SSD) / PCIe NVMe interface Some: 256GB M.2 Solid State Drive (SSD) / PCIe NVMe interface							Power supply	65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)
Optical	None						Limited warranty ³		Some: 1-year, depot service / service upgrades available Some: 1-year, limited onsite service / service upgrades available
Onboard SATA	one SATA 6.0Gb/s connector on planar							Preload	Preloaded operating system Some: Windows [®] 10 Pro 64-bit Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64-bit
Media reader	None						Preloaded applications (only some listed) - Windows 10 only • Lenovo Vantage • LinkedIn • Microsoft Office preloaded; purchase a product key to activate - Windows 7 only • Lenovo Solution Center • Lenovo System Update • Factory Recovery • User Guide Viewer • Microsoft Office preloaded; purchase a product key to activate • Adobe [®] Reader [®]		
Graphics	AMD Radeon™ Graphics in processor, uses main memory, DirectX [®] 12, two DisplayPort™, one optional port (VGA or USB 2.0 Type-C with DisplayPort Alternate Mode), supports up to 2 independent displays; Max resolution: 3840x2160 (DP)@60Hz; 2048x1280 (VGA)@60Hz; 3840x2160 (USB 2.0 Type-C)@60Hz						Chipset	AMD SoC platform	
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle							Front ports*	Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)
Chipset	AMD SoC platform						Rear ports*		One USB 3.1 Gen1, three USB 2.0, ethernet (RJ-45), two DisplayPort, two optional ports (Port 1 for VGA / serial / USB 2.0 Type-C (with DisplayPort Alternate Mode), Port 2 for serial)
I/O box	None							Audio support	High Definition (HD) Audio, Realtek ALC233-VB2-CG/ internal speaker (1.5 watt)
WLAN ¹³	Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2 Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2						Environment		ENERGY STAR [®] 6.1*, EPEAT™ Gold rating* (*Not for non-OS models), ErP Lot 3, RoHS-compliant, WEEE, TCO
Bluetooth™	Some: Bluetooth 4.2* wireless, integrated in Wi-Fi + BT combo adapter * Win 10 RS3 and Win10 earlier version only support Bluetooth 4.1							MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)
Ethernet Modem	Gigabit ethernet, Realtek RTL8111HN, Wake on LAN [®]						Accessories		For compatible accessories, please go to http://smartfind.lenovo.com
Manageability	None							Security chip	Discrete TPM 2.0, TCG Certified
Security features	• Security slot (in rear for optional Kensington [®] MicroSaver [®] cable) • Smart USB protection, allows keyboard/mouse only, blocks all storage devices • Power-on password						• Administrator password • Hard disk password • Boot sequence control • Boot without keyboard and mouse • Individual USB port disablement • Chassis intrusion switch		



ThinkCentre M625 Tiny Thin Client Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD E2 series APU						Keyboard	<i>Some:</i> Fullsize USB Keyboard (USB connector), black, Lenovo logo
	APU	Cores	Frequency Base/Max	L2 Cache	Memory Support (Up to)	Integrated Graphics	Mouse	<i>Some:</i> USB Optical Wheel Mouse, black, Lenovo logo
	E2-9000e	2	1.5 / 2.0 GHz	1 MB	DDR4-1866	Radeon R2 Series	Mechanical	Tiny (1L), fan-less design, black color, metal case <ul style="list-style-type: none"> • Toolless chassis open (for models with optional toolless chassis screw) • Toolless SSD, memory, Wi-Fi removal M625 Tiny Thin Client only: 7.05" W X 7.20" D X 1.36" H 179mm W X 182.9mm D X 34.5mm H 2.9 lb (1.3 kg), weight may vary by configuration
Memory	8GB max, DDR4-2666, one 260-pin SO-DIMM socket * System frequency automatically clocks down for the lower capability of memory controller in processor						VESA mount	Optional VESA mount bracket kit, supports VESA 75mm and 100mm
Disk	<i>Some:</i> 32GB M.2 Solid State Drive (SSD) / SATA interface <i>Some:</i> 128GB M.2 Solid State Drive (SSD) / PCIe NVMe interface						Floor Stand	Optional system floor stand for vertical orientation
Optical	None						Power supply	65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)
Onboard SATA	one SATA 6.0Gb/s connector on planar						Limited warranty ³	<i>Some:</i> 1-year, depot service / service upgrades available <i>Some:</i> 1-year, limited onsite service / service upgrades available
Media reader	None						Preload	Preloaded operating system <i>Some:</i> Windows Embedded Standard 7 V2 (WES 7 V2) <i>Some:</i> Windows 10 IoT Enterprise <i>Some:</i> LeTOS V2 (Lenovo Terminal Operating System, Linux-based)
Graphics	AMD Radeon™ Graphics in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional port (VGA or USB 2.0 Type-C with DisplayPort Alternate Mode), supports up to 2 independent displays; <i>Max resolution:</i> 3840x2160 (DP) @60Hz; 2048x1280 (VGA) @60Hz; 3840x2160 (USB 2.0 Type-C) @60Hz						Environment	ENERGY STAR® 6.1*, EPEAT™ Gold rating* (*Not for non-OS models), ErP Lot 3, RoHS-compliant, WEEE, TCO
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle						MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)
Chipset	AMD SoC platform						Accessories	For compatible accessories, please go to http://smartfind.lenovo.com
Front ports*	Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)							
Rear ports*	One USB 3.1 Gen1, three USB 2.0, ethernet (RJ-45), two DisplayPort, two optional ports (Port 1 for VGA / serial / USB 2.0 Type-C (with DisplayPort Alternate Mode), Port 2 for serial) * Depending on many factors, actual data transfer speed may be lower than theoretical speed							
I/O box	None							
Audio support	High Definition (HD) Audio, Realtek ALC233-VB2-CG / internal speaker (1.5 watt)							
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2							
Bluetooth™	<i>Some:</i> Bluetooth 4.2* wireless, integrated in Wi-Fi + BT combo adapter * Win 10 RS3 and Win10 earlier version only support Bluetooth 4.1							
Ethernet	Gigabit ethernet, Realtek RTL8111HN, Wake on LAN®							
Modem	None							
Manageability	None							
Security chip	Discrete TPM 2.0, TCG Certified							
Security features	<ul style="list-style-type: none"> • Security slot (in rear for optional Kensington® MicroSaver® cable) • Smart USB protection, allows keyboard/mouse only, blocks all storage devices • Power-on password • Administrator password • Hard disk password • Boot sequence control • Boot without keyboard and mouse • Individual USB port disablement • Chassis intrusion switch 							



ThinkCentre M630e Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Pentium®, or 8th Generation Intel Core™ i3 / i5 Processor						Manageability Security chip Security features	None								
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics		Firmware TPM 2.0, integrated in chipset								
	Pentium Gold 5405U	2 / 4	2.3G	2 MB	DDR4-2133	UHD 610		<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Chassis intrusion switch Power-on password Administrator password Hard disk password 								
	Core i3-8145U	2 / 4	2.1G / 3.9G	4 MB	DDR4-2400	UHD 620		<ul style="list-style-type: none"> Boot sequence control Boot without keyboard and mouse Individual USB port disablement Smart USB protection, allows keyboard/mouse only, blocks all storage devices 								
	Core i5-8265U	4 / 8	1.6G / 3.9G	6 MB	DDR4-2400	UHD 620										
Memory	16GB max, DDR4-2666*, one 260-pin SO-DIMM sockets, non-ECC * System automatically clocks down for the processors with lower memory controller						Keyboard Mouse	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Mouse (USB connector), black								
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 SSD (2280) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s <i>Some:</i> M.2 SSD (2242) / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s						Mechanical	Tiny (1L), black color; metal case <ul style="list-style-type: none"> Optional dust filter One 2.5" bay for HDD/SSD, two M.2 slots (one for WLAN, one for M.2 SSD) 								
Onboard SATA	One onboard SATA 6.0Gb/s connector						<table border="1"> <thead> <tr> <th></th> <th>Dimensions (WxDxH)</th> <th>Weight (Approx.)</th> </tr> </thead> <tbody> <tr> <td>Tiny only</td> <td>7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm</td> <td>2.91 lb (1.32 kg), vary by config</td> </tr> </tbody> </table>					Dimensions (WxDxH)	Weight (Approx.)	Tiny only	7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm	2.91 lb (1.32 kg), vary by config
	Dimensions (WxDxH)	Weight (Approx.)														
Tiny only	7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm	2.91 lb (1.32 kg), vary by config														
Graphics	Intel HD Graphics 610/620 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI, up to 2 independent displays; <i>Max resolution:</i> 4096x2304 (DP) @60Hz; 4096x2304 (HDMI) @24Hz						VESA mount Floor Stand	None Optional system floor stand for vertical orientation								
Monitor cable	Optional DP to VGA dongle or DP to HDMI 1.4 dongle						Power supply	<i>Some:</i> 65 watts adapter, autosensing, 88% PSU								
Chipset	Intel SoC (System on Chip) platform						Limited warranty	<i>Some:</i> 1-year, depot service / service upgrades available <i>Some:</i> 1-year, limited onsite service / service upgrades available								
Front ports* (Std.)	One USB 3.1 Gen1, one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)						Preload	Preloaded operating system <i>Some:</i> Windows® 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Lenovo Vantage Microsoft Office preloaded; purchase a product key to activate LinkedIn 								
Rear ports* (Std.)	Two USB 3.1 Gen1, two USB 2.0, one ethernet (RJ-45), one DisplayPort, one HDMI						Environment	ENERGY STAR® 7.0, ErP Lot 3, TCO, RoHS-compliant, WEEE, REACH								
Rear ports* (Opt.)	None * Depending on many factors, actual data transfer speed may be lower than theoretical speed						MIL-SPEC test	Coming soon								
Audio support	Realtek ALC233VB / internal speaker (1.5 watt)						Accessories	For compatible accessories, please go to http://smartfind.lenovo.com								
WLAN	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2															
Bluetooth	<i>Some:</i> Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter															
Ethernet	Gigabit ethernet, Realtek RTL8111HN-CG															
Ethernet (Opt.)	None															

Note: The specifications above may not be available in all regions.

Lenovo, Mar 2019



ThinkCentre M710 SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor	Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Smart USB protection, allows keyboard/mouse only, blocks all storage devices Optional cable lock to physically lock both keyboard and mouse Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional chassis intrusion switch 																																																																								
	<table border="1"> <thead> <tr> <th>Processor</th> <th>Cores / Threads</th> <th>Frequency Base/Max(GHz)</th> <th>Cache</th> <th>Memory Support (Up to)</th> <th>Integrated Graphics</th> </tr> </thead> <tbody> <tr> <td>Pentium G4400</td> <td>2 / 2</td> <td>3.3G</td> <td>3 MB</td> <td>DDR4-2133</td> <td>HD 510</td> </tr> <tr> <td>Pentium G4560</td> <td>2 / 4</td> <td>3.5G</td> <td>3 MB</td> <td>DDR4-2400</td> <td>HD 610</td> </tr> <tr> <td>Pentium G4600</td> <td>2 / 4</td> <td>3.6G</td> <td>3 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i3-6100</td> <td>2 / 4</td> <td>3.7G</td> <td>3 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i5-6500</td> <td>4 / 4</td> <td>3.2G / 3.6G</td> <td>6 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i7-6700</td> <td>4 / 8</td> <td>3.4G / 4.0G</td> <td>8 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i3-7100</td> <td>2 / 4</td> <td>3.9G</td> <td>3 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7400</td> <td>4 / 4</td> <td>3.0G / 3.5G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7500</td> <td>4 / 4</td> <td>3.4G / 3.8G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7600</td> <td>4 / 4</td> <td>3.5G / 4.1G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i7-7700</td> <td>4 / 8</td> <td>3.6G / 4.2G</td> <td>8 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> </tbody> </table>	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	Pentium G4400	2 / 2	3.3G	3 MB	DDR4-2133	HD 510	Pentium G4560	2 / 4	3.5G	3 MB	DDR4-2400	HD 610	Pentium G4600	2 / 4	3.6G	3 MB	DDR4-2400	HD 630	Core i3-6100	2 / 4	3.7G	3 MB	DDR4-2133	HD 530	Core i5-6500	4 / 4	3.2G / 3.6G	6 MB	DDR4-2133	HD 530	Core i7-6700	4 / 8	3.4G / 4.0G	8 MB	DDR4-2133	HD 530	Core i3-7100	2 / 4	3.9G	3 MB	DDR4-2400	HD 630	Core i5-7400	4 / 4	3.0G / 3.5G	6 MB	DDR4-2400	HD 630	Core i5-7500	4 / 4	3.4G / 3.8G	6 MB	DDR4-2400	HD 630	Core i5-7600	4 / 4	3.5G / 4.1G	6 MB	DDR4-2400	HD 630	Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630	Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics																																																																						
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Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630																																																																						
Memory	64GB max, UDIMM, DDR4-2400, four 288-pin DIMM sockets, non-ECC, dual-channel capable* * System automatically clocks down for the processors with lower memory controller	Mouse																																																																									
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s <i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)	Mechanical	<ul style="list-style-type: none"> SFF (8.4L), black color; metal case (WxDxH) 3.6" X 11.4" X 13.5"; 92.5mm X 290.5mm X 343.5mm Approx. 13.2 lb (6.0 kg), weight may vary by configuration Toolless cover, disk, optical removal Optional dust filter Bay 1: Slim external ODD bay Bay 2: 3.5", 1" high, internal, HDD/SSD Bay 3: 2.5", internal, HDD/SSD (optional bay) Slot 1: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16* Slot 2: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x1* Slot 3: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x1* Slot 4: no slot, only bracket for optional port extension* M.2 card slots: Two (one for WLAN, one for SSD/Optane) * Optional 2 front USB3.1 Type-C ports module occupies PCIe x16 slot (x4 card), optional rear 2x USB2.0 / parallel / 2nd serial occupies one expansion slot 																																																																								
Optical	Three onboard SATA 6.0Gb/s connectors Optional 7-in-1 media reader	Floor Stand	Optional system floor stand for vertical orientation																																																																								
Onboard SATA Media reader		Power supply	<i>Some:</i> 180 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 92% PSU (only available via special bid)																																																																								
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays; Max resolution: 4096x2304 (DP) @60Hz; 2048x1536 (VGA) @50Hz <i>Some:</i> NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts; Max resolution: 3840x2160 (DisplayPort) @60Hz;	Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available																																																																								
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4	Preload	Preloaded operating system <i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor) <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate - Only for Window 10 Lenovo Companion - Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools Create Recovery Media Adobe® Reader® Cyberlink Power2Go Create (DVD±RW) 																																																																								
Chipset	Intel B250 Chipset	Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)																																																																								
Front ports*	Four USB 3.1 Gen1, optional two USB 3.1 Type-C Gen 2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)	Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com																																																																								
Rear ports*	Two USB 3.1 Gen1, two USB 2.0, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, two DisplayPort, two PS/2 ports (keyboard/mouse); additional DisplayPort on optional graphics on some models	Manageability	None																																																																								
Rear audio ports* IEEE 1394*	Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm) None * Depending on many factors, actual data transfer speed may be lower than theoretical speed	Security chip	TPM (Trusted Platform Module) 2.0, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS																																																																								
Audio support	High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt)																																																																										
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2																																																																										
Bluetooth™	<i>Some:</i> Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter																																																																										
Ethernet	Gigabit ethernet, Realtek RTL8111GN, Wake on LAN®																																																																										
Modem	None																																																																										

Note: The specifications above may not be available in all regions.

Lenovo, June 2017

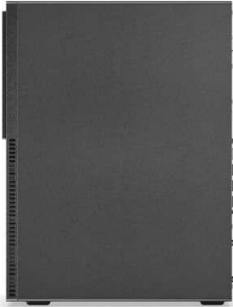


ThinkCentre M710 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor						Security features <ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Smart USB protection, allows keyboard/mouse only, blocks all storage devices Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Chassis intrusion switch
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	
	Pentium G4400T	2 / 2	2.9G	3 MB	DDR4-2133	HD 510	
	Pentium G4560T	2 / 4	2.9G	3 MB	DDR4-2400	HD 610	
	Pentium G4600T	2 / 4	3.0G	3 MB	DDR4-2400	HD 630	
	Core i3-6100T	2 / 4	3.2G	3 MB	DDR4-2133	HD 530	
	Core i5-6500T	4 / 4	2.5G / 3.1G	6 MB	DDR4-2133	HD 530	
	Core i7-6700T	4 / 8	2.8G / 3.6G	8 MB	DDR4-2133	HD 530	
	Core i3-7100T	2 / 4	3.4G	3 MB	DDR4-2400	HD 630	
	Core i5-7400T	4 / 4	2.4G / 3.0G	6 MB	DDR4-2400	HD 630	
	Core i5-7500T	4 / 4	2.7G / 3.3G	6 MB	DDR4-2400	HD 630	
Core i5-7600T	4 / 4	2.8G / 3.7G	6 MB	DDR4-2400	HD 630		
Core i7-7700T	4 / 8	2.9G / 3.8G	8 MB	DDR4-2400	HD 630		
Memory	32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller						
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s <i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM, slim (9.0mm), via USB external ODD box <i>Some:</i> DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box						
Optical	None						
Onboard SATA Media reader	One onboard SATA 6.0Gb/s connector						
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional video port (HDMI, VGA, 3rd DP, or USB 3.1 Type-C with DisplayPort Alternate Mode), up to 3 independent displays; <i>Max resolution:</i> 4096x2304 (DP) @60Hz; 4096x2304 (Type-C) @60Hz; 4096x2160 (HDMI) @24Hz; 1920x1200 (VGA) @60Hz						
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4						
Chipset	Intel B250 Chipset						
Front ports*	Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)						
Rear ports*	Four USB 3.1 Gen1 (optional external optical box or external I/O box occupies one or two specific USB 3.1 Gen1 on some models), ethernet (RJ-45), two DisplayPort, two optional ports (Port 1 for VGA / 3rd DP / HDMI / serial / USB 3.1 Type-C Gen 1 (with DisplayPort Alternate Mode), Port 2 for serial)						
I/O box*	Optional external I/O box, extends two USB 2.0, two USB 3.1 Gen1, and one serial on rear, two USB 2.0 on front, via USB cable (occupy two specific USB 3.1 Gen1 of Tiny) * Depending on many factors, actual data transfer speed may be lower than theoretical speed						
Audio support	High Definition (HD) Audio, Realtek ALC294 / optional internal speaker (1w or 2w)						
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2						
Bluetooth™ Ethernet Modem	<i>Some:</i> Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter Gigabit ethernet, Intel Ethernet Connection I219-V (Jacksonville), Wake on LAN® None						
Manageability Security chip	None TPM (Trusted Platform Module) 2.0*, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS						
VESA mount Floor Stand	Optional VESA mount bracket kit, supports VESA 75mm and 100mm Optional system floor stand for vertical orientation						
Power supply	65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models) 90 watts AC/DC adapter, autosensing, 88% PSU (only for models with I/O box)						
Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available						
Preload	<i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor) <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate - Only for Window 10 Lenovo Companion - Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools Create Recovery Media Adobe® Reader® Cyberlink PowerDVD Create (DVD±RW) 						
Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)						
MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)						
Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com						

See footnotes for more detailed information



ThinkCentre M710 Tower Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor						Manageability None Security chip TPM (Trusted Platform Module) 2.0, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS Security features <ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Smart USB protection, allows keyboard/mouse only, blocks all storage devices Optional cable lock to physically lock both keyboard and mouse Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional chassis intrusion switch
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	
	Pentium G4400	2 / 2	3.3G	3 MB	DDR4-2133	HD 510	
	Pentium G4560	2 / 4	3.5G	3 MB	DDR4-2400	HD 610	
	Pentium G4600	2 / 4	3.6G	3 MB	DDR4-2400	HD 630	
	Core i3-6100	2 / 4	3.7G	3 MB	DDR4-2133	HD 530	
	Core i5-6500	4 / 4	3.2G / 3.6G	6 MB	DDR4-2133	HD 530	
	Core i7-6700	4 / 8	3.4G / 4.0G	8 MB	DDR4-2133	HD 530	
	Core i3-7100	2 / 4	3.9G	3 MB	DDR4-2400	HD 630	
	Core i5-7400	4 / 4	3.0G / 3.5G	6 MB	DDR4-2400	HD 630	
	Core i5-7500	4 / 4	3.4G / 3.8G	6 MB	DDR4-2400	HD 630	
Core i5-7600	4 / 4	3.5G / 4.1G	6 MB	DDR4-2400	HD 630		
Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630		
Memory	64GB max, UDIMM, DDR4-2400*, four 288-pin DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller						
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s <i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)						
Optical	Three onboard SATA 6.0Gb/s connectors Optional 7-in-1 media reader						
Onboard SATA Media reader	Optional 7-in-1 media reader						
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays; <i>Max resolution:</i> 4096x2304 (DP) @60Hz; 2048x1536 (VGA) @50Hz <i>Some:</i> NVIDIA GeForce® GT 730 , DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts; <i>Max resolution:</i> 3840x2160 (DisplayPort) @60Hz; <i>Some:</i> AMD Radeon™ R7 350 , DirectX 11, 2GB, PCIe 3.0 x8 adapter, one VGA, one HDMI, 75 watts, occupies two slots; <i>Max resolution:</i> 4096x2160 (HDMI) @24Hz; 2048x1536 (VGA) @85Hz						
Power supply	<i>Some:</i> 180 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 92% PSU (only available via special bid)						
Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available						
Preload	Preloaded operating system <i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor) <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate Only for Window 10 Lenovo Companion Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools Create Recovery Media Adobe® Reader® Cyberlink PowerDVD Create (DVD±RW) 						
Monitor Cable	Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4						
Chipset	Intel B250 Chipset						
Front ports*	Four USB 3.1 Gen1, optional two USB 3.1 Type-C Gen 2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)						
Rear ports*	Two USB 3.1 Gen1, two USB 2.0, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, two DisplayPort, two PS/2 ports (keyboard/mouse); additional VGA, DisplayPort, or HDMI on optional graphics on some models						
Rear audio ports* IEEE 1394*	Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm) None * Depending on many factors, actual data transfer speed may be lower than theoretical speed						
Audio support	High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt)						
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2						
Bluetooth™	<i>Some:</i> Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter						
Ethernet	Gigabit ethernet, Realtek RTL8111GN, Wake on LAN®						
Modem	None						
Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)						
Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com						

Note: The specifications above may not be available in all regions.

Lenovo, June 2017



ThinkCentre M710e SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor						<p>Security features</p> <ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Smart USB protection, allows keyboard/mouse only, blocks all storage devices Optional smart cable clip to physically lock both keyboard and mouse Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional chassis intrusion switch <p>Keyboard</p> <p><i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black</p> <p>Mouse</p> <p><i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black</p> <p>Mechanical</p> <ul style="list-style-type: none"> SFF (7.4L), black color, metal case (WxDxH) 3.9" X 11.9" X 10.8"; 100mm X 303.5mm X 273.5mm Approx. 9.37 lb (4.25 kg), weight may vary by configuration Bay 1: Slim external ODD bay Bay 2: 3.5", 1" high, internal, supports 2.5" or 3.5" HDD/SSD (2.5 to 3.5 bracket comes with disk) Slot 1: low-profile (length < 152mm, height < 64mm), PCIe 3.0 x16* Slot 2: low-profile (length < 152mm, height < 64mm), PCIe 3.0 x1* M.2 card slots: one for SSD *Optional rear 2x USB2.0 / parallel occupies one expansion slot <p>Floor Stand</p> <p>Optional system floor stand for vertical orientation</p>
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	
	Celeron G3900	2 / 2	2.8G	2 MB	DDR4-2133	HD 510	
	Celeron G3930	2 / 2	2.9G	3 MB	DDR4-2133	HD 610	
	Pentium G4400	2 / 2	3.3G	3 MB	DDR4-2133	HD 510	
	Pentium G4500	2 / 2	3.5G	3 MB	DDR4-2133	HD 530	
	Pentium G4560	2 / 4	3.5G	3 MB	DDR4-2400	HD 610	
	Pentium G4600	2 / 4	3.6G	3 MB	DDR4-2400	HD 630	
	Core i3-6100	2 / 4	3.7G	3 MB	DDR4-2133	HD 530	
	Core i5-6400	4 / 4	2.7G / 3.3G	6 MB	DDR4-2133	HD 530	
	Core i5-6500	4 / 4	3.2G / 3.6G	6 MB	DDR4-2133	HD 530	
	Core i7-6700	4 / 8	3.4G / 4.0G	8 MB	DDR4-2133	HD 530	
	Core i3-7100	2 / 4	3.9G	3 MB	DDR4-2400	HD 630	
	Core i3-7300	2 / 4	4.0G	4 MB	DDR4-2400	HD 630	
	Core i5-7400	4 / 4	3.0G / 3.5G	6 MB	DDR4-2400	HD 630	
	Core i5-7500	4 / 4	3.4G / 3.8G	6 MB	DDR4-2400	HD 630	
	Core i5-7600	4 / 4	3.5G / 4.1G	6 MB	DDR4-2400	HD 630	
Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630		
Memory	32GB max, UDIMM, DDR4-2400*, two 288-pin DIMM sockets, non-ECC, dual-channel capable *System automatically clocks down for the processors with lower memory controller						
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s						
Optical	<i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)						
Onboard SATA	Two onboard SATA 6.0Gb/s connectors						
Media reader	Optional 7-in-1 media reader						
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, one VGA, one DisplayPort™, supports 2 independent displays, works along with discrete graphics to support more displays; <i>Max resolution:</i> 4096x2160 (DP)@60Hz; 1920x1200 (VGA)@60Hz <i>Some:</i> NVIDIA GeForce® GT 730 , DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts; <i>Max resolution:</i> 3840x2160 (DisplayPort)@60Hz;						
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4						
Chipset	Intel B250 Chipset						
Front ports*	Two USB 3.1 Gen1, microphone (3.5mm), one headphone / microphone combo jack (3.5mm)						
Rear ports*	Two USB 3.1 Gen1, two USB 2.0, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, one DisplayPort, optional external USB to PS/2 ports cable (for PS/2 keyboard / mouse); additional DisplayPort on optional graphics on some models						
Rear audio ports*	Line-out jack (3.5mm)						
IEEE 1394*	None * Depending on many factors, actual data transfer speed may be lower than theoretical speed						
Audio support	High Definition (HD) Audio, Realtek ALC233 / internal speaker (1.5 watt)						
WLAN ¹³	None						
Bluetooth™	None						
Ethernet	Gigabit ethernet, Realtek RTL8111HN, Wake on LAN®						
Modem	None						
Manageability	None						
Security chip	TPM (Trusted Platform Module) 2.0, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS						
Packaging	<ul style="list-style-type: none"> (WxDxH) 7.7" X 15.4" X 19.7"; 195mm X 390mm X 500mm Cross weight (approx.) 14.22 lb (6.45 kg) 						
Power supply	<i>Some:</i> 180 watts, autosensing, 85% PSU						
Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available						
Preload	<p>Preloaded operating system</p> <p><i>Some:</i> Windows® 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit <i>Some:</i> Windows 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit(not available with 7th Gen Intel processor)</p> <p>Preloaded applications (only some listed)</p> <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate Cyberlink PowerDVD (DVD, DVD±RW) Cyberlink PowerDVD Create (DVD±RW) - Only for Window 10 Lenovo Companion - Only for Window 7 Lenovo Solution Center Lenovo System Update Create Recovery Media Adobe® Reader® 						
Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, RoHS-compliant, WEEE						
Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com						

Note: The specifications above may not be available in all regions.

Lenovo, January 2018



ThinkCentre M715 SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD A6 / A8 / A10 / A12 series APU and Ryzen 3 / 5 / 7 series processor	Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Smart USB protection, allows keyboard/ mouse only, blocks all storage devices Optional cable lock to physically lock both keyboard and mouse Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional chassis intrusion switch 																																																												
	<table border="1"> <thead> <tr> <th>APU / processor</th> <th>Cores / Threads</th> <th>Frequency (Base/Max)</th> <th>L2 Cache</th> <th>Integrated Graphics</th> </tr> </thead> <tbody> <tr> <td>Ryzen 3 PRO 1200</td> <td>4 / 4</td> <td>3.1 / 3.4</td> <td>2MB</td> <td>None</td> </tr> <tr> <td>Ryzen 3 PRO 1300</td> <td>4 / 4</td> <td>3.5 / 3.7</td> <td>2MB</td> <td>None</td> </tr> <tr> <td>Ryzen 5 PRO 1500</td> <td>4 / 8</td> <td>3.5 / 3.7</td> <td>2MB</td> <td>None</td> </tr> <tr> <td>Ryzen 7 PRO 1700</td> <td>8 / 16</td> <td>3.0 / 3.7</td> <td>4MB</td> <td>None</td> </tr> <tr> <td>PRO A6-8570</td> <td>2 / 2</td> <td>3.5 / 3.8</td> <td>1MB</td> <td>Radeon R5 Series</td> </tr> <tr> <td>PRO A10-8770</td> <td>4 / 4</td> <td>3.5 / 3.8</td> <td>2MB</td> <td>Radeon R7 Series</td> </tr> <tr> <td>PRO A12-8870</td> <td>4 / 4</td> <td>3.7 / 4.2</td> <td>2MB</td> <td>Radeon R7 Series</td> </tr> <tr> <td>PRO A6-9500</td> <td>2 / 2</td> <td>3.5 / 3.8</td> <td>1MB</td> <td>Radeon R5 Series</td> </tr> <tr> <td>PRO A8-9600</td> <td>4 / 4</td> <td>3.1 / 3.4</td> <td>2MB</td> <td>Radeon R7 Series</td> </tr> <tr> <td>PRO A10-9700</td> <td>4 / 4</td> <td>3.5 / 3.8</td> <td>2MB</td> <td>Radeon R7 Series</td> </tr> <tr> <td>PRO A12-9800</td> <td>4 / 4</td> <td>3.8 / 4.2</td> <td>2MB</td> <td>Radeon R7 Series</td> </tr> </tbody> </table>	APU / processor	Cores / Threads	Frequency (Base/Max)	L2 Cache	Integrated Graphics	Ryzen 3 PRO 1200	4 / 4	3.1 / 3.4	2MB	None	Ryzen 3 PRO 1300	4 / 4	3.5 / 3.7	2MB	None	Ryzen 5 PRO 1500	4 / 8	3.5 / 3.7	2MB	None	Ryzen 7 PRO 1700	8 / 16	3.0 / 3.7	4MB	None	PRO A6-8570	2 / 2	3.5 / 3.8	1MB	Radeon R5 Series	PRO A10-8770	4 / 4	3.5 / 3.8	2MB	Radeon R7 Series	PRO A12-8870	4 / 4	3.7 / 4.2	2MB	Radeon R7 Series	PRO A6-9500	2 / 2	3.5 / 3.8	1MB	Radeon R5 Series	PRO A8-9600	4 / 4	3.1 / 3.4	2MB	Radeon R7 Series	PRO A10-9700	4 / 4	3.5 / 3.8	2MB	Radeon R7 Series	PRO A12-9800	4 / 4	3.8 / 4.2	2MB	Radeon R7 Series	Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
APU / processor	Cores / Threads	Frequency (Base/Max)	L2 Cache	Integrated Graphics																																																											
Ryzen 3 PRO 1200	4 / 4	3.1 / 3.4	2MB	None																																																											
Ryzen 3 PRO 1300	4 / 4	3.5 / 3.7	2MB	None																																																											
Ryzen 5 PRO 1500	4 / 8	3.5 / 3.7	2MB	None																																																											
Ryzen 7 PRO 1700	8 / 16	3.0 / 3.7	4MB	None																																																											
PRO A6-8570	2 / 2	3.5 / 3.8	1MB	Radeon R5 Series																																																											
PRO A10-8770	4 / 4	3.5 / 3.8	2MB	Radeon R7 Series																																																											
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PRO A12-9800	4 / 4	3.8 / 4.2	2MB	Radeon R7 Series																																																											
		Mouse	<i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black																																																												
Memory	64GB max, UDIMM, DDR4-2400, four 288-pin DIMM sockets, non-ECC, dual-channel capable* * System automatically clocks down for the processors with lower memory controller	Mechanical	<ul style="list-style-type: none"> SFF (8.4L), black color; metal case (WxDxH) 3.6" X 11.4" X 13.5"; 92.5mm X 290.5mm X 343.5mm Approx. 13.2 lb (6.0 kg), weight may vary by configuration Toolless cover, disk, optical removal Optional dust filter Bay 1: Slim external ODD bay Bay 2: 3.5", internal, HDD/SSD Bay 3: 2.5", internal, HDD/SSD (bay only comes with 2.5" 2nd disk) Slot 1: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16* Slot 2: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1* Slot 3: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1* Slot 4: no slot, only bracket for optional port extension* M.2 card slots: two (one for WLAN, one for SSD) * Optional front USB3.1 Type-C x2 module occupies PCIe x16 slot (x4 card), optional rear 2x USB2.0 / parallel / 2nd serial occupies one expansion slot 																																																												
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s	Floor Stand	Optional system floor stand for vertical orientation																																																												
Optical	<i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)	Power supply	<i>Some:</i> 180 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 92% PSU (only available via special bid)																																																												
Onboard SATA Media reader	Three onboard SATA 6.0Gb/s connectors Optional 7-in-1 media reader	Limited warranty	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available																																																												
Graphics	AMD Radeon™ Graphics in processor (not for AMD Ryzen processor), uses main memory, DirectX® 12, one VGA, two DisplayPort™ (Onboard VGA and DP ports are invalid on the models with AMD Ryzen processor), supports 3 independent displays, works along with AMD discrete graphics to support more displays; <i>Max resolution:</i> 4096x2160 (DP) @60Hz; 1920x1200 (VGA) @60Hz <i>Some:</i> NVIDIA GeForce® GT 730 , DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts; <i>Max resolution:</i> 3840x2160 (DisplayPort) @60Hz;	Preload	Preloaded operating system <i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (Only available with Pro A6/A10/A12-8xxx APUs) <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate Only for Window 10 Lenovo Companion Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools Create Recovery Media Adobe® Reader® Cyberlink Power2Go Create (DVD±RW) 																																																												
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4	Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant																																																												
Chipset	AMD B350 Chipset	Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com																																																												
Front ports*	Two USB 3.1 Gen2, two USB 3.1 Gen1, optional two USB 3.1 Type-C Gen 2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)																																																														
Rear ports*	Two USB 3.1 Gen1, two USB 2.0, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA and two DisplayPort (not available on models with AMD Ryzen processor), two PS/2 ports (keyboard / mouse); additional DisplayPort on optional graphics on some models																																																														
Rear audio ports* IEEE 1394*	Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm) None * Depending on many factors, actual data transfer speed may be lower than theoretical speed																																																														
Audio support	High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt)																																																														
WLAN	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1																																																														
Bluetooth™ Ethernet Modem	<i>Some:</i> Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter Gigabit ethernet, Realtek RTL8111EPV, Wake on LAN® None																																																														
Manageability Security chip	DASH TPM (Trusted Platform Module) 2.0, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS																																																														

Note: The specifications above may not be available in all regions.

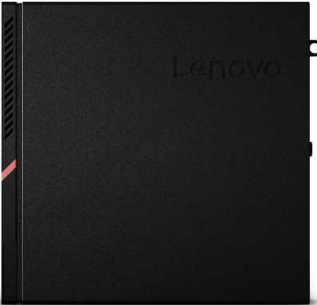
Lenovo, July 2017



ThinkCentre M715 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD A6, A10, or A12 series APUs						Keyboard	<i>Some:</i> Fullsize USB Keyboard (USB connector), Lenovo logo <i>Some:</i> Lenovo New Slim USB Keyboard (USB connector), black, Lenovo logo <i>Some:</i> USB Optical Wheel Mouse, black, Lenovo logo	
	APU	Cores	Frequency Base/Max	L2 Cache	Memory Types	Integrated Graphics	Mouse		
	PRO A6-9500E	2	3.0 / 3.4 GHz	1 MB	DDR4-2400	Radeon R5 Series	Mechanical	Tiny (1L), black color; metal case M715 Tiny only: 7.05" W X 7.20" D X 1.36" H 179mm W X 182.9mm D X 34.5mm H 2.9 lb (1.3 kg), weight may vary by configuration With VESA mount & ODD box: 7.42" W X 7.30" D X 2.48" H 188.4mm W X 185.38mm D X 63mm H 4.12 lb (1.87 kg), weight may vary by configuration With VESA mount & I/O box: 7.42" W X 7.30" D X 2.62" H 188.4mm W X 185.38mm D X 66.6mm H 3.53 lb (1.6 kg), weight may vary by configuration Optional VESA mount bracket kit, supports VESA 75mm and 100mm Optional system floor stand for vertical orientation	
	PRO A10-9700E	4	3.0 / 3.5 GHz	2 MB	DDR4-2400	Radeon R7 Series			
	PRO A12-9800E	4	3.1 / 3.8 GHz	2 MB	DDR4-2400	Radeon R7 Series			
	PRO A6-8570E	2	3.0 / 3.4 GHz	1 MB	DDR4-2400	Radeon R5 Series			
	PRO A10-8770E	4	2.8 / 3.5 GHz	2 MB	DDR4-2400	Radeon R7 Series			
PRO A12-8870E	4	2.9 / 3.8 GHz	2 MB	DDR4-2400	Radeon R7 Series				
Memory	32GB max, DDR4 2400, two 260-pin SO-DIMM sockets, dual-channel capable *16GB single SO-DIMM memory is only available via special bid models						VESA mount		
Disk	<i>Some:</i> SATA 6.0Gb/s, 2.5" Wide, 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / SATA interface or PCIe NVMe interface						Floor Stand		
Optical	<i>Some:</i> DVD-ROM, 9.0mm high, via USB external ODD box <i>Some:</i> DVD±RW, 9.0mm high, via USB external ODD box						Power supply	65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models) 90 watts AC/DC adapter, autosensing, 88% PSU (only for models with I/O box)	
Onboard SATA	One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar						Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available	
Media reader	None						Preload	Preloaded operating system <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit <i>Some:</i> Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64-bit	
Graphics	AMD Radeon™ Graphics in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional port (HDMI, VGA, or 3rd DP), supports 3 independent displays (supports maximum of 2 concurrent HDMI/DVI displays when using HDMI port or DP to DVI/HDMI dongles); <i>Max resolution:</i> 4096x2160 (DP) @60Hz; 4096x2160 (HDMI) @30Hz; 1920x1200 (VGA) @60Hz						Preloaded applications (only some listed) - <i>Windows 10 only</i> ● Lenovo Companion ● Microsoft Office preloaded; purchase a product key to activate - <i>Windows 7 only</i> ● Lenovo Solution Center ● ThinkVantage System Update ● Create Recovery Media ● Lenovo ThinkVantage Tools ● CyberlinkPowerDVD Create(DVD±RW) ● Microsoft Office preloaded; purchase a product key to activate ● Adobe® Reader®		
DP cable	Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle						Environment	ENERGY STAR® 6.1*, EPEAT™ Gold rating* (*Not for non-OS models); ErP Lot 3; GREENGUARD®; RoHS-compliant	
Chipset	AMD B300 Chipset						Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com	
Front ports*	Two USB 3.0 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)								
Rear ports*	One USB 3.0 and three USB 2.0 (optional external optical box or I/O box occupies one specific USB 2.0 on some models), ethernet (RJ-45), two DisplayPort, one optional port (VGA, 3rd DP, HDMI, or serial on some models), one headphone								
I/O box*	Optional external I/O box, extends four USB 2.0 (two on front and two on rear), one serial, and two PS/2, via USB port (occupy one specific USB 2.0 of M715q Tiny) * Depending on many factors, actual data transfer speed may be lower than theoretical speed								
Audio support	High Definition (HD) Audio, Realtek ALC233-CG / internal speaker (1.5 watt)								
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1								
Bluetooth™	<i>Some:</i> Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter								
Ethernet	Gigabit ethernet, Realtek RTL8111EPV, Wake on LAN®								
Modem	None								
Manageability	DASH 1.0/1.1								
Security chip	Discrete TPM 2.0, TCG Certified								
Security features	<ul style="list-style-type: none"> ● Security slot (in rear for optional Kensington® MicroSaver® cable) ● Padlock loop ● Smart USB protection, allows keyboard/mouse only, blocks all storage devices ● Power-on password ● Administrator password ● Hard disk password ● Boot sequence control ● Boot without keyboard and mouse ● Individual USB port disablement ● Chassis intrusion switch 								



ThinkCentre M715 Tiny (2nd Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Athlon, A6, A10, A12, or Ryzen processor	Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Administrator password Padlock loop Hard disk password Smart USB protection, allows keyboard/ mouse only, blocks all storage devices Boot sequence control Power-on password Boot without keyboard and mouse Individual USB port disablement Chassis intrusion switch 																																																																								
	<table border="1"> <thead> <tr> <th>Processor</th> <th>Cores / Threads</th> <th>Frequency Base/Max</th> <th>L2 Cache</th> <th>Memory Support (Up to)</th> <th>Integrated Graphics</th> </tr> </thead> <tbody> <tr> <td>Athlon 200GE</td> <td>2 / 4</td> <td>3.2 GHz</td> <td>1 MB</td> <td>DDR4-2933</td> <td>Radeon Vega 3</td> </tr> <tr> <td>Athlon PRO 200GE</td> <td>2 / 4</td> <td>3.2 GHz</td> <td>1 MB</td> <td>DDR4-2933</td> <td>Radeon Vega 3</td> </tr> <tr> <td>PRO A6-8570E</td> <td>2 / 2</td> <td>3.0 / 3.4 GHz</td> <td>1 MB</td> <td>DDR4-2400</td> <td>Radeon R5</td> </tr> <tr> <td>PRO A10-8770E</td> <td>4 / 4</td> <td>2.8 / 3.5 GHz</td> <td>2 MB</td> <td>DDR4-2400</td> <td>Radeon R7</td> </tr> <tr> <td>PRO A6-9500E</td> <td>2 / 2</td> <td>3.0 / 3.4 GHz</td> <td>1 MB</td> <td>DDR4-2400</td> <td>Radeon R5</td> </tr> <tr> <td>PRO A10-9700E</td> <td>4 / 4</td> <td>3.0 / 3.5 GHz</td> <td>2 MB</td> <td>DDR4-2400</td> <td>Radeon R7</td> </tr> <tr> <td>PRO A12-9800E</td> <td>4 / 4</td> <td>3.1 / 3.8 GHz</td> <td>2 MB</td> <td>DDR4-2400</td> <td>Radeon R7</td> </tr> <tr> <td>Ryzen 3 2200GE</td> <td>4 / 4</td> <td>3.2 / 3.6 GHz</td> <td>2 MB</td> <td>DDR4-2933</td> <td>Radeon Vega 8</td> </tr> <tr> <td>Ryzen 3 PRO 2200GE</td> <td>4 / 4</td> <td>3.2 / 3.6 GHz</td> <td>2 MB</td> <td>DDR4-2933</td> <td>Radeon Vega 8</td> </tr> <tr> <td>Ryzen 5 2400GE</td> <td>4 / 8</td> <td>3.2 / 3.8 GHz</td> <td>2 MB</td> <td>DDR4-2933</td> <td>Radeon RX Vega 11</td> </tr> <tr> <td>Ryzen 5 PRO 2400GE</td> <td>4 / 8</td> <td>3.2 / 3.8 GHz</td> <td>2 MB</td> <td>DDR4-2933</td> <td>Radeon RX Vega 11</td> </tr> </tbody> </table>	Processor	Cores / Threads	Frequency Base/Max	L2 Cache	Memory Support (Up to)	Integrated Graphics	Athlon 200GE	2 / 4	3.2 GHz	1 MB	DDR4-2933	Radeon Vega 3	Athlon PRO 200GE	2 / 4	3.2 GHz	1 MB	DDR4-2933	Radeon Vega 3	PRO A6-8570E	2 / 2	3.0 / 3.4 GHz	1 MB	DDR4-2400	Radeon R5	PRO A10-8770E	4 / 4	2.8 / 3.5 GHz	2 MB	DDR4-2400	Radeon R7	PRO A6-9500E	2 / 2	3.0 / 3.4 GHz	1 MB	DDR4-2400	Radeon R5	PRO A10-9700E	4 / 4	3.0 / 3.5 GHz	2 MB	DDR4-2400	Radeon R7	PRO A12-9800E	4 / 4	3.1 / 3.8 GHz	2 MB	DDR4-2400	Radeon R7	Ryzen 3 2200GE	4 / 4	3.2 / 3.6 GHz	2 MB	DDR4-2933	Radeon Vega 8	Ryzen 3 PRO 2200GE	4 / 4	3.2 / 3.6 GHz	2 MB	DDR4-2933	Radeon Vega 8	Ryzen 5 2400GE	4 / 8	3.2 / 3.8 GHz	2 MB	DDR4-2933	Radeon RX Vega 11	Ryzen 5 PRO 2400GE	4 / 8	3.2 / 3.8 GHz	2 MB	DDR4-2933	Radeon RX Vega 11	Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
Processor	Cores / Threads	Frequency Base/Max	L2 Cache	Memory Support (Up to)	Integrated Graphics																																																																						
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PRO A6-9500E	2 / 2	3.0 / 3.4 GHz	1 MB	DDR4-2400	Radeon R5																																																																						
PRO A10-9700E	4 / 4	3.0 / 3.5 GHz	2 MB	DDR4-2400	Radeon R7																																																																						
PRO A12-9800E	4 / 4	3.1 / 3.8 GHz	2 MB	DDR4-2400	Radeon R7																																																																						
Ryzen 3 2200GE	4 / 4	3.2 / 3.6 GHz	2 MB	DDR4-2933	Radeon Vega 8																																																																						
Ryzen 3 PRO 2200GE	4 / 4	3.2 / 3.6 GHz	2 MB	DDR4-2933	Radeon Vega 8																																																																						
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Ryzen 5 PRO 2400GE	4 / 8	3.2 / 3.8 GHz	2 MB	DDR4-2933	Radeon RX Vega 11																																																																						
		Mouse	<i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black																																																																								
Memory	32GB max, DDR4 2666*, two 260-pin SO-DIMM sockets, dual-channel capable * System automatically clocks down for the lower memory controller	Mechanical	Tiny (1L), black color; metal case • Toolless chassis open (need optional toolless chassis screw) • Optional dust filter M715 Gen2 Tiny only: 7.05" W X 7.20" D X 1.36" H 179mm W X 182.9mm D X 34.5mm H 2.91 lb (1.32 kg), weight may vary by configuration With VESA mount & ODD box: 7.42" W X 7.30" D X 2.48" H 188.4mm W X 185.38mm D X 63mm H 3.66 lb (1.66 kg), weight may vary by configuration																																																																								
Disk	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s	VESA mount Floor Stand	Optional VESA mount bracket kit, supports VESA 75mm and 100mm Optional system floor stand for vertical orientation																																																																								
Optical	<i>Some:</i> DVD-ROM, 9.0mm high, via USB external ODD box <i>Some:</i> DVD±RW, 9.0mm high, via USB external ODD box	Power supply	65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)																																																																								
Onboard SATA	One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar	Limited warranty	1-year or 3-year, limited onsite service / service upgrades available																																																																								
Graphics	AMD Radeon™ Graphics in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional port (HDMI, VGA, or 3rd DP), supports 3 independent displays (supports maximum of 2 concurrent HDMI/DVI displays when using HDMI port or DP to DVI/HDMI dongles, and Athlon / Athlon PRO only support 2 displays); <i>Max resolution:</i> 4096x2160 (DP) @60Hz; 4096x2160 (HDMI) @30Hz; 1920x1200 (VGA) @60Hz	Preload	Preloaded operating system <i>Some:</i> Windows® 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit <i>Some:</i> Windows 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64-bit																																																																								
Monitor cable	Optional DP to VGA dongle, DP to DVI-D dongle, or DP to HDMI 1.4 dongle		Preloaded applications (only some listed) - Windows 10 only • Lenovo Vantage • Microsoft Office preloaded; purchase a product key to activate • Cyberlink PowerDVD (only for models with DVD / DVD±RW) • Cyberlink Power2GO (only for models with DVD±RW) • LinkedIn - Windows 7 only • Lenovo Solution Center • ThinkVantage System Update • Create Recovery Media • Microsoft Office preloaded; purchase a product key to activate • Adobe® Reader®																																																																								
Chipset	AMD B300 Chipset	Environment	ENERGY STAR® 7.0*, EPEAT™ Gold rating* (*Not for non-OS models); ErP Lot 3; ; RoHS-compliant																																																																								
Front ports* (Std.)	Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)	MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock)																																																																								
Rear ports* (Std.)	One USB 3.1 Gen1 and three USB 2.0, ethernet (RJ-45), two DisplayPort, one headphone	Accessories	For compatible accessories, please go to http://smartfind.lenovo.com																																																																								
Rear ports* (Opt.)	One optional port (VGA**, 3rd DP**, HDMI**, or serial on some models) * Depending on many factors, actual data transfer speed may be lower than theoretical speed ** Not support VGA, 3rd DP, HDMI for the models with Athlon / Athlon PRO																																																																										
Audio support	High Definition (HD) Audio, Realtek ALC233-VB2 / internal speaker (1.5 watt)																																																																										
WLAN	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2 <i>Some:</i> Bluetooth 4.2* wireless, integrated in Wi-Fi + BT combo adapter * Hardware supports BT 4.2, but Win10 RS3 and earlier only supports BT 4.1 Gigabit ethernet, Realtek RTL8111EPV, Wake on LAN®																																																																										
Bluetooth																																																																											
Ethernet																																																																											
Manageability	DASH 1.0/1.1																																																																										
Security chip	Discrete TPM 2.0, TCG Certified																																																																										

Note: The specifications above may not be available in all regions.

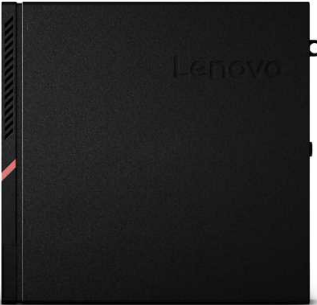
Lenovo, July 2018



ThinkCentre M715 Tiny Thin Client Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD A6, A10, or A12 series APUs						Keyboard	<i>Some:</i> Fullsize USB Keyboard (USB connector), Lenovo logo
	APU	Cores	Frequency Base/Max	L2 Cache	Memory Types	Integrated Graphics	Mouse	<i>Some:</i> USB Optical Wheel Mouse, black, Lenovo logo
	PRO A6-8570E	2	3.0 / 3.4 GHz	1 MB	DDR4-2400	Radeon R5 Series	Mechanical	Tiny (1L), black color; metal case M715 Tiny only: 7.05" W X 7.20" D X 1.36" H 179mm W X 182.9mm D X 34.5mm H 2.9 lb (1.3 kg), weight may vary by configuration Optional VESA mount bracket kit, supports VESA 75mm and 100mm Optional system floor stand for vertical orientation
	PRO A10-8770E	4	2.8 / 3.5 GHz	2 MB	DDR4-2400	Radeon R7 Series		
PRO A12-8870E*	4	2.9 / 3.8 GHz	2 MB	DDR4-2400	Radeon R7 Series			
*PRO A12-8870E (support Windows 10 IOT only) is only available via special bid models								
Memory	4GB max, DDR4 2400, two 260-pin SO-DIMM sockets						VESA mount	Optional VESA mount bracket kit, supports VESA 75mm and 100mm Optional system floor stand for vertical orientation
Disk	<i>Some:</i> 256GB Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"* *256GB SATA (support Windows 10 IOT only) is only available via special bid models <i>Some:</i> 32GB M.2 Solid State Drive (SSD) / SATA interface <i>Some:</i> 128GB M.2 Solid State Drive (SSD) / PCIe NVMe interface						Floor Stand	
Optical	None						Power supply	65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)
Onboard SATA	One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar						Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available
Media reader	None						Preload	Preloaded operating system <i>Some:</i> Windows Embedded Standard 7 V2 (WES 7 V2) <i>Some:</i> Windows 10 IoT Enterprise <i>Some:</i> LeTOS V2 (Lenovo Terminal Operating System, Linux-based)
Graphics	AMD Radeon™ Graphics in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional port (HDMI, VGA, or 3rd DP), supports 3 independent displays (supports maximum of 2 concurrent HDMI/DVI displays when using HDMI port or DP to DVI/HDMI dongles); <i>Max resolution:</i> 4096x2160 (DP) @60Hz; 4096x2160 (HDMI) @30Hz; 1920x1200 (VGA) @60Hz						Environment	ENERGY STAR® 6.1*, EPEAT™ Gold rating* (*not for non-OS models); ErP Lot 3; GREENGUARD®; RoHS-compliant
DP cable	Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle						Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com
Chipset	AMD B300 Chipset							
Front ports*	Two USB 3.0 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)							
Rear ports*	One USB 3.0 and three USB 2.0 (optional external optical box or I/O box occupies one specific USB 2.0 on some models), ethernet (RJ-45), two DisplayPort, one optional port (VGA, 3rd DP, HDMI, or serial on some models), one headphone * Depending on many factors, actual data transfer speed may be lower than theoretical speed							
I/O box	None							
Audio support	High Definition (HD) Audio, Realtek ALC233-CG / internal speaker (1.5 watt)							
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1							
Bluetooth™	<i>Some:</i> Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter							
Ethernet	Gigabit ethernet, Realtek RTL8111EPV, Wake on LAN®							
Modem	None							
Manageability	DASH 1.0/1.1							
Security chip	Discrete TPM 2.0, TCG Certified							
Security features	<ul style="list-style-type: none"> ● Security slot (in rear for optional Kensington® MicroSaver® cable) ● Padlock loop ● Smart USB protection, allows keyboard/ mouse only, blocks all storage devices ● Power-on password ● Administrator password ● Hard disk password ● Boot sequence control ● Boot without keyboard and mouse ● Individual USB port disablement ● Chassis intrusion switch 							



ThinkCentre M715 Tiny Thin Client (2nd Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Athlon, A6, A10, or Ryzen processor	Keyboard	Some: Lenovo Calliope Keyboard (USB connector), black Some: Lenovo Traditional Keyboard (USB connector), black Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black																														
	<table border="1"> <thead> <tr> <th>APU</th> <th>Cores / Threads</th> <th>Frequency Base/Max</th> <th>L2 Cache</th> <th>Memory Support (Up to)</th> <th>Integrated Graphics</th> </tr> </thead> <tbody> <tr> <td>Athlon PRO 200GE</td> <td>2 / 4</td> <td>3.2 GHz</td> <td>1 MB</td> <td>DDR4-2933</td> <td>Radeon Vega 3</td> </tr> <tr> <td>PRO A6-8570E</td> <td>2 / 2</td> <td>3.0 / 3.4 GHz</td> <td>1 MB</td> <td>DDR4-2400</td> <td>Radeon R5</td> </tr> <tr> <td>PRO A10-8770E</td> <td>4 / 4</td> <td>2.8 / 3.5 GHz</td> <td>2 MB</td> <td>DDR4-2400</td> <td>Radeon R7</td> </tr> <tr> <td>Ryzen 3 PRO 2200GE</td> <td>4 / 4</td> <td>3.2 / 3.6 GHz</td> <td>2 MB</td> <td>DDR4-2933</td> <td>Radeon Vega 8</td> </tr> </tbody> </table>	APU	Cores / Threads	Frequency Base/Max	L2 Cache	Memory Support (Up to)	Integrated Graphics	Athlon PRO 200GE	2 / 4	3.2 GHz	1 MB	DDR4-2933	Radeon Vega 3	PRO A6-8570E	2 / 2	3.0 / 3.4 GHz	1 MB	DDR4-2400	Radeon R5	PRO A10-8770E	4 / 4	2.8 / 3.5 GHz	2 MB	DDR4-2400	Radeon R7	Ryzen 3 PRO 2200GE	4 / 4	3.2 / 3.6 GHz	2 MB	DDR4-2933	Radeon Vega 8	Mouse	Some: Lenovo Calliope Mouse (USB connector), black Some: Lenovo Fingerpoint Mouse (USB connector), Windows Hello support, black Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
APU	Cores / Threads	Frequency Base/Max	L2 Cache	Memory Support (Up to)	Integrated Graphics																												
Athlon PRO 200GE	2 / 4	3.2 GHz	1 MB	DDR4-2933	Radeon Vega 3																												
PRO A6-8570E	2 / 2	3.0 / 3.4 GHz	1 MB	DDR4-2400	Radeon R5																												
PRO A10-8770E	4 / 4	2.8 / 3.5 GHz	2 MB	DDR4-2400	Radeon R7																												
Ryzen 3 PRO 2200GE	4 / 4	3.2 / 3.6 GHz	2 MB	DDR4-2933	Radeon Vega 8																												
Memory	8GB max, DDR4 2666*, two 260-pin SO-DIMM sockets, dual-channel capable * System automatically clocks down for the lower memory controller	Mechanical	Tiny (1L), black color; metal case • Toolless chassis open (need optional toolless chassis screw) • Optional dust filter M715 Gen2 Tiny only: 7.05" W X 7.20" D X 1.36" H 179mm W X 182.9mm D X 34.5mm H 2.91 lb (1.32 kg), weight may vary by configuration																														
Disk	Some: 32GB M.2 Solid State Drive (SSD) / SATA interface Some: 128GB M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 2	VESA mount	Optional VESA mount bracket kit, supports VESA 75mm and 100mm																														
Optical	None	Floor Stand	Optional system floor stand for vertical orientation																														
Onboard SATA	One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar	Power supply	65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)																														
Graphics	AMD Radeon™ Graphics in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional port (HDMI, VGA, or 3rd DP), supports 3 independent displays (supports maximum of 2 concurrent HDMI/DVI displays when using HDMI port or DP to DVI/HDMI dongles, and Athlon / Athlon PRO only support 2 displays); Max resolution: 4096x2160 (DP) @60Hz; 4096x2160 (HDMI) @30Hz; 1920x1200 (VGA) @60Hz	Limited warranty	1-year or 3-year, limited onsite service / service upgrades available																														
Monitor cable	Optional DP to VGA dongle, DP to DVI-D dongle, or DP to HDMI 1.4 dongle	Preload	Preloaded operating system Some: Windows Embedded Standard 7 V2 (WES 7 V2) Some: Windows 10 IoT Enterprise Some: LeTOS V2 (Lenovo Terminal Operating System, Linux-based)																														
Chipset	AMD B300 Chipset	Environment	ENERGY STAR® 6.1*, EPEAT™ Gold rating* (*not for non-OS models); ErP Lot 3; RoHS-compliant																														
Front ports* (Std.)	Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)	MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock)																														
Rear ports* (Std.)	One USB 3.1 Gen1 and three USB 2.0, ethernet (RJ-45), two DisplayPort, one headphone	Accessories	For compatible accessories, please go to http://smartfind.lenovo.com																														
Rear ports* (Opt.)	One optional port (VGA**, 3rd DP**, HDMI**, or serial on some models) * Depending on many factors, actual data transfer speed may be lower than theoretical speed ** Not support VGA, 3rd DP, HDMI for the models with Athlon / Athlon PRO																																
Audio support	High Definition (HD) Audio, Realtek ALC233-VB2 / internal speaker (1.5 watt)																																
WLAN	Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1 Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1 Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2 Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2 Some: Bluetooth 4.2* wireless, integrated in Wi-Fi + BT combo adapter																																
Bluetooth	* Hardware supports BT 4.2, but Win10 RS3 and earlier only supports BT 4.1																																
Ethernet	Gigabit ethernet, Realtek RTL8111EPV, Wake on LAN®																																
Manageability	DASH 1.0/1.1																																
Security chip	Discrete TPM 2.0, TCG Certified																																
Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Smart USB protection, allows keyboard/mouse only, blocks all storage devices Power-on password 	<ul style="list-style-type: none"> Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Chassis intrusion switch 																															

Note: The specifications above may not be available in all regions.

Lenovo, July 2018



ThinkCentre M720 SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 8th Generation Intel Core™ i3 / i5 / i7 Processor	<p><i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2</p> <p><i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1</p> <p><i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2</p> <p><i>Some:</i> Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter</p>																																																																																																																								
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Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics																																																																																																																					
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Core i9-9900	8 / 16	3.1G / 5.0G	16 MB	DDR4-2666	UHD 630																																																																																																																					
		<p>None</p> <p>Discrete TPM 2.0, TCG Certified</p> <p>Security features</p> <ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Optional cable lock to physically lock both keyboard and mouse Optional chassis intrusion switch Optional chassis E-Lock (special bid) Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Smart USB protection, allows keyboard/mouse only, blocks all storage devices 																																																																																																																								
		<p>Keyboard</p> <p><i>Some:</i> Lenovo Calliope Keyboard (USB connector), black</p> <p><i>Some:</i> Lenovo Traditional Keyboard (USB connector), black</p> <p><i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black</p> <p><i>Some:</i> Lenovo Keyboard (PS/2 connector), black (only available via special bid)</p> <p><i>Some:</i> Lenovo Calliope Mouse (USB connector), black</p> <p><i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black</p> <p><i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black</p> <p><i>Some:</i> Lenovo Mouse (PS/2 connector), black (only available via special bid)</p>																																																																																																																								
Memory	64GB max, UDIMM, DDR4-2666, four 288-pin DIMM sockets, non-ECC, dual-channel capable* * System automatically clocks down for the processors with lower memory controller																																																																																																																									
Storage	<p><i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm</p> <p><i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"</p> <p><i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s</p> <p>* M.2 SSD (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s</p> <p><i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2</p>																																																																																																																									
Optical	<p><i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)</p> <p><i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)</p>																																																																																																																									
Onboard SATA Media reader	<p>Three onboard SATA 6.0Gb/s connectors</p> <p>Optional 7-in-1 media reader</p>																																																																																																																									
Graphics	<p>Intel UHD Graphics 610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays;</p> <p><i>Max resolution:</i> 4096x2304 (DP)@60Hz; 2048x1536 (VGA)@50Hz</p> <p><i>Some:</i> NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x16 adapter, two DisplayPort, 35 watts;</p> <p><i>Max resolution:</i> 3840x2160 (DisplayPort)@60Hz;</p>																																																																																																																									
Monitor cable	Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle																																																																																																																									
Chipset	Intel B360 Chipset																																																																																																																									
Front ports* (Std.)	2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x USB 3.1 Type-C Gen1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)																																																																																																																									
Front ports* (Opt.)	Optional: 1x media reader																																																																																																																									
Rear ports* (Std.)	4x USB 2.0, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA, 2x DisplayPort, 1x line-out (3.5mm)																																																																																																																									
Rear ports* (Opt.)	Optional: 2x USB 3.1 Gen1 via PCI2 x1**, 2x USB 3.1 Type-C Gen2 via PCIe x4** (special bid only), 1x 2nd serial (9-pin), 4x serial (9-pin) via PCIe x1, 1x parallel (25-pin), 2x PS/2 ports (keyboard/mouse), additional RJ-45 and video ports available on optional graphics or ethernet card																																																																																																																									
	* Depending on many factors, actual data transfer speed may be lower than theoretical speed																																																																																																																									
	** Choose either 2x USB 3.1 Gen1 or 2x USB 3.1 Type-C Gen2																																																																																																																									
Audio support	High Definition (HD) Audio, Realtek ALC233VB2 / internal speaker (2 watt)																																																																																																																									
WLAN	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1																																																																																																																									
Mechanical	<ul style="list-style-type: none"> SFF (8.4L), black color; metal case (WxDxH) 3.64" X 11.44" X 13.52"; 92.5mm X 290.5mm X 343.5mm Approx. 13.24 lb (6.0 kg), weight may vary by configuration Toolless cover, disk, optical, and extension card removal Optional dust filter <p>Bay 1: Slim external ODD bay</p> <p>Bay 2: 3.5", 1" high, internal, HDD/SSD</p> <p>Bay 3: 2.5", internal, HDD/SSD (optional bay)</p> <p>Slot 1: low-profile (length < 147mm, height < 68.9mm), PCIe 3.0 x16</p> <p>Slot 2: low-profile (length < 147mm, height < 68.9mm), PCIe 3.0 x1</p> <p>Slot 3: low-profile (length < 147mm, height < 68.9mm), PCIe 3.0 x1</p> <p>Slot 4: no slot, only bracket for optional port extension</p> <p>M.2 card slots: Two (one for WLAN, one for SSD/Optane)</p> <p>Optional system floor stand for vertical orientation</p>																																																																																																																									
Floor Stand																																																																																																																										
Power supply	<p><i>Some:</i> 180 watts, autosensing, 85% PSU</p> <p><i>Some:</i> 210 watts, autosensing, 85% PSU</p> <p><i>Some:</i> 260 watts, autosensing, 92% PSU (only available via special bid)</p>																																																																																																																									
Limited warranty ³	<p><i>Some:</i> 1-year or 3-year, depot service / service upgrades available</p> <p><i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available</p>																																																																																																																									
Preload	<p>Preloaded operating system</p> <p><i>Some:</i> Windows® 10 Pro 64-bit</p> <p><i>Some:</i> Windows 10 Home 64-bit</p> <p>Preloaded applications (only some listed)</p> <ul style="list-style-type: none"> Lenovo Vantage Microsoft Office preloaded; purchase a product key to activate Cyberlink PowerDVD (only for models with DVD / DVD±RW) Cyberlink Power2GO (only for models with DVD±RW) LinkedIn 																																																																																																																									
Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, TCO, TUV low noise verified (coming soon, on some models), RoHS-compliant																																																																																																																									
Accessories	For compatible accessories, please go to http://smartfind.lenovo.com																																																																																																																									

Note: The specifications above may not be available in all regions.

Lenovo, June 2019



ThinkCentre M720 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 8th Generation Intel Core™ i3 / i5 / i7 Processor						Manageability None Security chip Discrete TPM 2.0, TCG Certified Security features <ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Chassis intrusion switch Power-on password Administrator password Hard disk password <ul style="list-style-type: none"> Boot sequence control Boot without keyboard and mouse Individual USB port disablement Smart USB protection, allows keyboard/mouse only, blocks all storage devices
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	
	Celeron G4900T	2 / 2	2.9G	2 MB	DDR4-2400	UHD 610	
	Pentium Gold G5400T	2 / 4	3.1G	4 MB	DDR4-2400	UHD 610	
	Pentium Gold G5500T	2 / 4	3.2G	4 MB	DDR4-2400	UHD 630	
	Core i3-8100T	4 / 4	3.1G	6 MB	DDR4-2400	UHD 630	
	Core i3-8300T	4 / 4	3.2G	8 MB	DDR4-2400	UHD 630	
	Core i5-8400T	6 / 6	1.7G / 3.3G	9 MB	DDR4-2666	UHD 630	
	Core i5-8500T	6 / 6	2.1G / 3.5G	9 MB	DDR4-2666	UHD 630	
	Core i5-8600T	6 / 6	2.3G / 3.7G	9 MB	DDR4-2666	UHD 630	
	Core i7-8700T	6 / 12	2.4G / 4.0G	12 MB	DDR4-2666	UHD 630	
	Core i3-9100T	4 / 4	3.1G / 3.7G	6 MB	DDR4-2400	UHD 630	
	Core i3-9300T	4 / 4	3.2G / 3.8G	8 MB	DDR4-2400	UHD 630	
	Core i5-9400T	6 / 6	1.8G / 3.4G	9 MB	DDR4-2666	UHD 630	
	Core i5-9500T	6 / 6	2.2G / 3.7G	9 MB	DDR4-2666	UHD 630	
	Core i5-9600T	6 / 6	2.3G / 3.9G	9 MB	DDR4-2666	UHD 630	
	Core i7-9700T	8 / 8	2.0G / 4.3G	12 MB	DDR4-2666	UHD 630	
Core i9-9900T	8 / 16	2.1G / 4.4G	16 MB	DDR4-2666	UHD 630		
Memory	32GB max, DDR4-2666*, two 260-pin SO-DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller						
	Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s <i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2 <i>Some:</i> DVD-ROM, slim (9.0mm), via USB external ODD box <i>Some:</i> DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box One onboard SATA 6.0Gb/s connector					
		Optical	One onboard SATA 6.0Gb/s connector				
Onboard SATA	One onboard SATA 6.0Gb/s connector						
Graphics	Intel HD Graphics 610/630 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI, one optional video port (2nd HDMI, VGA, 2nd DP, or USB 3.1 Type-C Gen1 with DisplayPort function), up to 3 independent displays; <i>Max resolution:</i> 4096x2304 (DP)@60Hz; 4096x2304 (Type-C)@60Hz; 4096x2160 (onboard HDMI)@24Hz; 2048x1536 (VGA)@50Hz Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle						
Monitor cable	Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle						
Chipset	Intel B360 Chipset						
Front ports* (Std.)	one USB 3.1 Gen1 (Always On and fast charge), one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)						
Rear ports* (Std.)	2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x ethernet (RJ-45), 1x DisplayPort, 1x HDMI						
Rear ports* (Opt.)	Two optional ports (mutually exclusive with PCIe card): Port 1 for VGA / 2nd DP / 2nd HDMI / serial / USB 3.1 Type-C Gen 1 with DP function); Port 2 for serial; Optional ports via PCIe card: 2x USB 3.1 Gen1 via PCIe x1, 4x serial (9-pin) via PCIe x1 * Depending on many factors, actual data transfer speed may be lower than theoretical speed						
Audio support	Realtek ALC233VB2 / optional internal speaker (1.5 watt or 2 watt)						
WLAN	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2						
Bluetooth	<i>Some:</i> Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter						
Ethernet	Gigabit ethernet, Intel Ethernet Connection I219-V (Jacksonville), Wake on LAN®						
Ethernet (Opt.)	<i>Some:</i> Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4						
Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black						
	Mouse	<i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black					
		Mechanical Tiny (1L), black color; metal case <ul style="list-style-type: none"> Toolless chassis open (need optional toolless chassis screw) Toolless HDD, SSD, memory removal Optional dust filter one 2.5" bay for HDD/SSD, one PCIe 3.0 x8 slot (low-profile), two M.2 slots (one for WLAN, one for M.2 SSD), 2.5" HDD/SSD and PCIe card are mutually exclusive					
		Dimensions (WxDxH)		Weight (Approx.)			
Tiny only		7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm		2.91 lb (1.32 kg), vary by config			
With VESA mount & ODD box		7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm		3.66 lb (1.66 kg), vary by config			
VESA mount	Optional VESA mount bracket kit, supports VESA 75mm and 100mm						
Floor Stand	Optional system floor stand for vertical orientation						
Power supply	<i>Some:</i> 65 watts AC/DC adapter, autosensing, 88% PSU <i>Some:</i> 90 watts AC/DC adapter, autosensing, 88% PSU <i>Some:</i> 135 watts AC/DC adapter, autosensing, 88% PSU						
Limited warranty	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available						
Preload	Preloaded operating system <i>Some:</i> Windows® 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Lenovo Vantage Microsoft Office preloaded; purchase a product key to activate Cyberlink Power2GO (only for models with DVD / DVD±RW) Cyberlink Power2GO (only for models with DVD±RW) LinkedIn 						
Environment	ENERGY STAR® 7.0, EPEAT™ Gold rating (North America), ErP Lot 3, TCO, TUV ultra low noise verified (coming soon, on some models), RoHS-compliant						
MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)						
Accessories	For compatible accessories, please go to http://smartfind.lenovo.com						

Note: The specifications above may not be available in all regions.

Lenovo, June 2019



ThinkCentre M720 Tower Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 8th Generation Intel Core™ i3 / i5 / i7 Processor						WLAN ¹³ Bluetooth™ Ethernet Ethernet (Opt.) Manageability Security chip Security features Keyboard Mouse Mechanical Power supply Limited warranty ³ Preload Environment Accessories
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	
	Celeron G4900	2 / 2	3.1G	2 MB	DDR4-2400	UHD 610	
	Celeron G4920	2 / 2	3.2G	2 MB	DDR4-2400	UHD 610	
	Pentium Gold G5400	2 / 4	3.7G	4 MB	DDR4-2400	UHD 610	
	Pentium Gold G5500	2 / 4	3.8G	4 MB	DDR4-2400	UHD 630	
	Pentium Gold G5600	2 / 4	3.9G	4 MB	DDR4-2400	UHD 630	
	Core i3-8100	4 / 4	3.6G	6 MB	DDR4-2400	UHD 630	
	Core i3-8300	4 / 4	3.7G	8 MB	DDR4-2400	UHD 630	
	Core i5-8400	6 / 6	2.8G / 4.0G	9 MB	DDR4-2666	UHD 630	
	Core i5-8500	6 / 6	3.0G / 4.1G	9 MB	DDR4-2666	UHD 630	
	Core i5-8600	6 / 6	3.1G / 4.3G	9 MB	DDR4-2666	UHD 630	
	Core i7-8700	6 / 12	3.2G / 4.6G	12 MB	DDR4-2666	UHD 630	
	Core i3-9100	4 / 4	3.6G / 4.2G	6 MB	DDR4-2400	UHD 630	
	Core i3-9300	4 / 4	3.7G / 4.3G	8 MB	DDR4-2400	UHD 630	
	Core i3-9320	4 / 4	3.7G / 4.4G	8 MB	DDR4-2400	UHD 630	
	Core i5-9400	6 / 6	2.9G / 4.1G	9 MB	DDR4-2666	UHD 630	
	Core i5-9500	6 / 6	3.0G / 4.4G	9 MB	DDR4-2666	UHD 630	
	Core i5-9600	6 / 6	3.1G / 4.6G	9 MB	DDR4-2666	UHD 630	
	Core i7-9700	8 / 8	3.0G / 4.7G	12 MB	DDR4-2666	UHD 630	
Core i9-9900	8 / 16	3.1G / 5.0G	16 MB	DDR4-2666	UHD 630		
Memory	64GB max, UDIMM, DDR4-2666*, four 288-pin DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller						
Storage	Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s Some: Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2						
Optical	Some: DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) Some: DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)						
Onboard SATA	Three onboard SATA 6.0Gb/s connectors						
Media reader	Optional 7-in-1 media reader						
Graphics	Intel UHD Graphics 610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays; Max resolution: 4096x2304 (DP)@60Hz; 2048x1536 (VGA)@50Hz Some: NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x16 adapter, two DisplayPort, 35 watts; Max resolution: 3840x2160 (DisplayPort)@60Hz;						
Monitor Cable	Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle						
Chipset	Intel B360 Chipset						
Front ports* (Std.)	2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x USB 3.1 Type-C Gen1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)						
Front ports* (Opt.)	Optional: 1x media reader						
Rear ports* (Std.)	4x USB 2.0, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA, 2x DisplayPort, 1x line-out (3.5mm)						
Rear ports* (Opt.)	Optional: 2x USB 3.1 Gen1 via PCIe x1**, 2x USB 3.1 Type-C Gen2 via PCIe x4** (special bid only), 1x 2nd serial (9-pin), 4x serial (9-pin) via PCIe x1, 1x parallel (25-pin), 2x PS/2 ports (keyboard/mouse), additional RJ-45 and video ports available on optional graphics or ethernet card * Depending on many factors, actual data transfer speed may be lower than theoretical speed ** Choose either 2x USB 3.1 Gen1 or 2x USB 3.1 Type-C Gen2						
Audio support	High Definition (HD) Audio, Realtek ALC233VB2 / internal speaker (2 watt)						
<p>Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1</p> <p>Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2</p> <p>Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1</p> <p>Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2</p> <p>Some: Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter</p> <p>Gigabit ethernet, Intel Ethernet Connection I219-V (Jacksonville), Wake on LAN®</p> <p>Some: Intel Ethernet Server Adapter I350-T4*, gigabit ethernet, 4x RJ-45, PCIe x4</p> <p>Some: Bitland BN8E88*, gigabit ethernet, 1x RJ-45, PCIe x1 (special bid only)</p> <p>* Choose either I350-T4 or BN8E88</p> <p>None</p> <p>Discrete TPM 2.0, TCG Certified</p> <p>Security features</p> <ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Optional cable lock to physically lock both keyboard and mouse Optional chassis intrusion switch Optional chassis E-Lock (special bid) Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Smart USB protection, allows keyboard/mouse only, blocks all storage devices <p>Some: Lenovo Calliope Keyboard (USB connector), black</p> <p>Some: Lenovo Traditional Keyboard (USB connector), black</p> <p>Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black</p> <p>Some: Lenovo Keyboard (PS/2 connector), black (only available via special bid)</p> <p>Some: Lenovo Calliope Mouse (USB connector), black</p> <p>Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black</p> <p>Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black</p> <p>Some: Lenovo Mouse (PS/2 connector), black (only available via special bid)</p> <ul style="list-style-type: none"> Tower (15L), black color, metal case (WxDxH) 5.91" X 10.65" X 14.17"; 150mm X 270.5mm X 360mm Approx. 15.21 lb (6.9 kg), weight may vary by configuration Optional dust filter Bay 1: Slim external ODD bay Bay 2: 3.5", 1" high, internal, HDD/SSD Bay 3: 3.5", 1" high, internal, HDD/SSD (optional bay) Slot 1: half-length full-height (length < 189mm, height < 104mm), PCIe 3.0 x16 Slot 2: half-length full-height (length < 189mm, height < 104mm), PCIe 3.0 x1 Slot 3: half-length full-height (length < 189mm, height < 104mm), PCIe 3.0 x1 Slot 4: no slot, only bracket for optional port extension M.2 card slots: Two (one for WLAN, one for SSD/Optane) <p>Some: 180 watts, autosensing, 85% PSU</p> <p>Some: 210 watts, autosensing, 85% PSU</p> <p>Some: 260 watts, autosensing, 92% PSU (only available via special bid)</p> <p>Some: 1-year or 3-year, depot service / service upgrades available</p> <p>Some: 1-year or 3-year, limited onsite service / service upgrades available</p> <p>Preloaded operating system</p> <p>Some: Windows® 10 Pro 64-bit</p> <p>Some: Windows 10 Home 64-bit</p> <p>Preloaded applications (only some listed)</p> <ul style="list-style-type: none"> Lenovo Vantage Microsoft Office preloaded; purchase a product key to activate Cyberlink PowerDVD (only for models with DVD / DVD±RW) Cyberlink Power2GO (only for models with DVD±RW) LinkedIn <p>ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, TCO, TUV low noise verified (coming soon, on some models), RoHS-compliant</p> <p>For compatible accessories, please go to http://smartfind.lenovo.com</p>							

Note: The specifications above may not be available in all regions.

Lenovo, June 2019



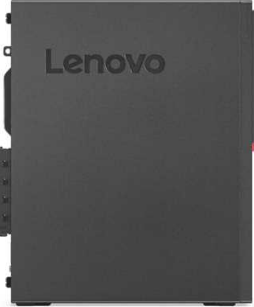
ThinkCentre M725 SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD A6 / A8 / A10 / A12 and Ryzen 3 / 5 / 7 series processor						Ethernet	Gigabit ethernet, Realtek RTL8111EPV, Wake on LAN®																																																																		
	<table border="1"> <thead> <tr> <th>Processor</th> <th>Cores / Threads</th> <th>Frequency (Base/Max)</th> <th>L2 Cache</th> <th>Memory Support (Up to)</th> <th>Integrated Graphics</th> </tr> </thead> <tbody> <tr> <td>PRO A6-9500</td> <td>2 / 2</td> <td>3.5 / 3.8</td> <td>1MB</td> <td>DDR4-2400</td> <td>Radeon R5</td> </tr> <tr> <td>PRO A8-9600</td> <td>4 / 4</td> <td>3.1 / 3.4</td> <td>2MB</td> <td>DDR4-2400</td> <td>Radeon R7</td> </tr> <tr> <td>PRO A10-9700</td> <td>4 / 4</td> <td>3.5 / 3.8</td> <td>2MB</td> <td>DDR4-2400</td> <td>Radeon R7</td> </tr> <tr> <td>PRO A12-9800</td> <td>4 / 4</td> <td>3.8 / 4.2</td> <td>2MB</td> <td>DDR4-2400</td> <td>Radeon R7</td> </tr> <tr> <td>Ryzen 3 2300X</td> <td>4 / 4</td> <td>3.5 / 4.0</td> <td>2MB</td> <td>DDR4-2933</td> <td>None</td> </tr> <tr> <td>Ryzen 5 2500X</td> <td>4 / 8</td> <td>3.6 / 4.0</td> <td>2MB</td> <td>DDR4-2933</td> <td>None</td> </tr> <tr> <td>Ryzen 3 PRO 2200G</td> <td>4 / 4</td> <td>3.5 / 3.6</td> <td>2MB</td> <td>DDR4-2933</td> <td>Radeon Vega 8</td> </tr> <tr> <td>Ryzen 5 PRO 2400G</td> <td>4 / 8</td> <td>3.6 / 3.8</td> <td>2MB</td> <td>DDR4-2933</td> <td>Radeon RX Vega 11</td> </tr> <tr> <td>Ryzen 5 PRO 2600</td> <td>6 / 12</td> <td>3.4 / 3.9</td> <td>3MB</td> <td>DDR4-2933</td> <td>None</td> </tr> <tr> <td>Ryzen 7 PRO 2700</td> <td>8 / 16</td> <td>3.2 / 4.1</td> <td>4MB</td> <td>DDR4-2933</td> <td>None</td> </tr> </tbody> </table>						Processor	Cores / Threads	Frequency (Base/Max)	L2 Cache	Memory Support (Up to)	Integrated Graphics	PRO A6-9500	2 / 2	3.5 / 3.8	1MB	DDR4-2400	Radeon R5	PRO A8-9600	4 / 4	3.1 / 3.4	2MB	DDR4-2400	Radeon R7	PRO A10-9700	4 / 4	3.5 / 3.8	2MB	DDR4-2400	Radeon R7	PRO A12-9800	4 / 4	3.8 / 4.2	2MB	DDR4-2400	Radeon R7	Ryzen 3 2300X	4 / 4	3.5 / 4.0	2MB	DDR4-2933	None	Ryzen 5 2500X	4 / 8	3.6 / 4.0	2MB	DDR4-2933	None	Ryzen 3 PRO 2200G	4 / 4	3.5 / 3.6	2MB	DDR4-2933	Radeon Vega 8	Ryzen 5 PRO 2400G	4 / 8	3.6 / 3.8	2MB	DDR4-2933	Radeon RX Vega 11	Ryzen 5 PRO 2600	6 / 12	3.4 / 3.9	3MB	DDR4-2933	None	Ryzen 7 PRO 2700	8 / 16	3.2 / 4.1	4MB	DDR4-2933	None	Ethernet (Opt.)	Some: Bitland BN8E88, gigabit ethernet, 1x RJ-45, PCIe x1 (special bid only)
	Processor	Cores / Threads	Frequency (Base/Max)	L2 Cache	Memory Support (Up to)	Integrated Graphics																																																																				
	PRO A6-9500	2 / 2	3.5 / 3.8	1MB	DDR4-2400	Radeon R5																																																																				
	PRO A8-9600	4 / 4	3.1 / 3.4	2MB	DDR4-2400	Radeon R7																																																																				
	PRO A10-9700	4 / 4	3.5 / 3.8	2MB	DDR4-2400	Radeon R7																																																																				
	PRO A12-9800	4 / 4	3.8 / 4.2	2MB	DDR4-2400	Radeon R7																																																																				
	Ryzen 3 2300X	4 / 4	3.5 / 4.0	2MB	DDR4-2933	None																																																																				
	Ryzen 5 2500X	4 / 8	3.6 / 4.0	2MB	DDR4-2933	None																																																																				
	Ryzen 3 PRO 2200G	4 / 4	3.5 / 3.6	2MB	DDR4-2933	Radeon Vega 8																																																																				
Ryzen 5 PRO 2400G	4 / 8	3.6 / 3.8	2MB	DDR4-2933	Radeon RX Vega 11																																																																					
Ryzen 5 PRO 2600	6 / 12	3.4 / 3.9	3MB	DDR4-2933	None																																																																					
Ryzen 7 PRO 2700	8 / 16	3.2 / 4.1	4MB	DDR4-2933	None																																																																					
Memory	64GB max, UDIMM, DDR4-2666*, four 288-pin DIMM sockets, non-ECC, dual-channel capable * Systemboard supports up to DDR4-2666, memory frequency may automatically clocks down for the lower capability of memory controller in processor						Manageability	DASH 10/1.1																																																																		
Storage	Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * 128GB SSD M.2 (2242) PCIe NVMe and AMD A6 / A8 / A10 / A12 processor only supports PCIe 3.0 x 2, 16Gb/s						Security chip	Discrete TPM 2.0, TCG Certified																																																																		
Optical	Some: DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) Some: DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)						Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Smart USB protection, allows keyboard/ mouse only, blocks all storage devices Optional cable lock to physically lock both keyboard and mouse Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional chassis intrusion switch 																																																																		
Onboard SATA	Three onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)						Keyboard	Some: Lenovo Calliope Keyboard (USB connector), black Some: Lenovo Traditional Keyboard (USB connector), black Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black Some: Lenovo Keyboard (PS/2 connector), black (only available via special bid)																																																																		
Media reader	Optional 7-in-1 media reader						Mouse	Some: Lenovo Calliope Mouse (USB connector), black Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black Some: Lenovo Mouse (PS/2 connector), black (only available via special bid)																																																																		
Graphics	AMD Radeon™ Graphics in processor (only for some processors), uses main memory, DirectX® 12, one VGA, two DisplayPort™ (Onboard VGA and DP ports are only available on the models with integrated graphics), supports 3 independent displays, works along with AMD discrete graphics to support more displays; Max resolution: 4096x2160 (DP)@60Hz; 1920x1200 (VGA)@60Hz Some: NVIDIA Geforce® GT 730 , DirectX 12, 2GB GDDR5, PCIe 2.0 x16 (x8 elec.) adapter, two DisplayPort, 35 watts; Max resolution: 3840x2160 (DisplayPort)@60Hz						Mechanical	<ul style="list-style-type: none"> SFF (8.4L), black color; metal case (WxDxH) 3.6" X 11.4" X 13.5"; 92.5mm X 290.5mm X 343.5mm Approx. 13.2 lb (6.0 kg), weight may vary by configuration Toolless cover, disk, optical removal Optional dust filter Bay 1: Slim external ODD bay Bay 2: 3.5", internal, HDD/SSD Bay 3: 2.5", internal, HDD/SSD (bay only comes with 2.5" 2nd disk) Slot 1: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16 Slot 2: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1 Slot 3: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1 Slot 4: low-profile (length < 150mm, height < 68mm), PCI 3.0 M.2 card slots: two (one for WLAN, one for SSD) Optional system floor stand for vertical orientation 																																																																		
Monitor cable	Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle, or DP to HDMI 1.4 dongle						Floor Stand	Optional system floor stand for vertical orientation																																																																		
Chipset	AMD B450 Chipset						Power supply	Some: 180 watts, autosensing, 85% PSU Some: 210 watts, autosensing, 85% PSU Some: 260 watts, autosensing, 92% PSU (only available via special bid)																																																																		
Front ports* (Std.)	2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x microphone (3.5mm), 1x headphone (3.5mm)						Limited warranty	1-year or 3-year, limited onsite service / service upgrades available																																																																		
Front ports* (Opt.)	Optional: 1x media reader, 2x USB 3.1 Type-C Gen2 via PCIe card (special bid only)						Preload	Preloaded operating system Some: Windows 10 Pro 64-bit Some: Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Lenovo Vantage Microsoft Office preloaded; purchase a product key to activate Cyberlink Power2GO (only for models with DVD / DVD±RW) Cyberlink Power2GO (only for models with DVD±RW) LinkedIn 																																																																		
Rear ports* (Std.)	2x USB 3.1 Gen1, 2x USB 2.0, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA**, 2x DisplayPort**, 2x PS/2 ports (keyboard / mouse); 1x line-in (3.5mm), 1x line-out (3.5mm), 1x microphone (3.5mm)						Environment	ENERGY STAR® 7.0*, EPEAT™ Gold rating* (*not for non-OS models); ErP Lot 3; RoHS-compliant																																																																		
Rear ports* (Opt.)	Optional: 2x USB 2.0, 1x 2nd serial (9-pin), 1x parallel (25-pin), additional RJ-45 and video ports available on optional graphics or ethernet card * Depending on many factors, actual data transfer speed may be lower than theoretical speed ** only available on the models with integrated graphics						Accessories	For compatible accessories, please go to http://smartfind.lenovo.com																																																																		
Audio support	High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1 watt)																																																																									
WLAN	Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1 Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2 Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2																																																																									
Bluetooth™	Some: Bluetooth 4.2* wireless, integrated in Wi-Fi + BT combo adapter * Hardware supports BT 4.2, but Win10 RS3 and earlier only supports BT 4.1																																																																									

Note: The specifications above may not be available in all regions.

Lenovo, July 2018



ThinkCentre M910 SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor	Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Smart USB protection, allows keyboard/mouse only, blocks all storage devices Optional cable lock to physically lock both keyboard and mouse Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional chassis intrusion switch 																																																
	<table border="1"> <thead> <tr> <th>Processor</th> <th>Cores / Threads</th> <th>Frequency Base/Max(GHz)</th> <th>Cache</th> <th>Memory Support (Up to)</th> <th>Integrated Graphics</th> </tr> </thead> <tbody> <tr> <td>Core i5-6500</td> <td>4 / 4</td> <td>3.2G / 3.6G</td> <td>6 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i7-6700</td> <td>4 / 8</td> <td>3.4G / 4.0G</td> <td>8 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i3-7300</td> <td>2 / 4</td> <td>4.0G / --</td> <td>4 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7400</td> <td>4 / 4</td> <td>3.0G / 3.5G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7500</td> <td>4 / 4</td> <td>3.4G / 3.8G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7600</td> <td>4 / 4</td> <td>3.5G / 4.1G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i7-7700</td> <td>4 / 8</td> <td>3.6G / 4.2G</td> <td>8 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> </tbody> </table>	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	Core i5-6500	4 / 4	3.2G / 3.6G	6 MB	DDR4-2133	HD 530	Core i7-6700	4 / 8	3.4G / 4.0G	8 MB	DDR4-2133	HD 530	Core i3-7300	2 / 4	4.0G / --	4 MB	DDR4-2400	HD 630	Core i5-7400	4 / 4	3.0G / 3.5G	6 MB	DDR4-2400	HD 630	Core i5-7500	4 / 4	3.4G / 3.8G	6 MB	DDR4-2400	HD 630	Core i5-7600	4 / 4	3.5G / 4.1G	6 MB	DDR4-2400	HD 630	Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630	Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics																																														
Core i5-6500	4 / 4	3.2G / 3.6G	6 MB	DDR4-2133	HD 530																																														
Core i7-6700	4 / 8	3.4G / 4.0G	8 MB	DDR4-2133	HD 530																																														
Core i3-7300	2 / 4	4.0G / --	4 MB	DDR4-2400	HD 630																																														
Core i5-7400	4 / 4	3.0G / 3.5G	6 MB	DDR4-2400	HD 630																																														
Core i5-7500	4 / 4	3.4G / 3.8G	6 MB	DDR4-2400	HD 630																																														
Core i5-7600	4 / 4	3.5G / 4.1G	6 MB	DDR4-2400	HD 630																																														
Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630																																														
		Mouse	<i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black																																																
Memory	64GB max, UDIMM, DDR4-2400*, four 288-pin DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller	Mechanical	<ul style="list-style-type: none"> SFF (8.4L), black color, metal case (WxDxH) 3.6" X 11.4" X 13.5"; 92.5mm X 290.5mm X 343.5mm Approx. 11.92 lb (5.4 kg), weight may vary by configuration Toolless cover, disk, optical, graphic card removal Optional dust filter Bay 1: Slim external ODD bay Bay 2: 3.5", 1" high, internal, HDD/SSD Bay 3: 2.5", internal, HDD/SSD (optional bay) Slot 1: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16* Slot 2: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x1* Slot 3: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16 (x4 signal)* Slot 4: no slot, only bracket for optional port extension* M.2 card slots: Two (one for WLAN, one for SSD/Optane) * Optional 2 front USB3.1 Type-C ports module occupies PCIe x16 (x4 signal) slot, optional rear 2x USB2.0 / parallel / 2nd serial / cable lock / Wi-Fi antenna occupies one expansion slot 																																																
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s <i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)	Floor Stand	Optional system floor stand for vertical orientation																																																
Optical	Four onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)	Power supply	<i>Some:</i> 180 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 92% PSU (only available via special bid)																																																
Onboard SATA	Optional 7-in-1 media reader	Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available																																																
Media reader	Optional 7-in-1 media reader	Preload	Preloaded operating system <i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor) <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate Only for Window 10 Lenovo Companion - Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools Create Recovery Media Adobe® Reader® Cyberlink PowerDVD Create (DVD±RW) 																																																
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays; Max resolution: 4096x2304 (DP)@60Hz; 2048x1536 (VGA)@50Hz <i>Some:</i> NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts; Max resolution: 3840x2160 (DisplayPort)@60Hz;	Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)																																																
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4	Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com																																																
Chipset	Intel Q270 Chipset	Manageability	Intel Active Management Technology 11.0 (Intel AMT 11.0); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)																																																
Front ports*	Four USB 3.1 Gen1, optional two USB 3.1 Type-C Gen 2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)	Security chip	TPM (Trusted Platform Module) 2.0, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS																																																
Rear ports*	Four USB 3.1 Gen1, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, two DisplayPort, optional two PS/2 ports (keyboard/mouse); additional DisplayPort on optional graphics on some models																																																		
Rear audio ports* IEEE 1394*	Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm) None * Depending on many factors, actual data transfer speed may be lower than theoretical speed																																																		
Audio support	High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt)																																																		
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, Intel vPro technology support, 2x2																																																		
Bluetooth™ Ethernet Modem	<i>Some:</i> Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN® None																																																		

Note: The specifications above may not be available in all regions.

Lenovo, August 2017



ThinkCentre M910 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor						Security features <ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Smart USB protection, allows keyboard/mouse only, blocks all storage devices Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Chassis intrusion switch
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	
	Core i5-6500T	4 / 4	2.5G / 3.1G	6 MB	DDR4-2133	HD 530	
	Core i7-6700T	4 / 8	2.8G / 3.6G	8 MB	DDR4-2133	HD 530	
	Core i5-7500T	4 / 4	2.7G / 3.3G	6 MB	DDR4-2400	HD 630	
	Core i5-7600T	4 / 4	2.8G / 3.7G	6 MB	DDR4-2400	HD 630	
Core i7-7700T	4 / 8	2.9G / 3.8G	8 MB	DDR4-2400	HD 630		
Memory	32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller						
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm, APS <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s <i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM, slim (9.0mm), via USB external ODD box <i>Some:</i> DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box						
Optical	One onboard SATA 6.0Gb/s connector						
Onboard SATA Media reader	None						
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional video port (HDMI, VGA, 3rd DP, or USB 3.1 Type-C with DisplayPort Alternate Mode), up to 3 independent displays; <i>Max resolution:</i> 4096x2304 (DP)@60Hz; 4096x2304 (Type-C)@60Hz; 4096x2160 (HDMI)@24Hz; 1920x1200 (VGA)@60Hz						
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4						
Chipset	Intel Q270 Chipset						
Front ports*	Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)						
Rear ports*	Four USB 3.1 Gen1 (optional external optical box or external I/O box occupies one or two specific USB 3.1 Gen1 on some models), ethernet (RJ-45), two DisplayPort, two optional ports (Port 1 for VGA / 3rd DP / HDMI / serial / USB 3.1 Type-C Gen 1 (with DisplayPort Alternate Mode), Port 2 for serial)						
I/O box*	Optional external I/O box, extends two USB 2.0, two USB 3.1 Gen1, and one serial on rear, two USB 2.0 on front, via USB cable (occupy two specific USB 3.1 Gen1 of Tiny) * Depending on many factors, actual data transfer speed may be lower than theoretical speed						
Audio support	High Definition (HD) Audio, Realtek ALC294 / optional internal speaker (1w or 2w)						
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, Intel vPro technology support, 2x2						
Bluetooth™	<i>Some:</i> Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter * Hardware supports BT 4.2, but Win10 RS3 and earlier only supports BT 4.1						
Ethernet	Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®						
Manageability	Intel Active Management Technology 11.0 (Intel AMT 11.0); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)						
Security chip	TPM (Trusted Platform Module) 2.0*, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS						
Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black						
Mouse							
Mechanical	Tiny (1L), black color; metal case <ul style="list-style-type: none"> Toolless chassis open Toolless HDD, SSD, memory removal Optional toolless chassis screw Optional dust filter 						
VESA mount Floor Stand	Optional VESA mount bracket kit, supports VESA 75mm and 100mm Optional system floor stand for vertical orientation						
Power supply	65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models) 90 watts AC/DC adapter, autosensing, 88% PSU (only for models with I/O box)						
Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available						
Preload	<i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor) <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit						
Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)						
MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)						
Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com						

See footnotes for more detailed information



ThinkCentre M910 Tower Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor						Ethernet Modem	Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN® None			
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	Manageability	Intel Active Management Technology 11.0 (Intel AMT 11.0); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)			
	Core i5-6500	4 / 4	3.2G / 3.6G	6 MB	DDR4-2133	HD 530		Security chip	TPM (Trusted Platform Module) 2.0, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS		
	Core i7-6700	4 / 8	3.4G / 4.0G	8 MB	DDR4-2133	HD 530			Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Smart USB protection, allows keyboard/mouse only, blocks all storage devices Optional cable lock to physically lock both keyboard and mouse 	
	Core i3-7300	2 / 4	4.0G / --	4 MB	DDR4-2400	HD 630		<ul style="list-style-type: none"> Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional chassis intrusion switch 			
	Core i5-7400	4 / 4	3.0G / 3.5G	6 MB	DDR4-2400	HD 630		Keyboard		<ul style="list-style-type: none"> Some: Lenovo Calliope Keyboard (USB connector), black Some: Lenovo Traditional Keyboard (USB connector), black Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black 	
	Core i5-7500	4 / 4	3.4G / 3.8G	6 MB	DDR4-2400	HD 630				Mouse	<ul style="list-style-type: none"> Some: Lenovo Calliope Mouse (USB connector), black Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
	Core i5-7600	4 / 4	3.5G / 4.1G	6 MB	DDR4-2400	HD 630					Mechanical
Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630	Power supply					
Memory							64GB max, UDIMM, DDR4-2400*, four 288-pin DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller				
Storage							<ul style="list-style-type: none"> Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s Some: Intel Optane™ Memory (models with 7th gen Core processor), M.2 Some: Front accessible and removable HDD, 3.5", lockable via physical key 				
Optical							<ul style="list-style-type: none"> Some: DVD-ROM, SATA 1.5Gb/s, 5.25" or slim (9.0mm) Some: DVD Burner (DVD±RW), SATA 1.5Gb/s, 5.25" or slim (9.0mm) 				
Onboard SATA							Four onboard SATA 6.0Gb/s connectors (1x eSATA and 3x SATA), RAID 0/1 support (RAID preset only available via special bid model)				
Media reader						Optional 7-in-1 media reader					
Graphics						Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays; <i>Max resolution: 4096x2304 (DP) @60Hz; 2048x1536 (VGA) @50Hz</i> <i>Some: NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts;</i> <i>Max resolution: 3840x2160 (DisplayPort) @60Hz;</i> <i>Some: AMD Radeon™ R7 350, DirectX 11, 2GB, PCIe 3.0 x8 adapter, one VGA, one HDMI, 75 watts, occupies two slots;</i> <i>Max resolution: 4096x2160 (HDMI) @24Hz; 2048x1536 (VGA) @85Hz</i> <i>Some: NVIDIA GeForce GTX™ 1080 (only available via special bid model), DirectX 12, 8GB, PCIe 3.0 x16 adapter, one DVI-D, one HDMI, three DisplayPort, 180 watts, occupies two slots;</i> <i>Max resolution: 2560x1600 (DVI-D) @60Hz; 4096x2160 (HDMI) @60Hz 7680x4320 (with Single DP) @60Hz</i>					
Monitor Cable						Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4					
Chipset						Intel Q270 Chipset					
Front ports*						Four USB 3.1 Gen1, optional two USB 3.1 Type-C Gen 2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)					
Rear ports*						Four USB 3.1 Gen1, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, two DisplayPort, optional two PS/2 ports (keyboard/mouse); additional VGA, DisplayPort, DVI-D, or HDMI on optional graphics on some models					
Rear audio ports* IEEE 1394*						Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm) None * Depending on many factors, actual data transfer speed may be lower than theoretical speed					
Audio support						High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt)					
WLAN						<ul style="list-style-type: none"> Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, Intel vPro technology support, 2x2 					
Bluetooth™						Some: Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter					
Ethernet Modem						Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN® None					
Manageability						Intel Active Management Technology 11.0 (Intel AMT 11.0); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)					
Security chip						TPM (Trusted Platform Module) 2.0, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS					
Security features						<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Smart USB protection, allows keyboard/mouse only, blocks all storage devices Optional cable lock to physically lock both keyboard and mouse Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional chassis intrusion switch 					
Keyboard						<ul style="list-style-type: none"> Some: Lenovo Calliope Keyboard (USB connector), black Some: Lenovo Traditional Keyboard (USB connector), black Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black 					
Mouse						<ul style="list-style-type: none"> Some: Lenovo Calliope Mouse (USB connector), black Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black 					
Mechanical						<ul style="list-style-type: none"> Tower (18L), black color, metal case (WxDxH) 6.5" X 12.65" X 16.15"; 165mm X 321.35mm X 410.25mm Approx. 15.45 lb (7 kg), weight may vary by configuration Toolless cover, disk, optical, graphic card removal Optional carry handle, dust filter Bay 1: Slim external ODD bay Bay 2: 5.25", 1.6" high, external, ODD / optional front access HDD Bay 3: 3.5", 1" high, internal, HDD/SSD Bay 4: 3.5", 1" high, internal, HDD/SSD (optional bay, bay comes with disk) Bay 5: 2.5", internal, HDD/SSD (optional bay) Notes: M910 Tower supports up to 3 SATA devices (ODD/HDD/SSD) and 1 eSATA device (front access HDD) Slot 1: full-length full-height (length < 268mm, height < 112mm), PCIe 3.0 x16* Slot 2: full-length full-height (length < 268mm, height < 112mm), PCIe 3.0 x1* Slot 3: full-length full-height (length < 268mm, height < 112mm), PCIe 3.0 x16 (x4 signal)* Slot 4: no slot, only bracket for optional port extension* M.2 card slots: Two (one for WLAN, one for SSD/Optane) * Optional 2 front USB3.1 Type-C ports module occupies PCIe x16 (x4 signal) slot, optional rear 2x USB2.0 / parallel / 2nd serial occupies one expansion slot 					
Power supply						<ul style="list-style-type: none"> Some: 180 watts, autosensing, 85% PSU Some: 250 watts, autosensing, 85% PSU Some: 400 watts, autosensing, 92% PSU (only available via special bid) 					
Limited warranty						<ul style="list-style-type: none"> Some: 1-year or 3-year, depot service / service upgrades available Some: 1-year or 3-year, limited onsite service / service upgrades available 					
Preload						Preloaded operating system <ul style="list-style-type: none"> Some: Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor) Some: Windows 10 Pro 64-bit Some: Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate Only for Window 10 Lenovo Companion Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools Create Recovery Media Adobe® Reader® Cyberlink PowerDVD Create (DVD±RW) 					
Environment						ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)					
Accessories						For compatible accessories, please go to http://www.lenovoquickpick.com					

Note: The specifications above may not be available in all regions.

Lenovo, August 2017



ThinkCentre M910x Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor	Ethernet	Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®																																																																		
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Storage	<i>Some:</i> Hard Drive* / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm, APS <i>Some:</i> Solid State Drive (SSD)* / SATA 6.0Gb/s, 2.5" (* 2.5" HDD/SSD and RX 460 graphics are mutually exclusive) <i>Some:</i> M.2 SSD (support up to two M.2 SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s, RAID 0/1 support (RAID preset only available via special bid model)	Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Smart USB protection, allows keyboard/ mouse only, blocks all storage devices Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Chassis intrusion switch 																																																																		
Optical	<i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM, slim (9.0mm), via USB external ODD box <i>Some:</i> DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box	Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black																																																																		
Onboard SATA Media reader	One onboard SATA 6.0Gb/s connector None	Mouse	<i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black																																																																		
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional video port (HDMI, VGA, 3rd DP, or USB 3.1 Type-C with DisplayPort Alternate Mode), up to 3 independent displays; <i>Max resolution:</i> 4096x2304 (DP) @60Hz; 4096x2304 (Type-C) @60Hz; 4096x2160 (HDMI) @24Hz; 1920x1200 (VGA) @60Hz <i>Some:</i> AMD Radeon™ RX 460 , DirectX 12, 4GB, PCIe 3.0 x8 adapter (low profile), four mini DisplayPort, 35 watts (TDP), up to 4 independent displays, works along with 2 onboard DisplayPort to support up to 6 independent displays; <i>Max resolution:</i> 5120x2880 @60Hz (up to 2 mini DisplayPort); 4096x2160 @60Hz (up to 4 mini DisplayPort)	Mechanical	Tiny (1L), black color; metal case <ul style="list-style-type: none"> Toolless chassis open Toolless HDD, SSD, memory removal Optional toolless chassis screw Optional dust filter <table border="1"> <thead> <tr> <th></th> <th>Dimensions (WxDxH)</th> <th>Weight (Approx.)</th> </tr> </thead> <tbody> <tr> <td>M910 Tiny only</td> <td>7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm</td> <td>2.91 lb (1.32 kg), vary by config</td> </tr> <tr> <td>With VESA mount & ODD box</td> <td>7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm</td> <td>3.66 lb (1.66 kg), vary by config</td> </tr> <tr> <td>With VESA mount & I/O box</td> <td>7.42" X 7.30" X 2.62" 188.4mm X 185.38mm X 66.6mm</td> <td>3.66 lb (1.66 kg), vary by config</td> </tr> </tbody> </table>		Dimensions (WxDxH)	Weight (Approx.)	M910 Tiny only	7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm	2.91 lb (1.32 kg), vary by config	With VESA mount & ODD box	7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm	3.66 lb (1.66 kg), vary by config	With VESA mount & I/O box	7.42" X 7.30" X 2.62" 188.4mm X 185.38mm X 66.6mm	3.66 lb (1.66 kg), vary by config																																																						
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Monitor cable	Optional DP to VGA, DP to DVI-D, DP to dual DP, mini DP to DP, or DP to HDMI 1.4	VESA mount Floor Stand	Optional VESA mount bracket kit, supports VESA 75mm and 100mm Optional system floor stand for vertical orientation																																																																		
Chipset	Intel Q270 Chipset	Power supply	135 watts AC/DC adapter, autosensing, 88% PSU																																																																		
Front ports*	Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)	Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available																																																																		
Rear ports*	Four USB 3.1 Gen1 (optional optical box or I/O box occupies one or two specific USB 3.1 Gen1), ethernet (RJ-45), two DisplayPort, two optional ports (not available for the models with RX 460 graphics): Port 1 for [VGA / 3rd DP / HDMI / serial / USB 3.1 Type-C Gen 1 (with DisplayPort Alternate Mode)]; Port 2 for [serial]	Preload	<i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor) <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit																																																																		
I/O box*	Optional external I/O box, extends two USB 2.0, two USB 3.1 Gen1, and one serial on rear, two USB 2.0 on front, via USB cable (occupy 2 specific USB 3.1 G1 of Tiny) * Depending on many factors, actual data transfer speed may be lower than theoretical speed	Preloaded applications (only some listed) <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate Only for Window 10 Lenovo Companion Intel Unite download link (vPro models only) Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools Create Recovery Media Adobe® Reader® Cyberlink PowerDVD Create (DVD±RW) Intel Unite (vPro models only) 																																																																			
Audio support	High Definition (HD) Audio, Realtek ALC294 / optional internal speaker (1w or 2w)	Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)																																																																		
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, Intel vPro technology support, 2x2	MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)																																																																		
Bluetooth™	<i>Some:</i> Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter * Hardware supports BT 4.2, but Win10 RS3 and earlier only supports BT 4.1	Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com																																																																		

See footnotes for more detailed information

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ThinkCentre M920 SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 8th Generation Intel Core™ i3 / i5 / i7 Processor						Ethernet	Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	Ethernet (Opt.)	<i>Some:</i> Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4 <i>Some:</i> Bitland BN8E88, gigabit ethernet, 1x RJ-45, PCIe x1 (special bid only)
	Celeron G4900	2 / 2	3.1G	2 MB	DDR4-2400	UHD 610	Manageability	Intel Active Management Technology 12 (Intel AMT 12); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)
	Celeron G4920	2 / 2	3.2G	2 MB	DDR4-2400	UHD 610	Security chip	Discrete TPM 2.0, TCG Certified
	Pentium Gold G5400	2 / 4	3.7G	4 MB	DDR4-2400	UHD 610	Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Optional cable lock to physically lock both keyboard and mouse Optional chassis intrusion switch Optional chassis E-Lock (special bid) Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Smart USB protection, allows keyboard/mouse only, blocks all storage devices
	Pentium Gold G5500	2 / 4	3.8G	4 MB	DDR4-2400	UHD 630		
	Pentium Gold G5600	2 / 4	3.9G	4 MB	DDR4-2400	UHD 630		
	Core i3-8100	4 / 4	3.6G	6 MB	DDR4-2400	UHD 630		
	Core i3-8300	4 / 4	3.7G	8 MB	DDR4-2400	UHD 630		
	Core i5-8400	6 / 6	2.8G / 4.0G	9 MB	DDR4-2666	UHD 630		
Core i5-8500	6 / 6	3.0G / 4.1G	9 MB	DDR4-2666	UHD 630			
Core i5-8600	6 / 6	3.1G / 4.3G	9 MB	DDR4-2666	UHD 630			
Core i7-8700	6 / 12	3.2G / 4.6G	12 MB	DDR4-2666	UHD 630			
Memory	64GB max, UDIMM, DDR4-2666*, four 288-pin DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller						Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Keyboard (PS/2 connector), black (only available via special bid)
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s <i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2 <i>Some:</i> DVD-ROM, SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)						Mouse	<i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Mouse (PS/2 connector), black (only available via special bid)
Optical	<i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2 <i>Some:</i> DVD-ROM, SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)						Mechanical	<ul style="list-style-type: none"> SFF (8.4L), black color, metal case (WxDxH) 3.6" X 11.4" X 13.5"; 92.5mm X 290.5mm X 343.5mm Approx. 13.23 lb (6 kg), weight may vary by configuration Toolless cover, disk, optical, extension card removal Optional dust filter Bay 1: Slim external ODD bay Bay 2: 3.5", 1" high, internal, HDD/SSD Bay 3: 2.5", internal, HDD/SSD (optional bay) Slot 1: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16 Slot 2: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x1 Slot 3: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16 (x4 signal) Slot 4: no slot, only bracket for optional port extension M.2 card slots: Two (one for WLAN, one for SSD/Optane)
Onboard SATA	Four onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)						Floor Stand	Optional system floor stand for vertical orientation
Media reader	Optional 7-in-1 media reader						Power supply	<i>Some:</i> 180 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 85% PSU <i>Some:</i> 260 watts, autosensing, 92% PSU (only available via special bid)
Graphics	Intel UHD Graphics 610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays; <i>Max resolution:</i> 4096x2304 (DP)@60Hz; 2048x1536 (VGA)@50Hz <i>Some:</i> NVIDIA GeForce® GT 730 , DirectX 12, 2GB, PCIe 2.0 x16 adapter, two DisplayPort, 35 watts; <i>Max resolution:</i> 3840x2160 (DisplayPort)@60Hz;						Limited warranty	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available
Monitor cable	Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle						Preload	Preloaded operating system <i>Some:</i> Windows® 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Lenovo Vantage Microsoft Office preloaded; purchase a product key to activate Cyberlink PowerDVD (only for models with DVD / DVD±RW) Cyberlink Power2GO (only for models with DVD±RW) LinkedIn
Chipset	Intel Q370 Chipset						Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, TCO, TUV low noise verified (coming soon, on some models), RoHS-compliant
Front ports* (Std.)	2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x USB 3.1 Type-C Gen1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)						Accessories	For compatible accessories, please go to http://smartfind.lenovo.com
Front ports* (Opt.)	<i>Optional:</i> 1x media reader							
Rear ports* (Std.)	4x USB 3.1 Gen1, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA, 2x DisplayPort, 1x line-out (3.5mm)							
Rear ports* (Opt.)	<i>Optional:</i> 2x USB 2.0, 2x USB 3.1 Gen1 via PCIe x1, 2x USB 3.1 Type-C Gen2 via PCIe x4 (special bid only), 1x 2nd serial (9-pin), 4x serial (9-pin) via PCIe x1, 1x parallel (25-pin), 2x PS/2 ports (keyboard/mouse), 1x Thunderbolt 3 (combo USB3.1 Type-C Gen 2 / DisplayPort) via PCIe x4 (available on 09/30/2018), additional RJ-45 and video ports available on optional graphics or ethernet card * Depending on many factors, actual data transfer speed may be lower than theoretical speed							
Audio support	High Definition (HD) Audio, Realtek ALC233VB2 / internal speaker (2 watt)							
WLAN	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, Intel vPro technology support, 2x2							
Bluetooth	<i>Some:</i> Bluetooth 4.2/5.0 wireless, integrated in Wi-Fi + BT combo adapter							

Note: The specifications above may not be available in all regions.

Lenovo, July 2018



ThinkCentre M920 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 8th Generation Intel Core™ i3 / i5 / i7 Processor	Manageability	Intel Active Management Technology 12 (Intel AMT 12); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)																																																												
	<table border="1"> <thead> <tr> <th>Processor</th> <th>Cores / Threads</th> <th>Frequency Base/Max(GHz)</th> <th>Cache</th> <th>Memory Support (Up to)</th> <th>Integrated Graphics</th> </tr> </thead> <tbody> <tr> <td>Celeron G4900T</td> <td>2 / 2</td> <td>2.9G</td> <td>2 MB</td> <td>DDR4-2400</td> <td>UHD 610</td> </tr> <tr> <td>Pentium Gold G5400T</td> <td>2 / 4</td> <td>3.1G</td> <td>4 MB</td> <td>DDR4-2400</td> <td>UHD 610</td> </tr> <tr> <td>Pentium Gold G5500T</td> <td>2 / 4</td> <td>3.2G</td> <td>4 MB</td> <td>DDR4-2400</td> <td>UHD 630</td> </tr> <tr> <td>Core i3-8100T</td> <td>4 / 4</td> <td>3.1G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>UHD 630</td> </tr> <tr> <td>Core i3-8300T</td> <td>4 / 4</td> <td>3.2G</td> <td>8 MB</td> <td>DDR4-2400</td> <td>UHD 630</td> </tr> <tr> <td>Core i5-8400T</td> <td>6 / 6</td> <td>1.7G / 3.3G</td> <td>9 MB</td> <td>DDR4-2666</td> <td>UHD 630</td> </tr> <tr> <td>Core i5-8500T</td> <td>6 / 6</td> <td>2.1G / 3.5G</td> <td>9 MB</td> <td>DDR4-2666</td> <td>UHD 630</td> </tr> <tr> <td>Core i5-8600T</td> <td>6 / 6</td> <td>2.3G / 3.7G</td> <td>9 MB</td> <td>DDR4-2666</td> <td>UHD 630</td> </tr> <tr> <td>Core i7-8700T</td> <td>6 / 12</td> <td>2.4G / 4.0G</td> <td>12 MB</td> <td>DDR4-2666</td> <td>UHD 630</td> </tr> </tbody> </table>	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	Celeron G4900T	2 / 2	2.9G	2 MB	DDR4-2400	UHD 610	Pentium Gold G5400T	2 / 4	3.1G	4 MB	DDR4-2400	UHD 610	Pentium Gold G5500T	2 / 4	3.2G	4 MB	DDR4-2400	UHD 630	Core i3-8100T	4 / 4	3.1G	6 MB	DDR4-2400	UHD 630	Core i3-8300T	4 / 4	3.2G	8 MB	DDR4-2400	UHD 630	Core i5-8400T	6 / 6	1.7G / 3.3G	9 MB	DDR4-2666	UHD 630	Core i5-8500T	6 / 6	2.1G / 3.5G	9 MB	DDR4-2666	UHD 630	Core i5-8600T	6 / 6	2.3G / 3.7G	9 MB	DDR4-2666	UHD 630	Core i7-8700T	6 / 12	2.4G / 4.0G	12 MB	DDR4-2666	UHD 630	Security chip	Discrete TPM 2.0, TCG Certified
Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics																																																										
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		Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Chassis intrusion switch Power-on password Administrator password Hard disk password <ul style="list-style-type: none"> Boot sequence control Boot without keyboard and mouse Individual USB port disablement Smart USB protection, allows keyboard/mouse only, blocks all storage devices 																																																												
Memory	32GB max, DDR4-2666*, two 260-pin SO-DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller	Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black																																																												
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s <i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2 <i>Some:</i> DVD-ROM, slim (9.0mm), via USB external ODD box <i>Some:</i> DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box	Mouse																																																													
Optical	One onboard SATA 6.0Gb/s connector	Mechanical	Tiny (1L), black color; metal case <ul style="list-style-type: none"> Toolless chassis open (need optional toolless chassis screw) Toolless HDD, SSD, memory removal Optional dust filter one 2.5" bay for HDD/SSD, one PCIe 3.0 x8 slot (low-profile), two M.2 slots (one for WLAN, one for M.2 SSD), 2.5" HDD/SSD and PCIe card are mutually exclusive																																																												
Onboard SATA	One onboard SATA 6.0Gb/s connector		<table border="1"> <thead> <tr> <th></th> <th>Dimensions (WxDxH)</th> <th>Weight (Approx.)</th> </tr> </thead> <tbody> <tr> <td>Tiny only</td> <td>7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm</td> <td>2.91 lb (1.32 kg), vary by config</td> </tr> <tr> <td>With VESA mount & ODD box</td> <td>7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm</td> <td>3.66 lb (1.66 kg), vary by config</td> </tr> </tbody> </table>		Dimensions (WxDxH)	Weight (Approx.)	Tiny only	7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm	2.91 lb (1.32 kg), vary by config	With VESA mount & ODD box	7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm	3.66 lb (1.66 kg), vary by config																																																			
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With VESA mount & ODD box	7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm	3.66 lb (1.66 kg), vary by config																																																													
Graphics	Intel HD Graphics 610/630 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI, one optional video port (2nd HDMI, VGA, 2nd DP, or USB 3.1 Type-C Gen1 with DisplayPort function), up to 3 independent displays; <i>Max resolution:</i> 4096x2304 (DP)@60Hz; 4096x2304 (Type-C)@60Hz; 4096x2160 (onboard HDMI)@24Hz; 2048x1536 (VGA)@50Hz	VESA mount	Optional VESA mount bracket kit, supports VESA 75mm and 100mm																																																												
Monitor cable	Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle	Floor Stand	Optional system floor stand for vertical orientation																																																												
Chipset	Intel Q370 Chipset	Power supply	<i>Some:</i> 65 watts AC/DC adapter, autosensing, 88% PSU <i>Some:</i> 90 watts AC/DC adapter, autosensing, 88% PSU <i>Some:</i> 135 watts AC/DC adapter, autosensing, 88% PSU																																																												
Front ports (Std.)*	one USB 3.1 Gen1 (Always On and fast charge), one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)	Limited warranty	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available																																																												
Rear ports (Std.)*	2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x ethernet (RJ-45), 1x DisplayPort, 1x HDMI	Preload	Preloaded operating system <i>Some:</i> Windows® 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Lenovo Vantage Microsoft Office preloaded; purchase a product key to activate Cyberlink PowerDVD (only for models with DVD / DVD±RW) Cyberlink Power2GO (only for models with DVD±RW) LinkedIn Intel Unite (Machine Type 10V8 models only) 																																																												
Rear ports (Opt.)*	Two optional ports (mutually exclusive with PCIe card): Port 1 for VGA / 2nd DP / 2nd HDMI / serial / USB 3.1 Type-C Gen 1 with DP function); Port 2 for serial; Optional ports via PCIe card: 2x USB 3.1 Gen1 via PCIe x1, 4x serial (9-pin) via PCIe x1, 1x Thunderbolt 3 (combo USB3.1 Type-C Gen 2 / DisplayPort) via PCIe x4 * Depending on many factors, actual data transfer speed may be lower than theoretical speed	Environment	ENERGY STAR® 7.0, EPEAT™ Gold rating (North America), ErP Lot 3, TCO, TUV ultra low noise verified (coming soon, on some models), RoHS-compliant																																																												
Audio support	Realtek ALC233VB2 / optional internal speaker (1.5 watt or 2 watt)	MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)																																																												
WLAN	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, Intel vPro technology support, 2x2	Accessories	For compatible accessories, please go to http://smartfind.lenovo.com																																																												
Bluetooth	<i>Some:</i> Bluetooth 4.2/5.0 wireless, integrated in Wi-Fi + BT combo adapter																																																														
Ethernet	Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®																																																														
Ethernet (Opt.)	<i>Some:</i> Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4																																																														

Note: The specifications above may not be available in all regions.

Lenovo, July 2018



ThinkCentre M920 Tower Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 8th Generation Intel Core™ i3 / i5 / i7 Processor	<p><i>Some:</i> 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, Intel vPro technology support, 2x2 Ethernet</p> <p><i>Some:</i> Bluetooth 4.2/5.0 wireless, integrated in Wi-Fi + BT combo adapter Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®</p> <p><i>Some:</i> Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4</p> <p><i>Some:</i> Bitland BN8E88, gigabit ethernet, 1x RJ-45, PCIe x1 (special bid only)</p>																																																																								
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Memory	64GB max, UDIMM, DDR4-2666*, four 288-pin DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller																																																																									
Storage	<p><i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm</p> <p><i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"</p> <p><i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s</p> <p>* SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s</p> <p><i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2</p> <p>Optional DVD-ROM or DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)</p>	<p>Keyboard <i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black</p> <p>Mouse <i>Some:</i> Lenovo Keyboard (PS/2 connector), black (only available via special bid) <i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Mouse (PS/2 connector), black (only available via special bid)</p>																																																																								
Optical	Four onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)																																																																									
Onboard SATA	Optional 7-in-1 media reader																																																																									
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Graphics	<p>Intel UHD Graphics 610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays; <i>Max resolution:</i> 4096x2304 (DP)@60Hz; 2048x1536 (VGA)@50Hz</p> <p><i>Some:</i> NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x16 adapter, two DisplayPort, 35 watts; <i>Max resolution:</i> 3840x2160 (DisplayPort)@60Hz;</p> <p><i>Some:</i> NVIDIA GeForce GTX 1060 (special bid only), DirectX 12, 6GB, PCIe 3.0 x16 adapter, 1x DVI-D, 1x HDMI, 3x DP, 120 watts, occupies two slots; <i>Max resolution:</i> 2560x1600 (DVI-D)@60Hz; 4096x2160 (HDMI)@60Hz</p>	<p>Mechanical</p> <ul style="list-style-type: none"> • Tower (18L), black color, metal case • (WxDxH) 6.5" X 12.65" X 16.15"; 165mm X 321.35mm X 410.25mm • Approx. 15.45 lb (7 kg), weight may vary by configuration • Toolless cover, disk, optical, extension card removal • Optional carry handle, dust filter <p>Bay 1: Slim external ODD bay Bay 2: 5.25", 1.6" high, external, ODD / optional front access HDD Bay 3: 3.5", 1" high, internal, HDD/SSD Bay 4: 3.5", 1" high, internal, HDD/SSD (optional bay, bay comes with disk) Bay 5: 2.5", internal, HDD/SSD (optional bay)</p> <p><i>Notes:</i> M920 Tower supports up to 3 SATA devices (ODD/HDD/SSD) and 1 eSATA device (front access HDD)</p> <p>Slot 1: full-length (< 268mm) full-height (< 112mm), PCIe 3.0 x16 Slot 2: full-length (< 268mm) full-height (< 112mm), PCIe 3.0 x1 Slot 3: full-length (< 268mm) full-height (< 112mm), PCIe 3.0 x16 (x4 signal) Slot 4: no slot, only bracket for optional port extension M.2 card slots: Two (one for WLAN, one for SSD/Optane)</p>																																																																								
Monitor Cable	Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle																																																																									
Chipset	Intel Q370 Chipset																																																																									
Front ports* (Std.)	2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x USB 3.1 Type-C Gen1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)	<p>Power supply</p> <p><i>Some:</i> 180 watts, autosensing, 85% PSU <i>Some:</i> 250 watts, autosensing, 85% PSU <i>Some:</i> 400 watts, autosensing, 92% PSU (only available via special bid)</p>																																																																								
Front ports* (Opt.)	Optional: 1x media reader																																																																									
Rear ports* (Std.)	4x USB 3.1 Gen1, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA, 2x DisplayPort, 1x line-out (3.5mm)	<p>Limited warranty</p> <p><i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available</p>																																																																								
Rear ports* (Opt.)	Optional: 2x USB 2.0, 2x USB 3.1 Gen1 via PCIe x1, 2x USB 3.1 Type-C Gen2 via PCIe x4 (special bid only), 1x 2nd serial (9-pin), 4x serial (9-pin) via PCIe x1, 1x parallel (25-pin), 2x PS/2 ports (keyboard/mouse), 1x Thunderbolt 3 (combo USB3.1 Type-C Gen 2 / DisplayPort) via PCIe x4 (available on 09/30/2018), additional RJ-45 and video ports available on optional graphics or ethernet card * Depending on many factors, actual data transfer speed may be lower than theoretical speed	<p>Preload</p> <p>Preloaded operating system</p> <p><i>Some:</i> Windows® 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit</p> <p>Preloaded applications (only some listed)</p> <ul style="list-style-type: none"> • Lenovo Vantage • Microsoft Office preloaded; purchase a product key to activate • Cyberlink PowerDVD (only for models with DVD / DVD±RW) • Cyberlink Power2GO (only for models with DVD±RW) • LinkedIn 																																																																								
Audio support	High Definition (HD) Audio, Realtek ALC233VB2 / internal speaker (2 watt)																																																																									
WLAN	<p><i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1</p> <p><i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2</p> <p><i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1</p> <p><i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2</p>	<p>Environment ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, TCO, TUV low noise verified (coming soon, on some models), RoHS-compliant</p> <p>Accessories For compatible accessories, please go to http://smartfind.lenovo.com</p>																																																																								

Note: The specifications above may not be available in all regions.

Lenovo, July 2018



ThinkCentre M920x Tiny Platform Specifications

Product Specifications Reference (PSREF)

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Core i7-8700T	6 / 12	2.4G / 4.0G	12 MB	DDR4-2666	UHD 630																																																																																																																											
Memory	32GB max, DDR4-2666*, two 260-pin SO-DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller																																																																																																																															
Storage	<p><i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm</p> <p><i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"</p> <p><i>Some:</i> M.2 SSD (support up to two M.2 SSD) / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s, RAID 0/1 support (RAID preset only available via special bid model)</p> <p>* 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s</p> <p><i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2</p> <p><i>Some:</i> DVD-ROM, slim (9.0mm), via USB external ODD box</p> <p><i>Some:</i> DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box</p>	<p>Mechanical</p> <p>Tiny (1L), black color; metal case</p> <ul style="list-style-type: none"> • Toolless chassis open (need optional toolless chassis screw) • Toolless HDD, SSD, memory removal • Optional dust filter <p>one 2.5" bay for HDD/SSD, one PCIe 3.0 x8 slot (low-profile), three M.2 slots (one for WLAN, two for M.2 SSD), 2.5" HDD/SSD and PCIe card are mutually exclusive</p> <table border="1"> <thead> <tr> <th></th> <th>Dimensions (WxDxH)</th> <th>Weight (Approx.)</th> </tr> </thead> <tbody> <tr> <td>Tiny only</td> <td>7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm</td> <td>2.91 lb (1.32 kg), vary by config</td> </tr> <tr> <td>With VESA mount & ODD box</td> <td>7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm</td> <td>3.66 lb (1.66 kg), vary by config</td> </tr> </tbody> </table>		Dimensions (WxDxH)	Weight (Approx.)	Tiny only	7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm	2.91 lb (1.32 kg), vary by config	With VESA mount & ODD box	7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm	3.66 lb (1.66 kg), vary by config																																																																																																																					
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Optical																																																																																																																																
Onboard SATA	One onboard SATA 6.0Gb/s connector																																																																																																																															
Graphics	<p>Intel HD Graphics 610/630 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI, one optional video port (2nd HDMI, VGA, 2nd DP, or USB 3.1 Type-C Gen1 with DisplayPort function), up to 3 independent displays; <i>Max resolution:</i> 4096x2304 (DP) @60Hz; 4096x2304 (Type-C) @60Hz; 4096x2160 (onboard HDMI) @24Hz; 2048x1536 (VGA) @50Hz</p> <p><i>Some:</i> AMD Radeon™ RX 560, DirectX 12, 4GB GDDR5, PCIe 3.0 x8 adapter, 4x Mini DisplayPort, up to 4 independent displays, works along with onboard DP and HDMI to support up to 6 independent displays; <i>Max resolution:</i> 5120x2880 @60Hz ((up to 2 Mini DisplayPort); 4096x2160 @60Hz ((up to 4 Mini DisplayPort)</p>	<p>VESA mount</p> <p>Optional VESA mount bracket kit, supports VESA 75mm and 100mm</p> <p>Floor Stand</p> <p>Optional system floor stand for vertical orientation</p>																																																																																																																														
Monitor cable	Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle, Mini DP to DP	<p>Power supply</p> <p>135 watts AC/DC adapter, autosensing, 88% PSU</p>																																																																																																																														
Chipset	Intel Q370 Chipset	<p>Limited warranty</p> <p><i>Some:</i> 1-year or 3-year, depot service / service upgrades available</p> <p><i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available</p>																																																																																																																														
Front ports (Std.)	* one USB 3.1 Gen1 (Always On and fast charge), one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)	<p>Preload</p> <p>Preloaded operating system</p> <p><i>Some:</i> Windows® 10 Pro 64-bit</p> <p><i>Some:</i> Windows 10 Home 64-bit</p> <p>Preloaded applications (only some listed)</p> <ul style="list-style-type: none"> • Lenovo Vantage • Microsoft Office preloaded; purchase a product key to activate • Cyberlink PowerDVD (only for models with DVD / DVD±RW) • Cyberlink Power2GO (only for models with DVD±RW) • LinkedIn 																																																																																																																														
Rear ports (Std.)	* 2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x ethernet (RJ-45), 1x DisplayPort, 1x HDMI	<p>Environment</p> <p>ENERGY STAR® 7.0, EPEAT™ Gold rating (North America), ErP Lot 3, TCO, TUV ultra low noise verified (coming soon, on some models), RoHS-compliant</p>																																																																																																																														
Rear ports (Opt.)	* Two optional ports (mutually exclusive with PCIe card): Port 1 for VGA / 2nd DP / 2nd HDMI / serial / USB 3.1 Type-C Gen 1 with DP function); Port 2 for serial; Optional ports via PCIe card: 2x USB 3.1 Gen1 via PCIe x1, 4x serial (9-pin) via PCIe x1, 1x Thunderbolt 3 (combo USB3.1 Type-C Gen 2 / DisplayPort) via PCIe x4 * Depending on many factors, actual data transfer speed may be lower than theoretical speed	<p>MIL-SPEC test</p> <p>MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)</p>																																																																																																																														
Audio support	Realtek ALC233VB2 / optional internal speaker (1.5 watt or 2 watt)	<p>Accessories</p> <p>For compatible accessories, please go to http://smartfind.lenovo.com</p>																																																																																																																														
WLAN	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1																																																																																																																															

Note: The specifications above may not be available in all regions.

Lenovo, July 2018



ThinkSmart Hub 500 Platform Specifications

Product Specifications Reference (PSREF)

Positioning	Purpose-built Skype Room Systems device						Security chip	TPM (Trusted Platform Module) 2.0, TCG Certified
Processor	7th Gen Intel Core™ i5 Processor with vPro						Security features	<ul style="list-style-type: none"> • Security slot (in rear for attachment of optional Kensington® MicroSaver® cable; Kensington lock also locks chassis) • Secure cable management door • Power-on, admin, hard disk password • Boot sequence control • Boot without keyboard and mouse • USB port disablement
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics		
	Core i5-7500T	4 / 4	2.7G / 3.3G	6 MB	DDR4-2400	HD 630		
Memory	4GBx2, DDR4-2400, two 260-pin SO-DIMM sockets, dual-channel capable						Keyboard	None
Storage	128GB M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s						Mouse	None
Graphics Display	Intel HD Graphics 630 in processor, uses main memory, DirectX® 12 11.6" (294.64mm) Full HD 1080p (1920x1080) TFT color , wide viewing angle (+/- 85°), LED backlight, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, anti-glare, smudge resistant						Mechanical	<ul style="list-style-type: none"> • Business black color • (WxDxH) 7.60" X 10.98" X 7.02"; 193.25mm X 278.9mm X 178.45mm • Approx. 5.51 lb (2.5 kg) • Secure Cable Management Door, secures physical ports and prevents cables being accidentally disconnected • 360 degree rotatable Display
Multi-touch Sensor	Supports 10-point touch, OGS IR Presence/Motion sensor, automatically dim / brighten display (Detection angle: +/- 45% (from display); detection distance: 3 meters at minimum)						Power supply	90 watts adapter, autosensing, 88% efficiency
LED indicators	360 degree LED ring on hinge neck, indicates Skype status for all users in the room; power LED on power button						Limited warranty ³	3-year, limited onsite service / service upgrades available
Chipset	Intel Q270 Chipset						Preload	Preloaded operating system Windows® 10 IoT Enterprise CBB X64 (RS3) Preloaded applications Microsoft Skype Room Systems App
Ports*	Four USB 3.1 Gen1(Type A), two HDMI-out, one HDMI-in (1920x1080@60Hz at maximum), one ethernet (RJ-45), one headphone / microphone combo jack (3.5mm), one power connector						Certification	Skype for Business Group Certified
M.2 card slot	* Depending on many factors, actual data transfer speed may be lower than theoretical speed Two M.2 Card slots (one for WLAN, one for SSD)						Environment	ErP Lot 26, GREENGUARD® certified, RoHS, WEEE
Audio support	Dual 4W speakers, 2 omnidirectional microphones for 360 degree audio capture						Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com
WLAN ¹³	11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265,Wi-Fi + Bluetooth 4.1* combo adapter, Intel vPro technology support, 2x2							
Bluetooth™	Bluetooth 4.1* wireless, integrated in Wi-Fi + Bluetooth combo adapter * Hardware supports Bluetooth 4.2, but Win10 RS3 only supports Bluetooth 4.1							
Ethernet	Gigabit ethernet, Intel Ethernet Connection I219-LM (Jacksonville), Wake on LAN®							
Manageability	Intel Active Management Technology 11.0 (Intel AMT 11.0), Intel vPro technology							

See footnotes for more detailed information

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(Hub500-Spec) March 2018



ThinkCentre Tiny-in-One (TIO) 22

Product Specifications Reference (PSREF)

Model	10LKPAR6++ / 10LKPAT6++		
Form factor	Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO 22, clean cabling and effortless setup		
Compatible Tiny:	M900 Tiny, M700 Tiny, M600 Tiny, M93/p Tiny*, M83 Tiny, M73 Tiny*, or M53 Tiny, Chromebox * Non-TIO models can't be turned on by pressing power button of TIO 22		
Panel	TFT-LCD, In-Plane Switching (IPS), White LED backlight		
Viewable image size	21.5" (546.1mm) diagonal		
Max view area (W x H)	18.74" x 10.54" / 476.06mm x 267.79mm		
Bezel Width	Top / Side: 2mm, Bottom: 16.3mm		
Optimum resolution	1920x1080		
Aspect ratio	16:9		
Pixel pitch (mm)	0.24795mm		
Dot/Pixel per Inch	102.4 dpi		
Brightness	250 nits or cd/m ² (typical)		
Contrast ratio	1000:1 (typical)		
Pixel response time	7ms		
Color gamut	72%		
Anti-reflective	Anti-glare		
Viewing angle at 10:1 CR	178° (+/- 89°) horizontal, 178° (+/- 89°) vertical		
Preset resolutions	640x350 @ 70Hz 640x480 @ 60Hz, 66Hz, 72Hz, 75Hz 720x400 @ 70Hz 800x600 @ 60Hz, 72Hz, 75Hz 1024x768 @ 60Hz, 70Hz, 75Hz 1152x864 @ 75Hz 1280x800 @ 60Hz 1280x1024 @ 60Hz, 72Hz, 75Hz 1366x768 @ 60Hz 1440x900 @ 60Hz, 75Hz 1600x1200 @ 60Hz, 70Hz, 75Hz 1680x1050 @ 60Hz 1920x1080 @ 60Hz		
Presets / user settings	Presets: 25; user settings: 25		
On screen display	On screen display with digital user controls (8 languages)		
Control features	Mode-switching (TIO mode / standalone monitor mode, switches video / audio / USB input sources) / Back button, Left shift button, Right shift / Brightness button, Selection button / Menu button, Power button		
Tiny-in-One Power On	Pressing Alt + P on keyboard or pressing Power button positioned on TIO can turn on both TIO and Tiny (only some Tiny support, see compatible list)		
Front ports	Two USB 3.0 or two USB 2.0 (when M73 or M53 installed or USB 2.0 connected via USB upstream port), one headphone / microphone combo jack (3.5mm) * The USB ports are only available when a Tiny is installed or a PC is connected via USB upstream port		
Side ports	Side ports offered by installed Tiny (optional)		
Rear ports	One DisplayPort 1.2 port, one USB upstream port, one power connector		
3-in-1 Cable	Undetachable 3-in-1 cable (Power connector, USB 3.0 [supports USB 3.0/USB 2.0], DisplayPort 1.2), only for connecting to Tiny installed (optional)		
Internal Speaker	1.5 watt x1		
Security	Security keyhole for attachment of optional cable lock (Kensington® lock compatible), locks optional Tiny with TIO 22 together, more security features offered by Tiny installed (optional)		
Mechanical	Dimensions	TIO 22 without stand	TIO 22 with stand
	W x D x H (inch)	19.25 x 2.65 x 12.47	19.25 x 9.90 x 14.02 - 18.35
	W x D x H (mm)	489.06 x 67.2 x 316.78	489.06 x 251.4 x 356.07 - 466.07
	Weight (approximately)	11.27 lb /5.11 kg (with stand)	
Mounting features	Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPI® (100mm mount)		
Adjustable stand	Tilt: 35° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°		
Power supply	90 watts AC/DC adapter, 88% PSU, universal		
Power consumption	15.57 watts typical, 35 watts maximum, <0.5 watts standby / suspend		
Limited warranty ³	3-years , Customer Carry-In or Mail-In via Rapid Replacement Service		
VESA-compliant ²	VESA DDC2B/CI, VESA DPMS-compliant		
Ergonomics	ISO 9241-307		
Emission standards	FCC Class B		
Environmental	TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0 EPEAT™ Gold rating, ULE Gold, TUV, VOC		
Windows certifications	Windows 7, Windows 8/8.1, and Windows 10 certified		
Ship group	TIO 22 (Monitor), detachable stand, AC/DC power adapter, power cord, user's guide and driver CD, quick start and safety poster		
Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com		
ThinkCentre Tiny-in-One 22 Compatible list			
Model	M900 Tiny, M700 Tiny, M600 Tiny, M83 Tiny, M53 Tiny	M93/p Tiny, M73 Tiny	Chromebox
Turn on TIO and Tiny together via Alt + P on USB KB	All models	All models	Not support
Turn on TIO and Tiny together via TIO Power Button	All models	TIO models	All models

See footnotes for more detailed information



ThinkCentre Tiny-in-One (TIO) 22 Gen3

Product Specifications Reference (PSREF)

Model	<i>Non-touch model:</i> 10R1PAR1++/10R1PAT1++; <i>Touch model:</i> 10R0PAR1++/10R0PAT1++			Mounting features	Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPI® (100mm mount)																
Form factor	Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO, clean cabling and effortless setup			Adjustable stand	<i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.3" (110mm); <i>swivel:</i> +/-45°; <i>Pivot:</i> clockwise 0° to 90°																
Compatible Tiny:	M910 / M710 / M900 / M700 / M600 / M715 / M93/p* / M83 / M73* / M53 / Chromebox Tiny * Non-TIO models can't be turned on by pressing power button of TIO			Power supply	90 watts AC/DC adapter, 88% PSU, universal																
Panel	TFT-LCD, In-Plane Switching technology**, White LED backlight <i>Notes:</i> In-Plane Switching may refer to VA, PLS, and IPS panels			Power consumption	19 watts typical, 32 watts maximum, <0.5 watts standby / suspend																
Viewable image size	21.5" (546.1mm) diagonal			Limited warranty	3-years , Customer Carry-In or Mail-In via Rapid Replacement Service																
Max view area (W x H)	18.74" x 10.54" / 476.1mm x 267.8mm			VESA-compliant	VESA DDC2B/CI, VESA DPMS-compliant																
Bezel Width	Top / Side: 2mm, Bottom: 22.1mm			Ergonomics	ISO 9241-307, TUV Eye Comfort certified																
Native resolution	1920x1080			Emission standards	FCC Class B																
Multi-touch	Optional 10-point multi-touch, supports Wake on Touch			Environmental	TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0, EPEAT™ Gold rating, ULE Gold, TUV, VOC																
Aspect ratio	16:9			Windows certifications	Windows 7 and Windows 10 certified																
Pixel pitch (mm)	0.24795mm			Ship group	TIO (Monitor), detachable stand, AC/DC power adapter, power cord, user's guide and driver CD, quick start and safety poster																
Dot/Pixel per Inch	102.4 dpi			Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com																
Brightness	250 nits or cd/m² (typical)			<table border="1"> <thead> <tr> <th colspan="4">ThinkCentre Tiny-in-One 22 Gen3 Compatible list</th> </tr> <tr> <th>Model</th> <th>M910 / M710 / M900 / M700 / M600 / M715 / M83 / M53 Tiny</th> <th>M93/p Tiny, M73 Tiny</th> <th>Chromebox</th> </tr> </thead> <tbody> <tr> <td>Turn on TIO and Tiny together via Alt + P on USB KB</td> <td>All models</td> <td>All models</td> <td>Not support</td> </tr> <tr> <td>Turn on TIO and Tiny together via TIO Power Button</td> <td>All models</td> <td>TIO models</td> <td>All models</td> </tr> </tbody> </table>		ThinkCentre Tiny-in-One 22 Gen3 Compatible list				Model	M910 / M710 / M900 / M700 / M600 / M715 / M83 / M53 Tiny	M93/p Tiny, M73 Tiny	Chromebox	Turn on TIO and Tiny together via Alt + P on USB KB	All models	All models	Not support	Turn on TIO and Tiny together via TIO Power Button	All models	TIO models	All models
ThinkCentre Tiny-in-One 22 Gen3 Compatible list																					
Model	M910 / M710 / M900 / M700 / M600 / M715 / M83 / M53 Tiny	M93/p Tiny, M73 Tiny	Chromebox																		
Turn on TIO and Tiny together via Alt + P on USB KB	All models	All models	Not support																		
Turn on TIO and Tiny together via TIO Power Button	All models	TIO models	All models																		
Contrast ratio	1000:1 (typical)																				
Pixel response time	14ms (default), over drive to 4ms, 6ms																				
Color gamut	72%																				
Anti-reflective	Anti-glare																				
Viewing angle at 10:1 CR	178° (+/- 89°) horizontal, 178° (+/- 89°) vertical																				
Preset resolutions	640x350 @ 70Hz 640x480 @ 60Hz, 66Hz, 72Hz, 75Hz 720x400 @ 70Hz 800x600 @ 60Hz, 72Hz, 75Hz 1024x768 @ 60Hz, 70Hz, 75Hz 1152x864 @ 75Hz 1280x800 @ 60Hz 1280x1024 @ 60Hz, 72Hz, 75Hz 1366x768 @ 60Hz 1440x900 @ 60Hz, 75Hz 1600x1200 @ 60Hz, 70Hz, 75Hz 1680x1050 @ 60Hz 1920x1080 @ 60Hz																				
Presets / user settings	Presets: 25; user settings: 25																				
On screen display	On screen display with digital user controls (8 languages)																				
Control features	<i>Font:</i> Exit button, Left / Mode-switching button (TIO / monitor mode), Right / Brightness button, Enter / Menu button, Power button <i>Bottom:</i> Volume up button, Volume down button																				
Tiny-in-One Power On	Pressing Alt + P on keyboard or pressing Power button positioned on TIO can turn on both TIO and Tiny (only some Tiny support, see compatible list)																				
Side ports (TIO)	One USB 3.1 Gen1 / USB 2.0 (when M73 or M53 installed or USB 2.0 connected via USB upstream port) <i>Notes:</i> The USB port is only available when a Tiny is installed or a PC is connected via USB upstream port																				
Side ports (Tiny)	Side ports offered by installed Tiny (optional)																				
Rear ports	One DisplayPort in port, one USB upstream port, one power connector																				
3-in-1 Cable	Undetachable 3-in-1 cable (Power connector, USB [supports USB 3.1 Gen1 / USB 2.0], DisplayPort), only for connecting to Tiny installed (optional)																				
Camera	720p camera with dual microphone for VOIP, LED indicator																				
Internal Speaker	2 watt x2																				
Security	Security keyhole for attachment of optional cable lock (Kensington® lock compatible), locks optional Tiny with TIO together, more security features offered by Tiny installed (optional)																				
Mechanical	<table border="1"> <thead> <tr> <th>Dimensions</th> <th>TIO without stand</th> <th>TIO with stand</th> </tr> </thead> <tbody> <tr> <td>W x D x H (inch)</td> <td>19.26 x 2.85 x 13.35</td> <td>19.26 x 10.76 x 14.59 - 18.93</td> </tr> <tr> <td>W x D x H (mm)</td> <td>489.3 x 72.5 x 339</td> <td>489.3 x 273.3 x 370.7 - 480.7</td> </tr> <tr> <td>Weight (Approx.)</td> <td>7.01 lb / 3.19 kg</td> <td>11.77 lb / 5.34 kg</td> </tr> </tbody> </table>			Dimensions	TIO without stand	TIO with stand	W x D x H (inch)	19.26 x 2.85 x 13.35	19.26 x 10.76 x 14.59 - 18.93	W x D x H (mm)	489.3 x 72.5 x 339	489.3 x 273.3 x 370.7 - 480.7	Weight (Approx.)	7.01 lb / 3.19 kg	11.77 lb / 5.34 kg						
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W x D x H (inch)	19.26 x 2.85 x 13.35	19.26 x 10.76 x 14.59 - 18.93																			
W x D x H (mm)	489.3 x 72.5 x 339	489.3 x 273.3 x 370.7 - 480.7																			
Weight (Approx.)	7.01 lb / 3.19 kg	11.77 lb / 5.34 kg																			



ThinkCentre Tiny-in-One (TIO) 24

Product Specifications Reference (PSREF)

Model	10LLPAR6++ / 10LLPAT6++		
Form factor	Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO 24, clean cabling and effortless setup		
Compatible Tiny:	M900 Tiny, M700 Tiny, M600 Tiny, M93/p Tiny*, M83 Tiny, M73 Tiny*, or M53 Tiny, Chromebox * Non-TIO models can't be turned on by pressing power button of TIO 24		
Panel	TFT-LCD, In-Plane Switching (IPS), White LED backlight		
Viewable image size	23.8" (604.7mm) diagonal		
Max view area (W x H)	21.06" x 12.32" / 535.0mm x 313.0mm		
Bezel Width	Top / Side: 2mm, Bottom: 16.3mm		
Optimum resolution	1920x1080		
Aspect ratio	16:9		
Pixel pitch (mm)	0.2745mm		
Dot/Pixel per Inch	92.6 dpi		
Brightness	250 nits or cd/m ² (typical)		
Contrast ratio	1000:1 (typical)		
Pixel response time	7ms		
Color gamut	72%		
Anti-reflective	Anti-glare		
Viewing angle at 10:1 CR	178° (+/- 89°) horizontal, 178° (+/- 89°) vertical		
Preset resolutions	640x350 @ 70Hz 640x480 @ 60Hz, 66Hz, 72Hz, 75Hz 720x400 @ 70Hz 800x600 @ 60Hz, 72Hz, 75Hz 1024x768 @ 60Hz, 70Hz, 75Hz 1152x864 @ 75Hz 1280x800 @ 60Hz 1280x1024 @ 60Hz, 72Hz, 75Hz 1366x768 @ 60Hz 1440x900 @ 60Hz, 75Hz 1600x1200 @ 60Hz, 70Hz, 75Hz 1680x1050 @ 60Hz 1920x1080 @ 60Hz		
Presets / user settings	Presets: 25; user settings: 25		
On screen display	On screen display with digital user controls (8 languages)		
Control features	Mode-switching (TIO mode / standalone monitor mode, switches video / audio / USB input sources) / Back button, Left shift button, Right shift / Brightness button, Selection button / Menu button, Power button		
Tiny-in-One Power On	Pressing Alt + P on keyboard or pressing Power button positioned on TIO can turn on both TIO and Tiny (only some Tiny support, see compatible list)		
Front ports	Two USB 3.0 or two USB 2.0 (when M73 or M53 installed or USB 2.0 connected via USB upstream port), one headphone / microphone combo jack (3.5mm) * The USB ports are only available when a Tiny is installed or a PC is connected via USB upstream port		
Side ports	Side ports offered by installed Tiny (optional)		
Rear ports	One DisplayPort 1.2 port, one USB upstream port, one power connector		
3-in-1 Cable	Undetachable 3-in-1 cable (Power connector, USB 3.0 [supports USB 3.0/USB 2.0], DisplayPort 1.2), only for connecting to Tiny installed (optional)		
Internal Speaker	1.5 watt x1		
Security	Security keyhole for attachment of optional cable lock (Kensington® lock compatible), locks optional Tiny with TIO 24 together, more security features offered by Tiny installed (optional)		
Mechanical	Dimensions	TIO 24 without stand	TIO 24 with stand
	W x D x H (inch)	21.24 x 2.7 x 13.64	21.24 x 9.90 x 15.16 - 19.46
	W x D x H (mm)	539.6 x 68.2 x 346.45	539.6 x 251.4 x 385.08 - 495.08
	Weight (approximately)	12.25 lb /5.57 kg (with stand)	
Mounting features	Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)		
Adjustable stand	Tilt: 35° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°		
Power supply	90 watts AC/DC adapter, 88% PSU, universal		
Power consumption	16.7 watts typical, 35 watts maximum, <0.5 watts standby / suspend		
Limited warranty ³	3-years , Customer Carry-In or Mail-In via Rapid Replacement Service		
VESA-compliant ²	VESA DDC2B/CI, VESA DPMS-compliant		
Ergonomics	ISO 9241-307		
Emission standards	FCC Class B		
Environmental	TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0		
Windows certifications	EPEAT™ Gold rating, ULE Gold, TUV, VOC Windows 7, Windows 8/8.1, and Windows 10 certified		
Ship group	TIO 24 (Monitor), detachable stand, AC/DC power adapter, power cord, user's guide and driver CD, quick start and safety poster		
Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com		
ThinkCentre Tiny-in-One 24 Compatible list			
Model	M900 Tiny, M700 Tiny, M600 Tiny, M83 Tiny, M53 Tiny	M93/p Tiny, M73 Tiny	Chromebox
Turn on TIO and Tiny together via Alt + P on USB KB	All models	All models	Not support
Turn on TIO and Tiny together via TIO Power Button	All models	TIO models	All models

See footnotes for more detailed information



ThinkCentre Tiny-in-One (TIO) 24 Gen3

Product Specifications Reference (PSREF)

Model	<i>Non-touch model:</i> 10QYPAR1++/10QYPAT1++; <i>Touch model:</i> 10QXPAR1++/10QXPAT1++			Mounting features	Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPI® (100mm mount)												
Form factor	Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO, clean cabling and effortless setup			Adjustable stand	<i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.3" (110mm); <i>swivel:</i> +/-45°; <i>Pivot:</i> clockwise 0° to 90°												
Compatible Tiny:	M910 / M710 / M900 / M700 / M600 / M715 / M93/p* / M83 / M73* / M53 / Chromebox Tiny * Non-TIO models can't be turned on by pressing power button of TIO			Power supply	90 watts AC/DC adapter, 88% PSU, universal												
Panel	TFT-LCD, In-Plane Switching technology**, White LED backlight <i>Notes:</i> In-Plane Switching may refer to VA, PLS, and IPS panels			Power consumption	19 watts typical, 32 watts maximum, <0.5 watts standby / suspend												
Viewable image size	23.8" (604.7mm) diagonal			Limited warranty	3-years , Customer Carry-In or Mail-In via Rapid Replacement Service												
Max view area (W x H)	21.06" x 12.32" / 535.0mm x 313.0mm			VESA-compliant	VESA DDC2B/CI, VESA DPMS-compliant												
Bezel Width	Top / Side: 2mm, Bottom: 22.1mm			Ergonomics	ISO 9241-307, TUV Eye Comfort certified												
Native resolution	1920x1080			Emission standards	FCC Class B												
Multi-touch	Optional 10-point multi-touch, supports Wake on Touch			Environmental	TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0, EPEAT™ Gold rating, ULE Gold, TUV, VOC												
Aspect ratio	16:9			Windows certifications	Windows 7 and Windows 10 certified												
Pixel pitch (mm)	0.2745mm			Ship group	TIO 24 (Monitor), detachable stand, AC/DC power adapter, power cord, user's guide and driver CD, quick start and safety poster												
Dot/Pixel per Inch	92.6 dpi			Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com												
Brightness	250 nits or cd/m² (typical)																
Contrast ratio	1000:1 (typical)																
Pixel response time	14ms (default), over drive to 4ms, 6ms																
Color gamut	72%																
Anti-reflective	Anti-glare																
Viewing angle at 10:1 CR	178° (+/- 89°) horizontal, 178° (+/- 89°) vertical																
Preset resolutions	640x350 @ 70Hz 640x480 @ 60Hz, 67Hz, 72Hz, 75Hz 720x400 @ 70Hz 800x600 @ 60Hz, 72Hz, 75Hz 1024x768 @ 60Hz, 70Hz, 75Hz 1152x864 @ 75Hz 1280x800 @ 60Hz 1280x1024 @ 60Hz, 72Hz, 75Hz 1366x768 @ 60Hz 1440x900 @ 60Hz, 75Hz 1600x1200 @ 60Hz, 70Hz, 75Hz 1680x1050 @ 60Hz 1920x1080 @ 60Hz																
Presets / user settings	Presets: 25; user settings: 25																
On screen display	On screen display with digital user controls (8 languages)																
Control features	Font: Exit button, Left / Mode-switching button (TIO / monitor mode), Right / Brightness button, Enter / Menu button, Power button Bottom: Volume up button, Volume down button																
Tiny-in-One Power On	Pressing Alt + P on keyboard or pressing Power button positioned on TIO can turn on both TIO and Tiny (only some Tiny support, see compatible list)																
Side ports (TIO)	One USB 3.1 Gen1 / USB 2.0 (when M73 or M53 installed or USB 2.0 connected via USB upstream port) <i>Notes:</i> The USB port is only available when a Tiny is installed or a PC is connected via USB upstream port																
Side ports (Tiny)	Side ports offered by installed Tiny (optional)																
Rear ports	One DisplayPort in port, one USB upstream port, one power connector																
3-in-1 Cable	Undetachable 3-in-1 cable (Power connector, USB [supports USB 3.1 Gen1 / USB 2.0], DisplayPort), only for connecting to Tiny installed (optional)																
Camera	1080p camera with dual microphone for VOIP, LED indicator																
Internal Speaker	2 watt x2																
Security	Security keyhole for attachment of optional cable lock (Kensington® lock compatible), locks optional Tiny with TIO together, more security features offered by Tiny installed (optional)																
Mechanical	<table border="1"> <thead> <tr> <th>Dimensions</th> <th>TIO without stand</th> <th>TIO with stand</th> </tr> </thead> <tbody> <tr> <td>W x D x H (inch)</td> <td>21.25 x 2.85 x 14.47</td> <td>21.25 x 11.11 x 15.72 - 20.06</td> </tr> <tr> <td>W x D x H (mm)</td> <td>539.8 x 72.5 x 367.6</td> <td>539.8 x 282.3 x 399.4 - 509.4</td> </tr> <tr> <td>Weight (Approx.)</td> <td>7.96 lb /3.61 kg</td> <td>12.92 lb /5.86 kg</td> </tr> </tbody> </table>					Dimensions	TIO without stand	TIO with stand	W x D x H (inch)	21.25 x 2.85 x 14.47	21.25 x 11.11 x 15.72 - 20.06	W x D x H (mm)	539.8 x 72.5 x 367.6	539.8 x 282.3 x 399.4 - 509.4	Weight (Approx.)	7.96 lb /3.61 kg	12.92 lb /5.86 kg
Dimensions	TIO without stand	TIO with stand															
W x D x H (inch)	21.25 x 2.85 x 14.47	21.25 x 11.11 x 15.72 - 20.06															
W x D x H (mm)	539.8 x 72.5 x 367.6	539.8 x 282.3 x 399.4 - 509.4															
Weight (Approx.)	7.96 lb /3.61 kg	12.92 lb /5.86 kg															

ThinkCentre Tiny-in-One 24 Gen3 Compatible list			
Model	M910 / M710 / M900 / M700 / M600 / M715 / M83 / M53 Tiny	M93/p Tiny, M73 Tiny	Chromebox
Turn on TIO and Tiny together via Alt + P on USB KB	All models	All models	Not support
Turn on TIO and Tiny together via TIO Power Button	All models	TIO models	All models



ThinkCentre Tiny-in-One (TIO) 27

Product Specifications Reference (PSREF)

Form factor	Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO, clean cabling and effortless setup	Mechanical		TIO without stand	TIO with stand
Compatible Tiny:	ThinkCentre Tiny, ThinkCentre Nano, and ThinkStation Tiny		Dimensions (W x D x H mm / inch)	614.0 x 73.89 x 413.1 / 24.17 x 2.91 x 16.26	614.0 x 329.0 x 444.25 - 554.25 / 24.17 x 12.95 x 17.49 - 21.82
Panel	TFT-LCD, In-Plane Switching technology**, White LED backlight **Notes: In-Plane Switching may refer to IPS, PLS, ADS, AHVA, and AA	Mounting features	Weight (Approx.)	4.91 kg / 10.82 lb	7.95 kg / 17.53 lb
Viewable image size	27" (685.8mm) diagonal		Adjustable stand	Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Tilt: 35° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°; Pivot: clockwise -5° to 90°	
Max view area (W x H)	23.49" x 13.22" / 596.7mm x 335.7mm	Power supply	170 watts adapter, 88% PSU, universal		
Bezel Width	Top / Side: 2mm, Bottom: 23.3mm	Power consumption	37 watts typical, 57 watts maximum, <0.5 watts standby / suspend		
Native resolution	2560x1440	Limited warranty	3-years , Product Exchange Service (US and EMEA) or Customer Carry-In Service (EMEA)		
Multi-touch	None	VESA-compliant	VESA DDC/CI, VESA DPMS-compliant		
Aspect ratio	16:9	Ergonomics	ISO 9241-307, TUV Eye Comfort certified		
Pixel pitch (mm)	0.2331mm	Emission standards	FCC Class B		
Dot/Pixel per Inch	109 dpi	Environmental	TCO 8.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0, EPEAT™ Bronze rating, ULE Gold, TUV, VOC		
Brightness	350 nits or cd/m² (typical)	Windows certifications	Windows 7 and Windows 10 certified		
Contrast ratio	1000:1 (typical)	Ship group	TIO 27 (Monitor), detachable stand, power adapter, power cord, reference and driver CD		
Pixel response time	14ms (default), over drive to 4ms, 6ms	Accessories	For compatible accessories, please go to http://smartfind.lenovo.com		
Color gamut	99% sRGB				
Anti-glare	Yes (25%)				
Viewing angle at 10:1 CR	178° (+/- 89°) horizontal, 178° (+/- 89°) vertical				
Preset resolutions	640x350 @ 70Hz 640x480 @ 60Hz, 66Hz, 72Hz, 75Hz 720x400 @ 70Hz 800x600 @ 60Hz, 72Hz, 75Hz 1024x768 @ 60Hz, 70Hz, 75Hz 1152x864 @ 75Hz 1280x768 @ 60Hz 1280x800 @ 60Hz 1280x1024 @ 60Hz, 72Hz, 75Hz 1366x768 @ 60Hz 1440x900 @ 60Hz, 75Hz 1600x1200 @ 60Hz, 70Hz, 75Hz 1680x1050 @ 60Hz 1920x1080 @ 60Hz 2560x1440 @ 60Hz				
Presets / user settings	Presets: 27; user settings: 25				
On screen display	On screen display with digital user controls (8 languages)				
Control features	Front: Exit button, Left / Mode-switching button (TIO / monitor mode), Right / Brightness button, Enter / Menu button, Power button Bottom: Volume up button, Volume down button				
Tiny-in-One Power On	Pressing Alt + P on keyboard or pressing Power button positioned on TIO can turn on both TIO and Tiny (only some support, see Compatible Matrix)				
Side ports (TIO)	Two USB 3.1 Gen1 (downgrade to USB 2.0 when installing M73 or M53 or connecting USB 2.0 via USB upstream port), one headphone / microphone combo jack Notes: The USB ports are enabled by installing a Tiny or connecting USB upstream port; the audio port is enabled by installing a Tiny or connecting USB upstream, DisplayPort(in), or HDMI(in) port				
Side ports (Tiny)	Side ports offered by the installed Tiny (optional)				
Rear ports	One DisplayPort(in) port, one HDMI(in) port, one USB (Type-B) upstream port, one power connector				
3-in-1 Cable	Undetachable 3-in-1 cable, connecting to the power connector, one USB, and one DisplayPort of the installed Tiny (optional)				
Camera	RGBIR camera with dual microphone, supports Window Hello and Facial Recognition, Think Shutter for Privacy Security, LED indicator				
Internal Speaker	2 watt x2				
Security	Security keyhole for attachment of optional cable lock (Kensington® lock compatible), locks optional Tiny with TIO together, more security features offered by Tiny installed (optional)				

ThinkCentre Tiny-in-One 27 Compatible Matrix			
Model	P320 / P330 / M920(x) / M720 / M910(x) / M710 / M900(x) / M700 / M600 / M715 / M83 / M53 Tiny	M93/p Tiny, M73 Tiny	Chromebox
Turn on TIO and Tiny together via Alt + P on USB KB	All models	All models	Not support
Turn on TIO and Tiny together via TIO Power Button	All models	TIO models	All models

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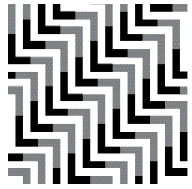
Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.

Visit <http://psref.lenovo.com/> for the latest version of Product Specifications Reference.

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Lenovo ThinkStation.

PSREF



Product Specifications Reference

Version 542, May 2019

U.S.

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Summary of Changes

This section describes the changes made in this version of ThinkStation PSREF and in previous version. This edition might also include minor corrections and editorial changes which are not identified.

May 15, 2019 - Version 542

- ▶ New ThinkStation P330 Tower Gen 2/P330 SFF Gen 2 announced on April 2019
- ▶ Update ThinkStation P920/P720/P520 specifications, add Quadro RTX 8000, DDR4-2933, Xeon Scalable Gen 2

March 13, 2019 - Version 539

- ▶ Add Intel vPro information on ThinkStation P330 Tower/P330 SFF/P520c/P520/P720/P920

February 20, 2019 - Version 538

- ▶ New ThinkStation P330 Tower models announced on February 2019
- ▶ Update ThinkStation P920/P720/P520/P520c specifications, add Quadro RTX4000/5000/6000

August 22, 2018 - Version 529

- ▶ New ThinkStation P330 Tower/SFF/Tiny models announced on August 2018
- ▶ Update ThinkStation P920/P720 specifications, update flex bay and graphics adapter section

August 1, 2018 - Version 528

- ▶ New product ThinkStation P330 Tower/SFF/Tiny announced on July 2018
- ▶ Update ThinkStation P920/P720/P520/P520c, add Refresh 2.0 information
- ▶ Remove all MTM PNs from PDF version

June 20, 2018 - Version 526

- ▶ New ThinkStation P320 Tower models announced on June 2018
- ▶ Update ThinkStation P720 and P920 models, remove EOL models for US
- ▶ Update Windows 10 Pro 64 for Workstations for some ThinkStation P720/P920 models

May 30, 2018 - Version 525

- ▶ Added ThinkStation P720/P920 EMEA May 2018 models

April 18, 2018 - Version 523

- ▶ New ThinkStation P320 Tower/ P320 SFF/P520c/P520/P720/P920 models announced on April 2018

March 28, 2018 - Version 522

- ▶ New ThinkStation P320 Tower/ P320 SFF/P520c/P520/P920 announced on March 2018

March 7, 2018 - Version 521

- ▶ New ThinkStation P320 Tower/ P320 SFF/P720/P920 announced on February 2018

January 30, 2018 - Version 519

- ▶ New ThinkStation P520c and P520 announced on January 2018
- ▶ New ThinkStation P320 Tower/P320 SFF announced on January 2018

December 20, 2017 - Version 517

- ▶ New ThinkStation P920 models announced on December 2017
- ▶ Add Optional Ports on ThinkStation P320 Tiny

September 29, 2017 - Version 513

- ▶ New ThinkStation P920 and P720 announced on September 2017
- ▶ New ThinkStation P320 Tower/P320 SFF/P410/P510/P710/P910 announced on September 2017

September 12, 2017 - Version 512

- ▶ New ThinkStation P320 Tower and P320 SFF models announced on August 2017

August 23, 2017 - Version 511

- ▶ New ThinkStation P320 Tiny models announced on August 2017

August 2, 2017 - Version 510

- ▶ New ThinkStation P320 Tiny/P320 Tower/ P320 SFF/P410/P510 models announced on July 2017

June 21, 2017 - Version 508

- ▶ New ThinkStation P320 Tiny announced on June 2017

May 26, 2017 - Version 507

- ▶ Add ThinkStation P410/P510/P710/P910 Refresh 3.0 Wave 1 models and update platform specifications

April 19, 2017 - Version 505

- ▶ New ThinkStation P320 Tower announced on April 2017
- ▶ New ThinkStation P320 SFF announced on April 2017

March 29, 2017 - Version 504

- ▶ Added ThinkStation P310 Tower and SFF models announced on March 2017
- ▶ Added ThinkStation P410 models announced on March 2017

January 25, 2017 - Version 501

- ▶ Update quantity of PCIe SSD adapter in ThinkStation P510/P910

January 4, 2017 - Version 500

- ▶ Added ThinkStation P310 models announced on December 2016

December 14, 2016 - Version 499

- ▶ Added ThinkStation P410/P510/P710/P910 EMEA models
- ▶ Added 1TB M.2 PCIe SSD, Quadro P5000, Quadro P6000 support on ThinkStation P510/P710/P910
- ▶ Added Quadro P5000 support on ThinkStation P410
- ▶ Added 6TB 7.2K SATA6Gbs HDD support on ThinkStation P410/P510/P710/P910
- ▶ Added ThinkStation P410/P510/P710/P910 models announced on December 2016

November 23, 2016 - Version 498

- ▶ Removed ThinkStation P500/P900 due to EOL
- ▶ Added ThinkStation P310 Tower and SFF models announced on November 2016

October 12, 2016 - Version 496

- ▶ Removed flash option on ThinkStation P510/P710/P910
- ▶ Added ThinkStation P310/P410/P510/P710/P910 models announced on September 2016

August 3, 2016 - Version 493

- ▶ Removed ThinkStation P500/P700/P900 Windows 7 DG from Win8.1 U.S. models
- ▶ Added keyboard and mouse features on all ThinkStation

July 13, 2016 - Version 492

- ▶ Added ThinkStation P500, P700, and P900 Windows 10 downgrade to Windows 7 models
- ▶ Updated Maximum configuration weight of ThinkStation P410
- ▶ Added ThinkStation P710 and P910 models announced on on July 2016
- ▶ Added "Maximum drives in 3.5" bay" feature on ThinkStation P500/P510/P700/P710/P900/P910

June 22, 2016 - Version 491

- ▶ Added new product ThinkStation P410/P510
- ▶ Added NVIDIA Quadro M2000 on ThinkStation P310 Tower
- ▶ Added keyboard and mouse information on ThinkStation P710/P910
- ▶ Added internal USB information on ThinkStation P710/P910

June 2, 2016 - Version 490

- ▶ Added ThinkStation P710/P910 US models
- ▶ Updated ThinkStation P710/P910 processor information

May 19, 2016 - Version 489

- ▶ Added NVIDIA Quadro M2000 on compatible product
- ▶ Updated maximum weight on ThinkStation P710
- ▶ Removed 30AT000BUS

April 27, 2016 - Version 488

- ▶ Added ThinkStation P710 and P910 models for EMEA, announced on April 2016
- ▶ Updated Energy star information on ThinkStation P500/P700/P710/P900/P910

April 6, 2016 - Version 487

- ▶ New ThinkStation P710 and P910, announced April 5, 2016 (specification only)

March 23, 2016 - Version 486

- ▶ Added processors specifications for P310/P500/P700/P900

February 24, 2016 - Version 485

- ▶ Added ThinkStation P310 and P700 models for US, announced on February 2016
- ▶ Added ThinkStation P700 and P900 models for EMEA, announced on February 2016

December 9, 2015 - Version 482

- ▶ New ThinkStation P310 Tower and SFF, announced November 24, 2015

November 18, 2015 - Version 481

- ▶ Combines ThinkStation PSREF United States version and Western Europe version.
- ▶ Extends the supported GEO into Europe, Middle East and Africa.
- ▶ Covers all TopSeller and Relationship models for US and all focus models for EMEA

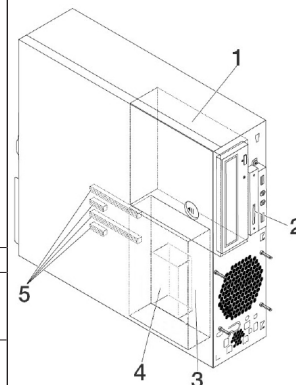


ThinkStation P320 SFF Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																			
Chipset	Intel C236 Chipset																																			
Intel AMT	Intel Active Management Technology 11 on Xeon models, Intel Standard Manageability on other models																																			
Processor	One Intel "Kabylake" or "Skylake" processor as listed: "Kaby Lake"																																			
	<table border="1"> <tbody> <tr><td>Xeon E3-1280 v6</td><td>4C/3.9GHz/8MB/72W/DDR4-2400</td></tr> <tr><td>Xeon E3-1275 v6</td><td>4C/3.8GHz/8MB/73W/DDR4-2400</td></tr> <tr><td>Xeon E3-1270 v6</td><td>4C/3.8GHz/8MB/72W/DDR4-2400</td></tr> <tr><td>Xeon E3-1245 v6</td><td>4C/3.7GHz/8MB/73W/DDR4-2400</td></tr> <tr><td>Xeon E3-1240 v6</td><td>4C/3.7GHz/8MB/72W/DDR4-2400</td></tr> <tr><td>Xeon E3-1230 v6</td><td>4C/3.5GHz/8MB/72W/DDR4-2400</td></tr> <tr><td>Xeon E3-1225 v6</td><td>4C/3.3GHz/8MB/73W/DDR4-2400</td></tr> <tr><td>Xeon E3-1220 v6</td><td>4C/3GHz/8MB/72W/DDR4-2400</td></tr> <tr><td>Core i7-7700</td><td>4C/3.6GHz/8MB/65W/DDR4-2400</td></tr> <tr><td>Core i5-7600</td><td>4C/3.5GHz/6MB/65W/DDR4-2400</td></tr> <tr><td>Core i5-7500</td><td>4C/3.4GHz/6MB/65W/DDR4-2400</td></tr> <tr><td>Core i5-7400</td><td>4C/3GHz/6MB/65W/DDR4-2400</td></tr> <tr><td>Core i3-7300</td><td>2C/4GHz/4MB/51W/DDR4-2400</td></tr> <tr><td>Core i3-7100</td><td>2C/3.9GHz/3MB/51W/DDR4-2400</td></tr> </tbody> </table>	Xeon E3-1280 v6	4C/3.9GHz/8MB/72W/DDR4-2400	Xeon E3-1275 v6	4C/3.8GHz/8MB/73W/DDR4-2400	Xeon E3-1270 v6	4C/3.8GHz/8MB/72W/DDR4-2400	Xeon E3-1245 v6	4C/3.7GHz/8MB/73W/DDR4-2400	Xeon E3-1240 v6	4C/3.7GHz/8MB/72W/DDR4-2400	Xeon E3-1230 v6	4C/3.5GHz/8MB/72W/DDR4-2400	Xeon E3-1225 v6	4C/3.3GHz/8MB/73W/DDR4-2400	Xeon E3-1220 v6	4C/3GHz/8MB/72W/DDR4-2400	Core i7-7700	4C/3.6GHz/8MB/65W/DDR4-2400	Core i5-7600	4C/3.5GHz/6MB/65W/DDR4-2400	Core i5-7500	4C/3.4GHz/6MB/65W/DDR4-2400	Core i5-7400	4C/3GHz/6MB/65W/DDR4-2400	Core i3-7300	2C/4GHz/4MB/51W/DDR4-2400	Core i3-7100	2C/3.9GHz/3MB/51W/DDR4-2400							
	Xeon E3-1280 v6	4C/3.9GHz/8MB/72W/DDR4-2400																																		
	Xeon E3-1275 v6	4C/3.8GHz/8MB/73W/DDR4-2400																																		
	Xeon E3-1270 v6	4C/3.8GHz/8MB/72W/DDR4-2400																																		
	Xeon E3-1245 v6	4C/3.7GHz/8MB/73W/DDR4-2400																																		
	Xeon E3-1240 v6	4C/3.7GHz/8MB/72W/DDR4-2400																																		
	Xeon E3-1230 v6	4C/3.5GHz/8MB/72W/DDR4-2400																																		
	Xeon E3-1225 v6	4C/3.3GHz/8MB/73W/DDR4-2400																																		
	Xeon E3-1220 v6	4C/3GHz/8MB/72W/DDR4-2400																																		
	Core i7-7700	4C/3.6GHz/8MB/65W/DDR4-2400																																		
	Core i5-7600	4C/3.5GHz/6MB/65W/DDR4-2400																																		
	Core i5-7500	4C/3.4GHz/6MB/65W/DDR4-2400																																		
	Core i5-7400	4C/3GHz/6MB/65W/DDR4-2400																																		
	Core i3-7300	2C/4GHz/4MB/51W/DDR4-2400																																		
	Core i3-7100	2C/3.9GHz/3MB/51W/DDR4-2400																																		
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Memory DIMM slots	4 DIMM slots, 2-channel (integrated memory controller in processor)																																			
Memory type/capacity	Up to 64GB ECC/non-ECC (4 x 16GB), DDR4-2400. UDIMM. "Skylake" processor supports up to DDR4-2133. Core i7 and i5 processors cannot support ECC.																																			
Intel HD Graphics in processor	Integrated Intel HD P530 in Xeon E3-12x5 v5 processors, or Intel HD P630 in Xeon E3-12x5 v6 processors, or Intel HD 530 in Core i7, i5, or i3 6000 processors. or Intel HD 630 in Core i7, i5, or i3 7000 processors. Works along with discrete graphics to support multi-display, enables three display connectors (2 DP, 1 VGA) on rear.																																			
Discrete graphics	Two PCI Express 3.0 x16 slots for graphics adapters. Up to two NVIDIA Quadro P1000. Supports the following NVIDIA graphic adapters:																																			
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Onboard drive controller	Five onboard SATA 6.0Gb/s connectors for optical and disk drives plus one SATA connector for optional eSATA. RAID 0, 1, 5* support * RAID 5 needs three 2.5" SSD drives.																																			
Drive Bays	One external 5.25" bay, one internal 3.5" bay (see right). Up to one 9mm optical + 2 x 3.5" disk drive bays + 1 x 2.5" disk drive bay + two M.2 NVMe SSD																																			
Supporting disk drives	3.5" SATA HDD (7.2K 6Gbs)																																			
	2.5" SATA SSD (6Gbs)																																			
	M.2 NVMe SSD, via PCIe adapter																																			
Max internal storage	10TB (2 x 4TB 3.5" HDDs + 1 x 2TB 2.5" SSD) plus two 1TB M.2 NVMe SSD																																			
Media reader	9-in-1 card reader. Optional 29-in-1 card reader on selected models																																			
Power supply	210 watts with variable speed fan, autosensing, Climate Savers Computing Bronze, 80 PLUS Bronze qualified																																			
Onboard Ethernet	One onboard gigabit ethernet, Intel I219LM, supports Wake-on-LAN																																			
HD Audio	Realtek ALC662 codec																																			
TPM	Standard, TCG 2.0-compliant																																			

Components	Specification
Front ports	Two USB 3.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	1 VGA and 2 DisplayPort (for Intel HD Graphics models only), two USB 2.0, four USB 3.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Mechanical	<ul style="list-style-type: none"> Raven black color; metal case 4.02"W x 15.53"D x 13.31"H 102mm W x 394.5mm D x 338mm H 17.2 lb (7.9kg) max configuration 12.9-liter
Environmental certifications	GREENGUARD certified/RoHS-compliant/EPEAT Gold rating/ENERGY STAR 6.1 qualified
Limited warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units.
ISV certifications	Please visit www.thinkworkstations.com/isv-certifications/



Drive Bays and PCIe Slots

Bay 1	5.25", supports one of the following: HH optical/flex module***/9mm optical+3.5" HDD bay/ 3.5" HDD bay/Front Access Storage Enclosure *** Flex module supports one or more of the following: 9mm optical/ 29-in-1 reader/front IEEE 1394/front eSATA. Up to one flex module is supported per system.
Bay 2	Optional 9-in-1 single slot reader
Bay 3	Standard 3.5" HDD bay
Bay 4	Optional 2.5" HDD bay (under Bay 3)
5 -Slots	Four PCIe slots (top-down): Slot 1: Low Profile, PCIe 3.0 x16 (near CPU) Slot 2: Low Profile, PCIe 3.0 x1 Slot 3: Low Profile, PCIe 3.0 x16 (x4 elec) Slot 4: Low Profile, PCIe 3.0 x1

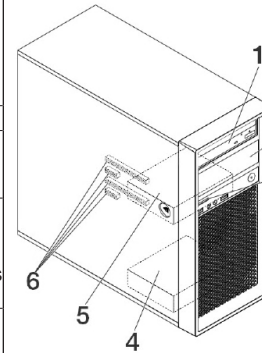


ThinkStation P320 Tower Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																		
Chipset	Intel C236 Chipset																																																		
Intel AMT	Intel Active Management Technology 11 on Xeon models, Intel Standard Manageability on other models																																																		
Processor	One Intel "Kaby Lake" or "Skylake" processor as listed: "Kaby Lake"																																																		
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Memory DIMM slots	4 DIMM slots, 2-channel (integrated memory controller in processor)																																																		
Memory type/capacity	Up to 64GB ECC/non-ECC (4 x 16GB), DDR4-2400. UDIMM. "Skylake" processor supports up to DDR4-2133. Core i7 and i5 processors cannot support ECC.																																																		
Intel HD Graphics in processor	Integrated Intel HD P530 in Xeon E3-12x5 v5 processors, or Intel HD P630 in Xeon E3-12x5 v6 processors, or Intel HD 530 in Core i7, i5, or i3 6000 processors, or Intel HD 630 in Core i7, i5, or i3 7000 processors. Works along with discrete graphics to support multi-display, enables three display connectors (2 DP, 1 VGA) on rear.																																																		
Discrete graphics	Two PCI Express 3.0 x16 slots for graphics adapters. Up to two Quadro P1000 on 250 watts models. Or up to two Quadro P2000, or up to one Quadro P4000 on 400 watts models. Supports the following NVIDIA graphics adapters:																																																		
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Onboard drive controller	Five onboard SATA 6.0Gb/s connectors for optical and disk drives plus one SATA connector for optional eSATA. RAID 0, 1, 5, 10 support																																																		
Drive Bays	Two external 5.25" bays, two internal 3.5" bays (see right). Up to one 9mm optical plus 4 x 3.5" disk drive bays plus two M.2 NVMe SSD																																																		
Supporting disk drives	3.5" SATA HDD (7.2K 6Gbs)																																																		
	2.5" SATA SSD (6Gbs)																																																		
	M.2 NVMe SSD, via PCIe adapter																																																		
Max internal storage	16TB (4 x 4TB 3.5" HDDs) plus 2TB (2 x 1TB) M.2 NVMe SSD																																																		
Media reader	9-in-1 card reader. Optional 29-in-1 card reader on selected models																																																		

Components	Specification
Power supply	One 250 watts with variable speed fan, autosensing, Climate Savers Computing Bronze, 80 PLUS Bronze qualified. Or one 400 watts with variable speed fan, autosensing, Climate Savers Computing Platinum, 80 PLUS Platinum qualified.
Onboard Ethernet	One onboard gigabit ethernet, Intel I219LM, supports Wake-on-LAN
HD Audio	Realtek ALC662 codec
TPM	Standard, TCG 2.0-compliant
Front ports	Two USB 3.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	1 VGA and 2 DisplayPort (for Intel HD Graphics models only), two USB 2.0, four USB 3.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Mechanical	<ul style="list-style-type: none"> Raven black color; metal case 6.89"W x 16.77"D x 14.8"H 175mm W x 426mm D x 376mm H 28.66 lb (13kg) max configuration 25-liter
Environmental certifications	GREENGUARD certified/RoHS-compliant/EPEAT Gold rating/ENERGY STAR 6.1 qualified
Limited warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units.
ISV certifications	Please visit www.thinkworkstations.com/isv-certifications/



Drive Bays and PCIe Slots

Bay 1 and Bay 2	5.25", support one of the following: HH optical/flex module/9mm optical+3.5" HDD bay/ 3.5" HDD bay/Front Access Storage Enclosure (FASE) <i>Note:</i> 1. Flex module supports one or more of the following: 9mm optical/ 29-in-1 reader/front IEEE 1394/front eSATA. 2. Up to one flex module/FASE per system.
Bay 3	Optional 9-in-1 single slot reader
Bay 4	Standard 3.5" HDD bay
Bay 5	Standard 3.5" HDD bay
6 -Slots	Four PCIe slots (top-down): Slot 1: Half length, full height, PCIe 3.0 x16 (near CPU) Slot 2: Half length, full height, PCIe 3.0 x16 Slot 3: Half length, full height, PCIe 3.0 x16 (x4 elec) Slot 4: Half length, full height, PCIe 3.0 x1 <i>Note:</i> 1. Both discrete graphics adapter and M.2 NVMe SSD should be installed on slot 1 or slot 3, the maximum quantity of discrete graphics adapter and M.2 NVMe SSD is 2. 2. When two discrete graphics adapters are used, no other PCIe card can be used.



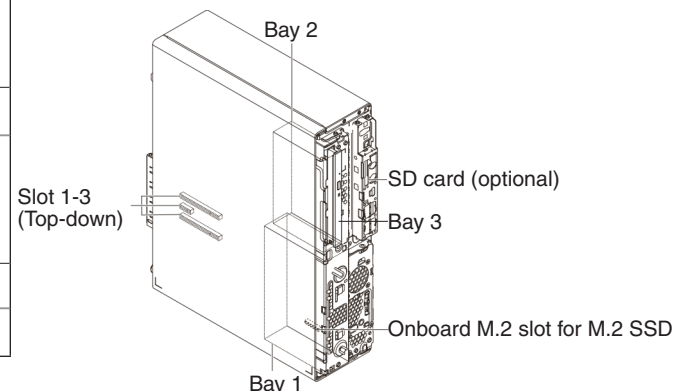
ThinkStation P330 SFF Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																							
Machine Type	MT 30C7 for Transactional model and MT 30C8 for Relationship model. For configuration of all 30C7 EMEA and US models, please visit: http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_SFF																							
Form factor	8.4L mini-tower																							
Dimensions	Height: 343.5 mm (13.5 in). Width: 92.5 mm (3.6 in). Depth: 305.6 mm (12 in)																							
Weight	Maximum configuration: 13.23 lb (6.0kg)																							
Processor	Up to one Intel Xeon E-2100 family processor, up to 80W, up to 6 cores at 3.7GHz, up to 3.8GHz with 4 cores, up to 12MB cache, DDR4-2666 memory speed. Or up to one 8th Intel Core family processor, i7, i5, or i3, up to 65W, up to 6 cores at 3.2GHz, up to 3.7GHz with 4 cores, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one Intel Pentium G5400 via Special Bids, 58W, 2 cores at 3.7GHz, 4MB cache, DDR4-2400 memory speed																							
Chipset	Intel C246 Chipset																							
Memory	4 DIMM sockets. DDR4-2666. UDIMM. ECC and non-ECC are supported, but memory types cannot be intermixed																							
Memory capacity	Up to 64GB with 4x 16GB, both ECC and non-ECC																							
Memory protection	ECC with ECC UDIMM. Core i7 and i5 processors cannot support ECC UDIMM																							
Expansion slots	Three PCIe 3.0 slots as following:																							
	Slot 1 PCIe 3.0 x16, full height, half length, links to CPU																							
	Slot 2 PCIe 3.0 x1, full height, full length, links to PCH																							
Graphics - Processor graphics	Slot 3 PCIe 3.0 x16 (negotiable link width x4), full height, half length, links to PCH																							
	Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i7, i5, or i3 processors, or Intel UHD Graphics 610 in Pentium Gold G5400.																							
	Works along with discrete graphics to support multi-display, enables three display connectors (2x DP, 1x HDMI. HDMI is optional) on rear																							
Graphics - Discrete graphics card	Up to two PCIe 3.0 x16 slots for discrete graphics adapter (Slot 1 and 3). Supports the following graphics adapters:																							
	<table border="1"> <thead> <tr> <th>Adapter</th> <th>Cores</th> <th>Memory</th> <th>Power</th> <th>Connectors</th> <th>Max qty</th> </tr> </thead> <tbody> <tr> <td>Quadro P400</td> <td>256</td> <td>2GB GDDR5</td> <td>30W</td> <td>3x miniDP</td> <td>2</td> </tr> <tr> <td>Quadro P620</td> <td>512</td> <td>2GB GDDR5</td> <td>40W</td> <td>4x miniDP</td> <td>2</td> </tr> <tr> <td>Quadro P1000</td> <td>640</td> <td>4GB GDDR5</td> <td>47W</td> <td>4x miniDP</td> <td>2</td> </tr> </tbody> </table>	Adapter	Cores	Memory	Power	Connectors	Max qty	Quadro P400	256	2GB GDDR5	30W	3x miniDP	2	Quadro P620	512	2GB GDDR5	40W	4x miniDP	2	Quadro P1000	640	4GB GDDR5	47W	4x miniDP
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Storage controllers	Integrated Intel SATA AHCI/RAID controller in chipset, 6Gbps SATA, RAID 0/1. Four onboard SATA ports for max 4 SATA HDD/SSD/ODD																							
Internal storage bay	Up to 3 bays with two disk bays and one slim optical bay:																							
	Bay 1 Primary 3.5" SATA bay																							
	Bay 2 2.5" SATA bay (Optional)																							
Disks	Bay 3 9mm Slim ODD bay																							
	3.5" HDD supports up to 4TB each, 6Gbps SATA, 7.2K. 2.5" SSD supports up to 1TB each, 6Gbps SATA																							
M.2 slot for SSD	Up to 3x M.2 SSD with one dedicated onboard M.2 slot plus two PCIe to M.2 adapters. PCIe to M.2 adapter uses slot 1 or 3. Supports RAID 0/1 with PCH, When used as RAID, M.2 SSD should be installed in onboard M.2 slot and slot 3. Up to one Optane memory per system; Optane memory must work with a HDD or SSD; Optane memory cannot supported on Pentium G5400 models																							
M.2 SSD	M.2 SSD supports up to 1TB each, PCIe 3.0 x4, NVMe, Opal. Optane memory supports 32GB, PCIe 3.0 x2, NVMe, 3D Xpoint																							
M.2 slot for Wi-Fi and Bluetooth	One dedicated onboard M.2 slot for optional Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps																							

Components	Specification
Media reader	Optional SD card reader on most models
Network interfaces	One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant. Optional chassis intrusion switch, cable lock, Kensington lock, and pad lock
Intel vPro	Supports Intel vPro on Xeon models. vPro also requires Wireless-AC 9560 if Wi-Fi is needed
Intel AMT	Intel Active Management Technology 12 on Xeon models, Intel Standard Manageability on other models
Base warranty	US models comes with 3-year limited onsite service with 9x5/NBD. 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs
HD Audio	Intel HD Audio interface with Realtek ALC233 Codec
Front ports	2x USB 3.1 Gen 1 Type A. 2x USB 3.1 Gen 2 Type A. 1x USB 3.1 Gen 1 Type-C. 1x Mic-in. 1x Combo jack
Rear ports	2x USB 3.1 Gen 1 Type A. 2x USB 2.0 Type-A. 1x RJ-45. 1x COM. 2x DP. 1x Audio line-out <i>Notes: DP needs Core, Pentium, or -G suffix Xeon processor</i>
Optional rear ports	2x USB 3.1 Type-C. 1x COM. PS/2. 1x Parallel. 1x Thunderbolt. 1x IEEE1394. 1x HDMI. 1x Audio line-out <i>Notes: HDMI needs Core, Pentium, or -G suffix Xeon processor</i>
Temperature	Operating: 41 °F to 104 °F (10 °C to 35 °C) Non operating (no package): 14 °F to 140 °F (-10 °C to 60 °C) Non operating (with package): -40 °F to 140 °F (-40 °C to 60 °C)
Altitude	Operating: -15.2 m (-50 ft) to 3048 m (10 000 ft). Storage: -15.2 m (-50 ft) to 10, 668 m (35 000 ft)
Humidity	Operating: 30%-90%, non-condensing Storage (with package): 20%-90%, non-condensing
Environmental certification	RoHS-compliant. GREENGUARD. EPEAT Gold rating and ENERGY STAR 7 qualified
Power supply	Supports one 210W or 260W power supply. 210W is 100V - 240V, 85% PSU, Climate Savers Computing Bronze and 80 PLUS Bronze qualified. 260W is 100V - 240V, 92% PSU, Climate Savers Computing Platinum and 80 PLUS Platinum qualified
ISV certifications	Please visit www.thinkworkstations.com/isv-certifications/

Note:
1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
2. Any questions or advice on ThinkStation PSREF, please contact [ThinkStation PSREF developer](#)





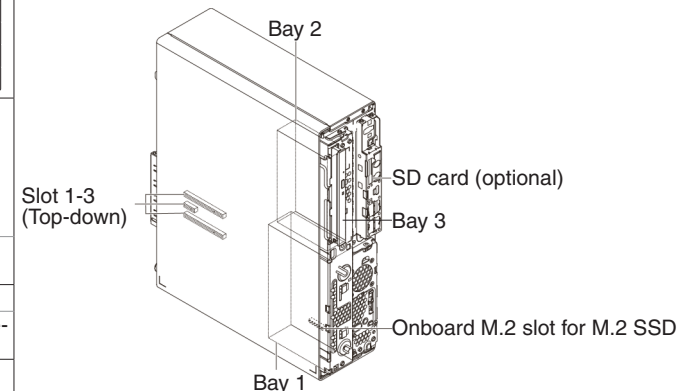
ThinkStation P330 SFF Gen 2 (30D1 and 30D2) Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																														
Form factor	8.4L mini-tower																														
Dimensions	Height: 343.5 mm (13.5 in). Width: 92.5 mm (3.6 in). Depth: 305.6 mm (12 in)																														
Weight	Maximum configuration: 13.23 lb (6.0kg)																														
Processor	Supports one of the following processor: <ul style="list-style-type: none"> Xeon E-2174G 4C/8T/3.8GHz/8MB/71W/DDR4-2666 Core i5-9400 6C/6T/2.9GHz/9MB/65W/DDR4-2666 Core i3-8300 4C/4T/3.7GHz/8MB/62W/DDR4-2400 Core i3-8100 4C/4T/3.6GHz/6MB/65W/DDR4-2400 <i>Note: Next gen Xeon processors and more 9th Core processors will be supported on June 2019</i>																														
Chipset	Intel C246 Chipset																														
Memory Sockets	4 DIMM sockets with 2 channels																														
Memory Types	8GB/16GB DDR4-2666 UDIMM ECC or 4GB/8GB/16GB DDR4-2666 UDIMM non-ECC																														
Memory Capacity	64B with 4 x 16GB, both UDIMM ECC or UDIMM non-ECC																														
Memory Protection	ECC on models with UDIMM ECC memory																														
Expansion slots	Three PCIe 3.0 slots as following:																														
	Slot 1 PCIe 3.0 x16, low profile, links to CPU																														
	Slot 2 PCIe 3.0 x1, low profile, links to PCH																														
	Slot 3 PCIe 3.0 x16 (negotiable link width x4), low profile, links to PCH																														
Processor graphics	Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i5 or i3 processors. Works along with discrete graphics to support multi-display, enables three rear display connectors (2 DP standard, 1 DP or HDMI optional)																														
Discrete graphics card	Up to two PCIe 3.0 x16 slots for discrete graphics adapter (Slot 1 and 3). Supports the following graphics adapters:																														
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Storage Support	<table border="1"> <thead> <tr> <th>Disk Type</th> <th>Interface</th> <th>RPM</th> <th>Offering</th> <th>Max Qty</th> </tr> </thead> <tbody> <tr> <td>3.5" SATA HDD</td> <td>SATA 6Gb/s</td> <td>7.2K</td> <td>1TB/2TB/4TB</td> <td>1</td> </tr> <tr> <td>2.5" SATA HDD</td> <td>SATA 6Gb/s</td> <td>7.2K</td> <td>500GB FIPS</td> <td>2</td> </tr> <tr> <td>2.5" SATA SSD</td> <td>SATA 6Gb/s</td> <td></td> <td>256GB/512GB/1TB</td> <td>2</td> </tr> <tr> <td>Optane Memory</td> <td>PCIe NVMe</td> <td></td> <td>32GB</td> <td>1, used with HDD/SSD</td> </tr> <tr> <td>M.2 PCIe SSD</td> <td>PCIe NVMe</td> <td></td> <td>256GB/512GB/1TB</td> <td>3</td> </tr> </tbody> </table>	Disk Type	Interface	RPM	Offering	Max Qty	3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB	1	2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB FIPS	2	2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB	2	Optane Memory	PCIe NVMe		32GB	1, used with HDD/SSD	M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB	3
	Disk Type	Interface	RPM	Offering	Max Qty																										
	3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB	1																										
	2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB FIPS	2																										
	2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB	2																										
	Optane Memory	PCIe NVMe		32GB	1, used with HDD/SSD																										
M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB	3																											
Storage bay	Up to 3 bays with two disk bays and one slim optical bay:																														
	Bay 1 Primary 3.5" SATA bay																														
	Bay 2 2.5" SATA bay (Optional)																														
	Bay 3 9mm Slim ODD bay																														
	M.2 3x M.2 SSD (1 onboard, 2 via PCIe to M.2 adapter)																														
M.2 slot for Wi-Fi and Bluetooth	One dedicated onboard M.2 slot for optional Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps																														
Media reader	Optional SD card reader on most models																														
Network interfaces	One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available																														
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant. Optional chassis intrusion switch, cable lock, Kensington lock, and pad lock																														

Components	Specification
Intel vPro	Supports Intel vPro on Xeon models. vPro also requires Wireless-AC 9560 if Wi-Fi is needed
Intel AMT	Intel Active Management Technology 12 on Xeon models, Intel Standard Manageability on other models
Base warranty	US models comes with 3-year limited onsite service with 9x5/NBD. 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs
HD Audio	Intel HD Audio interface with Realtek ALC233 Codec
Front ports	2x USB 3.1 Gen 1 Type A. 2x USB 3.1 Gen 2 Type A. 1x USB 3.1 Gen 1 Type-C. 1x Mic-in. 1x Combo jack
Rear ports	2x USB 3.1 Gen 1 Type A. 2x USB 2.0 Type-A. 1x RJ-45. 1x COM. 2x DP. 1x Audio line-out <i>Notes: DP needs Core, Pentium, or -G suffix Xeon processor</i>
Optional rear ports	Supports the following via cable: 1x COM. 1x Parallel. 2x DP or 1x HDMI. 2x USB 2.0
	Supports the following via PCIe adapter: 4x COM. 2x USB 3.1 Type-C. 2x USB 3.0. 1x Thunderbolt. <i>Notes: DP or HDMI needs Core, Pentium, or -G suffix Xeon processor</i>
Temperature	Operating: 41 °F to 104 °F (10 °C to 35 °C) Non operating (no package): 14 °F to 140 °F (-10 °C to 60 °C) Non operating (with package): -40 °F to 140 °F (-40 °C to 60 °C)
Altitude	Operating: -15.2 m (-50 ft) to 3048 m (10 000 ft). Storage: -15.2 m (-50 ft) to 10, 668 m (35 000 ft)
Humidity	Operating: 30%-90%, non-condensing Storage (with package): 20%-90%, non-condensing
Environmental certification	RoHS-compliant. GREENGUARD. EPEAT Gold rating and ENERGY STAR 7 qualified
Power supply	Supports one 210W or 260W power supply. 210W is 100V - 240V, 85% PSU, Climate Savers Computing Bronze and 80 PLUS Bronze qualified. 260W is 100V - 240V, 92% PSU, Climate Savers Computing Platinum and 80 PLUS Platinum qualified
ISV certifications	Please visit www.thinkworkstations.com/isv-certifications/

Note:
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2. Any questions or advice on ThinkStation PSREF, please contact [ThinkStation PSREF developer](mailto:ThinkStation_PSREF_developer)





ThinkStation P330 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification															
Machine Type	MT 30CF for Transactional model and MT 30CE for Relationship model. For configuration of all 30CF EMEA and US models, please visit: http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_Tiny															
Form factor	1L. Optional VESA mount bracket kit, supports VESA 75mm and 100mm. Optional floor stand for vertical orientation. Optional tool-less chassis open. Optional dust filter															
Dimensions	Height: 179 mm (7.0 in). Width: 36.5 mm (1.437 in). Depth: 182.9 mm (7.2 in)															
Weight	Maximum configuration: 3.08 lb (1.4kg)															
Supported TIO monitors	Tiny-in-One 23 (MT: 10DQ). Tiny-in-One 22 (MT: 10LK). Tiny-in-One 24 (MT: 10LL). Tiny-in-One22 Gen3 (MT: 10R1). Tiny-in-One22 Gen3 Touch (MT: 10R0). Tiny-in-One24 Gen3 (MT: 10QY). Tiny-in-One24 Gen3 Touch (MT: 10QX).															
Processor	Up to one Intel Core family processor, i7, i5, or i3. Core i7 supports 65W or 35W, 6 cores, up to 3.2GHz, 12MB cache, DDR4-2666 memory speed. Core i5 supports 65W or 35W, 6 cores, up to 3.1GHz, 9MB cache, DDR4-2666 memory speed. Core i3 supports 65W, 62W, or 35W, 4 cores, up to 3.7GHz, 6MB or 8MB cache, DDR4-2400 memory speed.															
Chipset	Intel Q370 Chipset															
Memory	2 DIMM sockets. DDR4-2666. SoDIMM. Non-ECC															
Expansion slots	One PCIe slot via specific riser card: PCIe 3.0 x16 (negotiable link width x8) and low profile for discrete graphics card; PCIe 3.0 x4 and low profile for i350-T4 adapter and quad COM ports adapter															
Graphics	65W or 62W processor models supports processor graphics only. 35W processor models come with processor graphics plus a discrete graphics adapter															
Graphics - Processor graphics	Integrated Intel UHD Graphics 630. Works along with discrete graphics to support multi-display															
Graphics - Discrete graphics card	One of the following discrete graphics cards on 35W processor models: <table border="1"> <thead> <tr> <th>Adapter</th> <th>Cores</th> <th>Memory</th> <th>Power</th> <th>Connectors</th> </tr> </thead> <tbody> <tr> <td>Quadro P620</td> <td>512</td> <td>2GB GDDR5</td> <td>40W</td> <td>4x miniDP</td> </tr> <tr> <td>Quadro P1000</td> <td>640</td> <td>4GB GDDR5</td> <td>47W</td> <td>4x miniDP</td> </tr> </tbody> </table>	Adapter	Cores	Memory	Power	Connectors	Quadro P620	512	2GB GDDR5	40W	4x miniDP	Quadro P1000	640	4GB GDDR5	47W	4x miniDP
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Quadro P1000	640	4GB GDDR5	47W	4x miniDP												
Storage controllers	Integrated Intel SATA AHCI controller in chipset, 6Gbps SATA, one onboard SATA port for 2.5" HDD															
Internal storage bay	Up to one 2.5" HDD															
Disks	2.5" HDD supports up to 1TB, 6Gbps SATA, 7.2K or 5.4K															
M.2 slot for SSD	Two onboard M.2 slots for M.2 SSD, one for M.2 2280 SSD, one for M.2 2280 or 2242 SSD															
M.2 SSD	M.2 2280 SSD supports up to 1TB each, PCIe 3.0 x4, NVMe, optional Opal. M.2 2242 SSD supports up to 128GB, PCIe 3.0 x2, NVMe															
Optane memory	Up to one 16GB Optane memory per system. Optane memory must work with a 2.5" HDD															
M.2 slot for Wi-Fi and Bluetooth	One dedicated M.2 2230 slot for optional Wi-Fi card, supports one of the following: Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps. Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps. <i>Note: Wi-Fi card, or specific functions of Wi-Fi card may not be supported in some countries</i>															
Wi-Fi antenna	Optional Tiny 2.4GHz/5GHz SMA antenna kit															
Optical	Optional one 9.0mm optical drive via optical drive kit, DVD-ROM or DVD±RW. VESA mount is required															
Media reader	None. Using USB adapter															
Network interfaces	One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional Intel i350-T4 for 4x GbE ports, using PCIe slot															
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant. Chassis intrusion switch. Optional Kensington lock															

Components	Specification
Intel vPro Technology	Supports vPro on models with the following processors: Core i7-8700T, Core i7-8700, Core i5-8600T, Core i5-8600, Core i5-8500T, Core i5-8500. vPro also requires Wireless-AC 9560 if Wi-Fi is needed
Systems management	Intel Active Management Technology 12 on vPro models, Intel Standard Manageability on other models
Base warranty	US models comes with 3-year limited onsite service with 9x5/NBD. 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs
HD Audio	Intel HD Audio interface with Realtek ALC233 Codec
Front standard ports	1x USB 3.1 Gen 1 Type A (charging). 1x USB 3.1 Gen 1 Type-C. 1x Mic-in. 1x Combo jack
Rear standard ports	2x USB 3.1 Gen 2 Type A. 2x USB 3.1 Gen 1 Type-A. 1x RJ-45. 1x DP. 1x HDMI
Optional rear ports - via punch out cable	Up to two optional rear ports via punch out cable. Port 1 supports one of the following: 1x USB 3.1 Gen 1 Type-C, also supports DP function. 1x COM. 1x VGA. 1x DP. 1x HDMI. Port 2 supports one COM
Optional rear ports - via PCIe adapter	Supports one of the following: 4x miniDP with Quadro P620 or P1000, 35W processor models only 2x USB 3.1 Gen 1. 4x RJ-45 GbE with Intel I350-T4. 4x COM <i>Note: Punch out cable and PCIe adapter are mutually exclusive</i>
Temperature	Operating: 50 °F to 95 °F (10 °C to 35 °C) Non operating (with package): -40 °F to 140 °F (-40 °C to 60 °C)
Altitude	Operating: -15.2 m (-50 ft) to 3048 m (10 000 ft). Storage: -15.2 m (-50 ft) to 10, 668 m (35 000 ft)
Humidity	Operating: 20%~80%, non-condensing Storage (with package): 20%~90%, non-condensing
MIL-SPEC	Certified
Environmental certification	RoHS-compliant. GREENGUARD. EPEAT Gold rating and ENERGY STAR 7 qualified
Power supply	Supports one 135W power adapter, 100V - 240V, 88% PSU
ISV certifications	Please visit www.thinkworkstations.com/isv-certifications/



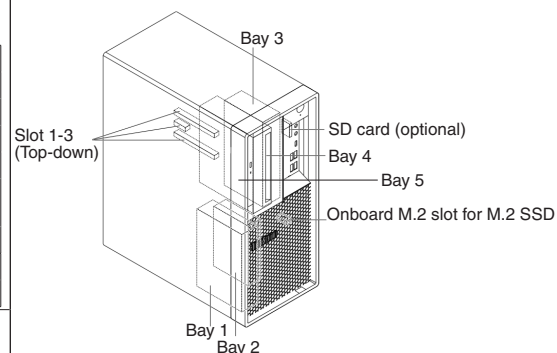
ThinkStation P330 Tower Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																								
Machine Type	MT 30C5 for Transactional model and MT 30C6 for Relationship model. For configuration of all 30C5 EMEA and US models, please visit: http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_Tower																																																																								
Form factor	18L Tower																																																																								
Dimensions	Height: 376 mm (14.8 in). Width: 165 mm (6.5 in). Depth: 328 mm (12.9 in)																																																																								
Weight	Maximum configuration: 23.4 lb (10.6kg)																																																																								
Processor	Up to one Intel Xeon E family processor, up to 95W, up to 6 cores at 3.8GHz, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one 8th Intel Core family processor, i7, i5, or i3, up to 95W, up to 6 cores at 3.7GHz, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one Intel Pentium Gold G5400 via Special Bids, 54W, 2 cores at 3.7GHz, 4MB cache, DDR4-2400 memory speed																																																																								
Chipset	Intel C246 Chipset																																																																								
Memory	4 DIMM sockets. DDR4-2666. UDIMM. ECC and non-ECC are supported, but memory types cannot be intermixed																																																																								
Memory capacity	Up to 64GB with 4x 16GB, both ECC and non-ECC																																																																								
Memory protection	ECC with ECC UDIMM. Core i7 and i5 processors cannot support ECC UDIMM																																																																								
Expansion slots	Three PCIe 3.0 slots as following:																																																																								
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Graphics - Processor graphics	Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i7, i5, or i3 processors, or Intel UHD Graphics 610 in Pentium Gold G5400. Works along with discrete graphics to support multi-display, enables three display connectors (2x DP, 1x HDMI. HDMI is optional) on rear																																																																								
Graphics - Discrete graphics card	Up to two PCIe 3.0 x16 slots for discrete graphics card (Slot 1 and 3). Supports the following graphics adapters:																																																																								
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	Adapter	Cores	Memory	Power	Connectors	Max qty																																																																			
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Notes: 1. Quadro P4000, 2x Quadro P2000, Geforce GTX1060/1070/1080 needs 400W PSU. 2. Geforce GTX 1060/1070/1080 are dual-slot width. 3. Geforce GTX 1060/1070/1080 and Radeon Pro WX 3100/4100 are SBO.																																																																									
Storage controllers	Integrated Intel SATA AHCI/RAID controller in chipset, 6Gbps SATA, RAID 0/1/10/5. Four onboard SATA ports for max 4 SATA HDD/SSD/ODD																																																																								
Internal storage bay	Up to five bays with four disk bays plus one slim optical bay, supports up to 3x 3.5" HDD plus 1x 2.5" SSD, or 4x 2.5" SSD																																																																								
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	Bay 5 9mm Slim ODD bay																																																																								
Disks	3.5" HDD supports up to 4TB each, 6Gbps SATA, 7.2K 2.5" SSD supports up to 1TB each, 6Gbps SATA																																																																								

Components	Specification
M.2 slot for SSD	Up to 3x M.2 SSD with one dedicated onboard M.2 slot plus two PCIe to M.2 adapters. PCIe to M.2 adapter uses slot 1 or 3. Supports RAID 0/1 with PCH, When used as RAID, M.2 SSD should be installed in onboard M.2 slot and slot 3. Up to one Optane memory per system; Optane memory must work with a HDD or SSD; Optane memory cannot supported on Pentium G5400 models
M.2 SSD	M.2 SSD supports up to 1TB each, PCIe 3.0 x4, NVMe, Opal. Optane memory supports 32GB, PCIe 3.0 x2, NVMe, 3D Xpoint
M.2 slot for Wi-Fi and Bluetooth	One dedicated onboard M.2 slot for optional Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps
Media reader	Optional SD card reader on most models
Network interfaces	One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant. Optional chassis intrusion switch, cable lock, Kensington lock, and pad lock
Intel vPro	Supports Intel vPro on Xeon models. vPro also requires Wireless-AC 9560 if Wi-Fi is needed
Intel AMT	Intel Active Management Technology 12 on Xeon models, Intel Standard Manageability on other models
Base warranty	US models comes with 3-year limited onsite service with 9x5/NBD. 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs
HD Audio	Intel HD Audio interface with Realtek ALC233 Codec
Front ports	2x USB 3.1 Gen 1 Type A. 2x USB 3.1 Gen 2 Type A. 1x USB 3.1 Gen 1 Type-C. 1x Mic-in. 1x Combo jack
Rear ports	2x USB 3.1 Gen 1 Type A. 2x USB 2.0 Type-A. 1x RJ-45. 1x COM. 2x DP. 1x Audio line-out Notes: DP needs Core, Pentium, or -G suffix Xeon processor
Optional front ports (on flex module)	2x Thunderbolt (USB Type-C), one of two ports supports video-out. 1x eSATA. 1x IEEE1394
Optional rear ports	2x USB 3.1 Type-C. 1x COM. PS/2. 1x Parallel. 1x Thunderbolt. 1x IEEE1394. 1x HDMI. Notes: HDMI needs Core, Pentium, or -G suffix Xeon processor
Temperature	Operating: 41 °F to 104 °F (10 °C to 35 °C) Non operating (no package): 14 °F to 140 °F (-10 °C to 60 °C) Non operating (with package): -40 °F to 140 °F (-40 °C to 60 °C)
Altitude	Operating: -15.2 m (-50 ft) to 3048 m (10 000 ft). Storage: -15.2 m (-50 ft) to 10, 668 m (35 000 ft)
Humidity	Operating: 30%-90%, non-condensing Storage (with package): 20%-90%, non-condensing
Environmental certification	RoHS-compliant. GREENGUARD. EPEAT Gold rating and ENERGY STAR 7 qualified
Power supply	Supports one 250W or 400W power supply, 100V - 240V, 92% PSU. Climate Savers Computing Platinum and 80 PLUS Platinum qualified. 400W PSU supports one 6+2-pin aux power connector.
ISV certifications	Please visit www.thinkworkstations.com/isv-certifications/

Note:
1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
2. Any questions or advice on ThinkStation PSREF, please contact [ThinkStation PSREF developer](mailto:ThinkStation_PSREF_developer)





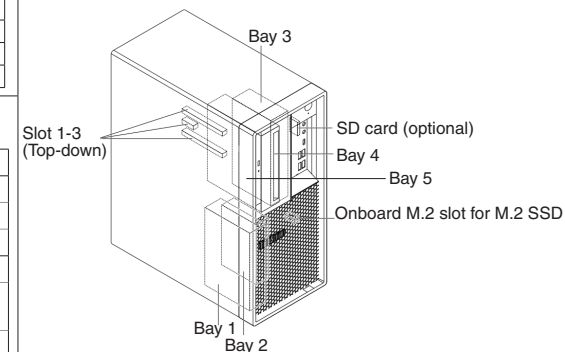
ThinkStation P330 Tower Gen 2 (30CY and 30D0) Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																			
Form factor	18L Tower																																			
Dimensions	Height: 376 mm (14.8 in). Width: 165 mm (6.5 in). Depth: 328 mm (12.9 in)																																			
Weight	Maximum configuration: 28.22 lb (12.8kg)																																			
Processor	Supports one of the following processors: <ul style="list-style-type: none"> Xeon E-2186G 6C/12T/3.8GHz/12MB/95W/DDR4-2666 Xeon E-2174G 4C/8T/3.8GHz/8MB/71W/DDR4-2666 Core i7-9700K 8C/8T/3.6GHz/12MB/95W/DDR4-2666 Core i5-9600K 6C/6T/3.7GHz/9MB/95W/DDR4-2666 Core i5-9400 6C/6T/2.9GHz/9MB/65W/DDR4-2666 Core i3-8300 4C/4T/3.7GHz/8MB/62W/DDR4-2400 Core i3-8100 4C/4T/3.6GHz/6MB/65W/DDR4-2400 <i>Note: Next gen Xeon processors and more 9th Core processor will be supported on June 2019</i>																																			
Chipset	Intel C246 Chipset																																			
Memory Sockets	4 DIMM sockets with 2 channels																																			
Memory Types	8GB/16GB DDR4-2666 UDIMM ECC or 4GB/8GB/16GB DDR4-2666 UDIMM non-ECC																																			
Memory Capacity	64B with 4 x 16GB, both UDIMM ECC or UDIMM non-ECC																																			
Memory Protection	ECC on models with UDIMM ECC memory																																			
Expansion slots	Three PCIe 3.0 slots as following:																																			
	Slot 1 PCIe 3.0 x16, full height, half length, links to CPU																																			
	Slot 2 PCIe 3.0 x1, full height, full length, links to PCH Slot 3 PCIe 3.0 x16 (negotiable link width x4), full height, half length, links to PCH																																			
Processor graphics	Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i7, i5, or i3 processors. Works along with discrete graphics to support multi-display, enables three rear display connectors (2 DP standard, 1 DP or HDMI optional)																																			
Discrete Graphics Offering	Up to two PCIe 3.0 x16 slots for discrete graphics card (Slot 1 and 3). Supports the following graphics adapters:																																			
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<i>Note: 2x Quadro P2000, Quadro P5000, or Quadro RTX 4000 needs 400W PSU</i>																																				
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Storage Support	<table border="1"> <thead> <tr> <th>Disk Type</th> <th>Interface</th> <th>RPM</th> <th>Offering</th> <th>Max Qty</th> </tr> </thead> <tbody> <tr> <td>3.5" SATA HDD</td> <td>SATA 6Gb/s</td> <td>7.2K</td> <td>1TB/2TB/4TB</td> <td>3</td> </tr> <tr> <td>2.5" SATA HDD</td> <td>SATA 6Gb/s</td> <td>7.2K</td> <td>500GB FIPS</td> <td>4</td> </tr> <tr> <td>2.5" SATA SSD</td> <td>SATA 6Gb/s</td> <td></td> <td>256GB/512GB/1TB</td> <td>4</td> </tr> <tr> <td>Optane Memory</td> <td>PCIe NVMe</td> <td></td> <td>32GB</td> <td>1, used with HDD/SSD</td> </tr> <tr> <td>M.2 PCIe SSD</td> <td>PCIe NVMe</td> <td></td> <td>256GB/512GB/1TB</td> <td>3</td> </tr> </tbody> </table>	Disk Type	Interface	RPM	Offering	Max Qty	3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB	3	2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB FIPS	4	2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB	4	Optane Memory	PCIe NVMe		32GB	1, used with HDD/SSD	M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB	3					
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	2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB FIPS	4																															
	2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB	4																															
Optane Memory	PCIe NVMe		32GB	1, used with HDD/SSD																																
M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB	3																																
Storage Bays	Up to five bays with four disk bays plus one slim optical bay, supports up to 3x 3.5" HDD plus 1x 2.5" SSD, or 4x 2.5" HDD/SSD																																			
	Bay 1 Primary disk bay, 3.5" or 2.5"																																			
	Bay 2 2.5" SATA bay, cannot be available when 2nd Quadro P2000 is used																																			
	Bay 3 Secondary disk bay, 3.5" or 2.5"																																			
	Bay 4 5.25" Flex bay, supports one of the following: <ul style="list-style-type: none"> Flex module for optional front eSATA/Thunderbolt/IEEE1394 3rd disk bay, 3.5" or 2.5", removable, via Front Access Storage Enclosure, using SATA 4 connector as eSATA mode 3rd disk bay, 3.5" or 2.5", via 5.25" to 3.5" HDD Kit 																																			
	Bay 5 9mm Slim ODD bay																																			
M.2	3x M.2 SSD (1 onboard, 2 via PCIe to M.2 adapter)																																			

Components	Specification
Media reader	Optional SD card reader on most models
Network interfaces	One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available
WLAN + Bluetooth	One dedicated onboard M.2 slot for optional Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant. Optional chassis intrusion switch, e-lock, cable lock, Kensington lock, and pad lock
Intel vPro	Supports Intel vPro on Xeon models. vPro also requires Wireless-AC 9560 if Wi-Fi is needed
Intel AMT	Intel Active Management Technology 12 on Xeon models, Intel Standard Manageability on other models
Base warranty	US models comes with 3-year limited onsite service with 9x5/NBD. 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs
HD Audio	Intel HD Audio interface with Realtek ALC233 Codec
Front ports	2x USB 3.1 Gen 1 Type A. 2x USB 3.1 Gen 2 Type A. 1x USB 3.1 Gen 1 Type-C. 1x Mic-in. 1x Combo jack
Rear ports	2x USB 3.1 Gen 1 Type A. 2x USB 2.0 Type-A. 1x RJ-45. 1x COM. 2x DP. 1x Audio line-out <i>Notes: DP needs Core, Pentium, or -G suffix Xeon processor</i>
Optional front ports (on flex module)	2x Thunderbolt (USB Type-C), one of two ports supports video-out. 1x eSATA. 1x IEEE1394
Optional rear ports	Supports the following via cable: 1x COM. 1x Parallel. 2x PS/2. 1x DP or 1x HDMI. 2x USB 2.0 Supports the following via PCIe adapter: 4x COM. 2x USB 3.1 Type-C. 2x USB 3.0. 1x Thunderbolt. <i>Notes: DP or HDMI needs Core, Pentium, or -G suffix Xeon processor</i>
Temperature	Operating: 41 °F to 104 °F (10 °C to 35 °C) Non operating (no package): 14 °F to 140 °F (-10 °C to 60 °C) Non operating (with package): -40 °F to 140 °F (-40 °C to 60 °C)
Altitude	Operating: -15.2 m (-50 ft) to 3048 m (10 000 ft). Storage: -15.2 m (-50 ft) to 10, 668 m (35 000 ft)
Humidity	Operating: 30%-90%, non-condensing Storage (with package): 20%-90%, non-condensing
Environmental certification	RoHS-compliant. GREENGUARD. EPEAT Gold rating and ENERGY STAR 7 qualified
Power supply	Supports one 250W or 400W power supply, 100V - 240V, 92% PSU. Climate Savers Computing Platinum and 80 PLUS Platinum qualified. 400W PSU supports one 6+2-pin aux power connector.
ISV certifications	Please visit www.thinkworkstations.com/isv-certifications/

Note:
1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
2. Any questions or advice on ThinkStation PSREF, please contact [ThinkStation PSREF developer](mailto:ThinkStation_PSREF_developer@lenovo.com)





ThinkStation P520 Platform Specifications

Product Specifications Reference (PSREF)

Form factor	33L Tower					
Dimensions	165mm/6.5" W x 460mm/18.1" D x 440mm/17.3" H (with feet)					
Weight	Maximum configuration: 52.91 lb (24kg)					
Processor Family	Up to one 140W Intel Xeon W family processor: <ul style="list-style-type: none"> Up to 18 cores at 2.3 GHz Up to 4.0 GHz with 4 cores Up to 24.75 MB cache Up to DDR4-2666 memory speed 					
Processor Sockets	1x FCLGA2066					
Chipset	Intel C422 Chipset					
Memory Sockets	8 DIMM sockets with 4 channels					
Memory Types	DDR4-2666 RDIMM					
Memory Capacity	256GB with 8 x 32GB RDIMMs					
Memory Protection	ECC					
Expansion slots	Slot 1 (CPU)	PCIe 3.0 x8, full height, full length, 25W, open ended				
	Slot 2 (CPU)	PCIe 3.0 x16, full height, full length, 75W, double-width				
	Slot 3 (PCH)	PCIe 3.0 x4, full height, half length, 25W, open ended				
	Slot 4 (CPU)	PCIe 3.0 x16, full height, full length, 75W, double-width				
	Slot 5	PCI, full height, full length, 25W				
	Slot 6 (PCH)	PCIe 3.0 x4, full height, half length, 25W, open ended				
Discrete Graphics Offering	Graphics	Memory	Power	Connector	SLI / NVlink	Max Qty
	NVS 810	4GB DDR3	68W	8xmini DP		2
	Quadro P400	2GB GDDR5	30W	3xminiDP		2
	Quadro P600	2GB GDDR5	45W	4xminiDP		2
	Quadro P620	2GB GDDR5	40W	4xminiDP		2
	Quadro P1000	4GB GDDR5	50W	4xminiDP		2
	Quadro P2000	5GB GDDR5	75W	4xDP		2
	Quadro P4000	8GB GDDR5	120W	4xDP		2
	Quadro P5000	16GB GDDR5X	180W	DVI-D DL+4xDP	SLI	2
	Quadro P6000	24GB GDDR5X	250W	DVI-D DL+4xDP		1
	Quadro RTX 4000	8GB GDDR6	160W	3xDP, 1xVirtualLink		2
	Quadro RTX 5000	16GB GDDR6	265W	4xDP, 1xVirtualLink		1
	Quadro RTX 6000	24GB GDDR6	295W	4xDP, 1xVirtualLink		1
	Quadro RTX 8000	48GB GDDR6	295W	4xDP, 1xVirtualLink		1
Quadro GP100	16GB HBM2	235W	1xDVI-D DL, 4xDP	NVLink	2	
Quadro GV100	32GB HBM2	250W	4xDP		1	
Storage Controller	Storage Controller	Type	Interface	RAID	Cache	
	Onboard Intel RSTe	Std	SATA 6Gb/s	0/1/10/5		
	9440-8i PCIe	Opt	SAS 12Gb/s, SATA 6Gb/s	0/1/10/5		
	9460-16i PCIe	Opt	SAS 12Gb/s, SATA 6Gb/s	0/1/10/5/6	4GB DDR4, SuperCap	
	NVMe Basic	Opt	PCIe NVMe	0/1/10		
	NVMe Premium	Opt	PCIe NVMe	0/1/10/5		
NVMe for Intel SSD	Opt	PCIe NVMe	0/1/10/5			
Storage Support	Disk Type	Interface	RPM	Offering	Max Qty	
	3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB/6TB	6	
	2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB/500GB FIPS	6	
	2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB/2TB	6	
	M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB/2TB	9	
	PCIe AIC SSD	PCIe NVMe		480GB	2 (1 when quad M.2 adapter used)	
Storage Bays	Bay Type	Maximum Drives Qty				
	M.2 slot	9x M.2 SSD (2 onboard, 7 via PCIe to M.2 adapter)				
	Flex Bay	2 flex bays. Supports the following: <ul style="list-style-type: none"> 2x half-height optical drives 2x 5.25" 9.0mm optical drives 1x 5.25" 9.0mm optical drive + 2x 3.5"/2.5" SATA SSD/HDD 1x 3.5"/2.5" SATA SSD/HDD with Front Access Storage Enclosure 1x flex module for the following options: Tray 1: 9.0mm optical Tray 2: 15-in-1 USB 3.0 reader, 2x Thunderbolt, or 4-digit diagnostic display Port 1 and 2: Front USB 3.0 Type-C or eSATA 2x M.2 SSD with 2x Front Removable Drive Enclosures				
Disk bay	Up to 4x 3.5" or 2.5" disks with 4 disk bays (2 bays standard, 2 bays optional)					

Max Storage	Supports up to 9x M.2 SSD + 6x 3.5" HDD/6x 2.5" SATA disks/4x 2.5" SAS HDD + 1x PCIe AIC SSD. All HDD: 36TB using 6x 3.5" HDD All SSD: 30.48TB using 6x 2.5" SATA SSD, 9x M.2 SSD, and 1x PCIe AIC SSD	
Power supply	Supports one of the following: <ul style="list-style-type: none"> One fixed 690W, autosensing, 92%, 80 PLUS Platinum qualified One fixed 900W, autosensing, 92%, 80 PLUS Platinum qualified 	
Media reader	SD USB 2.0 card reader on most models. Optional UHS-II 15-in-1 USB 3.0 reader on flex module	
Network interfaces	Integrated one gigabit ethernet (Intel i219LM), supports Wake-on-LAN. Optional PCIe ethernet or wireless adapters are available	
WLAN + Bluetooth	Optional Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps	
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant, switch to 1.2 via UEFI setting. Optional access panel lock, Kensington lock, and pad lock	
Intel vPro	Intel vPro technology supported. vPro requires Wireless-AC 8265 if Wi-Fi is needed	
Intel AMT	Intel Active Management Technology 11	
Diagnostic	Front panel warning LED. ThinkStation Diagnostics for Windows. Photo-audio transfer with Lenovo PC Diag-nostics for Android and iOS. Optional front 4-digit diagnostic display on flex module	
Base warranty	1 or 3-year limited onsite service with 9x5/NBD	
HD Audio	Realtek ALC662 codec	
Front ports	4x USB 3.0 (includes one 11W charging), 1x combo audio/microphone jack (3.5mm)	
Rear ports	2x USB 2.0, 4x USB 3.0, 1x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2	
Optional ports	Supports the following optional ports: Front: <ul style="list-style-type: none"> 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out 1x eSATA on flex module 1x USB Type-C on flex module, USB 3.1 gen 1 Rear: <ul style="list-style-type: none"> 1x COM port 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W Internal: <ul style="list-style-type: none"> 1x internal USB 3.0 port 	
	Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
	Temperature - storage (no package)	14 °F to 140 °F (-10 °C to 60 °C)
Environmental specification	Temperature - storage (with package)	-40 °F to 140 °F (-40 °C to 60 °C)
	Altitude - operating	(Unpressurized): -50ft-10000ft (-15.2m-3048m)
	Humidity - operating	10%~80%, non-condensing
	Humidity - storage (with package)	10%~90%, non-condensing
Environmental Certifications	RoHS-compliant. GREENGUARD. EPEAT Gold rating. ENERGY STAR 6.1 qualified on model 30BE0008US and 30BE0009US	
ISV certifications	Please visit www.thinkworkstations.com/isv-certifications/	

Note:
 1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
 2. To support the maximum expandability, 900W power supply may be needed.
 3. Any questions or advice on ThinkStation PSREF, please contact [ThinkStation PSREF developer](mailto:ThinkStation_PSREF_developer)



ThinkStation P520c Platform Specifications

Product Specifications Reference (PSREF)

Form factor	25L Tower					
Dimensions	175mm/6.89" W x 426mm/16.77" D x 376mm/14.8" H (with feet)					
Weight	Maximum configuration: 31.97 lb (14.5kg)					
Processor Family	Up to one 140W Intel Xeon W family processor: <ul style="list-style-type: none"> Up to 18 cores at 2.3 GHz Up to 4.0 GHz with 4 cores Up to 24.75 MB cache Up to DDR4-2666 memory speed 					
Processor Sockets	1x FCLGA2066					
Chipset	Intel C422 Chipset					
Memory Sockets	4 DIMM sockets with 4 channels					
Memory Types	DDR4-2666 RDIMM					
Memory Capacity	128GB with 4 x 32GB RDIMMs					
Memory Protection	ECC					
Expansion slots	Slot 1 (CPU)	PCIe 3.0 x16, full height, full length, 75W,				
	Slot 2 (CPU)	PCIe 3.0 x8, full height, full length, 25W, open ended				
	Slot 3 (CPU)	PCIe 3.0 x16, full height, full length, 75W				
	Slot 4 (PCH)	PCIe 3.0 x4, full height, half length, 25W, open ended				
Discrete Graphics Offering	Graphics	Memory	Power	Connector	SLI / NVlink	Max Qty
	NVS 810	4GB DDR3	68W	8xmini DP		1
	Quadro P400	2GB GDDR5	30W	3xminiDP		2
	Quadro P600	2GB GDDR5	45W	4xminiDP		2
	Quadro P620	2GB GDDR5	40W	4x miniDP		2
	Quadro P1000	4GB GDDR5	50W	4xminiDP		2
	Quadro P2000	5GB GDDR5	75W	4xDP		2
	Quadro P4000	8GB GDDR5	120W	4xDP		2
	Quadro P5000	16GB GDDR5X	180W	DVI-D DL+4xDP		1
Quadro RTX 4000	8GB GDDR6	160W	3xDP, 1xVirtualLink		1	
Storage Controller	Storage Controller	Type	Interface	RAID	Cache	
	Onboard Intel RSTe	Std	SATA 6Gb/s	0/1/10/5		
	9440-8i PCIe	Opt	SAS 12Gb/s, SATA 6Gb/s	0/1/10/5		
	NVMe Basic	Opt	PCIe NVMe	0/1/10		
	NVMe for Intel SSD	Opt	PCIe NVMe	0/1/10/5		
Storage Support	Disk Type	Interface	RPM	Offering	Max Qty	
	3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB/6TB	4	
	2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB/500GB FIPS	4	
	2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB/2TB	4	
	M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB/2TB	5	
Storage Bays	Bay Type	Maximum Drives Qty				
	M.2 slot	5x M.2 SSD (2 onboard, 3 via PCIe to M.2 adapter)				
	Flex Bay	2 flex bays. Supports the following: <ul style="list-style-type: none"> 2x half-height optical drives 2x 5.25" 9.0mm optical drives 1x 5.25" 9.0mm optical drive + 2x 3.5"/2.5" SATA SSD/HDD 1x 3.5"/2.5" SATA SSD/HDD with Front Access Storage Enclosure 1x flex module for the following options: Tray 1: 9.0mm optical Tray 2: 15-in-1 USB 3.0 reader, 2x Thunderbolt, or 4-digit diagnostic display Port 1 and 2: Front USB 3.0 Type-C or eSATA 2x M.2 SSD with 2x Front Removable Drive Enclosures 				
Disk bay	Up to 2x 3.5"/2.5" disks with 2 disk bays					

Max Storage	Supports up to 5x M.2 SSD + 4x 3.5" HDD/4x 2.5" SSD/4x 2.5" HDD All HDD: 24TB using 4x 3.5" HDD All SSD: 18TB using 4x 2.5" SATA SSD and 5x M.2 SSD													
Power supply	One fixed 500W, autosensing, 92%, 80 PLUS Platinum qualified													
Media reader	SD USB 2.0 card reader on most models. Optional UHS-II 15-in-1 USB 3.0 reader on flex module													
Network interfaces	Integrated one gigabit ethernet (Intel i219LM), supports Wake-on-LAN. Optional PCIe ethernet or wireless adapters are available													
WLAN + Bluetooth	Optional Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps													
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant, switch to 1.2 via UEFI setting. Optional access panel lock, Kensington lock, and pad lock													
Intel vPro	Intel vPro technology supported. vPro requires Wireless-AC 8265 if Wi-Fi is needed													
Intel AMT	Intel Active Management Technology 11													
Diagnostic	ThinkStation Diagnostics for Windows. Optional front 4-digit diagnostic display on flex module													
Base warranty	1 or 3-year limited onsite service with 9x5/NBD													
HD Audio	Realtek ALC662 codec													
Front ports	2x USB 3.0, microphone (3.5mm), headphone (3.5mm)													
Rear ports	2x USB 2.0, 4x USB 3.0, 1x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2													
Optional ports	Supports the following optional ports: Front: <ul style="list-style-type: none"> 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out 1x eSATA on flex module 1x USB Type-C on flex module, USB 3.1 gen 1 Rear: <ul style="list-style-type: none"> 1x COM port 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W Internal: <ul style="list-style-type: none"> 1x internal USB 3.0 port 													
	Environmental specification	<table border="1"> <tr> <td>Temperature - operating</td> <td>50 °F to 95 °F (10 °C to 35 °C)</td> </tr> <tr> <td>Temperature - storage (no package)</td> <td>14 °F to 140 °F (-10 °C to 60 °C)</td> </tr> <tr> <td>Temperature - storage (with package)</td> <td>-40 °F to 140 °F (-40 °C to 60 °C)</td> </tr> <tr> <td>Altitude - operating</td> <td>(Unpressurized): -50ft-10000ft (-15.2m-3048m)</td> </tr> <tr> <td>Humidity - operating</td> <td>10%~80%, non-condensing</td> </tr> <tr> <td>Humidity - storage (with package)</td> <td>10%~90%, non-condensing</td> </tr> </table>		Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)	Temperature - storage (no package)	14 °F to 140 °F (-10 °C to 60 °C)	Temperature - storage (with package)	-40 °F to 140 °F (-40 °C to 60 °C)	Altitude - operating	(Unpressurized): -50ft-10000ft (-15.2m-3048m)	Humidity - operating	10%~80%, non-condensing	Humidity - storage (with package)
Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)													
Temperature - storage (no package)	14 °F to 140 °F (-10 °C to 60 °C)													
Temperature - storage (with package)	-40 °F to 140 °F (-40 °C to 60 °C)													
Altitude - operating	(Unpressurized): -50ft-10000ft (-15.2m-3048m)													
Humidity - operating	10%~80%, non-condensing													
Humidity - storage (with package)	10%~90%, non-condensing													
Environmental Certifications	RoHS-compliant. GREENGUARD. EPEAT Gold rating. ENERGY STAR 6.1 qualified on model 30BX0008US and 30BX0009US													
ISV certifications	Please visit www.thinkworkstations.com/isv-certifications/													

Note:
 1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
 2. Any questions or advice on ThinkStation PSREF, please contact [ThinkStation PSREF developer](#)



Expansion slots

Slot 1 (CPU2)	PCIe 3.0 x16, full height, full length, 75W
Slot 2 (CPU1)	PCIe 3.0 x16, full height, full length, 75W, double-width
Slot 3 (CPU1)	PCIe 3.0 x8, full height, full length, 25W, open ended
Slot 4 (CPU1)	PCIe 3.0 x16, full height, full length, 75W, double-width
Slot 5	PCI, full height, full length, 25W
Slot 6 (PCH)	PCIe 3.0 x4, full height, half length, 25W, open ended

900W PSU supports two 6+2-pin aux power connectors.
690W PSU supports one 6+2-pin aux power connector.

Note: All expansion cards are optional

ThinkStation P720 Platform Specifications

Product Specifications Reference (PSREF)

Form factor	36L Tower					
Dimensions	175mm/6.89" W x 485mm/19.1" D x 446mm/17.6" H (with feet)					
Weight	Maximum configuration: 52.25 lb (23.7kg)					
Processor Family	Up to two 150 W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum: <ul style="list-style-type: none"> Up to 24 cores at 2.1 GHz Up to 3.6 GHz with 4 cores Up to 33 MB cache Up to DDR4-2933 memory speed 					
Processor Sockets	2x FCLGA3647					
Chipset	Intel C621 Chipset					
Memory Sockets	12 DIMM sockets with 12 channels. 6 DIMM sockets with 6 channels per processor					
Memory Types	DDR4-2666 RDIMM					
Memory Capacity	768GB (DDR4-2933 RDIMM) or 384GB (DDR4-2666 RDIMM)					
Memory Protection	ECC					
Expansion slots	Slot 1 (CPU2)	PCIe 3.0 x16, full height, full length, 75W				
	Slot 2 (CPU1)	PCIe 3.0 x16, full height, full length, 75W, double-width				
	Slot 3 (CPU1)	PCIe 3.0 x8, full height, full length, 25W, open ended				
	Slot 4 (CPU1)	PCIe 3.0 x16, full height, full length, 75W, double-width				
	Slot 5	PCI, full height, full length, 25W				
	Slot 6 (PCH)	PCIe 3.0 x4, full height, half length, 25W, open ended				
Discrete Graphics Offering	Graphics	Memory	Power	Connector	SLI / NVlink	Max Qty
	NVS 810	4GB DDR3	68W	8xmini DP		2
	Quadro P400	2GB GDDR5	30W	3xminiDP		3
	Quadro P600	2GB GDDR5	45W	4xminiDP		3
	Quadro P620	2GB GDDR5	40W	4xminiDP		3
	Quadro P1000	4GB GDDR5	50W	4xminiDP		3
	Quadro P2000	5GB GDDR5	75W	4xDP		3
	Quadro P4000	8GB GDDR5	120W	4xDP		2
	Quadro P5000	16GB GDDR5X	180W	DVI-D DL+4xDP	SLI	2
	Quadro P6000	24GB GDDR5X	250W	DVI-D DL+4xDP		1
	Quadro RTX 4000	8GB GDDR6	160W	3xDP, 1xVirtualLink		2
	Quadro RTX 5000	16GB GDDR6	265W	4xDP, 1xVirtualLink		1
	Quadro RTX 6000	24GB GDDR6	295W	4xDP, 1xVirtualLink		1
	Quadro RTX 8000	48GB GDDR6	295W	4xDP, 1xVirtualLink		1
	Quadro GP100	16GB HBM2	235W	1xDVI-D DL, 4xDP		1
	Quadro GV100	32GB HBM2	250W	4xDP		1
Storage Controller	Storage Controller	Type	Interface	RAID	Cache	
	Onboard Intel RSTe	Std	SATA 6Gb/s	0/1/10/5		
	9440-8i PCIe	Opt	SAS 12Gb/s, SATA 6Gb/s	0/1/10/5		
	9460-16i PCIe	Opt	SAS 12Gb/s, SATA 6Gb/s	0/1/10/5/6	4GB DDR4, SuperCap	
	NVMe Basic	Opt	PCIe NVMe	0/1/10		
	NVMe Premium	Opt	PCIe NVMe	0/1/10/5		
NVMe for Intel SSD	Opt	PCIe NVMe	0/1/10/5			
Storage Support	Disk Type	Interface	RPM	Offering	Max Qty (Blind connection + 9460 used)	
	3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB/6TB	6 (Also supports additional 4x 2.5" SATA SSD/HDD)	
	2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB/500GB FIPS	10	
	2.5" SAS HDD	SAS 12Gb/s	10K	300GB/600GB	8	
	2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB/2TB	10	
	2.5" PCIe SSD	PCIe NVMe		1.5TB	2	
	M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB/2TB	9	
PCIe AIC SSD	PCIe NVMe		480GB	2		

Storage Bays	Bay Type	Maximum Drives Qty
	M.2 slot	9x M.2 SSD (2 onboard, 7 via PCIe to M.2 adapter)
	Flex Bay	2 flex bays. Supports the following: <ul style="list-style-type: none"> 2x half-height optical drives 2x 5.25" 9.0mm optical drives 1x 5.25" 9.0mm optical drive + 1x 3.5"/2.5" SATA SSD/HDD 1x 3.5"/2.5" SATA SSD/HDD with Front Access Storage Enclosure 1x flex module for the following options: <ul style="list-style-type: none"> Tray 1: 9.0mm optical Tray 2: 15-in-1 USB 3.0 reader or 2x Thunderbolt Port 1 and 2: Front USB 3.0 Type-C or eSATA 2x M.2 SSD with 2x Front Removable Drive Enclosures
Disk bay	4 disk bays (2 bays standard, 2 bays optional). Supports one of the following configurations: <ul style="list-style-type: none"> 4x 3.5" SATA HDD 4x 3.5" SATA HDD + 4x 2.5" SATA SSD/HDD (Blind connection needed) 8x 2.5" SATA SSD/HDD or 8x 2.5" SAS HDD (Blind connection needed) 2x 2.5" PCIe SSD + 2x 3.5"/2.5" disks (Blind connection needed) 	
Max Storage	Supports up to 9x M.2 SSD + 6x 3.5" HDD/10x 2.5" SSD/10x 2.5" HDD + 2x PCIe AIC SSD. All HDD: 36TB using 6x 3.5" HDD All SSD: 38.96TB using 10x 2.5" SATA SSD, 9x M.2 SSD, and 2x PCIe AIC SSD	
Power supply	Supports one of the following: <ul style="list-style-type: none"> One fixed 690W, autosensing, 92%, 80 PLUS Platinum qualified One fixed 900W, autosensing, 92%, 80 PLUS Platinum qualified 	
Media reader	SD USB 2.0 card reader on most models. Optional UHS-II 15-in-1 USB 3.0 reader on flex module	
Network interfaces	Integrated two-port gigabit ethernet (Intel i219LM and i210AT), supports Wake-on-LAN on both two ports. Optional PCIe ethernet are available	
WLAN + Bluetooth	Optional Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps	
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant, switch to 1.2 via UEFI setting. Chassis intrusion switch. Optional access panel lock, Kensington lock, and pad lock	
Intel vPro	Intel vPro technology supported. vPro requires Wireless-AC 8265 if Wi-Fi is needed	
Intel AMT	Intel Active Management Technology 11	
Diagnostic	Front panel warning LED. ThinkStation Diagnostics for Windows. Photo-audio transfer with Lenovo PC Diag-nostics for Android and iOS. Optional front 4-digit diagnostic display on flex module	
Base warranty	1 or 3-year limited onsite service with 9x5/NBD	
HD Audio	Realtek ALC662 codec	
Front ports	4x USB 3.0 (includes one 11W charging), 1x combo audio/microphone jack (3.5mm)	
Rear ports	2x USB 2.0, 4x USB 3.0, 2x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2	
Optional ports	Supports the following optional ports: <p>Front:</p> <ul style="list-style-type: none"> 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out 1x eSATA on flex module 1x USB Type-C on flex module, USB 3.1 gen 1 <p>Rear:</p> <ul style="list-style-type: none"> 1x COM port 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W <p>Internal:</p> <ul style="list-style-type: none"> 1x internal USB 3.0 port 	
Environmental specification	Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
	Temperature - storage (no package)	14 °F to 140 °F (-10 °C to 60 °C)
	Temperature - storage (with package)	-40 °F to 140 °F (-40 °C to 60 °C)
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating	10%-80%, non-condensing
	Humidity - storage (with package)	10%-90%, non-condensing
Environmental Certifications	RoHS-compliant. GREENGUARD. EPEAT Gold rating. ENERGY STAR 6.1 qualified on model 30BA0007US and 30BA0008US	
ISV certifications	Please visit www.thinkworkstations.com/isv-certifications/	

Note:
1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
2. To support the maximum expandability, 900W power supply may be needed.
3. Any questions or advice on ThinkStation PSREF, please contact [ThinkStation PSREF developer](mailto:ThinkStation_PSREF_developer)



ThinkStation P920 Platform Specifications

Product Specifications Reference (PSREF)

Form factor	55L Tower					
Dimensions	200mm/7.87" W x 620mm/24.4" D x 446mm/17.56" H (with feet)					
Weight	Maximum configuration: 71.3 lb (32.3kg)					
Processor Family	Up to two 205 W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum: <ul style="list-style-type: none"> Up to 28 cores at 2.5 GHz Up to 3.6 GHz with 4 cores Up to 38.5 MB cache Up to DDR4-2933 memory speed 					
Processor Sockets	2x FCLGA3647					
Chipset	Intel C621 Chipset					
Memory Sockets	16 DIMM sockets with 12 channels. 8 DIMM sockets with 6 channels per processor					
Memory Types	DDR4-2666 RDIMM, DDR4-2666 LRDIMM, or DDR4-2933 RDIMM					
Memory Capacity	1TB (DDR4-2666 LRDIMM or DDR4-2933 RDIMM) or 512GB (DDR4-2666 RDIMM)					
Memory Protection	ECC					
Expansion slots	Slot 1 (CPU1)	PCIe 3.0 x16, full height, full length, 75W, double-width				
	Slot 2 (CPU1)	PCIe 3.0 x4, full height, full length, 25W, open ended				
	Slot 3 (CPU1)	PCIe 3.0 x16, full height, full length, 75W, double-width				
	Slot 4 (CPU1)	PCIe 3.0 x4, full height, full length, 25W, open ended				
	Slot 5 (PCH)	PCIe 3.0 x4, full height, half length, 25W, open ended				
	Slot 6 (CPU2)	PCIe 3.0 x16, full height, half length, 75W				
	Slot 7 (CPU2)	PCIe 3.0 x16, full height, full length, 75W, double-width				
	Slot 8 (CPU2)	PCIe 3.0 x16, full height, full length, 75W				
	Discrete Graphics Offering	Graphics	Memory	Power	Connector	SLI / NVLink
NVS 810		4GB DDR3	68W	8xmini DP		2
Quadro P400		2GB GDDR5	30W	3xminiDP		5
Quadro P600		2GB GDDR5	45W	4xminiDP		4
Quadro P620		2GB GDDR5	40W	4xminiDP		4
Quadro P1000		4GB GDDR5	50W	4xminiDP		4
Quadro P2000		5GB GDDR5	75W	4xDP		4
Quadro P4000		8GB GDDR5	120W	4xDP		4
Quadro P5000		16GB GDDR5X	180W	DVI-D DL+4xDP	SLI	3
Quadro P6000		24GB GDDR5X	250W	DVI-D DL+4xDP	SLI	3
Quadro RTX 4000		8GB GDDR6	160W	3xDP, 1xVirtualLink		3
Quadro RTX 5000		16GB GDDR6	265W	4xDP, 1xVirtualLink	NVLink	3
Quadro RTX 6000		24GB GDDR6	295W	4xDP, 1xVirtualLink	NVLink	2
Quadro RTX 8000		48GB GDDR6	295W	4xDP, 1xVirtualLink	NVLink	2
Quadro GP100	16GB HBM2	235W	1xDVI-D DL, 4xDP	NVLink	3	
Quadro GV100	32GB HBM2	250W	4xDP	NVLink	3	
Storage Controller	Storage Controller	Type	Interface	RAID	Cache	
	Onboard Intel RSTe	Std	SATA 6Gb/s	0/1/10/5		
	9440-8i PCIe	Opt	SAS 12Gb/s, SATA 6Gb/s	0/1/10/5		
	9460-16i PCIe	Opt	SAS 12Gb/s, SATA 6Gb/s	0/1/10/5/6	4GB DDR4, SuperCap	
	NVMe Basic	Opt	PCIe NVMe	0/1/10		
NVMe Premium	Opt	PCIe NVMe	0/1/10/5			
NVMe for Intel SSD	Opt	PCIe NVMe	0/1/10/5			
Storage Support	Disk Type	Interface	RPM	Offering	Max Qty (9460 used)	
	3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB/6TB	6 (Also supports additional 4x 2.5" SATA SSD/HDD)	
	2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB/500GB FIPS	10	
	2.5" SAS HDD	SAS 12Gb/s	10K	300GB/600GB	8	
	2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB/2TB	10	
	2.5" PCIe SSD	PCIe NVMe		1.5TB	4	
	M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB/2TB	9	
PCIe AIC SSD	PCIe NVMe		480GB	2		

Storage Bays	Bay Type	Maximum Drives Qty	
	M.2 slot	9x M.2 SSD (2 onboard, 7 via PCIe to M.2 adapter)	
	Flex Bay	<ul style="list-style-type: none"> 2x 3.5" or 2.5" disks. Supports the following: <ul style="list-style-type: none"> 3x half-height optical drives 2x 5.25" 9.0mm optical drives 1x 5.25" 9.0mm optical drive + 1x 3.5"/2.5" SATA SSD/HDD 1x 3.5"/2.5" SATA SSD/HDD with Front Access Storage Enclosure 1x flex module for the following options: <ul style="list-style-type: none"> Tray 1: 9.0mm optical Tray 2: 15-in-1 USB 3.0 reader or 2x Thunderbolt Port 1 and 2: Front USB 3.0 Type-C or eSATA 3x M.2 SSD with 3x Front Removable Drive Enclosures 	
Disk bay	<ul style="list-style-type: none"> 8 disk drives with 4 bays (2 bays standard, 2 bays optional). Supports one of the following configurations: <ul style="list-style-type: none"> 4x 3.5" SATA HDD 4x 3.5" SATA HDD + 4x 2.5" SATA SSD/HDD 8x 2.5" SATA SSD/HDD or 8x 2.5" SAS HDD 		
Max Storage	Supports up to 9x M.2 SSD + 6x 3.5" HDD/10x 2.5" SSD/10x 2.5" HDD + 2x PCIe AIC SSD. All HDD: 36TB using 6x 3.5" HDD. All SSD: 38.96TB using 10x 2.5" SATA SSD, 9x M.2 SSD, and 2x PCIe AIC SSD		
Power supply	One fixed 1400 watts, autosensing, 92% PSU, 80 PLUS Platinum qualified. Countries with input voltage under 115V, output power limited to 1125 watts		
Media reader	SD USB 2.0 card reader on most models. Optional UHS-II 15-in-1 USB 3.0 reader on flex module		
Network interfaces	Integrated two-port gigabit ethernet (Intel i219LM and i210AT), supports Wake-on-LAN on both two ports. Optional PCIe ethernet are available		
WLAN + Bluetooth	Optional Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps		
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant, switch to 1.2 via UEFI setting. Chassis intrusion switch. Optional access panel lock, Kensington lock, and pad lock		
Intel vPro	Intel vPro technology supported. vPro requires Wireless-AC 8265 if Wi-Fi is needed		
Intel AMT	Intel Active Management Technology 11		
Diagnostic	Front 4-digit diagnostic display. ThinkStation Diagnostics for Windows. Photo-audio transfer with Lenovo PC Diagnostics for Android and iOS		
Base warranty	1 or 3-year limited onsite service with 9x5/NBD		
HD Audio	Realtek ALC662 codec		
Front ports	4x USB 3.0 (includes one 11W charging), 1x combo audio/microphone jack (3.5mm)		
Rear ports	2x USB 2.0, 4x USB 3.0, 2x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2		
Optional ports	Supports the following optional ports:		
	<p>Front:</p> <ul style="list-style-type: none"> 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out 1x eSATA on flex module 1x USB Type-C on flex module, USB 3.1 gen 1 <p>Rear:</p> <ul style="list-style-type: none"> 1x COM port 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W <p>Internal:</p> <ul style="list-style-type: none"> 1x internal USB 3.0 port 		
Environmental specification	Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)	
	Temperature - storage (no package)	14 °F to 140 °F (-10 °C to 60 °C)	
	Temperature - storage (with package)	-40 °F to 140 °F (-40 °C to 60 °C)	
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)	
	Humidity - operating	10%~80%, non-condensing	
Humidity - storage (with package)	10%~90%, non-condensing		
Environmental Certifications	RoHS-compliant. GREENGUARD. EPEAT Gold rating. ENERGY STAR 6.1 qualified on model 30BC0008US and 30BC0009US		
ISV certifications	Please visit www.thinkworkstations.com/isv-certifications/		

Note:
1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
2. Any questions or advice on ThinkStation PSREF, please contact [ThinkStation PSREF developer](mailto:ThinkStation_PSREF_developer)

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Lenovo Services:

Carry-in or Mail-in Service: Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.

Depot or Courier Service: Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Expedited Depot: Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Onsite / In-home Service: Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.

International Warranty Service (IWS): PC repair coverage for customers who require a critical warranty repair while travelling internationally. Visit www.lenovo.com/internationalwarranty for details. Visit www.lenovo.com/warranty for Lenovo Warranty Services terms and conditions for complete details and restrictions.

Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

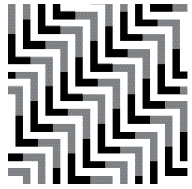
Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.

Visit <http://psref.lenovo.com/> for the latest version of Product Specifications Reference.

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Lenovo 1009 Think Place Morrisville, NC 27560 U.S.A.

Lenovo ThinkServer

PSREF



Product Specifications Reference

Version 511, August 2017

U.S.

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Summary of Changes

This section describes the changes made in this version of ThinkServer PSREF and in previous version
This edition might also include minor corrections and editorial changes which are not identified

August 23, 2017 - Version 511

Additions in this update

- ▶ Update ThinkServer RD650/RD550/RD450/RD350/TD350/TS460/RS160 platform specifications, add 12TB 7.2K SATA6Gbs HDD support

June 21, 2017 - Version 508

Additions in this update

- ▶ Add ThinkServer TS460 models announced June 2017
- ▶ Add ThinkServer RS160 models announced June 2017
- ▶ Update ThinkServer TS460 platform specifications, add new SBB support: Kaby Lake Xeon, Core i3, and Pentium processors. DDR4-2400 memory. 10TB 7.2K SATA6Gbs HDD, 10TB 7.2K SAS12Gbs HDD, 300GB/600GB 15K 2.5" SAS. Red Hat Enterprise Linux 7.3. SUSE Linux Enterprise Server 12 SP2/11 SP4
- ▶ Update ThinkServer RS160 platform specifications, add new SBB support: Kaby Lake Xeon, Core i3, Pentium, and Celeron processors. DDR4-2400 memory. 10TB 7.2K SATA6Gbs HDD, 10TB 7.2K SAS12Gbs HDD, 900GB 15K 2.5" SAS

May 26, 2017 - Version 507

Additions in this update

- ▶ Update ThinkServer RD650/RD550 platform specifications, add DDR4-2400 RDIMM memory, up to 1.92TB easy-swap NVMe SSD, and up to 3.84TB NVMe flash adapter

April 19, 2017 - Version 505

Additions in this update

- ▶ Add ThinkServer TS460 models announced April 2017
- ▶ Add ThinkServer TD350 models announced April 2017
- ▶ Add ThinkServer TS150 models announced April 2017
- ▶ Update ThinkServer TS150 platform specifications, add new Kaby Lake processors, DDR4-2400 memory, 10TB hard drive supports

February 15, 2017 - Version 502

Additions in this update

- ▶ Add ThinkServer RS160 models announced September 2016

Withdrawals in this update

- ▶ ThinkServer TS140 had been end of life

October 12, 2016 - Version 496

Additions in this update

- ▶ New ThinkServer RS160 product announced September 2016
- ▶ New ThinkServer TS150 models announced August and October 2016

September 14, 2016 - Version 495

Additions in this update

- ▶ New ThinkServer RS160 product announced September 2016
- ▶ New ThinkServer TS140 models announced September 2016

April 6, 2016 - Version 487

Additions in this update

- ▶ New ThinkServer TD350, RD350, and RD450 models announced April 2016
- ▶ Add Intel Xeon E5-2600 v4 processors

March 23, 2016 - Version 486

Additions in this update

- ▶ New ThinkServer TS140 models announced March 2016

February 24, 2016 - Version 485

Additions in this update

- ▶ Add 8TB SATA and SAS 72K 6Gbs hard drive on ThinkServer RD350/RD450/RD550/RD650/TD350

December 30, 2015 - Version 483

Additions in this update

- ▶ Updates ThinkServer RS140, TD340 specifications
- ▶ Updates the most recent ThinkServer RS140, TD340 models

December 9, 2015 - Version 482

Additions in this update

- ▶ Updates ThinkServer TS140, TS440 specifications
- ▶ Updates the most recent ThinkServer TS140, TS440, RD350, RD450, RD550, RD650 models

October 28, 2015 - Version 480

Additions in this update

- ▶ New ThinkServer TS140 models announced October 2015

July 30, 2015 - Version 476

Additions in this update

- ▶ New ThinkServer TD350, RD550, and RD650 models announced July 2015

May 6, 2015 - Version 473

Additions in this update

- ▶ Add 95mm optical support on TD350
- ▶ Add Red Hat Enterprise Linux 7 support on RD350/RD450/RD550/RD650/TD350
- ▶ Add 32 x 25" bay support on TD350
- ▶ Add AnyBay and 25" PCIe SSD support on RD550/RD650

April 15, 2015 - Version 471

Additions in this update

- ▶ New ThinkServer TD350 models announced March 2015

March 25, 2015 - Version 470

Additions in this update

- ▶ New ThinkServer TS140 and TS440 models announced March 2015



ThinkServer RS160 Platform Specifications

Components	Specification																																					
Dimensions	1U rack. Height: 43.2 mm (1.7 in), width: 438.5 mm (17.26 in), depth: 393.7 mm (15.5 in)																																					
Weight	Minimum configuration: 6.2 kg (13.67 lb), maximum: 7.6 kg (16.76 lb)																																					
Processor	Supports one of the following Intel "Kaby Lake" processors:																																					
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Chipset	Intel C232 Platform Controller Hub (PCH)																																					
Memory DIMMs	4 DIMM sockets with 2-channels. UDIMM. DDR4-2133 or DDR4-2400																																					
Memory capacity	64GB (16GB x 4)																																					
Memory protection	ECC																																					
RAID controller	<table border="1"> <thead> <tr> <th>RAID controller</th> <th>Drive type</th> <th>RAID support</th> <th>Compatible models</th> </tr> </thead> <tbody> <tr> <td>Onboard RAID121i</td> <td>6Gbs SATA</td> <td>0/1/5/10</td> <td>2x3.5", 4x2.5"</td> </tr> <tr> <td>RAID520i PCIe</td> <td>12Gbs SAS/SATA</td> <td>0/1/10, 5 with optional key</td> <td>2x3.5", 4x2.5"</td> </tr> <tr> <td>RAID720i PCIe</td> <td>12Gbs SAS/SATA</td> <td>0/1/10/5, 6 with optional cache</td> <td>2x3.5", 4x2.5"</td> </tr> </tbody> </table>	RAID controller	Drive type	RAID support	Compatible models	Onboard RAID121i	6Gbs SATA	0/1/5/10	2x3.5", 4x2.5"	RAID520i PCIe	12Gbs SAS/SATA	0/1/10, 5 with optional key	2x3.5", 4x2.5"	RAID720i PCIe	12Gbs SAS/SATA	0/1/10/5, 6 with optional cache	2x3.5", 4x2.5"																					
	RAID controller	Drive type	RAID support	Compatible models																																		
	Onboard RAID121i	6Gbs SATA	0/1/5/10	2x3.5", 4x2.5"																																		
RAID520i PCIe	12Gbs SAS/SATA	0/1/10, 5 with optional key	2x3.5", 4x2.5"																																			
RAID720i PCIe	12Gbs SAS/SATA	0/1/10/5, 6 with optional cache	2x3.5", 4x2.5"																																			
	Optional cache for RAID720i: 1GB memory. 1GB, 2GB, or 4GB flash with super capacitor.																																					
Disk drive bays	Supports two 3.5" or four 2.5" disk drive bays. Non-hot swap. Cables are connected to onboard SATA connectors or PCIe RAID controller. Also supports one M.2 SATA SSD																																					
Supporting storage	3.5" HDD, 7.2K SATA6Gbs	1TB/2TB/4TB/6TB/8TB/10TB/12TB																																				
	3.5" HDD, 7.2K SAS12Gbs	1TB/2TB/4TB/6TB/8TB/10TB																																				
	3.5" SSD, SATA6Gbs (2.5" SSD with 3.5" tray)	240GB/480GB/960GB																																				
	2.5" HDD, 7.2K SATA6Gbs	1TB/2TB																																				
	2.5" HDD, 10K SAS12Gbs	300GB/600GB/900GB/1.2TB/2.4TB																																				
	2.5" HDD, 15K SAS12Gbs	900GB																																				
	2.5" SSD, SATA6Gbs	120GB/240GB/480GB/960GB																																				
	M.2 SATA SSD	32GB/128GB																																				

Components	Specification	
Optical drive	Optional one 9.5mm optical. DVD-ROM or DVD±RW	
Network interfaces	One dedicated management port, two Gigabit Ethernet ports. Supports optional discrete network adapters via riser card	
Security features	Power-on and administrator password. Optional TPM, TCG 1.2 or 2.0 compliant.	
Systems management	UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, disk drives, network, system. Supports the following management software: EasyStartup, Power Planner. On November 2016, EasyUpdate, Lenovo ThinkServer Diagnostics Standalone, ToolsCenter Suite CLI inventory module on ThinkServer, and Lenovo xClarity Administrator will be available	
Operating systems	Microsoft Windows Server 2016 (Standard and Essentials)/2012 R2/2012. Windows 10 Pro. Red Hat Enterprise Linux 6.7/6.8/7.2. SUSE Linux Enterprise Server 11/12. VMware vSphere (ESXi) 6.0U0/U2	
Base warranty	1 or 3-year limited onsite service with 9x5/NBD	
Power supply	One fixed 300 watts power supply, Non-hot swap. 80 PLUS Gold qualified	
Graphics	Onboard Aspeed AST2400	
Front ports	Two USB 2.0	
Rear ports	One VGA, four USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)	
Cooling	3 fans for processor, PCIe slot, and disk drives	
Noise emissions	Operating: < 5.9 Bels. Idle: < 5.2 Bels (Maximum configuration)	
Environmental specification	Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
	Temperature - non operating (with package)	-40 °C to 60 °C
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating	8%~80%, non-condensing
	Humidity - storage (with package)	10%~90%, non-condensing

Expansion slots and disk bays

Supports one PCIe slot via optional riser card, PCIe 3.0 x16, half length, half height

Core options for ThinkServer RS160 (partial)

ThinkServer 8GB 2RX8 PC4-2133-E CL15 DDR4-2133 ECC-UDIMM	4X70G88316
ThinkServer 16GB 2RX8 PC4-2133-E CL15 DDR4-2133 ECC-UDIMM	4X70G88317
ThinkServer 3.5" 8TB 7.2K Enterprise SATA 6Gbps 512e Hard Drive for RS-Series	4XB0K12297
ThinkServer 2.5" 1.2TB 10K Enterprise SAS 12Gbps Hard Drive for RS-Series	4XB0K12306
ThinkServer 2.5" 2TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series	4XB0K12302
ThinkServer 2.5" 480GB S3510 Enterprise Entry SATA 6Gbps SSD for RS-Series	4XB0K12321
ThinkServer M.2 32GB Value Read-Optimized SATA 6Gbps Solid State Drive	4XB0K12310
ThinkServer RAID 520i RAID 5 Upgrade	4XC0G88841
ThinkServer RS160 Slim SATA DVD-RW Optical Disk Drive	4XA0G88613
Lenovo ThinkServer Gen 5 Trusted Platform Module v1.2 (Worldwide except China)	4XF0G45868

Model	Region	Processor	Memory	Storage Controller	Disk Bays	Disks	Optical	Add-on NIC	Slots	TPM	OS	Warranty	Power Supply	Ann Date (m/y)
70TE000DUX	US	Xeon E3-1220 v5 4C/3.0GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	4x2.5" NHS	Open	None	None	None	TPM	None	1-year	300W 85% Fixed	09/16
70TE000EUX	US	Xeon E3-1230 v5 4C/3.4GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	4x2.5" NHS	Open	None	None	None	TPM	None	1-year	300W 85% Fixed	09/16
70TE000FUX	US	Xeon E3-1240 v5 4C/3.5GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	4x2.5" NHS	Open	None	None	None	TPM	None	1-year	300W 85% Fixed	09/16
70TE000GUX	US	Xeon E3-1270 v5 4C/3.6GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	4x2.5" NHS	Open	None	None	None	TPM	None	1-year	300W 85% Fixed	09/16
70TE000HUX	US	Xeon E3-1280 v5 4C/3.7GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	4x2.5" NHS	Open	None	None	None	TPM	None	1-year	300W 85% Fixed	09/16
70TE000YUX	US	Xeon E3-1220 v6 4C/3.0GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	4x2.5" NHS	Open	None	None	None	TPM2.0	None	1-year	300W 85% Fixed	06/17
70TE0010UX	US	Xeon E3-1230 v6 4C/3.5GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	4x2.5" NHS	Open	None	None	None	TPM2.0	None	1-year	300W 85% Fixed	06/17
70TE0011UX	US	Xeon E3-1240 v6 4C/3.7GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	4x2.5" NHS	Open	None	None	None	TPM2.0	None	1-year	300W 85% Fixed	06/17
70TE0012UX	US	Xeon E3-1270 v6 4C/3.8GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	4x2.5" NHS	Open	None	None	None	TPM2.0	None	1-year	300W 85% Fixed	06/17
70TE0013UX	US	Xeon E3-1280 v6 4C/3.9GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	4x2.5" NHS	Open	None	None	None	TPM2.0	None	1-year	300W 85% Fixed	06/17
70TER001UX	US	Xeon E3-1220 v5 4C/3.0GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	4x2.5" NHS	Open	None	None	1xHHHL	TPM	None	1-year	300W 85% Fixed	09/16
70TER002UX	US	Xeon E3-1230 v5 4C/3.4GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	4x2.5" NHS	Open	None	None	1xHHHL	TPM	None	1-year	300W 85% Fixed	09/16
70TER003UX	US	Xeon E3-1270 v5 4C/3.6GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	4x2.5" NHS	Open	None	None	1xHHHL	TPM	None	1-year	300W 85% Fixed	09/16

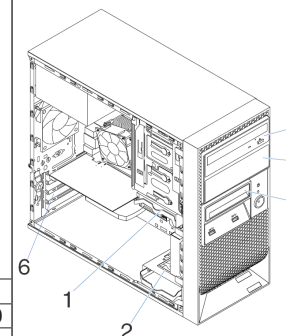
Model	Region	Processor	Memory	Storage Controller	Disk Bays	Disks	Optical	Add-on NIC	Slots	TPM	OS	Warranty	Power Supply	Ann Date (m/y)
70TG000JUX	US	Pentium G4400 2C/3.3GHz/3MB/54W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	2x3.5" NHS	Open	None	None	None	TPM	None	1-year	300W 85% Fixed	09/16
70TG000KUX	US	Xeon E3-1220 v5 4C/3.0GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	2x3.5" NHS	Open	None	None	None	TPM	None	1-year	300W 85% Fixed	09/16
70TG000LUX	US	Xeon E3-1230 v5 4C/3.4GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	2x3.5" NHS	Open	None	None	None	TPM	None	1-year	300W 85% Fixed	09/16
70TG000MUX	US	Xeon E3-1240 v5 4C/3.5GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	2x3.5" NHS	Open	None	None	None	TPM	None	1-year	300W 85% Fixed	09/16
70TG000NUX	US	Xeon E3-1270 v5 4C/3.6GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	2x3.5" NHS	Open	None	None	None	TPM	None	1-year	300W 85% Fixed	09/16
70TG000PUX	US	Xeon E3-1280 v5 4C/3.7GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	2x3.5" NHS	Open	None	None	None	TPM	None	1-year	300W 85% Fixed	09/16
70TG001RUX	US	Xeon E3-1220 v6 4C/3.0GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	2x3.5" NHS	Open	None	None	None	TPM2.0	None	1-year	300W 85% Fixed	06/17
70TG001SUX	US	Xeon E3-1230 v6 4C/3.5GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	2x3.5" NHS	Open	None	None	None	TPM2.0	None	1-year	300W 85% Fixed	06/17
70TG001TUX	US	Xeon E3-1240 v6 4C/3.7GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	2x3.5" NHS	Open	None	None	None	TPM2.0	None	1-year	300W 85% Fixed	06/17
70TG001UUX	US	Xeon E3-1270 v6 4C/3.8GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	2x3.5" NHS	Open	None	None	None	TPM2.0	None	1-year	300W 85% Fixed	06/17
70TG001VUX	US	Xeon E3-1280 v6 4C/3.9GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	2x3.5" NHS	Open	None	None	None	TPM2.0	None	1-year	300W 85% Fixed	06/17
70TGR001UX	US	Pentium G4400 2C/3.3GHz/3MB/54W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	2x3.5" NHS	Open	None	None	1xHHHL	TPM	None	1-year	300W 85% Fixed	09/16
70TGR002UX	US	Xeon E3-1220 v5 4C/3.0GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	2x3.5" NHS	Open	None	None	1xHHHL	TPM	None	1-year	300W 85% Fixed	09/16
70TGR003UX	US	Xeon E3-1230 v5 4C/3.4GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	2x3.5" NHS	Open	None	None	1xHHHL	TPM	None	1-year	300W 85% Fixed	09/16

ThinkServer TS150 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification
Dimensions	Tower or 4U rack. Height: 375 mm (14.76 in), width: 175 mm (6.89 in), depth: 431 mm (16.97 in)
Weight	Maximum configuration: 27.6 lb (12.5kg)
Processor	One Intel "Kaby Lake" or "Skylake" processor as listed: "Kaby Lake" processors:
	Xeon E3-1280 v6 4C/3.9GHz/8MB/72W/DDR4-2400
	Xeon E3-1275 v6 4C/3.8GHz/8MB/73W/DDR4-2400
	Xeon E3-1270 v6 4C/3.8GHz/8MB/72W/DDR4-2400
	Xeon E3-1245 v6 4C/3.7GHz/8MB/73W/DDR4-2400
	Xeon E3-1240 v6 4C/3.7GHz/8MB/72W/DDR4-2400
	Xeon E3-1230 v6 4C/3.5GHz/8MB/72W/DDR4-2400
	Xeon E3-1225 v6 4C/3.3GHz/8MB/73W/DDR4-2400
	Xeon E3-1220 v6 4C/3GHz/8MB/72W/DDR4-2400
	Core i3-7320 2C/4.1GHz/4MB/51W/DDR4-2400
	Core i3-7300T 2C/3.5GHz/4MB/35W/DDR4-2400
	Core i3-7300 2C/4GHz/4MB/51W/DDR4-2400
	Core i3-7100T 2C/3.4GHz/3MB/35W/DDR4-2400
	Core i3-7100 2C/3.9GHz/3MB/51W/DDR4-2400
	Pentium G4620 2C/3.7GHz/3MB/51W/DDR4-2400
	Pentium G4600T 2C/3GHz/3MB/35W/DDR4-2400
	Pentium G4600 2C/3.6GHz/3MB/51W/DDR4-2400
	Pentium G4560T 2C/2.9GHz/3MB/35W/DDR4-2400
	Pentium G4560 2C/3.5GHz/3MB/54W/DDR4-2400
	Celeron G3950 2C/3GHz/2MB/51W/DDR4-2133
	Celeron G3930T 2C/2.7GHz/2MB/35W/DDR4-2133
	Celeron G3930 2C/2.9GHz/2MB/51W/DDR4-2133
	"Skylake" processors:
	Xeon E3-1280 v5 4C/3.7GHz/8MB/80W/DDR4-2133
	Xeon E3-1270 v5 4C/3.6GHz/8MB/80W/DDR4-2133
	Xeon E3-1240 v5 4C/3.5GHz/8MB/80W/DDR4-2133
	Xeon E3-1230 v5 4C/3.4GHz/8MB/80W/DDR4-2133
	Xeon E3-1220 v5 4C/3GHz/8MB/80W/DDR4-2133
	Xeon E3-1275 v5 4C/3.6GHz/8MB/80W/DDR4-2133
	Xeon E3-1245 v5 4C/3.5GHz/8MB/80W/DDR4-2133
	Xeon E3-1225 v5 4C/3.3GHz/8MB/80W/DDR4-2133
	Core i3-6320 2C/3.9GHz/4MB/51W/DDR4-2133
	Core i3-6300 2C/3.8GHz/4MB/51W/DDR4-2133
	Core i3-6300T 2C/3.3GHz/4MB/35W/DDR4-2133
	Core i3-6100 2C/3.7GHz/3MB/51W/DDR4-2133
	Core i3-6100T 2C/3.2GHz/3MB/35W/DDR4-2133
	Pentium G4520 2C/3.6GHz/3MB/51W/DDR4-2133
	Pentium G4500 2C/3.5GHz/3MB/51W/DDR4-2133
	Pentium G4500T 2C/3GHz/3MB/35W/DDR4-2133
	Pentium G4400 2C/3.3GHz/3MB/54W/DDR4-2133
Pentium G4400T 2C/2.9GHz/3MB/35W/DDR4-2133	
Celeron G3920 2C/2.9GHz/2MB/51W/DDR4-2133	
Celeron G3900 2C/2.8GHz/2MB/51W/DDR4-2133	
Celeron G3900T 2C/2.6GHz/2MB/35W/DDR4-2133	
Chipset	Intel C236 Platform Controller Hub (PCH)
Memory DIMMs	4 DIMM sockets with 2 channels, 2 DIMMs per channel. UDIMM. Up to DDR4-2400
Memory capacity	64GB (16GB x 4)
Memory protection	ECC
RAID controller	RAID controller
	Drive type
RAID controller	Onboard RAID121i 6Gbs SATA 0/1/5/10
	RAID520i PCIe 12Gbs SAS/SATA 0/1/10, 5 with optional key
Disk bays	Supports up to four 3.5" or hybrid 3.5" + 2.5" disk drives, or up to five 2.5" disk drives, one 9.5mm optical (see right). Non-hot swap. Cables are connected to onboard SATA connectors or PCIe RAID controller. Supports one optional internal USB RDX Tape drive
Supporting storage	3.5" HDD, 7.2K SATA6Gbs 500GB/1TB/2TB/3TB/4TB/5TB/6TB/10TB
	2.5" HDD, 7.2K SATA6Gbs 500GB/1TB/2TB
	2.5" SSD, SATA6Gbs 120GB/240GB/480GB/600GB/800GB/960GB

Components	Specification	
SD module	Optional. Up to 2 SDHC flash cards via SD module, 8GB each	
Optical drive	Up to two half-height optical drives or one 9.5mm optical. DVD-ROM or DVD±RW	
Network interfaces	One Gigabit Ethernet port, Intel i219LM. Supports optional discrete network adapters via PCIe slots	
Security features	Power-on and administrator password. TPM (TCG 1.2-compliant)	
Systems management	UEFI, system LEDs, EasyStartup, EasyUpdate, Power Planner, and Diagnostics. Intel Active Management Technology 11 on models with Xeon processors. Intel Standard Manageability on models with Core i3, Pentium, or Celeron processors. KVM is supported on models with Xeon E3-12x5 v5 processors	
Operating systems	Microsoft Windows Server 2016/2012 R2/2012, Windows MultiPoint Server 2012, Windows 10 Pro. Red Hat Enterprise Linux 6.7/7.2. SUSE Linux Enterprise Server 11/12. VMware vSphere (ESXi) 5.5U3/6.0U2	
Base warranty	1 or 3-year limited onsite service with 9x5/NBD	
Power supply	Supports one of the following: • One fixed 250 watts, autosensing, 85%, 80 PLUS Bronze qualified • One fixed 400 watts, autosensing, 92%, 80 PLUS Platinum qualified	
Graphics	Integrated Intel HD Graphics on Xeon E3-12x5 v5, Core i3, Pentium, and Celeron processors. Uses main memory, works along with discrete graphics to support multi-display, enables two display connectors (1 DP, 1 VGA) on rear ports. Also supports the following discrete graphics adapter options: • NVIDIA Quadro NVS 315, 1GB • NVIDIA Quadro K620, 2GB	
HD Audio	Realtek ALC662 codec	
Front ports	Two USB 3.0	
Rear ports	One VGA, one DisplayPort, six USB 3.0, one RJ-45, one serial (9-pin), three analog audio ports (line-in, line-out, mic-in). Optional parallel or serial ports via PCIe adapters	
Noise emissions	Operating: < 35 dB(A). Idle: < 34 dB(A) (Maximum configuration)	
Environmental specification	Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
	Temperature - non operating (with package)	-40 °C to 60 °C
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating	8%-80%, non-condensing
	Humidity - storage (with package)	10%-90%, non-condensing



Note:
1. PCIe cards are optional.
2. Disk tray comes with the disk drive.

Disk Bays and PCIe Slots			
	4 x 3.5"	5 x 2.5"	4 x hybrid 3.5" + 2.5"
Bay 1	1st HDD bay	1st HDD bay	1st HDD bay, 3.5"/2.5"
Bay 2	2nd HDD bay	2nd HDD bay	2nd HDD bay, 3.5"/2.5"
Bay 3	Not supported	3rd HDD bay	Not supported on standard models. Supports one 2.5" disk drive for special bid only
Bay 4	2nd half-height optical, or RDX tape drive, or 3rd HDD bay	2nd half-height optical, or RDX tape drive, or 4th HDD bay	2nd half-height optical, or RDX tape drive, or 3rd HDD bay (3.5"/2.5")
Bay 5	1st half-height optical, or 9.5mm optical + 4th HDD bay	1st half-height optical, or 9.5mm optical + 5th HDD bay	1st half-height optical, or 9.5mm optical + 4th HDD bay (3.5"/2.5")
6	Four PCIe slots (top-down): Slot 1: PCIe 3.0 x16, full height, half length (near CPU) Slot 2: PCIe 3.0 x1, full height, half length Slot 3: PCIe 3.0 x16 (x4 elec), full height, half length Slot 4: PCIe 3.0 x1, full height, half length		

ThinkServer TS150 - TopSeller - 70LV

Product Specifications Reference (PSREF)

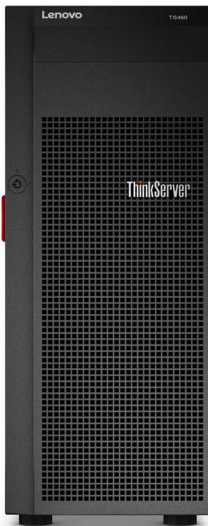
Model	Region	Processor	Memory	Storage Controller	Disk Bays	Disks	Optical	Add-on NIC	Add-on Ports	System Mgmt	OS	Warranty	Power Supply	Ann Date (m/y)
70LV002XUX	US	Xeon E3-1225 v5 4C/3.3GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	Up to 5x2.5" DC	Open	None	None	None	AMT	None	1-year	Fixed 250W Bronze	08/16
70LV002YUX	US	Xeon E3-1245 v5 4C/3.5GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	Up to 5x2.5" DC	Open	None	None	None	AMT	None	1-year	Fixed 250W Bronze	08/16
70LV0030UX	US	Xeon E3-1275 v5 4C/3.6GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	Up to 5x2.5" DC	Open	None	None	None	AMT	None	1-year	Fixed 250W Bronze	08/16
70LV0031UX	US	Xeon E3-1225 v5 4C/3.3GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	Up to 4x3.5" DC	Open	None	None	None	AMT	None	1-year	Fixed 250W Bronze	08/16
70LV0032UX	US	Xeon E3-1245 v5 4C/3.5GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	Up to 4x3.5" DC	Open	None	None	None	AMT	None	1-year	Fixed 250W Bronze	08/16
70LV0033UX	US	Xeon E3-1275 v5 4C/3.6GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	Up to 4x3.5" DC	Open	None	None	None	AMT	None	1-year	Fixed 250W Bronze	08/16
70LV0034UX	US	Core i3-6100T 2C/3.2GHz/3MB/35W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	Up to 4x3.5" DC/3 available	Open	HH DVD±RW	None	None	ISM	None	1-year	Fixed 250W Bronze	08/16
70LV0035UX	US	Core i3-6100T 2C/3.2GHz/3MB/35W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	Up to 4x3.5" DC	Open	None	None	None	ISM	None	1-year	Fixed 250W Bronze	08/16
70LV0036UX	US	Xeon E3-1225 v5 4C/3.3GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	Up to 4x3.5" DC	Open	9.5mm DVD±RW	None	None	AMT	None	1-year	Fixed 250W Bronze	08/16
70LV0037UX	US	Xeon E3-1245 v5 4C/3.5GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	Up to 4x3.5" DC	Open	9.5mm DVD±RW	None	None	AMT	None	1-year	Fixed 250W Bronze	08/16
70LV0038UX	US	Xeon E3-1275 v5 4C/3.6GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	Up to 4x3.5" DC	Open	9.5mm DVD±RW	None	None	AMT	None	1-year	Fixed 250W Bronze	08/16
70LV0039UX	US	Xeon E3-1225 v5 4C/3.3GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	Up to 5x2.5" DC	Open	9.5mm DVD±RW	None	None	AMT	None	1-year	Fixed 250W Bronze	08/16
70LV003AUX	US	Xeon E3-1245 v5 4C/3.5GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	Up to 5x2.5" DC	Open	9.5mm DVD±RW	None	None	AMT	None	1-year	Fixed 250W Bronze	08/16
70LV003BUX	US	Xeon E3-1275 v5 4C/3.6GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	Up to 5x2.5" DC	Open	9.5mm DVD±RW	None	None	AMT	None	1-year	Fixed 250W Bronze	08/16

Model	Region	Processor	Memory	Storage Controller	Disk Bays	Disks	Optical	Add-on NIC	Add-on Ports	System Mgmt	OS	Warranty	Power Supply	Ann Date (m/y)
70LX0017UX	US	Xeon E3-1275 v5 4C/3.6GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	Up to 4x3.5" DC	Open	None	None	None	AMT	None	1-year	Fixed 400W Platinum	08/16
70LX0018UX	US	Xeon E3-1275 v5 4C/3.6GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID 121i	Up to 5x2.5" DC	Open	None	None	None	AMT	None	1-year	Fixed 400W Platinum	08/16

ThinkServer TS150 - TopSeller - 70UB

Product Specifications Reference (PSREF)

Model	Region	Processor	Memory	Storage Controller	Disk Bays	Disks	Optical	Add-on NIC	Add-on Ports	System Mgmt	OS	Warranty	Power Supply	Ann Date (m/y)
70UB0009UX	US	Xeon E3-1225 v6 4C/3.3GHz/8MB/73W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID 121i	Up to 4x3.5" DC	Open	None	None	None	AMT	None	1-year	Fixed 250W Bronze	04/17
70UB000AUX	US	Xeon E3-1225 v6 4C/3.3GHz/8MB/73W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID 121i	Up to 4x3.5" DC	Open	9.5mm DVD±RW	None	None	AMT	None	1-year	Fixed 250W Bronze	04/17
70UB000BUX	US	Xeon E3-1245 v6 4C/3.7GHz/8MB/73W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID 121i	Up to 4x3.5" DC	Open	9.5mm DVD±RW	None	None	AMT	None	1-year	Fixed 250W Bronze	04/17
70UB000CUX	US	Xeon E3-1245 v6 4C/3.7GHz/8MB/73W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID 121i	Up to 4x3.5" DC	Open	None	None	None	AMT	None	1-year	Fixed 250W Bronze	04/17
70UB000DUX	US	Xeon E3-1275 v6 4C/3.8GHz/8MB/73W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID 121i	Up to 4x3.5" DC	Open	None	None	None	AMT	None	1-year	Fixed 250W Bronze	04/17
70UB000EUX	US	Xeon E3-1275 v6 4C/3.8GHz/8MB/73W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID 121i	Up to 4x3.5" DC	Open	9.5mm DVD±RW	None	None	AMT	None	1-year	Fixed 250W Bronze	04/17
70UB001WUX	US	Core i3-6100T 2C/3.2GHz/3MB/35W/DDR4-2133	1x8GB UDIMM DDR4-2400 ECC	RAID 121i	Up to 4x3.5" DC/3 available	Open	HH DVD±RW	None	None	ISM	None	1-year	Fixed 250W Bronze	04/17
70UB001XUX	US	Core i3-6100T 2C/3.2GHz/3MB/35W/DDR4-2133	1x8GB UDIMM DDR4-2400 ECC	RAID 121i	Up to 4x3.5" DC	Open	None	None	None	ISM	None	1-year	Fixed 250W Bronze	04/17

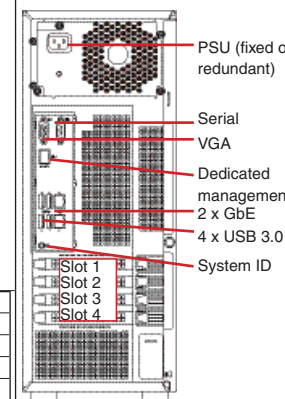


ThinkServer TS460 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification			
Dimensions	42L tower or 4U rack. Height: 443.5 mm (17.46 in) with foot stands. Width: 173 mm (6.81 in). Depth: 593 mm (23.35 in) including front door and handle of hot-swap power supply			
Weight	Maximum configuration: 57.32 lb (26.5 kg)			
Processor	Supports one of the following Intel "Kaby Lake" processors:			
	Xeon E3-1280 v6	4C/3.9GHz/8MB/72W/DDR4-2400		
	Xeon E3-1270 v6	4C/3.8GHz/8MB/72W/DDR4-2400		
	Xeon E3-1240 v6	4C/3.7GHz/8MB/72W/DDR4-2400		
	Xeon E3-1230 v6	4C/3.5GHz/8MB/72W/DDR4-2400		
	Xeon E3-1220 v6	4C/3GHz/8MB/72W/DDR4-2400		
	Core i3-7320	2C/4.1GHz/4MB/51W/DDR4-2400		
	Core i3-7300	2C/4GHz/4MB/51W/DDR4-2400		
	Core i3-7300T	2C/3.5GHz/4MB/35W/DDR4-2400		
	Core i3-7100	2C/3.9GHz/3MB/51W/DDR4-2400		
	Core i3-7100T	2C/3.4GHz/3MB/35W/DDR4-2400		
	Pentium G4620	2C/3.7GHz/3MB/51W/DDR4-2400		
	Pentium G4600	2C/3.6GHz/3MB/51W/DDR4-2400		
	Pentium G4600T	2C/3GHz/3MB/35W/DDR4-2400		
	Pentium G4560	2C/3.5GHz/3MB/54W/DDR4-2400		
Pentium G4560T	2C/2.9GHz/3MB/35W/DDR4-2400			
Processor	Supports one of the following Intel "Skylake" processors:			
	Xeon E3-1280 v5	4C/3.7GHz/8MB/80W/DDR4-2133		
	Xeon E3-1270 v5	4C/3.6GHz/8MB/80W/DDR4-2133		
	Xeon E3-1240 v5	4C/3.5GHz/8MB/80W/DDR4-2133		
	Xeon E3-1230 v5	4C/3.4GHz/8MB/80W/DDR4-2133		
	Xeon E3-1220 v5	4C/3GHz/8MB/80W/DDR4-2133		
	Core i3-6320	2C/3.9GHz/4MB/51W/DDR4-2133		
	Core i3-6300T	2C/3.3GHz/4MB/35W/DDR4-2133		
	Core i3-6300	2C/3.8GHz/4MB/51W/DDR4-2133		
	Core i3-6100T	2C/3.2GHz/3MB/35W/DDR4-2133		
	Core i3-6100	2C/3.7GHz/3MB/51W/DDR4-2133		
	Pentium G4520	2C/3.6GHz/3MB/51W/DDR4-2133		
	Pentium G4500T	2C/3GHz/3MB/35W/DDR4-2133		
	Pentium G4500	2C/3.5GHz/3MB/51W/DDR4-2133		
	Pentium G4400T	2C/2.9GHz/3MB/35W/DDR4-2133		
Pentium G4400	2C/3.3GHz/3MB/54W/DDR4-2133			
Chipset	Intel C232 Platform Controller Hub (PCH)			
Memory DIMMs	4 DIMM sockets with 2-channels. UDIMM. DDR4-2133 or DDR4-2400			
Memory capacity	Up to 64GB (16GB x 4)			
Memory protection	ECC			
RAID controller	RAID controller	Drive type	RAID support	
	Onboard RAID121i	6Gbs SATA	0/1/5/10	
	RAID520i PCIe	12Gbs SAS/SATA	0/1/10, 5 with optional key	
	RAID720i PCIe	12Gbs SAS/SATA	0/1/10/5/50, 6/60 with optional cache	
	Optional cache for RAID720i: 1GB memory, or 1GB, 2GB, 4GB flash with super capacitor.			
Disk drive bays	Supports one of the following configurations:			
	Disk bays configuration	RAID controller	Optical	Tape drive
	4x3.5" SATA non-hot swap	121i	up to 2	RDX up to 1 LTO -
	4x3.5" SATA hot-swap	121i	up to 2	up to 1 -
	4x3.5" SATA/SAS hot-swap	520i or 720i	up to 2	up to 1 up to 1, 520i only
	8x3.5" SATA/SAS hot-swap	520i or 720i	up to 2	up to 1 -
	8x2.5" SATA/SAS hot-swap	520i or 720i	up to 2	up to 1 -
	16x2.5" SATA/SAS hot-swap	520i or 720i	up to 2	up to 1 -
	4x3.5" + 8x2.5" SATA/SAS hot-swap	520i or 720i	up to 2	up to 1 -
	4 x 3.5" HS can be upgraded to 8 x 3.5" HS or 4 x 3.5" + 8 x 2.5" HS, 8 x 2.5" HS can be upgraded to 16 x 2.5" HS or 4 x 3.5" + 8 x 2.5" HS, redundant PSU models only, RAID520i/RAID720i and expansion kit is needed, more that 8 disk bays needs expander card. Also supports one M.2 SATA SSD, 32GB or 128GB.			
Supporting disk drives	3.5" SATA HDD, 7.2K 6Gbs, HS or NHS	1TB/2TB/3TB/4TB/6TB/8TB/10TB/12TB		
	3.5" SAS HDD, 7.2K 12Gbs, HS	1TB/2TB/3TB/4TB/6TB/8TB/10TB		
	2.5" SAS HDD, 10K 12Gbs, HS, 2.5" or 3.5" bay	300GB/600GB/900GB/1.2TB/1.8TB/2.4TB		
	2.5" SAS HDD, 15K 12Gbs, HS, 2.5" or 3.5" bay	300GB/600GB		
	2.5" SATA SSD, 6Gbs, HS, 2.5" or 3.5" bay	120GB/240GB/480GB/800GB/960GB		
	2.5" SATA HDD, 7.2K 6Gbs, HS	1TB/2TB		
M.2 SATA SSD	32GB/128GB			

Components	Specification			
Maximum internal storage	Up to 64TB with 8TB 3.5" SAS or SATA HDDs, 8 x 3.5" HS bay			
Optical drive	Two 5.25" bays. Up to 2 optical drives. DVD-ROM or DVD±RW. Half-height. 2nd optical drive will be disable if M.2 SATA SSD is used			
Tape drive	Supports one tape drive in 5.25" bay. RDX or LTO. LTO Tape drive needs RAID520i			
Network interfaces	Two integrated Gigabit Ethernet 1000BASE-T ports (RJ-45) with Intel i210. One dedicate management port with Realtek RTL8211E			
Systems management	UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, disk drives, network, system. On rear system ID. Supports EasyStartup, Power Planner, Lenovo ThinkServer Diagnostics Standalone, ToolsCenter Suite CLI inventory module on ThinkServ-er, Lenovo xClarity Administrator			
Security features	Power-on and administrator password. Optional TPM, TCG 1.2 or 2.0 compliant.			
Operating systems	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 6.8/7.3(6.8 cannot support Kaby Lake processors). SUSE Linux Enterprise Server 12 SP2/11 SP4. VMware vSphere (ESXi) 6.0U2/6.5			
Base warranty	1 or 3-year limited onsite service with 9x5/NBD.			
Power supply	Supports one of the following, depending on models: • One fixed 300 watts, universal, 80 PLUS Bronze qualified. • Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, universal, redundant with two power supplies			
Graphics	Integrated in onboard Aspeed AST2400 graphics/management processor. Optional NVIDIA Quadro K420			
Front ports	Two USB 3.0 (blue)			
Rear ports	One VGA, four USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin). Add-on parallel or serial ports via optional PCIe adapters			
Noise emissions	Operating: < 43.6 dB(A). Idle: < 33 dB(A) (Maximum configuration)			
Environmental specification	All models supports ASHARE B. Models with the following configuration supports ASHARE A3: Xeon E3-1230 v5/8GBx2/DVD±RW/1TB SATAx4/RAID520i/450Wx2/TPM			
		ASHRAE A2	ASHRAE A3	ASHRAE B
	Temperature - operating	10°C to 35°C (50°F to 95°F)	5°C to 40°C (41°F to 104°F)	5°C to 35°C (41°F to 95°F)
	Temperature - storage (with package)	-40°C to 60°C (-40°F to 140°F)	-40°C to 60°C (-40°F to 140°F)	-40°C to 60°C (-40°F to 140°F)
	Altitude - operating	20% to 80% (non-condensing)	8% to 85% (non-condensing)	8% to 80% (non-condensing)
	Humidity - storage (with package)	10% to 90% (non-condensing)	10% to 90% (non-condensing)	10% to 90% (non-condensing)
	Altitude - operating	0 m to 3048 m (0 ft to 10 000 ft) in an unpressurized environment		
	GREENGUARD certified, RoHS-compliant, Energy Star Server 2.1 qualified on redundant PSU models			



Expansion slots
4 PCIe 3.0 slots (top-down):
Slot 1: PCIe 3.0 x4, full height, full length, open-end, from PCH
Slot 2: PCIe 3.0 x16, full height, full length, from CPU
Slot 3: PCIe 3.0 x1, full height, half length, from PCH
Slot 4: PCIe 3.0 x8, full height, half length, open-end, from CPU
Note:
1. If a PCIe card is connected to slot 4, both slot 2 and slot 4 will work at PCIe x8.
2. If a discrete graphics card is used, slot 2 will work at PCIe x16 and slot 4 will be disable.

Model	Region	Processor	Memory	Storage Controller	Disk Bays	Disks	Optical	Add-on NIC	Add-on Ports	System Management	Operating System	Warranty	Power Supply	Ann Date (mm/yy)
70TR000LUX	US	Xeon E3-1220 v5 4C/3.0GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID121i	4x3.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	02/17
70TR000MUX	US	Xeon E3-1230 v5 4C/3.4GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID121i	4x3.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	02/17
70TR000NUX	US	Xeon E3-1240 v5 4C/3.5GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID121i	4x3.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	02/17
70TR000PUX	US	Xeon E3-1270 v5 4C/3.6GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID121i	4x3.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	02/17
70TR000QUX	US	Xeon E3-1220 v5 4C/3.0GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID520i	8x2.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	02/17
70TR000RUX	US	Xeon E3-1230 v5 4C/3.4GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID520i	8x2.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	02/17
70TR000SUX	US	Xeon E3-1240 v5 4C/3.5GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID520i	8x2.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	02/17
70TR000TUX	US	Xeon E3-1270 v5 4C/3.6GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID520i	8x2.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	02/17
70TR000UUX	US	Xeon E3-1220 v5 4C/3.0GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID121i	4x3.5" NHS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	02/17
70TR000VUX	US	Xeon E3-1230 v5 4C/3.4GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID121i	4x3.5" NHS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	02/17
70TR000WUX	US	Xeon E3-1240 v5 4C/3.5GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID121i	4x3.5" NHS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	02/17
70TR000XUX	US	Xeon E3-1270 v5 4C/3.6GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID121i	4x3.5" NHS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	02/17
70TR000YUX	US	Pentium G4400 2C/3.3GHz/3MB/54W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID121i	4x3.5" NHS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	02/17
70TR0016UX	US	Xeon E3-1220 v6 4C/3.0GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	4x3.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	06/17
70TR0017UX	US	Xeon E3-1230 v6 4C/3.5GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	4x3.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	06/17
70TR0018UX	US	Xeon E3-1240 v6 4C/3.7GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	4x3.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	06/17
70TR0019UX	US	Xeon E3-1270 v6 4C/3.8GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	4x3.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	06/17

Model	Region	Processor	Memory	Storage Controller	Disk Bays	Disks	Optical	Add-on NIC	Add-on Ports	System Management	Operating System	Warranty	Power Supply	Ann Date (mm/yy)
70TR001AUX	US	Xeon E3-1220 v6 4C/3.0GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID520i	8x2.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	06/17
70TR001BUX	US	Xeon E3-1230 v6 4C/3.5GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID520i	8x2.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	06/17
70TR001CUX	US	Xeon E3-1240 v6 4C/3.7GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID520i	8x2.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	06/17
70TR001DUX	US	Xeon E3-1270 v6 4C/3.8GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID520i	8x2.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	Fixed 300W Bronze	06/17

Model	Region	Processor	Memory	Storage Controller	Disk Bays	Disks	Optical	Add-on NIC	Add-on Ports	System Management	Operating System	Warranty	Power Supply	Ann Date (mm/yy)
70TT000JUX	US	Xeon E3-1220 v5 4C/3.0GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID121i	4x3.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	1x450W Gold	02/17
70TT000KUX	US	Xeon E3-1230 v5 4C/3.4GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID121i	4x3.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	1x450W Gold	02/17
70TT000LUX	US	Xeon E3-1240 v5 4C/3.5GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID121i	4x3.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	1x450W Gold	02/17
70TT000MUX	US	Xeon E3-1270 v5 4C/3.6GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID121i	4x3.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	1x450W Gold	02/17
70TT000NUX	US	Xeon E3-1220 v5 4C/3.0GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID520i	8x2.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	1x450W Gold	02/17
70TT000PUX	US	Xeon E3-1230 v5 4C/3.4GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID520i	8x2.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	1x450W Gold	02/17
70TT000QUX	US	Xeon E3-1240 v5 4C/3.5GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID520i	8x2.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	1x450W Gold	02/17
70TT000RUX	US	Xeon E3-1270 v5 4C/3.6GHz/8MB/80W/DDR4-2133	1x8GB UDIMM DDR4-2133 ECC	RAID520i	8x2.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	1x450W Gold	02/17
70TT001YUX	US	Xeon E3-1220 v6 4C/3.0GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	4x3.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	1x450W Gold	06/17
70TT0020UX	US	Xeon E3-1230 v6 4C/3.5GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	4x3.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	1x450W Gold	06/17
70TT0021UX	US	Xeon E3-1240 v6 4C/3.7GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	4x3.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	1x450W Gold	06/17
70TT0022UX	US	Xeon E3-1270 v6 4C/3.8GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID121i	4x3.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	1x450W Gold	06/17
70TT0023UX	US	Xeon E3-1220 v6 4C/3.0GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID520i	8x2.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	1x450W Gold	06/17
70TT0024UX	US	Xeon E3-1230 v6 4C/3.5GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID520i	8x2.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	1x450W Gold	06/17
70TT0025UX	US	Xeon E3-1240 v6 4C/3.7GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID520i	8x2.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	1x450W Gold	06/17
70TT0026UX	US	Xeon E3-1270 v6 4C/3.8GHz/8MB/72W/DDR4-2400	1x8GB UDIMM DDR4-2400 ECC	RAID520i	8x2.5" HS	Open	Open	None	None	TPM 2.0	None	1-year	1x450W Gold	06/17

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Warranty: For a copy of applicable warranties, write to: Lenovo Warranty Information, 1009 Think Place, Morrisville, NC, 27560. Lenovo makes no representation or warranty regarding third party products or services. The Lenovo Limited Warranty applies only to Lenovo hardware products purchased for your own use, and does not transfer upon resale.

Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

Lenovo Services:

Carry-in or Mail-in Service: Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.

Depot or Courier Service: Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Expedited Depot: Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Onsite / In-home Service: Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.

International Warranty Service (IWS): PC repair coverage for customers who require a critical warranty repair while travelling internationally. Visit www.lenovo.com/internationalwarranty for details. Visit www.lenovo.com/warranty for Lenovo Warranty Services terms and conditions for complete details and restrictions.

Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

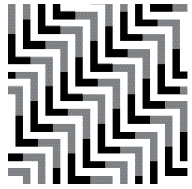
Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.

Visit <http://psref.lenovo.com/> for the latest version of Product Specifications Reference.

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Lenovo **ThinkSystem**

PSREF



Product Specifications Reference

Version 540, April 2019

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Summary of Changes

This section describes the changes made in this version of ThinkSystem PSREF and in previous version
This edition might also include minor corrections and editorial changes which are not identified

April 3, 2019 - Version 540

- ▶ Add 2nd Xeon Scalable processor, add DDR4-2933 memory, add Intel Optane DC Persistent Memory

September 12, 2018 - Version 530

- ▶ Add ThinkSystem SR670

May 9, 2018 - Version 524

- ▶ Withdraw ThinkSystem SR650/SR630/SR550/SR530/SR850/ST550 LFOs to April 2018
- ▶ Update ThinkSystem SR650/SR630/SR590/SR530 LA LFOs to April 2018

April 18, 2018 - Version 523

- ▶ Update ThinkSystem SR650/630/550/530 LFOs to April 2018

November 29, 2017 - Version 516

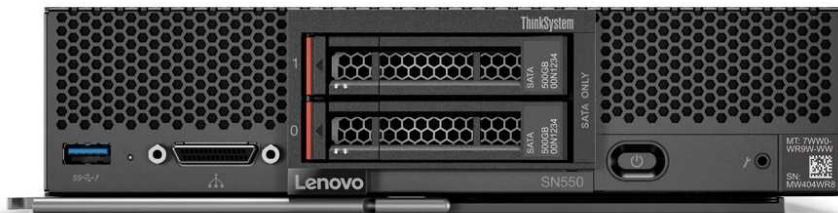
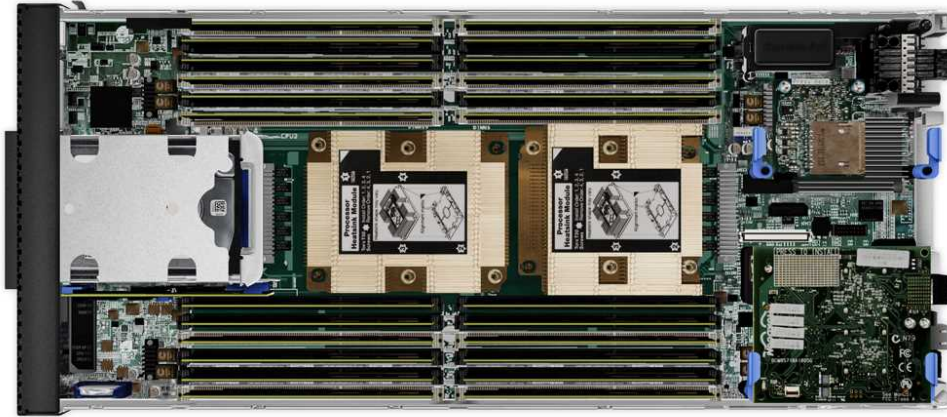
- ▶ Add new ThinkSystem SR860/SR590/SR570
- ▶ Add 128GB 3DS RDIMM, 480GB M.2 SSD, VMware ESXi 6.5U1, Red Hat Enterprise Linux 7.4 supports on compatible ThinkSystem servers

November 8, 2017 - Version 515

- ▶ Add ThinkSystem SN850/SN550/SD530 and ThinkSystem D2 Enclosure

July 12, 2017 - Version 509

- ▶ Initial version, includes ThinkSystem rack servers SR650/SR630/SR550/SR530, tower server ST550, and mission-critical servers SR850 and SR950.

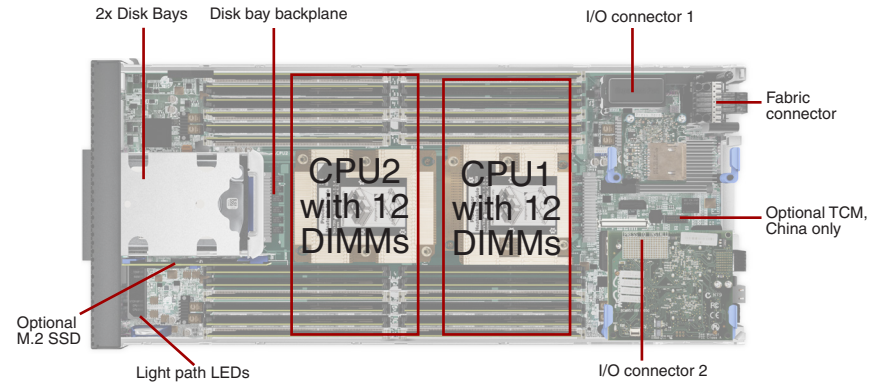


ThinkSystem SN550 Platform Specifications

Components	Specification																															
Form factor	Standard-width Flex System compute node																															
Dimensions	Height: 51 mm (2.0 in). Width: 215 mm (8.5 in). Depth: 493 mm (19.4 in)																															
Chassis support	Flex System Enterprise Chassis with CMM2																															
Weight	Maximum configuration: 15.6 lb (7.1 kg)																															
Processor	Up to two 165W Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 28 cores at 2.1GHz, up to 3.6GHz with 4 cores. Up to two UPI (Ultra Path Interconnect) links at maximum 10.4GT/s each																															
Chipset	Intel C624 Platform Controller Hub																															
Memory	Up to 24 DIMM sockets. Each processor supports up to 12 DIMM sockets with 6 channels. DDR4-2666. RDIMMs, LRDIMMs, and 3DS RDIMMs are supported, but memory types cannot be intermixed. 3DS RDIMM is planned to available later																															
Memory capacity	Up to 768GB with 24 x 32GB RDIMMs and two processors. Or up to 1.5TB with 24 x 64GB LRDIMMs and two processors. Or up to 3TB with 24 x 128GB 3DS RDIMMs and two -M suffix processors. -M suffix processor supports 1.5TB memory per socket, non -M suffix processor supports 768GB memory per socket																															
Memory protection	ECC, SDDC (for x4-based memory DIMMs), ADDDC (for x4-based memory DIMMs, requires Gold or Platinum processors), memory mirroring, and memory sparing																															
Storage controllers	Supports the following RAID/HBA adapters:																															
	<table border="1"> <thead> <tr> <th>Adapter</th> <th>Interface</th> <th>Drive type</th> <th>RAID levels</th> <th>JBOD</th> <th>Cache</th> <th>Cache protection</th> <th>FastPath</th> </tr> </thead> <tbody> <tr> <td>Onboard Intel RSTe</td> <td>6Gbps SATA</td> <td>SATA</td> <td>0/1</td> <td>Yes</td> <td>None</td> <td>None</td> <td>No</td> </tr> <tr> <td>530-4i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1</td> <td>Yes</td> <td>None</td> <td>None</td> <td>Yes</td> </tr> <tr> <td>930-4i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1</td> <td>Yes</td> <td>2GB</td> <td>Flash backup</td> <td>Yes</td> </tr> </tbody> </table>	Adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Onboard Intel RSTe	6Gbps SATA	SATA	0/1	Yes	None	None	No	530-4i	12Gbps SAS	SATA/SAS	0/1	Yes	None	None	Yes	930-4i	12Gbps SAS	SATA/SAS	0/1	Yes	2GB	Flash backup
Adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath																									
Onboard Intel RSTe	6Gbps SATA	SATA	0/1	Yes	None	None	No																									
530-4i	12Gbps SAS	SATA/SAS	0/1	Yes	None	None	Yes																									
930-4i	12Gbps SAS	SATA/SAS	0/1	Yes	2GB	Flash backup	Yes																									
Disk drive bays	Two 2.5" hot-swap disk bays. Depending on server configuration and installed backplanes, the two bays can support SATA, SATA/SAS, or SATA/NVMe disks. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																															
Internal storage	2.5" NVMe SSD	800GB/960GB/1.6TB/1.92TB/3.84TB																														
	2.5" HDD, SATA6Gbps, 7,2K	1TB/2TB																														
	2.5" HDD, SAS12Gbps, 7,2K	1TB/2TB																														
	2.5" HDD, SAS12Gbps, 15K	300GB/600GB/900GB																														
	2.5" HDD, SAS12Gbps, 10K	300GB/600GB/900GB/1.2TB/1.8TB/2.4TB																														
	2.5" HDD, SAS12Gbps, 10K, SED	300GB/600GB																														
	2.5" SSD, SATA6Gbps	240GB/480GB/960GB/1.92TB/3.84TB																														
	2.5" SSD, SAS12Gbps	400GB/800GB/1.6TB/3.84TB/7.68TB/15.36TB																														
M.2 SATA SSD	32GB/128GB/480GB																															
Network interfaces	Optional 4x 10GbE LOM with fabric connector. The fabric connector is supported to routes the four 10GbE ports to Flex system chassis midplane. Optional adapters are supported, up to 2 adapters, up to 40GbE																															
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 and 2.0 compliant. Optional TCM, China only																															
Operating systems supported	Microsoft Windows Server 2016, 2012 R2, Red Hat Enterprise Linux 6 and 7 x64, SUSE Linux Enterprise Server 11 and 12 x64, VMware vSphere 6.0 and 6.5																															
Systems management	UEFI. Lenovo XClarity Controller with Pilot4 XE401 baseboard management controller (BMC), Predictive Failure Analysis, light path diagnostics panel, automatic server restart, remote presence. Support for Lenovo XClarity Administrator and Lenovo XClarity Energy Manager																															
GPU support	None																															
Base warranty	MT 7X16: 3-year limited onsite service with 9x5/NBD																															
Power supply	Power to the blade server is derived from the power supplies that are installed in the chassis. There are no server options regarding power supplies.																															
Video	Integrated Matrox G200 in XClarity Controller																															
Front ports	One USB 3.0, one console breakout cable port that provides local KVM and serial ports (cable standard with chassis, more cables optional).																															
Environmental specification	Supports ASHRAE A3.																															
	Temperature - operating	A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)																														
	Temperature - non operating (no package)	5°C to 45°C (41°F to 113°F)																														
	Temperature - non operating (with package)	-40°C to 60°C (-40°F to 140°F)																														
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)																														
	Humidity - operating, non-condensing	A3:8%~85%. A2:8%~80%																														
Humidity - storage (with package), non-condensing	8%~90%																															

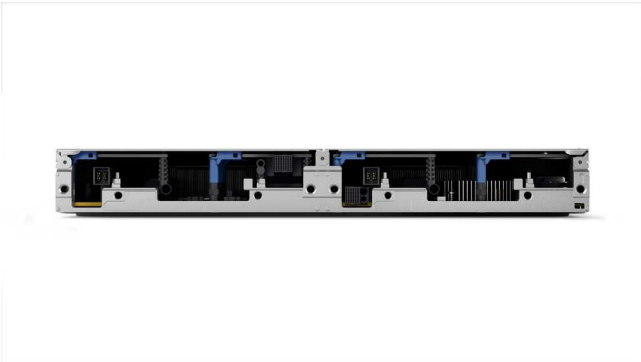
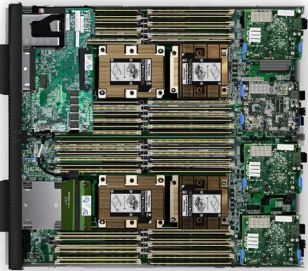
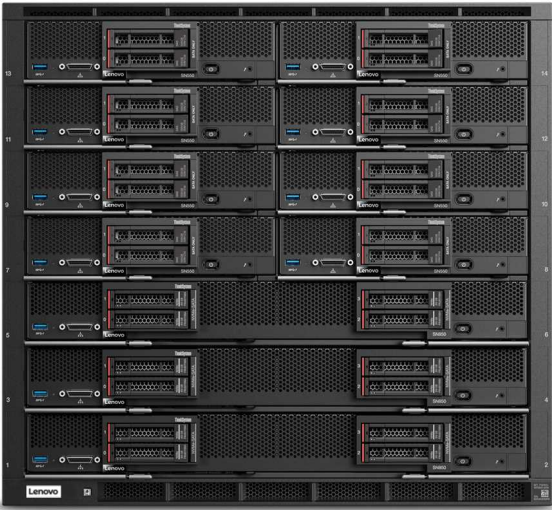
Expansion slots

Supports two PCIe 3.0 x16 I/O expansion connectors for attaching I/O adapter cards, each connector uses high-density, 216-pin PCIe connection. Please see I/O adapters below:



System unique options

7M27A03915	Lenovo SATA HDD/SSD Backplane for SN550
7M27A03916	Lenovo NVMe/SATA Backplane for SN550
7M27A03917	Lenovo RAID 930-4i-2GB 2 Drive Adapter Kit for SN550
7M27A03918	Lenovo RAID 530-4i 2 Drive Adapter Kit for SN550
7X77A01301	Lenovo 8GB TruDDR4 2666 MHz (1Rx8 1.2V) RDIMM
7X77A01302	Lenovo 16GB TruDDR4 2666 MHz (1Rx4 1.2V) RDIMM
7X77A01303	Lenovo 16GB TruDDR4 2666 MHz (2Rx8 1.2V) RDIMM
7X77A01304	Lenovo 32GB TruDDR4 2666 MHz (2Rx4 1.2V) RDIMM
7X77A01305	Lenovo 64GB TruDDR4 2666 MHz (4Rx4 1.2V) LRDIMM
00AG540	Flex System CN4052S 2-port 10Gb Virtual Fabric Adapter
00AG590	Flex System CN4054S 4-port 10Gb Virtual Fabric Adapter
01CV780	Flex System CN4052S 2-port 10Gb Virtual Fabric Adapter Advanced
01CV790	Flex System CN4054S 4-port 10Gb Virtual Fabric Adapter Advanced
7ZT7A00502	Lenovo Mellanox ConnectX-3 Mezz 40Gb 2-Port Ethernet Adapter
7ZT7A00520	Lenovo QLogic QML2692 Mezz 16Gb 2-Port Fibre Channel Adapter
7ZT7A00521	Lenovo Emulex LPm16002B-L Mezz 16Gb 2-Port Fibre Channel Adapter
7ZT7A00522	Lenovo Emulex LPm16004B-L Mezz 16Gb 4-Port Fibre Channel Adapter
7ZT7A00508	Lenovo Mellanox ConnectX-3 Mezz FDR 2-Port InfiniBand Adapter
7Y37A01092	Lenovo M.2 Enablement Kit
7Y37A01093	Lenovo M.2 with Mirroring Enablement Kit
7N47A00129	Lenovo M.2 32GB SATA 6Gbps Non-Hot-Swap SSD
7N47A00130	Lenovo M.2 128GB SATA 6Gbps Non-Hot-Swap SSD

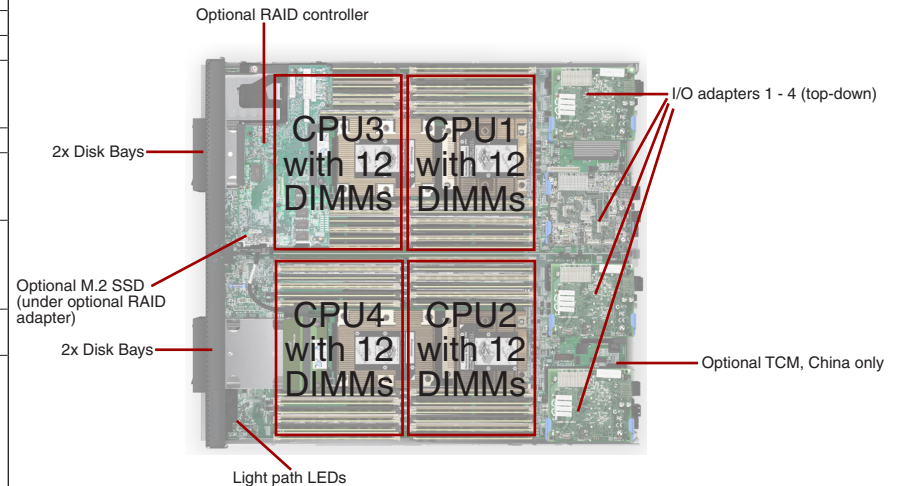


ThinkSystem SN850 Platform Specifications

Components	Specification																																
Form factor	Double-width Flex System compute node																																
Dimensions	Height: 55 mm (2.2 in). Width: 435 mm (17.1 in). Depth: 493 mm (19.4 in)																																
Chassis support	Flex System Enterprise Chassis with CMM2																																
Weight	Maximum configuration: 27 lb (12.3 kg)																																
Processor	Supports up to four 165W Intel Xeon Scalable family processors, Gold or Platinum. Up to 28 cores at 2.1GHz, up to 3.6GHz with 4 cores. Up to three UPI (Ultra Path Interconnect) links at maximum 10.4GT/s each																																
Chipset	Intel C624 Platform Controller Hub																																
Memory	Up to 48 DIMM sockets. Each processor supports up to 12 DIMM sockets with 6 channels. DDR4-2666. RDIMMs, LRDIMMs, and 3DS RDIMMs are supported, but memory types cannot be intermixed. 3DS RDIMM is planned to be available later																																
Memory capacity	Up to 1.5TB with 48 x 32GB RDIMMs and four processors. Or up to 3TB with 48 x 64GB LRDIMMs and four processors. Or up to 6TB with 48 x 128GB 3DS RDIMMs and four -M suffix processors. -M suffix processor supports 1.5TB memory per socket, non -M suffix processor supports 768GB memory per socket																																
Memory protection	ECC, SDDC (for x4-based memory DIMMs), ADDDC (for x4-based memory DIMMs), memory mirroring, and memory sparing.																																
Storage controllers	Supports the following RAID/HBA adapters: <table border="1"> <thead> <tr> <th>Adapter</th> <th>Interface</th> <th>Drive type</th> <th>RAID levels</th> <th>JBOD</th> <th>Cache</th> <th>Cache protection</th> <th>FastPath</th> </tr> </thead> <tbody> <tr> <td>Onboard Intel RSTe</td> <td>6Gbps SATA</td> <td>SATA</td> <td>0/1/10/5</td> <td>Yes</td> <td>None</td> <td>None</td> <td>No</td> </tr> <tr> <td>530-4i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5</td> <td>Yes</td> <td>None</td> <td>None</td> <td>Yes</td> </tr> <tr> <td>930-4i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/6</td> <td>Yes</td> <td>2GB</td> <td>Flash backup</td> <td>Yes</td> </tr> </tbody> </table>	Adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Onboard Intel RSTe	6Gbps SATA	SATA	0/1/10/5	Yes	None	None	No	530-4i	12Gbps SAS	SATA/SAS	0/1/10/5	Yes	None	None	Yes	930-4i	12Gbps SAS	SATA/SAS	0/1/10/5/6	Yes	2GB	Flash backup	Yes
Adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath																										
Onboard Intel RSTe	6Gbps SATA	SATA	0/1/10/5	Yes	None	None	No																										
530-4i	12Gbps SAS	SATA/SAS	0/1/10/5	Yes	None	None	Yes																										
930-4i	12Gbps SAS	SATA/SAS	0/1/10/5/6	Yes	2GB	Flash backup	Yes																										
Disk drive bays	Four 2.5" hot-swap disk bays. Depending on server configuration and installed backplanes, the four bays can support SATA, SATA/SAS, or SATA/NVMe disks. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																
Internal storage	<table border="1"> <tbody> <tr> <td>2.5" NVMe SSD</td> <td>800GB/960GB/1.6TB/1.92TB/3.84TB</td> </tr> <tr> <td>2.5" HDD, SATA6Gbps, 7,2K</td> <td>1TB/2TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 7,2K</td> <td>1TB/2TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 15K</td> <td>300GB/600GB/900GB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 10K</td> <td>300GB/600GB/900GB/1.2TB/1.8TB/2.4TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 10K, SED</td> <td>300GB/600GB</td> </tr> <tr> <td>2.5" SSD, SATA6Gbps</td> <td>240GB/480GB/960GB/1.92TB/3.84TB</td> </tr> <tr> <td>2.5" SSD, SAS12Gbps</td> <td>400GB/1.6TB/15.36TB</td> </tr> <tr> <td>M.2 SATA SSD</td> <td>32GB/128GB/480GB</td> </tr> </tbody> </table>	2.5" NVMe SSD	800GB/960GB/1.6TB/1.92TB/3.84TB	2.5" HDD, SATA6Gbps, 7,2K	1TB/2TB	2.5" HDD, SAS12Gbps, 7,2K	1TB/2TB	2.5" HDD, SAS12Gbps, 15K	300GB/600GB/900GB	2.5" HDD, SAS12Gbps, 10K	300GB/600GB/900GB/1.2TB/1.8TB/2.4TB	2.5" HDD, SAS12Gbps, 10K, SED	300GB/600GB	2.5" SSD, SATA6Gbps	240GB/480GB/960GB/1.92TB/3.84TB	2.5" SSD, SAS12Gbps	400GB/1.6TB/15.36TB	M.2 SATA SSD	32GB/128GB/480GB														
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M.2 SATA SSD	32GB/128GB/480GB																																
Network interfaces	Optional 4x 10GbE LOM with fabric connector. The fabric connector is supported to routes the four 10GbE ports to Flex system chassis midplane. Optional adapters are supported, up to 4 adapters, up to 40GbE																																
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 and 2.0 compliant. Optional TCM, China only																																
Operating systems supported	Microsoft Windows Server 2016, 2012 R2, Red Hat Enterprise Linux 6 and 7 x64, SUSE Linux Enterprise Server 11 and 12 x64, VMware vSphere 6.0 and 6.5																																
Systems management	UEFI. Lenovo XClarity Controller with Pilot4 XE401 baseboard management controller (BMC), Predictive Failure Analysis, light path diagnostics panel, automatic server restart, remote presence. Support for Lenovo XClarity Administrator and Lenovo XClarity Energy Manager																																
GPU support	None																																
Base warranty	MT 7X15: 3-year limited onsite service with 9x5/NBD																																
Power supply	Power to the blade server is derived from the power supplies that are installed in the chassis. There are no server options regarding power supplies.																																
Video	Integrated Matrox G200 in XClarity Controller																																
Front ports	One USB 3.0, one console breakout cable port that provides local KVM and serial ports (cable standard with chassis, more cables optional).																																
Environmental specification	Supports ASHRAE A3. <table border="1"> <tbody> <tr> <td>Temperature - operating</td> <td>A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)</td> </tr> <tr> <td>Temperature - non operating (no package)</td> <td>5°C to 45°C (41°F to 113°F)</td> </tr> <tr> <td>Temperature - non operating (with package)</td> <td>-40°C to 60°C (-40°F to 140°F)</td> </tr> <tr> <td>Altitude - operating</td> <td>(Unpressurized): 0-10000ft (0-3048m)</td> </tr> <tr> <td>Humidity - operating, non-condensing</td> <td>A3:8%~85%. A2:8%~80%</td> </tr> <tr> <td>Humidity - storage (with package), non-condensing</td> <td>8%~90%</td> </tr> </tbody> </table>	Temperature - operating	A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)	Temperature - non operating (no package)	5°C to 45°C (41°F to 113°F)	Temperature - non operating (with package)	-40°C to 60°C (-40°F to 140°F)	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)	Humidity - operating, non-condensing	A3:8%~85%. A2:8%~80%	Humidity - storage (with package), non-condensing	8%~90%																				
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Humidity - operating, non-condensing	A3:8%~85%. A2:8%~80%																																
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Expansion slots

Supports four PCIe 3.0 x16 I/O expansion connectors for attaching I/O adapter cards, each connector uses high-density, 216-pin PCIe connection. Please see I/O adapters below:



System unique options

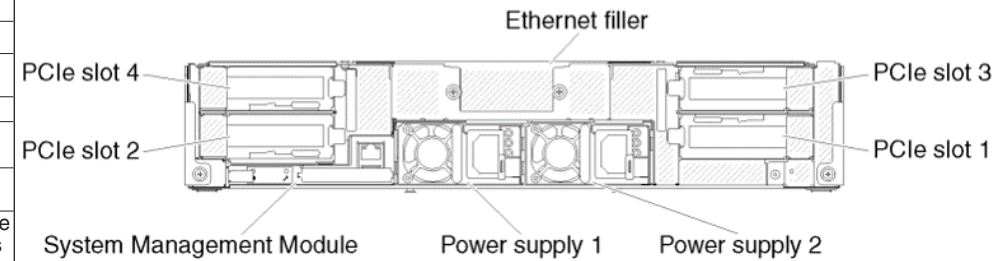
7M17A03930	Lenovo SATA HDD/SSD kit for SN850
7M17A03931	Lenovo NVMe/SATA Enablement Kit for SN850
7M17A03932	Lenovo RAID 530-4i 4 Drive Adapter Kit for SN850
7M17A03933	Lenovo RAID 930-4i-2GB 4 Drive Adapter Kit for SN850
7X77A01301	Lenovo 8GB TruDDR4 2666 MHz (1Rx8 1.2V) RDIMM
7X77A01302	Lenovo 16GB TruDDR4 2666 MHz (1Rx4 1.2V) RDIMM
7X77A01303	Lenovo 16GB TruDDR4 2666 MHz (2Rx8 1.2V) RDIMM
7X77A01304	Lenovo 32GB TruDDR4 2666 MHz (2Rx4 1.2V) RDIMM
7X77A01305	Lenovo 64GB TruDDR4 2666 MHz (4Rx4 1.2V) LRDIMM
00AG540	Flex System CN4052S 2-port 10Gb Virtual Fabric Adapter
00AG590	Flex System CN4054S 4-port 10Gb Virtual Fabric Adapter
01CV780	Flex System CN4052S 2-port 10Gb Virtual Fabric Adapter Advanced
01CV790	Flex System CN4054S 4-port 10Gb Virtual Fabric Adapter Advanced
7ZT7A00502	Lenovo Mellanox ConnectX-3 Mezz 40Gb 2-Port Ethernet Adapter
7ZT7A00520	Lenovo QLogic QML2692 Mezz 16Gb 2-Port Fibre Channel Adapter
7ZT7A00521	Lenovo Emulex LPm16002B-L Mezz 16Gb 2-Port Fibre Channel Adapter
7ZT7A00522	Lenovo Emulex LPm16004B-L Mezz 16Gb 4-Port Fibre Channel Adapter
7ZT7A00508	Lenovo Mellanox ConnectX-3 Mezz FDR 2-Port InfiniBand Adapter
7Y37A01092	Lenovo M.2 Enablement Kit
7Y37A01093	Lenovo M.2 with Mirroring Enablement Kit
7N47A00129	Lenovo M.2 32GB SATA 6Gbps Non-Hot-Swap SSD
7N47A00130	Lenovo M.2 128GB SATA 6Gbps Non-Hot-Swap SSD



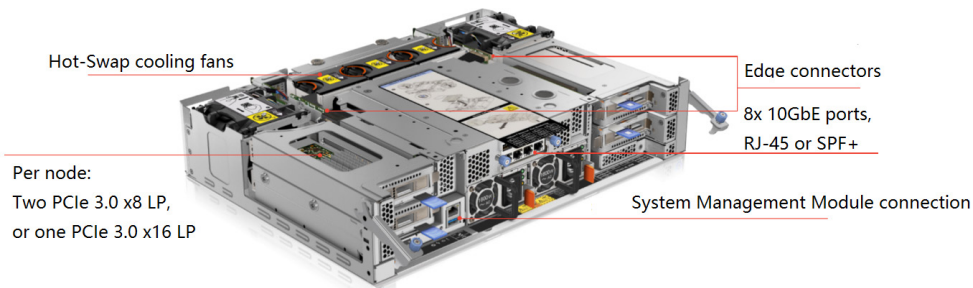
ThinkSystem D2 Enclosure Platform Specifications

Components	Specification
Form factor	2U rack
Dimensions	Height: 87 mm (3.5 in). Width: 488 mm (19.3 in). Depth: 892 mm (35.1 in)
Server support	Per enclosure: up to 4 servers per chassis Per 42U rack: up to 84 servers in 21 enclosures
Weight	Maximum configuration with four fully configured nodes: 121.2 lb (55 kg)
Network interfaces	Optional 8x 10 GbE ports Ethernet I/O Module (EIOM), SFP+ or RJ-45, two ports per server from chipset
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 and 2.0 compliant. Optional TCM, China only
Systems management	The hot-swappable System Management Module (SMM) is the management device for the enclosure. Provides integrated systems management functions and controls the power and cooling features of the enclosure. Provides remote browser and CLI-based user interfaces for remote access via the dedicated Gigabit Ethernet port. Remote access is to both the management functions of the enclosure as well as the XClarity Controller (XCC) in each server. SMM provides four LEDs: system error, identification, status, and system power. Each power supply has AC, DC and error LEDs
Base warranty	MT 7X20: 3-year limited onsite service with 9x5/NBD
Power supply	Up to two redundant hot-swap 1100W/1600W/2000W 80 PLUS Platinum qualified AC power supplies. 1600W and 2000W are 200V - 240V, 1100W is 100V - 240V
Cooling	Five hot-swap system fans, accessible via removable panel in the top cover of the enclosure

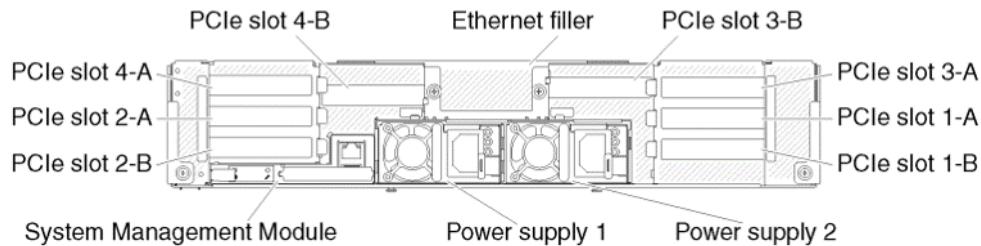
Expansion slots for PCIe 3.0 x16 models



Shuttle



Expansion slots for PCIe 3.0 x8 models



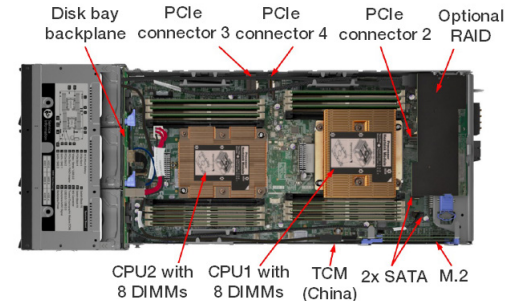


ThinkSystem SD530 Platform Specifications

Components	Specification																								
Form factor	Half-wide, 1U compute node																								
Dimensions	Height: 41 mm (1.7 in). Width: 222 mm (8.8 in). Depth: 562 mm (22.2 in)																								
Chassis support	ThinkSystem D2 Enclosure. 2U. Up to 4 ThinkSystem SD530 servers per enclosure																								
Weight	Maximum configuration: 16.6 lb (7.5 kg)																								
Processor	Up to two 165W Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 28 cores at 2.1GHz, up to 3.6GHz with 4 cores. Up to two UPI (Ultra Path Interconnect) links at maximum 10.4GT/s each																								
Chipset	Intel C624 Platform Controller Hub																								
Memory	Up to 12 or 16 DIMM sockets depending on the processor selected. Each processor supports up to 6 or 8 DIMM sockets. DDR4-2666. RDIMMs and LRDIMMs are supported, but memory types cannot be intermixed.																								
Memory capacity	16 DIMMs models: RDIMMs: Up to 512GB with 16x 32GB RDIMMs and two processors LRDIMMs: Up to 1TB with 16x 64GB LRDIMMs and two processors 12 DIMMs models: RDIMMs: Up to 384GB with 12x 32GB RDIMMs and two processors LRDIMMs: Up to 768GB with 12x 64GB LRDIMMs and two processors																								
Memory protection	ECC, Chipkill protection (for x4-based memory DIMMs), memory mirroring, and memory sparing																								
Storage controllers	Supports the following RAID adapters: <table border="1"> <thead> <tr> <th>Adapter</th> <th>Interface</th> <th>Drive type</th> <th>RAID levels</th> <th>JBOD</th> <th>Cache</th> <th>Cache protection</th> <th>FastPath</th> </tr> </thead> <tbody> <tr> <td>Onboard Intel RSTe</td> <td>6Gbps SATA</td> <td>SATA</td> <td>0/1/10/5</td> <td>Yes</td> <td>None</td> <td>None</td> <td>No</td> </tr> <tr> <td>530-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5</td> <td>Yes</td> <td>None</td> <td>None</td> <td>Yes</td> </tr> </tbody> </table>	Adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Onboard Intel RSTe	6Gbps SATA	SATA	0/1/10/5	Yes	None	None	No	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5	Yes	None	None	Yes
Adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath																		
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530-8i	12Gbps SAS	SATA/SAS	0/1/10/5	Yes	None	None	Yes																		
Disk drive bays	Up to four 2.5" hot-swap disk bays, or up to six 2.5" hot-swap disk bays, or up to six 2.5" hot-swap disk bays with two AnyBay. SAS support requires 530-8i. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																								
Internal storage	<table border="1"> <tbody> <tr> <td>2.5" NVMe SSD</td> <td>800GB/960GB/1.6TB/1.92TB</td> </tr> <tr> <td>2.5" HDD, SATA6Gbps, 7,2K</td> <td>1TB/2TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 7,2K</td> <td>2TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 7,2K, SED</td> <td>1TB/2TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 15K</td> <td>300GB/600GB/900GB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 10K</td> <td>300GB/600GB/900GB/1.2TB/1.8TB/2.4TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 10K, SED</td> <td>2.4TB</td> </tr> <tr> <td>2.5" SSD, SATA6Gbps</td> <td>240GB/480GB/960GB/1.92TB/3.84TB</td> </tr> <tr> <td>2.5" SSD, SAS12Gbps</td> <td>400GB/800GB/1.6TB/3.84TB/7.68TB/15.36TB</td> </tr> <tr> <td>M.2 SATA SSD</td> <td>32GB/128GB</td> </tr> </tbody> </table>	2.5" NVMe SSD	800GB/960GB/1.6TB/1.92TB	2.5" HDD, SATA6Gbps, 7,2K	1TB/2TB	2.5" HDD, SAS12Gbps, 7,2K	2TB	2.5" HDD, SAS12Gbps, 7,2K, SED	1TB/2TB	2.5" HDD, SAS12Gbps, 15K	300GB/600GB/900GB	2.5" HDD, SAS12Gbps, 10K	300GB/600GB/900GB/1.2TB/1.8TB/2.4TB	2.5" HDD, SAS12Gbps, 10K, SED	2.4TB	2.5" SSD, SATA6Gbps	240GB/480GB/960GB/1.92TB/3.84TB	2.5" SSD, SAS12Gbps	400GB/800GB/1.6TB/3.84TB/7.68TB/15.36TB	M.2 SATA SSD	32GB/128GB				
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M.2 SATA SSD	32GB/128GB																								
Network interfaces	Two 10 GbE ports, SFP+ or RJ-45, routed through the Ethernet I/O Module at the rear of the D2 Enclosure. Networking ports are based on Intel Ethernet Connection X722 in chipset																								
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 and 2.0 compliant. Optional TCM, China only																								
Operating systems supported	Microsoft Windows Server 2016, 2012 R2, Red Hat Enterprise Linux 6 and 7 x64, SUSE Linux Enterprise Server 11 and 12 x64, VMware ESXi 6.0 and 6.5																								
Systems management	Operator panel with system error LED and ID and power controls. XClarity Controller embedded management, XClarity Administrator centralized infrastructure delivery, XClarity Integrator plugins, and XClarity Energy Manager centralized server power management. Optional XClarity Controller Advanced to enable remote control functions. System Management Module (SMM) in the D2 Enclosure provides additional systemsmanagement functions																								
GPU support	None																								
Base warranty	MT 7X21: 3-year limited onsite service with 9x5/NBD																								
Power supply	Supplied by D2 Enclosure																								
Video	Integrated Matrox G200 in XClarity Controller																								
Front ports	Optional KVM breakout module for one USB 3.0 and one console breakout cable port for local KVM and serial ports. KVM breakout module will occupy one disk bay on 6x 2.5" disk bay model																								

Components	Specification	
Environmental specification	Supports ASHRAE A4 with limitations.	
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
	Altitude - operating	(Unpressurized); 0-10000ft (0-3048m)
	Humidity - operating, non-condensing	A4: 8%-90%. A3:8%-85%. A2:20%-80%
	Humidity - storage (with package), non-condensing	8%-90%
Models should meet the following requirements to support A3 and A4:		
<ul style="list-style-type: none"> • NVMe drives not installed • M.2 drives not installed 		

Expansion slots
Supports one PCIe 3.0 x16 low-profile slot, or two PCIe 3.0 x8 low-profile slots. Slots are housed in I/O shuttle in rear of the D2 Enclosure



Backplane and memory DIMM sockets supports by processor

Maxium DIMM Sockets	12 DIMMs		16 DIMMs	
Backplane	2x2	2x3	2x2	2x3
Xeon Bronze 3104	Yes	Yes	Yes	No
Xeon Bronze 3106	Yes	Yes	Yes	No
Xeon Silver 4108	Yes	Yes	Yes	No
Xeon Silver 4109T	Yes	No	No	No
Xeon Silver 4110	Yes	Yes	Yes	No
Xeon Silver 4112	Yes	Yes	Yes	No
Xeon Silver 4114	Yes	Yes	Yes	No
Xeon Silver 4116	Yes	Yes	Yes	No
Xeon Gold 5115	Yes	Yes	Yes	No
Xeon Gold 5118	Yes	Yes	Yes	No
Xeon Gold 5120	Yes	Yes	Yes	No
Xeon Gold 5120T	Yes	No	No	No
Xeon Gold 5122	Yes	No	No	No
Xeon Gold 6126	Yes	Yes	No	No
Xeon Gold 6130	Yes	Yes	Yes	No
Xeon Gold 6130T	Yes	No	No	No
Xeon Gold 6134	Yes	No	No	No
Xeon Gold 6136	Yes	No	No	No
Xeon Gold 6138	Yes	Yes	No	No
Xeon Gold 6138T	Yes	No	No	No
Xeon Gold 6140	Yes	Yes	No	No
Xeon Gold 6142	Yes	No	No	No
Xeon Gold 6148	Yes	No	No	No
Xeon Gold 6150	Yes	No	No	No
Xeon Gold 6152	Yes	Yes	No	No
Xeon Platinum 8153	Yes	Yes	Yes	No
Xeon Platinum 8156	Yes	No	No	No
Xeon Platinum 8158	Yes	No	No	No
Xeon Platinum 8160	Yes	No	No	No
Xeon Platinum 8164	Yes	No	No	No
Xeon Platinum 8170	Yes	No	No	No
Xeon Platinum 8176	Yes	No	No	No

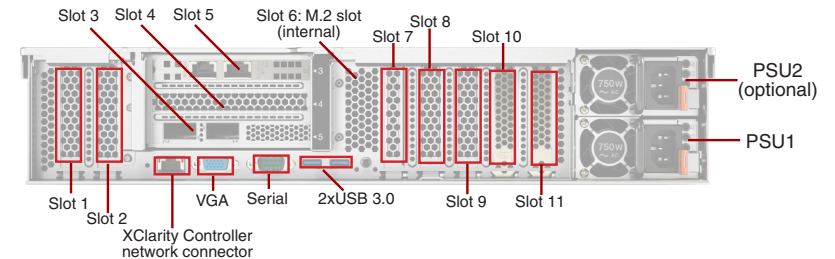


ThinkSystem SR850 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																										
Form factor	2U rack																																																																																										
Dimensions	Height: 86.5 mm (3.4 in). Width: 482 mm (19.0 in) with rack latches. Depth: 763.7 mm (30.1 in) without security bezel																																																																																										
Weight	Maximum configuration: 59.52 lb (27 kg)																																																																																										
Processor	Supports up to four 205W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Gold or Platinum. 2 processor sockets on system board, 2 processor sockets on optional processor and memory expansion tray. Up to 28 cores at 2.7GHz, up to 3.8GHz with 4 cores. Four processors are connected in ring topology with two 10.4GT/s UPI (Ultra Path Interconnect)																																																																																										
Chipset	Intel C624 Platform Controller Hub																																																																																										
Memory offering	Up to 48 DIMM sockets. 24 DIMM sockets on system main board, 24 DIMM sockets on optional processor and memory expansion tray. Each processor supports up to 12 DIMM sockets with 6 channels. Supports following:																																																																																										
	<table border="1"> <thead> <tr> <th>Memory Type</th> <th>Speed</th> <th>Offering</th> </tr> </thead> <tbody> <tr> <td>Intel Optane DC Persistent Memory</td> <td>DDR4-2666</td> <td>128GB/256GB/512GB</td> </tr> <tr> <td>RDIMM</td> <td>DDR4-2933</td> <td>8GB/16GB/32GB/64GB</td> </tr> <tr> <td>LRDIMM</td> <td>DDR4-2933</td> <td>64GB/128GB</td> </tr> <tr> <td>3DS RDIMM</td> <td>DDR4-2933</td> <td>128GB</td> </tr> <tr> <td>Performance+ RDIMM</td> <td>DDR4-2933</td> <td>16GB/32GB/64GB</td> </tr> <tr> <td>Performance+ 3DS RDIMM</td> <td>DDR4-2933</td> <td>128GB</td> </tr> <tr> <td>RDIMM</td> <td>DDR4-2666</td> <td>8GB/16GB/32GB</td> </tr> <tr> <td>LRDIMM</td> <td>DDR4-2666</td> <td>64GB</td> </tr> <tr> <td>3DS RDIMM</td> <td>DDR4-2666</td> <td>128GB</td> </tr> </tbody> </table>	Memory Type	Speed	Offering	Intel Optane DC Persistent Memory	DDR4-2666	128GB/256GB/512GB	RDIMM	DDR4-2933	8GB/16GB/32GB/64GB	LRDIMM	DDR4-2933	64GB/128GB	3DS RDIMM	DDR4-2933	128GB	Performance+ RDIMM	DDR4-2933	16GB/32GB/64GB	Performance+ 3DS RDIMM	DDR4-2933	128GB	RDIMM	DDR4-2666	8GB/16GB/32GB	LRDIMM	DDR4-2666	64GB	3DS RDIMM	DDR4-2666	128GB																																																												
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Memory capacity	<ul style="list-style-type: none"> 6TB with 48x 128GB 3DS RDIMM and four M or L SKU processors 12TB with 24x 512GB DC Persistent Memory (memory mode) and four L SKU processors 15TB with 24x 512GB DC Persistent Memory (memory mode) + 24x 128GB 3DS RDIMM and four L SKU processors 																																																																																										
Memory protection	ECC, memory mirroring, and memory sparing																																																																																										
Storage controllers	Supports the following RAID/HBA adapters:																																																																																										
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	Feature	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Max qty																																																																																		
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Disk drive bays	Supports 8 front 2.5" SATA/SAS HS bays with maximum 4 AnyBay, or 16 front 2.5" SATA/SAS HS bays with maximum 8 AnyBay Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																																																																										
Internal storage	2.5" HDD, SAS12Gbps, 7.2K	1TB/2TB																																																																																									
	2.5" HDD, SAS12Gbps, 10K	300GB/300GB SED/600GB/600GB SED/900GB/1.2TB/1.8TB																																																																																									
	2.5" HDD, SAS12Gbps, 15K	300GB/600GB/900GB																																																																																									
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	2.5" SSD, SATA6Gbps	240GB/480GB																																																																																									
	2.5" NVMe SSD, AnyBay	800GB/960GB/1.6TB/1.92TB/3.84TB																																																																																									
	NVMe SSD, PCIe 3.0 x4, HHHL adapter	1.6TB/1.92TB/3.2TB/3.84TB																																																																																									
M.2 SATA SSD for boot	32GB/128GB/480GB																																																																																										
Optical	No internal optical bay. Optional USB DVD±RW optical drive																																																																																										
Network interfaces	One dedicated management port. One LOM slot for customized LOM with up to four RJ-45 or SFP+ ports, up to 10GbE. Wake-on-LAN and NC-SI are available on one port of LOM. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot.																																																																																										
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel																																																																																										
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.3/6.9. SUSE Linux Enterprise Server 12 SP2/11 SP4. VMware vSphere (ESXi) 6.5/6.0 U3																																																																																										
Systems management	XClarity Controller Advanced, optional upgrades to Enterprise is available. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Light Path Diagnostics with optional LCD diagnostic pull-out panel																																																																																										
GPU support	None																																																																																										
Base warranty	MT 7X18: 1-year limited onsite service with 9x5/NBD MT 7X19: 3-year limited onsite service with 9x5/NBD																																																																																										
Power supply	Up to two redundant hot-swap 750W/1100W/1600W 80 PLUS Platinum qualified AC power supplies. 1600W Platinum are 200V - 240V, others are 100V - 240V																																																																																										

Components	Specification	
Video	Integrated Matrox G200 in XClarity Controller	
Cooling	Six hot-swap fans, N + 1 redundancy	
Front ports	One XClarity Controller USB connector, one USB 2.0 or USB 3.0 (model dependent), one optional VGA	
Rear ports	One VGA, two USB 3.0, one serial, one XClarity Controller network connector	
Environmental specification	Supports ASHRAE A4 with limitations.	
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating, non-condensing	A4: 8%-90%. A3:8%-85%. A2:20%-80%
	Humidity - storage (with package), non-condensing	8%-90%
Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/	



Note: All riser cards, expansion cards, and LOM adapters are optional. Slots are labelled as 1, 2, 3, 4, 5, 7, 8, 9, 10, 11. Slot 6 is internal M.2 slot for optional M.2 enablement kit

Expansion slots

Slot 1 (onboard)	PCIe 3.0 x16, low profile, requires 2nd CPU
Slot 2 (onboard)	PCIe 3.0 x8, low profile, requires 2nd CPU
Slot 3-5 (riser card)	Supports one of the following for riser card: Option 1: PCIe 3.0 x8/x8/x8 (slot 3-5). Full height, half length. Option 2: PCIe 3.0 x8/x8/x8 ML2 (slot 3-5). Full height, half length Option 4: PCIe 3.0 x8/x16 ML2 (slot 3 and 5). Full height, half length Slot 3 - 5 requires 2nd CPU
Slot 7 (onboard)	LOM, low profile
Slot 8 (onboard)	PCIe 3.0 x8, low profile
Slot 9 (onboard)	PCIe 3.0 x8, low profile
Slot 10 (onboard)	PCIe 3.0 x8, low profile
Slot 11 (onboard)	PCIe 3.0 x16, low profile

System unique options for ThinkSystem SR850

7B27A03953	ThinkSystem SR850/SR860 Processor and Memory Expansion Tray
7C57A03999	ThinkSystem SR850/SR860 2.5" Anybay 8-Bay BP Kit
7C57A03998	ThinkSystem SR850/SR860 2.5" SATA/SAS 8-Bay BP Kit
7X97A03954	ThinkSystem SR850 Front VGA Connector Upgrade Kit
7C57A03950	ThinkSystem SR850/SR860 x8/x8/x8 PCIe FH Riser Kit
7C57A03951	ThinkSystem SR850/SR860 x8/x8/x8ML2 PCIe FH Riser Kit
7C57A03952	ThinkSystem SR850/SR860 x8/x16ML2 PCIe FH Riser Kit

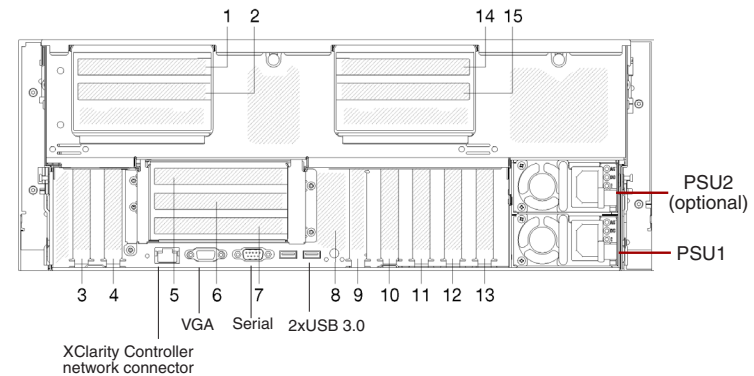


ThinkSystem SR860 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																										
Form factor	4U rack																																																																																										
Dimensions	Height: 175 mm (6.9 in). Width: 482 mm (19.0 in) with rack latches. Depth: 765.88 mm (30.15 in) without security bezel																																																																																										
Weight	Maximum configuration: 87.74 lb (39.8 kg)																																																																																										
Processor	Supports up to four 205W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Gold or Platinum. 2 processor sockets on system board, 2 processor sockets on optional processor and memory expansion tray. Up to 28 cores at 2.7GHz, up to 3.8GHz with 4 cores. Four processors are connected in ring topology with two 10.4GT/s UPI (Ultra Path Interconnect) per processor																																																																																										
Chipset	Intel C624 Platform Controller Hub																																																																																										
Memory	Up to 48 DIMM sockets. 24 DIMM sockets on system main board, 24 DIMM sockets on optional processor and memory expansion tray. Each processor supports up to 12 DIMM sockets with 6 channels. Supports following:																																																																																										
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Memory capacity	<ul style="list-style-type: none"> 6TB with 48x 128GB 3DS RDIMM and four M or L SKU processors 12TB with 24x 512GB DC Persistent Memory (memory mode) and four L SKU processors 15TB with 24x 512GB DC Persistent Memory (memory mode) + 24x 128GB 3DS RDIMM and four L SKU processors 																																																																																										
Memory protection	ECC, memory mirroring, and memory sparing																																																																																										
Storage controllers	Supports the following RAID/HBA adapters:																																																																																										
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Disk drive bays	Supports 8 front 2.5" SATA/SAS HS bays with maximum 4 AnyBay, or 16 front 2.5" SATA/SAS HS bays with maximum 8 AnyBay Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																																																																										
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Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.4/6.9. SUSE Linux Enterprise Server 12 SP3/11 SP4. VMware ESXi 6.5 U1/6.0 U3																																																																																										
Systems management	XClarity Controller Advanced, optional upgrades to Enterprise is available. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Light Path Diagnostics with optional LCD diagnostic pull-out panel																																																																																										
GPU support	Up to two NVIDIA Tesla M60 GPU accelerator, 300W each																																																																																										
Base warranty	MT 7X69: 3-year limited onsite service with 9x5/NBD MT 7X70: 1-year limited onsite service with 9x5/NBD																																																																																										
Power supply	Up to two redundant hot-swap 750W/1100W/1600W/2000W 80 PLUS Platinum qualified AC power supplies. 1600W and 2000W are 200V - 240V, others are 100V - 240V																																																																																										
Video	Integrated Matrox G200 in XClarity Controller																																																																																										

Components	Specification	
Cooling	Six hot-swap fans, N + 1 redundancy	
Front ports	One XClarity Controller USB connector, one USB 2.0 or USB 3.0 (model dependent), one VGA	
Rear ports	One VGA, two USB 3.0, one serial, one XClarity Controller network connector	
Environmental specification	Supports ASHRAE A4 with limitations.	
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating, non-condensing	A4: 8%-90%. A3:8%-85%. A2:8%-80%
Humidity - storage (with package), non-condensing	8%-90%	
<i>Models should meet the following requirements to support A3 and A4:</i>		
<ul style="list-style-type: none"> Two PSU installed NVMe drives not installed PCIe flash adapter not installed GPU not installed 		
Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/	



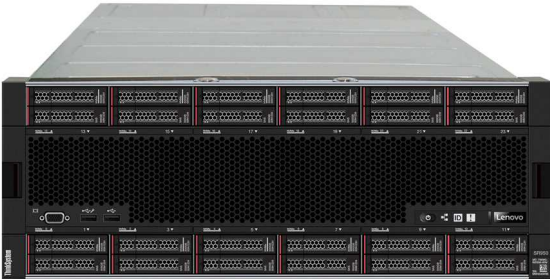
Expansion slots

Up to 13 PCIe slots with one LOM slot and one M.2 slot

Slot 1-2 (riser card 2)	One PCIe 3.0 x16 for GPU or two PCIe 3.0 x8, full height, full length
Slot 3 (onboard)	PCIe 3.0 x16, for riser card 2 or used as a low profile slot if riser card 2 not used
Slot 4 (onboard)	PCIe 3.0 x8, low profile
Slot 5-7 (riser card 1)	Supports one of the following for riser card: Option 1: PCIe 3.0 x8/x8/x8 (slot 5-7). Full height, half length Option 2: PCIe 3.0 x8/x8/x8 ML2 (slot 5-7). Full height, half length Option 4: PCIe 3.0 x8/x16 ML2 (slot 5 and 7). Full height, half length
Slot 8 (onboard)	M.2 slot for M.2 enablement kit, internal
Slot 9 (onboard)	LOM slot, low profile
Slot 10 -12 (onboard)	PCIe 3.0 x8, low profile
Slot 13 (onboard)	PCIe 3.0 x16, for riser card 3 or used as a low profile slot if riser card 3 not used
Slot 14-15 (riser card 3)	One PCIe 3.0 x16 for GPU or two PCIe 3.0 x8, full height, full length, 4 CPU required

System unique options for ThinkSystem SR850

7B27A03953	ThinkSystem SR850/SR860 Processor and Memory Expansion Tray
7C57A03999	ThinkSystem SR850/SR860 2.5" Anybay 8-Bay BP Kit
7C57A03998	ThinkSystem SR850/SR860 2.5" SATA/SAS 8-Bay BP Kit
7C57A03950	ThinkSystem 2U x8/x8/x8 PCIe FH Riser 1
7C57A03951	ThinkSystem 2U x8/x8/x8ML2 PCIe FH Riser 1
7C57A03952	ThinkSystem 2U x8/x16ML2 PCIe FH Riser 1
4C57A08184	ThinkSystem SR860 2x8 PCIe FH Riser 2 (Slot 1 & 2)
4C57A08186	ThinkSystem SR860 1x16 PCIe FH Riser 2 (Slot 1)
4C57A08185	ThinkSystem SR860 2x8 PCIe FH Riser 3 (Slot 14 & 15)
4C57A08187	ThinkSystem SR860 1x16 PCIe FHFL Riser 3 (Slot 14)
00KG655	NVIDIA Tesla M60 GPU, PCIe (Passive)

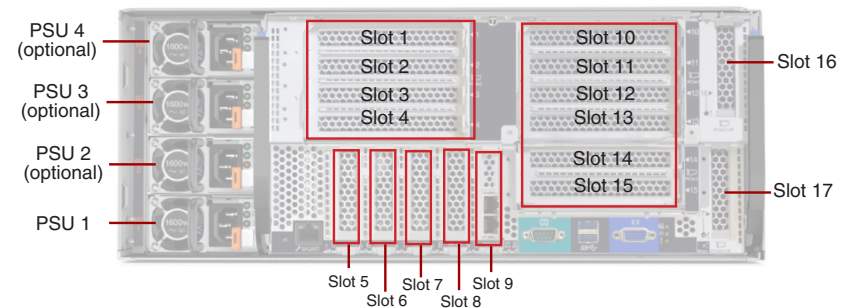


ThinkSystem SR950 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																	
Form factor	4U rack																																																																																	
Dimensions	Height: 175.8 mm (6.9 in). Width: 483 mm (19.0 in) at EIA Flange. Depth: 853 mm (33.6 in)																																																																																	
Weight	Maximum configuration: 129.4 lb (58.7 kg)																																																																																	
Processor	Supports up to four Gen 1 or Gen 2 Intel Xeon Scalable family processors, Gold or Platinum. Or up to eight Intel Xeon Scalable family processors, Platinum only. Processors and memory are located on system boards installed in compute trays: 2 processors per system board, 2 system boards per compute tray, up to 2 compute tray per system. Up to 28 cores at 2.7GHz, up to 3.8GHz with 4 cores. Up to three UPI (Ultra Path Interconnect) links at maximum 10.4GT/s each																																																																																	
Chipset	Intel C624 Platform Controller Hub																																																																																	
Memory offering	Up to 96 DIMM sockets. Each processor supports up to 12 DIMM sockets with 6 channels. Supports following:																																																																																	
	<table border="1"> <thead> <tr> <th>Memory Type</th> <th>Speed</th> <th>Offering</th> </tr> </thead> <tbody> <tr> <td>Intel Optane DC Persistent Memory</td> <td>DDR4-2666</td> <td>128GB/256GB/512GB</td> </tr> <tr> <td>RDIMM</td> <td>DDR4-2933</td> <td>16GB/32GB/64GB</td> </tr> <tr> <td>LRDIMM</td> <td>DDR4-2933</td> <td>64GB/128GB</td> </tr> <tr> <td>3DS RDIMM</td> <td>DDR4-2933</td> <td>64GB/128GB/256GB</td> </tr> <tr> <td>Performance+ RDIMM</td> <td>DDR4-2933</td> <td>16GB/32GB/64GB</td> </tr> <tr> <td>Performance+ 3DS RDIMM</td> <td>DDR4-2933</td> <td>128GB/256GB</td> </tr> <tr> <td>RDIMM</td> <td>DDR4-2666</td> <td>16GB/32GB</td> </tr> <tr> <td>LRDIMM</td> <td>DDR4-2666</td> <td>64GB</td> </tr> <tr> <td>3DS RDIMM</td> <td>DDR4-2666</td> <td>64GB/128GB</td> </tr> </tbody> </table>	Memory Type	Speed	Offering	Intel Optane DC Persistent Memory	DDR4-2666	128GB/256GB/512GB	RDIMM	DDR4-2933	16GB/32GB/64GB	LRDIMM	DDR4-2933	64GB/128GB	3DS RDIMM	DDR4-2933	64GB/128GB/256GB	Performance+ RDIMM	DDR4-2933	16GB/32GB/64GB	Performance+ 3DS RDIMM	DDR4-2933	128GB/256GB	RDIMM	DDR4-2666	16GB/32GB	LRDIMM	DDR4-2666	64GB	3DS RDIMM	DDR4-2666	64GB/128GB																																																			
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LRDIMM	DDR4-2666	64GB																																																																																
3DS RDIMM	DDR4-2666	64GB/128GB																																																																																
Memory capacity	<ul style="list-style-type: none"> 24TB with 96x 256GB 3DS RDIMM and eight L SKU processors 24TB with 48x 512GB DC Persistent Memory (memory mode) and eight L SKU processors 36TB with 48x 512GB DC Persistent Memory (memory mode) + 48x 256GB 3DS RDIMM and eight L SKU processors 																																																																																	
Memory protection	ECC, memory mirroring, and memory rank sparing.																																																																																	
Storage controllers	Up to two dedicated internal RAID slots for most RAID/HBA adapters. Supports the following RAID/HBA adapters:																																																																																	
	<table border="1"> <thead> <tr> <th>Feature</th> <th>Interface</th> <th>Drive type</th> <th>RAID levels</th> <th>JBOD</th> <th>Cache</th> <th>Cache protection</th> <th>FastPath</th> <th>Max qty</th> </tr> </thead> <tbody> <tr> <td>530-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>None</td> <td>None</td> <td>Yes</td> <td>2</td> </tr> <tr> <td>730-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>1GB</td> <td>None</td> <td>No</td> <td>2</td> </tr> <tr> <td>930-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>2GB</td> <td>Flash backup</td> <td>Yes</td> <td>2</td> </tr> <tr> <td>930-16i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> <td>2</td> </tr> <tr> <td>430-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> <td>2</td> </tr> <tr> <td>430-16i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> <td>2</td> </tr> <tr> <td>930-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> <td>4</td> </tr> <tr> <td>430-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> <td>14</td> </tr> </tbody> </table>	Feature	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Max qty	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes	2	730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No	2	930-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	2GB	Flash backup	Yes	2	930-16i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	2	430-8i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	2	430-16i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	2	930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	4	430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	14
	Feature	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Max qty																																																																									
	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes	2																																																																									
	730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No	2																																																																									
	930-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	2GB	Flash backup	Yes	2																																																																									
	930-16i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	2																																																																									
	430-8i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	2																																																																									
	430-16i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	2																																																																									
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430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	14																																																																										
	Note: 730-8i is available in China only. 930-8e should be placed in slot 7 firstly. 430-8e should be placed in slot 5 firstly.																																																																																	
Disk drive bays	Up to 12 disk bays with maximum 6 AnyBay, or up to 24 disk bays with maximum 12 AnyBay. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																																																																	
Internal storage	2.5" NVMe SSD, AnyBay	800GB/960GB/1.6TB/1.92TB/3.84TB																																																																																
	2.5" HDD, SAS12Gbps, 7.2K	1TB/2TB																																																																																
	2.5" HDD, SAS12Gbps, 15K	300GB/600GB/900GB																																																																																
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	2.5" SSD, SATA6Gbps	240GB/480GB																																																																																
	2.5" SSD, SAS12Gbps	400GB/800GB/3.84TB/7.68TB																																																																																
	NVMe SSD, PCIe x4 HHL adapter	1.6TB/1.92TB/3.2TB/3.84TB																																																																																
M.2 SATA SSD	32GB/128GB																																																																																	
Network interfaces	One dedicated management port. One LOM slot for customized LOM with up to four RJ-45 or SFP+ ports, up to 10GbE. Wake-on-LAN and NC-SI are available on Port 0 of LOM. Optional ML2 or PCIe adapters are supported. One standard ML2 slot, one optional ML2 slot via optional riser card																																																																																	
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM, China only																																																																																	
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.3/6.9. SUSE Linux Enterprise Server 12 SP2/11 SP4. VMware vSphere (ESXi) 6.5/6.0 U3																																																																																	
Systems management	XClarity Controller Enterprise. XClarity Administrator. XClarity Energy Manager. XClarity Provisioning Manager. XClarity Essentials. Lenovo Capacity Planner. Light Path Diagnostics with LCD diagnostic pull-out panel																																																																																	
GPU support	None																																																																																	
Base warranty	MT 7X11: 1-year limited onsite service with 9x5/NBD MT 7X12: 3-year limited onsite service with 9x5/NBD MT 7X13: 3-year limited onsite service with 9x5/NBD, SAP HANA optimized																																																																																	

Components	Specification	
Power supply	Supports one, two or four hot-swap 1100W/1600W 80 PLUS Platinum qualified AC power supplies. Redundant with two or four power supplies (N+N, N = 1 or 2). 1600W Platinum is 200V - 240V, 1100W is 100V - 240V and de-rated to 1050W for operation from 110V input	
Video	Integrated Matrox G200 in XClarity Controller	
Cooling	Up to 12 hot-swap fans. N + 1 redundancy. 6 fans per compute tray, 3 fans per storage tray	
Front ports	One XClarity Controller USB connector, one USB 2.0, one VGA	
Rear ports	One VGA, two USB 3.0, one serial, one XClarity Controller network connector	
Environmental specification	Supports ASHRAE A4 with limitations.	
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating, non-condensing	A4: 8%-90%. A3:8%-85%. A2:20%~80%
Humidity - storage (with package), non-condensing	8%~90%	
	Models should meet the following requirements to support A3 and A4: • 2.5" NVMe SSD and PCIe NVMe flash adapter not installed (NVMe devices are supported up to 35°C) • Processors with TDP more than or equal to 150-watt not installed	
Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/	



Note: All riser cards, expansion cards, and LOM adapters are optional.

Expansion slots

Supports five standard expansion slots (slot 5 - 9) and up to 12 optional expansion slots (slot 1 - 4, 10 - 15, 16 - 17) via 3 riser cards. The slots are as follows:

Slot 1-4 (riser card 1)	Supports one of the following for riser card 1: Option 1: PCIe 3.0 x8/x8/x8 (slot 1-4). Full height, half length Option 2: PCIe 3.0 x16/x16 (slot 3 and 4). Full height, half length Option 3: PCIe 3.0 x16/x16/x16/x16 (slot 1-4). Full height, half length
Slot 5 (on main I/O tray)	PCIe 3.0 x16, low profile
Slot 6 (on main I/O tray)	PCIe 3.0 x16, low profile
Slot 7 (on main I/O tray)	PCIe 3.0 x8, low profile
Slot 8 (on main I/O tray)	PCIe 3.0 x16 ML2, low profile
Slot 9 (on main I/O tray)	LOM slot, low profile
Slot 10-15 (riser card 2)	Supports one of the following for riser card 2: Option 1: PCIe 3.0 x8/x8/x8 (slot 10-13). Full height, half length Option 2: PCIe 3.0 x16/x16 (slot 12 and 13). Full height, half length Option 3: PCIe 3.0 x16/x16/x16/x16/x16 ML2 (slot 10-15). Full height, half length
Slot 16-17 (riser card 3)	PCIe 3.0 x8, low profile

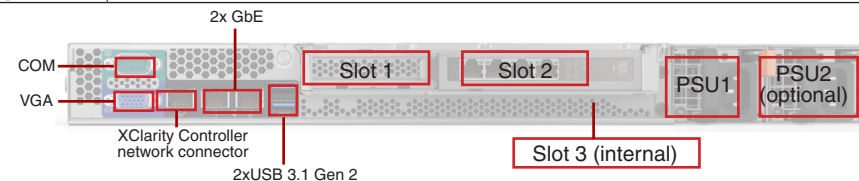
For riser cards configuration of each model, please see model configuration table.

ThinkSystem SR250 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																
Form factor	1U rack																																																																
Dimensions	Height: 43 mm (1.7 in), width: 434.4 mm (17.1 in), depth: 497.8 mm (19.6 in). The depth is counted from EIA flange front surface to rear of chassis																																																																
Weight	Maximum configuration: 27.1 lb (12.3 kg)																																																																
Processor	Up to one Intel Xeon E family processor, up to 95W, up to 6 cores at 3.8GHz, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one 8th Intel Core i3 processor, up to 91W, up to 4 cores at 4.0GHz, up to 8MB cache, up to DDR4-2400 memory speed. Or up to one Intel Pentium Gold processor, up to 54W, 2 cores at 3.9GHz, 4MB cache, DDR4-2400 memory speed Or up to one Intel Celeron processor, up to 54W, 2 cores at 3.2GHz, 2MB cache, DDR4-2400 memory speed																																																																
Chipset	Intel C246 Platform Controller Hub																																																																
Memory	4 DIMM sockets with 2 channels, 2 DIMMs per channel. UDIMM. DDR4-2666.																																																																
Memory capacity	64GB with 4x 16GB UDIMMs																																																																
Memory protection	ECC																																																																
Storage controllers	Supports the following RAID/HBA adapters:																																																																
	<table border="1"> <thead> <tr> <th>RAID adapter</th> <th>Interface</th> <th>Drive type</th> <th>RAID levels</th> <th>JBOD</th> <th>Cache</th> <th>Cache protection</th> <th>FastPath</th> </tr> </thead> <tbody> <tr> <td>Onboard SATA</td> <td>6Gbps SATA</td> <td>SATA</td> <td>0/1/10/5</td> <td>Yes</td> <td>None</td> <td>None</td> <td>No</td> </tr> <tr> <td>530-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>None</td> <td>None</td> <td>Yes</td> </tr> <tr> <td>730-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>1GB</td> <td>None</td> <td>No</td> </tr> <tr> <td>930-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>2GB</td> <td>Flash backup</td> <td>Yes</td> </tr> <tr> <td>430-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> </tr> <tr> <td>430-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> </tr> <tr> <td>930-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> </tr> </tbody> </table>	RAID adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Onboard SATA	6Gbps SATA	SATA	0/1/10/5	Yes	None	None	No	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes	730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No	930-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	2GB	Flash backup	Yes	430-8i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes
	RAID adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath																																																									
	Onboard SATA	6Gbps SATA	SATA	0/1/10/5	Yes	None	None	No																																																									
	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes																																																									
	730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No																																																									
	930-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	2GB	Flash backup	Yes																																																									
	430-8i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-																																																									
	430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-																																																									
	930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes																																																									
Disk drive bays	Supports 4 front 3.5" SATA simple-swap bays. Or 4 front 3.5" SATA/SAS HS bays. Or 8 front 2.5" SATA/SAS HS bays. Or 10x 2.5" HS bays with 8 SATA/SAS bays plus 2 Anybay. Optional one internal M.2 SSD for boot, consumes one onboard SATA port																																																																
Disk support	For 3.5" SS bay	3.5" HDD, SATA6Gbps, 7.2K 2.5" SSD, SATA6Gbps	1TB/2TB/4TB/6TB/8TB 240GB/480GB/960GB																																																														
	For 3.5" HS bay (3.5" disks or 2.5" disks with 3.5" tray)	3.5" HDD, SATA6Gbps, 7.2K	1TB/2TB/4TB/6TB/8TB																																																														
		2.5" HDD, SAS12Gbps, 15K	300GB/600GB/900GB																																																														
		2.5" SSD, SATA6Gbps	240GB/480GB/960GB																																																														
	For 2.5" HS bay	2.5" HDD, SATA6Gbps, 7.2K	1TB/2TB																																																														
		2.5" HDD, SAS12Gbps, 7.2K	1TB/2TB																																																														
		2.5" HDD, SAS12Gbps, 10K	300GB/300GB SED/600GB/900GB/1.2TB/1.8TB/2.4TB																																																														
M.2 SSD	2.5" SSD, SATA6Gbps 2.5" SSD, SATA6Gbps	240GB/480GB/960GB 32GB/128GB/480GB																																																															
Optical	None optical bay, using USB optical (External USB DVD-RW, PN: 7XA7A05926)																																																																
Network interfaces	Two onboard GbE port via integrated gigabit ethernet Broadcom BCM5720 plus one dedicated management port. Optional PCIe ethernet adapters are available																																																																
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 or 2.0 compliant, Optional TCM in China only. Optional chassis intrusion switch, Kensington lock, and pad lock																																																																
Operating systems supported	Microsoft Windows Server 2019/2016/2012 R2. Red Hat Enterprise Linux 7.5. SUSE Linux Enterprise Server 12 SP3. VMware vSphere (ESXi) 6.7/6.5 U2																																																																
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. LEDs on front panel show the status of power, ID, network, simple-swap disks, and system error																																																																
GPU support	Up to one optional GPU, NVIDIA Quadro P620																																																																
Base warranty	MT 7Y51: 3-year limited onsite service with 9x5/NBD MT 7Y52: 1-year limited onsite service with 9x5/NBD																																																																
Power supply	Supports one of the following PSU: <ul style="list-style-type: none"> One fixed power supply, 300W. 80 PLUS Gold certified. Up to two redundant hot-swap power supplies, 450W each. 80 PLUS Platinum certified 																																																																

Components	Specification
Video	Integrated Matrox G200 in XClarity Controller
Cooling	Four non-hot-swap system fans.
Front ports	One XClarity Controller USB connector, one USB 3.1 Gen 1. One optional VGA
Rear ports	2x USB 3.1 Gen 2. 2x RJ-45. 1x XClarity Controller network connector. 1x COM. 1x VGA
Environmental specification	Supports ASHRAE A2
Environmental certification	Energy Star Server 2.1 certified



Expansion slots

Supports up to three PCIe 3.0 slots as following:

Slot 1-2 (riser card)	Supports one of the following Option 1: PCIe 3.0 x8/x16 (slot 1-2). Low profile for x8, full height half length for x16, x16 is negotiable link width x8 Option 2: PCIe 3.0x16 (slot 2). Full height half length
Slot 3	Slot 3 is covered by riser card so this slot is not available
Slot 4	PCIe 3.0 x8 (negotiable link width x4), dedicated internal RAID slot

Partial options for ThinkSystem SR250

ThinkSystem 8GB TruDDR4 (1Rx8, 1.2V) 2666 MHz UDIMM	4ZC7A08696
ThinkSystem 16GB TruDDR4 (2Rx8, 1.2V) 2666 MHz UDIMM	4ZC7A08699
ThinkSystem 3.5" 1TB 7.2K SATA 6Gb Hot Swap 512n HDD	7XB7A00049
ThinkSystem 3.5" 8TB 7.2K SATA 6Gb Hot Swap 512e HDD	7XB7A00053
900GB 15K 12Gbps SAS 2.5" G4HS 512e HDD	7XB7A00023
300GB 10K 12Gbps SAS 2.5" G4HS HDD	7XB7A00024
600GB 10K 12Gbps SAS 2.5" G4HS HDD	7XB7A00025
900GB 10K 12Gbps SAS 2.5" G4HS HDD	7XB7A00026
1.2TB 10K 12Gbps SAS 2.5" G4HS HDD	7XB7A00027
1.8TB 10K 12Gbps SAS 2.5" G4HS 512e HDD	7XB7A00028
2.4TB 10K SAS 12Gb HS 512e HDD	7XB7A00069
300GB 10K 12Gbps SAS 2.5" G4HS SED	7XB7A00030
1TB 7.2K 12Gbps NL SAS 2.5" G4HS HDD	7XB7A00034
2TB 7.2K 12Gbps NL SAS 2.5" G4HS HDD	7XB7A00035
M.2 CV3 128GB SATA SSD	7N47A00130
ThinkSystem ST50/ST250 Rack Mount Kit	4M17A12785

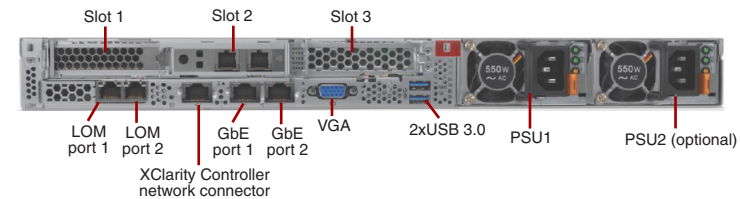


ThinkSystem SR530 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																				
Form factor	1U rack																																																																																				
Dimensions	Height: 43 mm (1.7 in). Width: 482 mm (19.0 in) with rack latches. Depth: 778.3 mm (30.64 in)																																																																																				
Weight	Maximum configuration: 35.27 lb (16 kg)																																																																																				
Processor	Up to two 125W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 22 cores at 1.9GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s																																																																																				
Chipset	Intel C622 Platform Controller Hub																																																																																				
Memory	Up to 12 DIMM sockets. Each processor supports up to 6 DIMM sockets with 6 channels. Supports following:																																																																																				
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Memory capacity	768GB with 12x 64GB RDIMM and dual processor																																																																																				
Memory protection	ECC, memory mirroring, and memory sparing																																																																																				
Storage controllers	Supports the following RAID/HBA adapters:																																																																																				
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		RAID adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Max qty																																																																											
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<i>Note: 730-8i is available in China only. All RAID/HBA adapters should be placed in slot 1 firstly.</i>																																																																																					
Disk drive bays		Support 4 front 3.5" SATA simple-swap bays, or 4 front 3.5" SATA/SAS HS bays, or 8 front 2.5" SATA/SAS HS bays. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																																																																			
Internal storage	For 3.5" SS bay	3.5" HDD, SATA6Gbs, 7.2K	1TB/2TB/4TB/6TB/8TB/10TB																																																																																		
	For 3.5" bay (3.5" disks or 2.5" disks with 3.5" tray)	3.5" HDD, SATA6Gbs, 7.2K	1TB/2TB/4TB/6TB/8TB/10TB																																																																																		
		3.5" HDD, SAS12Gbs, 7.2K	1TB/2TB/4TB/6TB/10TB																																																																																		
	For 2.5" bay	2.5" HDD, SAS12Gbs, 15K	300GB/600GB																																																																																		
		2.5" SSD, SATA6Gbs	240GB/480GB																																																																																		
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		2.5" SSD, SAS12Gbs	400GB/800GB/3.84TB																																																																																		
2.5" SSD, SATA6Gbs		240GB/480GB																																																																																			
	M.2 SATA SSD	32GB/128GB																																																																																			
Optical	No internal optical bay. Optional USB DVD±RW optical drive																																																																																				
Network interfaces	Integrated one dedicated management port plus two GbE ports. One LOM slot for customized LOM with two RJ-45 or SFP+ ports, up to 10GbE. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot. Up to two ports supports Wake-on-LAN and NC-SI (see right)																																																																																				
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel																																																																																				
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.4/7.3/6.9. SUSE Linux Enterprise Server 12 SP3/12 SP2/11 SP4. VMware ESXi 6.5U1/6.5/6.0 U3																																																																																				
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Provisioning Manager. Essentials. Light Path Diagnostics																																																																																				
GPU support	None																																																																																				

Components	Specification	
Base warranty	MT 7X07: 1-year limited onsite service with 9x5/NBD MT 7X08: 3-year limited onsite service with 9x5/NBD	
Power supply	Up to two redundant hot-swap 550W and 750W 80 PLUS Platinum qualified AC power supplies. Or up to two redundant hot-swap 750W Titanium qualified AC power supplies. 750W Titanium is 200V - 240V, others are 100V - 240V	
Video	Integrated Matrox G200 in XClarity Controller	
Cooling	Four fans (3+1) for single processor model, six fans (5+1) for dual processor model	
Front ports	One XClarity Controller USB, one USB 3.0, one optional VGA	
Rear ports	One VGA, two USB 3.0, two ethernet (RJ-45), one XClarity Controller connector. Optional COM port	
Environmental specification	Supports ASHRAE A4 with limitations.	
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating, non-condensing	A4: 8%-90%. A3: 8%-85%. A2: 20%~80%
Humidity - storage (with package), non-condensing	8%~90%	
<i>Models should meet the following requirements to support A3 and A4:</i> • Redundant power supplies required • No system fan fails		
Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/	



Note: GbE port 1 and LOM port 1 support Wake-on-LAN and NC-SI. Riser cards, expansion cards, and LOM adapters are optional.

Expansion slots	
Slot 1-2 (riser card 1)	Supports one of the following for riser card 1: Option 1: PCIe 3.0 x8/x16 (slot 1-2). Low profile for x8, low profile or full height half length for x16 Option 2: PCIe 3.0 x8/x8 ML2 (slot 1-2). Low profile
Slot 3 (riser card 2)	Option 1: PCIe 3.0 x 8, low profile, for single processor model Option 2: PCIe 3.0 x 16, low profile, for dual processor model When slot 2 is full height, slot 3 cannot be used

System unique options	
Option	Description
ZXH7A05892	ThinkSystem SR530/SR570 x8/x8ML2 PCIe LP+LP Riser 1 kit
ZXH7A02682	ThinkSystem SR530/SR570/SR630 x8/x16 PCIe LP+LP Riser 1 Kit
ZXH7A05893	ThinkSystem SR530/SR570/SR630 x8/x16 PCIe LP+FH Riser 1 Kit
ZXH7A05891	ThinkSystem SR530/SR570 x8 PCIe LP Riser 2 kit
ZXH7A02685	ThinkSystem SR530/SR570/SR630 x16 PCIe LP Riser 2 Kit
Z17A02579	ThinkSystem SR530/SR570/SR630 Front VGA Connector Upgrade Kit
Z17A02581	ThinkSystem 1U Security Bezel
Z17A02577	ThinkSystem COM Port Upgrade Kit
ZXH7A05896	ThinkSystem SR530/SR630 2.5" SATA/SAS 8-Bay Backplane Kit

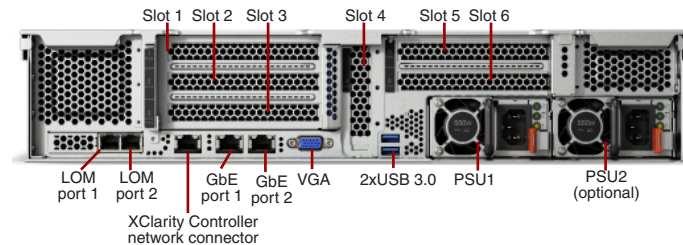


ThinkSystem SR550 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																																						
Form factor	2U rack																																																																																																						
Dimensions	Height: 86.5 mm (3.4 in). Width: 482 mm (19.0 in) with rack latches. Depth: 763.7 mm (30.1 in)																																																																																																						
Weight	Maximum configuration: 57.32 lb (26 kg)																																																																																																						
Processor	Up to two 125W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 22 cores at 1.9GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s																																																																																																						
Chipset	Intel C622 Platform Controller Hub																																																																																																						
Memory offering	Up to 12 DIMM sockets. Each processor supports up to 6 DIMM sockets with 6 channels. Supports following:																																																																																																						
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<i>Note: 730-8i is available in China only. All RAID/HBA adapters should be placed in slot 4 firstly.</i>																																																																																																							
Disk drive bays	Support 8 front 3.5" SATA simple-swap bays, or 8 front 3.5" SATA/SAS HS bays, or 12 front 3.5" SATA/SAS HS bays, or 8 front 2.5" SATA/SAS HS bays, or 16 front 2.5" SATA/SAS HS bays. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																																																																																						
Internal storage	For 3.5" SS bay	3.5" HDD, SATA6Gbs, 7.2K	1TB/2TB/4TB/6TB/8TB/10TB																																																																																																				
	For 3.5" bay (3.5" disks or 2.5" disks with 3.5" tray)	3.5" HDD, SATA6Gbs, 7.2K	1TB/2TB/4TB/6TB/8TB/10TB																																																																																																				
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		2.5" HDD, SAS12Gbs, 15K	300GB/600GB																																																																																																				
	For 2.5" bay	2.5" SSD, SATA6Gbs	240GB/480GB																																																																																																				
		2.5" HDD, SATA6Gbs, 7.2K	1TB/2TB																																																																																																				
		2.5" HDD, SAS12Gbs, 7.2K	1TB/2TB																																																																																																				
2.5" HDD, SAS12Gbs, 10K		300GB/600GB/900GB/1.2TB/1.8TB																																																																																																					
2.5" HDD, SAS12Gbs, 15K		300GB/600GB																																																																																																					
Optical	No internal optical bay. Optional USB DVD±RW optical drive																																																																																																						
	Network interfaces	Integrated one dedicated management port plus two GbE ports. One LOM slot for customized LOM with two RJ-45 or SFP+ ports, up to 10GbE. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot. Up to two ports supports Wake-on-LAN and NC-SI (see right)																																																																																																					
	Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel																																																																																																					
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.4/7.3/6.9. SUSE Linux Enterprise Server 12 SP3/12 SP2/11 SP4. VMware ESXi 6.5U1/6.5/6.0 U3																																																																																																						
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Provisioning Manager. Essentials. Light Path Diagnostics																																																																																																						
GPU support	None																																																																																																						

Components	Specification	
Base warranty	MT 7X03: 1-year limited onsite service with 9x5/NBD MT 7X04: 3-year limited onsite service with 9x5/NBD	
Power supply	Up to two redundant hot-swap 550W and 750W 80 PLUS Platinum qualified AC power supplies. Or up to two redundant hot-swap 750W Titanium qualified AC power supplies. 750W Titanium is 200V - 240V, others are 100V - 240V	
Video	Integrated Matrox G200 in XClarity Controller	
Cooling	Three fans (2+1) for single processor model, four fans (3+1) for dual processor model	
Front ports	One XClarity Controller USB, one USB 3.0, one optional VGA	
Rear ports	One VGA, two USB 3.0, two ethernet (RJ-45) one XClarity Controller connector. Optional COM port	
Environmental specification	Supports ASHRAE A4 with limitations.	
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating, non-condensing	A4: 8%-90%. A3:8%-85%. A2:20%~80%
Humidity - storage (with package), non-condensing	8%~90%	
<i>Models should meet the following requirements to support A3 and A4:</i> • Redundant power supplies required • No system fan fails		
Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/	



Note: GbE port 1 and LOM port 1 support Wake-on-LAN and NC-SI. Riser cards, expansion cards, and LOM adapters are optional.

Expansion slots

Slot 1-3 (riser card 1)	Supports one of the following for riser card 1: Option 1: PCIe 3.0 x8/x8/x8 (slot 1-3). Full height, half length. Option 2: PCIe 3.0 x16/x8 (slot 1 and 3). Full height, half length Option 3: PCIe 3.0 x8/x8/x8 ML2 (slot 1-3). Full height, half length
Slot 4 (onboard)	PCIe 3.0 x8, low profile
Slot 5 (riser card 2)	PCIe 3.0 x16, full height, half length, requires 2nd CPU
Slot 6 (riser card 2)	PCIe 3.0 x8, full height, half length

System unique options

7XH7A02680	Lenovo SR550/SR590/SR650 x8/x8/x8ML2 PCIe FH Riser 1 Kit
7XH7A02679	Lenovo SR550/SR590/SR650 (x16/x8)/(x16/x16) PCIe FH Riser 2 Kit
7XH7A02678	Lenovo SR550/SR590/SR650 x16/x8 PCIe FH Riser 1 Kit
7XH7A02677	Lenovo SR550/SR590/SR650 x8/x8/x8 PCIe FH Riser 1 Kit
7Z17A02578	Lenovo SR550/SR590/SR650 EIA Latch w/ VGA Upgrade Kit
7XH7A026254	Lenovo SR550/SR650 2.5" SATA/SAS 8-Bay Backplane Kit
7Z17A02580	Lenovo 2U Security Bezel
7Z17A02577	Lenovo COM Port Upgrade Kit

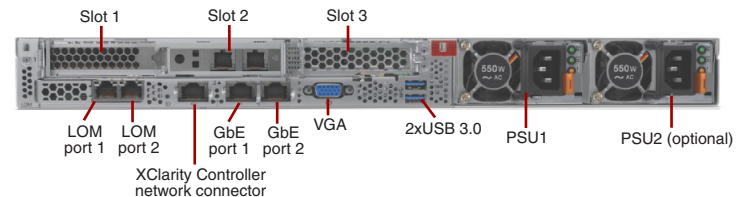


ThinkSystem SR570 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																																						
Form factor	1U rack																																																																																																						
Dimensions	Height: 43 mm (1.7 in). Width: 482 mm (19.0 in) with rack latches. Depth: 778.3 mm (30.64 in)																																																																																																						
Weight	Maximum configuration: 35.27 lb (16 kg)																																																																																																						
Processor	Up to two 150W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 26 cores at 2.0GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s each																																																																																																						
Chipset	Intel C622 Platform Controller Hub																																																																																																						
Memory offering	Up to 16 DIMM sockets. Each processor supports up to 8 DIMM sockets with 6 channels. Supports following:																																																																																																						
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LRDIMM	DDR4-2666	64GB																																																																																																					
Memory capacity	<ul style="list-style-type: none"> 1TB with 16x 64GB RDIMM and dual processor 2TB with 4x 512GB DC Persistent Memory and dual processor (Gen 2 or M SKU Gen 1) 2.76TB with 4x 512GB DC Persistent Memory + 12x 64GB RDIMM and processor (Gen 2 or M SKU Gen 1) 																																																																																																						
Memory protection	ECC, memory mirroring, and memory sparing																																																																																																						
Storage controllers	Supports the following RAID/HBA adapters:																																																																																																						
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		RAID adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Max qty																																																																																													
	For SS bays	Onboard SATA	6Gb SATA	SATA	0/1/10/5	Yes	None	None	No	-																																																																																													
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		430-8i	12Gbs SAS	SATA/SAS	-	Yes	None	None	-	1																																																																																													
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430-8e		12Gbs SAS	SATA/SAS	-	Yes	None	None	-	3																																																																																														
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930-8e		12Gbs SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	2																																																																																														
<i>Note: 730-8i is available in China only</i>																																																																																																							
Disk drive bays	Support 4 front 3.5" SATA simple-swap bays, or 4 front 3.5" SATA/SAS HS bays, or 8 front 2.5" SATA/SAS HS bays, or 10 front 2.5" SATA/SAS HS bays with 4 AnyBay. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																																																																																						
Internal storage	For 3.5" SS bay	3.5" HDD, SATA6Gbs, 7.2K	1TB/2TB/4TB/6TB/8TB																																																																																																				
	For 3.5" bay (3.5" disks or 2.5" disks with 3.5" tray)	3.5" HDD, SATA6Gbs, 7.2K	1TB/2TB/4TB/6TB/8TB/10TB																																																																																																				
		3.5" HDD, SAS12Gbs, 7.2K	1TB/2TB/4TB/6TB/10TB																																																																																																				
		3.5" HDD, SAS12Gbs, 15K	300GB/600GB/900GB																																																																																																				
	For 2.5" bay	2.5" SSD, SATA6Gbs	240GB/480GB																																																																																																				
		2.5" NVMe SSD, AnyBay	960GB/1.92TB/3.84TB																																																																																																				
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M.2 boot drive	M.2 SATA SSD	32GB/128GB																																																																																																					
Optical	No internal optical bay. Optional USB DVD±RW optical drive																																																																																																						
Network interfaces	Integrated one dedicated management port plus two GbE ports. One LOM slot for customized LOM with two RJ-45 or SFP+ ports, up to 10GbE. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot. Up to two ports supports Wake-on-LAN and NC-SI (see right)																																																																																																						
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel																																																																																																						
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.3/6.9. SUSE Linux Enterprise Server 12 SP2/11 SP4. VMware ESXi 6.5/6.0 U3																																																																																																						
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Provisioning Manager. Essentials. Light Path Diagnostics																																																																																																						
GPU support	None																																																																																																						

Components	Specification	
Base warranty	MT 7Y02: 1-year limited onsite service with 9x5/NBD MT 7Y03: 3-year limited onsite service with 9x5/NBD	
Power supply	Up to two redundant hot-swap 550W and 750W 80 PLUS Platinum qualified AC power supplies. Or up to two redundant hot-swap 750W Titanium qualified AC power supplies. 750W Titanium is 200V - 240V, others are 100V - 240V	
Video	Integrated Matrox G200 in XClarity Controller	
Cooling	4x 3.5" or 8x 2.5" models: four fans for single processor model, six fans for dual processor model, all fans are 4028 10x 2.5" models: six fans for both single and dual processor models, all fans are 4056	
Front ports	One XClarity Controller USB, one USB 3.0, one optional VGA	
Rear ports	One VGA, two USB 3.0, two ethernet (RJ-45), one XClarity Controller connector. Optional COM port	
Environmental specification	Supports ASHRAE A4 with limitations.	
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating, non-condensing	A4: 8%~90%. A3:8%~85%. A2:8%~80%
	Humidity - storage (with package), non-condensing	8%~90%
	<i>Models should meet the following requirements to support A3 and A4:</i>	
	<ul style="list-style-type: none"> • Redundant power supplies required • No system fan fails • No NVMe drive • No rear two HS bays • Processor TDP is less than or equal to 140 watts, and no Intel Xeon 6140 or 6152 processor is installed • On 12x 3.5" models, no M.2 drives 	
	Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/



Note: GbE port 1 and LOM port 1 support Wake-on-LAN and NC-SI. Riser cards, expansion cards, and LOM adapters are optional.

Expansion slots

Slot 1-2 (riser card 1)	Supports one of the following for riser card 1: Option 1: PCIe 3.0 x8/x16 (slot 1-2). Low profile for x8, low profile or full height half length for x16 Option 2: PCIe 3.0 x8/x8 ML2 (slot 1-2). Low profile
Slot 3 (riser card 2)	Option 1: PCIe 3.0 x 8, low profile, for single processor model Option 2: PCIe 3.0 x 16, low profile, for dual processor model When slot 2 is full height, slot 3 cannot be used

System unique options

7XH7A05892	ThinkSystem SR530/SR570 x8/x8ML2 PCIe LP+LP Riser 1 Kit
7XH7A02682	ThinkSystem SR530/SR570/SR630 x8/x16 PCIe LP+LP Riser 1 Kit
7XH7A05893	ThinkSystem SR530/SR570/SR630 x8/x16 PCIe LP+FH Riser 1 Kit
7XH7A05891	ThinkSystem SR530/SR570 x8 PCIe LP Riser 2 Kit
7XH7A02685	ThinkSystem SR530/SR570/SR630 x16 PCIe LP Riser 2 Kit
7Z17A02579	ThinkSystem SR530/SR570/SR630 Front VGA Connector Upgrade Kit
7Z17A02581	ThinkSystem 1U Security Bezel
7Z17A02577	ThinkSystem COM Port Upgrade Kit
4XH7A08762	ThinkSystem SR570 2.5" SATA/SAS 8-Bay Backplane Kit

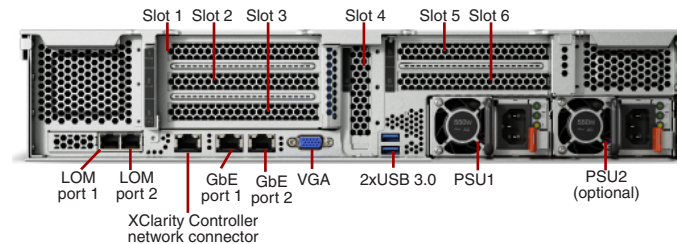


ThinkSystem SR590 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																																						
Form factor	2U rack																																																																																																						
Dimensions	Height: 86.5 mm (3.4 in). Width: 482 mm (19.0 in) with rack latches. Depth: 763.7 mm (30.1 in)																																																																																																						
Weight	Maximum configuration: 61.7 lb (28 kg)																																																																																																						
Processor	Up to two 150W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 26 cores at 2.0GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s each																																																																																																						
Chipset	Intel C622 Platform Controller Hub																																																																																																						
Memory offering	Up to 16 DIMM sockets. Each processor supports up to 8 DIMM sockets with 6 channels. Supports following:																																																																																																						
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Memory capacity	<ul style="list-style-type: none"> 1TB with 16x 64GB RDIMM and dual processor 2TB with 4x 512GB DC Persistent Memory and dual processor (Gen 2 or M SKU Gen 1) 2.76TB with 4x 512GB DC Persistent Memory + 12x 64GB RDIMM and processor (Gen 2 or M SKU Gen 1) 																																																																																																						
Memory protection	ECC, memory mirroring, and memory sparing																																																																																																						
Storage controllers	Supports the following RAID/HBA adapters:																																																																																																						
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Disk drive bays	Supports 3.5" Simple-swap bay up to 8, or 3.5" HS bay up to 12, or 2.5" HS bay up to 12. On 12x 3.5", 8x 2.5", or 16x 2.5" bay models, 4 bays can be upgraded to AnyBay. Optional 2 rear 3.5" HS bays are supported on 12 x 3.5" model, takes place in riser card 1 location. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																																																																																						
Internal storage	For 3.5" SS bay	3.5" HDD, SATA6Gbs, 7.2K	1TB/2TB/4TB/6TB/8TB																																																																																																				
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	For 3.5" bay (3.5" disks or 2.5" disks with 3.5" tray)	3.5" HDD, SAS12Gbs, 7.2K	1TB/2TB/4TB/6TB/10TB																																																																																																				
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M.2 boot drive	M.2 SATA SSD	32GB/128GB																																																																																																					

Components	Specification	
Power supply	Up to two redundant hot-swap 550W and 750W 80 PLUS Platinum qualified AC power supplies. Or up to two redundant hot-swap 750W Titanium qualified AC power supplies. 750W Titanium is 200V - 240V, others are 100V - 240V	
Video	Integrated Matrox G200 in XClarity Controller	
Cooling	Three fans (2+1) for single processor model, four fans (3+1) for dual processor model	
Front ports	One XClarity Controller USB, one USB 3.0, one optional VGA	
Rear ports	One VGA, two USB 3.0, two ethernet (RJ-45), one XClarity Controller connector. Optional COM port	
Environmental specification	Supports ASHRAE A4 with limitations.	
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating, non-condensing	A4: 8%-90%. A3: 8%-85%. A2: 8%-80%
	Humidity - storage (with package), non-condensing	8%-90%
	<i>Models should meet the following requirements to support A3 and A4:</i>	
	<ul style="list-style-type: none"> Redundant power supplies required No system fan fails No NVMe drive No rear two HS bays Processor TDP is less than or equal to 140 watts, and no Intel Xeon 6140 or 6152 processor is installed On 12x 3.5" models, no M.2 drives 	
	Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/



Note: GbE port 1 and LOM port 1 support Wake-on-LAN and NC-SI. Riser cards, expansion cards, and LOM adapters are optional.

Expansion slots	Specification
Slot 1-3 (riser card 1)	Supports one of the following for riser card 1: Option 1: PCIe 3.0 x8/x8/x8 (slot 1-3). Full height, half length. Option 2: PCIe 3.0 x16/x8 (slot 1 and 3). Full height, half length Option 3: PCIe 3.0 x8/x8/x8 ML2 (slot 1-3). Full height, half length Option 4: Two rear 3.5" disk bays, 12 x 3.5" models only
Slot 4 (onboard)	PCIe 3.0 x8, low profile
Slot 5 (riser card 2)	PCIe 3.0 x16, full height, half length, requires 2nd CPU
Slot 6 (riser card 2)	PCIe 3.0 x8, full height, half length

System unique options	Specification
7XH7A06253	ThinkSystem SR590/SR650 Rear HDD Kit
4XH7A08778	ThinkSystem SR550/SR590/SR650 x8/x8/x8ML2 PCIe FH Riser 1 Kit
4XH7A08779	ThinkSystem SR550/SR590/SR650 x16/x8 PCIe FH Riser 1 Kit
4XH7A08777	ThinkSystem SR550/SR590/SR650 x8/x8/x8 PCIe FH Riser 1 Kit
4XH7A08780	ThinkSystem SR550/SR590/SR650 x16/x8(or x16) PCIe FH Riser 2 Kit
7Z17A02578	ThinkSystem SR550/SR590/SR650 EIA Latch w/ VGA Upgrade Kit
7Z17A02580	ThinkSystem 2U Security Bezel
7Z17A02577	ThinkSystem COM Port Upgrade Kit
4XH7A08764	ThinkSystem SR590 2.5" Anybay 8-Bay Backplane Kit
4XH7A08763	ThinkSystem SR590 2.5" SATA/SAS 8-Bay Backplane Kit

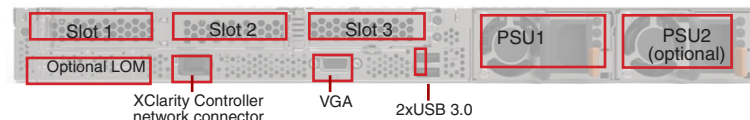


ThinkSystem SR630 Platform Specifications

Product Specifications Reference (PSREF)

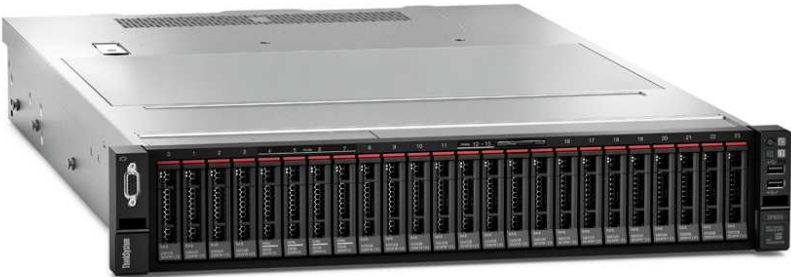
Components	Specification																																																																																										
Form factor	1U rack																																																																																										
Dimensions	Height: 43 mm (1.7 in). Width: 482 mm (19.0 in) with rack latches. Depth: 778.3 mm (30.64 in)																																																																																										
Weight	Maximum configuration: 41.9 lb (19 kg)																																																																																										
Processor	Up to two 205W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 28 cores at 2.7GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s																																																																																										
Chipset	Intel C624 Platform Controller Hub																																																																																										
Memory offering	Up to 24 DIMM sockets. Each processor supports up to 12 DIMM sockets with 6 channels. Supports following:																																																																																										
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Memory capacity	<ul style="list-style-type: none"> 3TB with 24x 128GB 3DS RDIMM and dual M or L SKU processor 6TB with 12x 512GB DC Persistent Memory and dual L SKU processor 7.5TB with 12x 512GB DC Persistent Memory + 12x 128GB 3DS RDIMM and dual L SKU processor 																																																																																										
Memory protection	ECC, memory mirroring, and memory sparing																																																																																										
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Disk drive bays	Supports the following disk bay configurations, optional rear bay occupies riser card 1 location:																																																																																										
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PCIe 3.0 x4, HHHL adapter	NVMe SSD	1.6TB/1.92TB/3.2TB/3.84TB																																																																																									
M.2 boot drive	M.2 SATA SSD	32GB/128GB/480GB																																																																																									
Optical	No internal optical bay. Optional USB DVD±RW optical drive																																																																																										
Network interfaces	One dedicated management port. One LOM slot for customized LOM with up to four RJ-45 or SFP+ ports, up to 10GbE. Wake-on-LAN and NC-SI are available on Port 0 of LOM. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot.																																																																																										
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel																																																																																										
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.4/7.3/6.9. SUSE Linux Enterprise Server 12 SP3/12 SP2/11 SP4. VMware ESXi 6.5U1/6.5/6.0 U3																																																																																										

Components	Specification												
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Provisioning Manager. Essentials. Light Path Diagnostics												
GPU support	Requires riser card with PCIe x16 slot. 2nd or 3rd GPU requires 2nd CPU. Supports up to 1 FHFL and single width GPU adapters, or up to 3 LP and single width GPU adapters (Quadro P620)												
Base warranty	MT 7X01: 1-year limited onsite service with 9x5/NBD MT 7X02: 3-year limited onsite service with 9x5/NBD												
Power supply	Up to two redundant hot-swap 550W/750W/1100W 80 PLUS Platinum qualified power supplies. Or up to two redundant hot-swap 750W Titanium qualified power supplies. 750W Titanium is 200V - 240V, others are 100V - 240V												
Video	Integrated Matrox G200 in XClarity Controller												
Cooling	Five fans (4+1) for single processor model, seven fans (6+1) for dual processor model												
Front ports	One XClarity Controller USB connector, one USB 3.0, one optional VGA												
Rear ports	One VGA, two USB 3.0, one XClarity Controller network connector. Optional COM port												
Environmental specification	Supports ASHRAE A4 with limitations.												
	<table border="1"> <tbody> <tr> <td>Temperature - operating</td> <td>A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)</td> </tr> <tr> <td>Temperature - non operating (no package)</td> <td>-10°C to 60°C (14°F to 140°F)</td> </tr> <tr> <td>Temperature - non operating (with package)</td> <td>-40°C to 70°C (-40°F to 158°F)</td> </tr> <tr> <td>Altitude - operating</td> <td>(Unpressurized): 0-10000ft (0-3048m)</td> </tr> <tr> <td>Humidity - operating, non-condensing</td> <td>A4: 8%-90%. A3:8%-85%. A2:8%-80%</td> </tr> <tr> <td>Humidity - storage (with package), non-condensing</td> <td>8%-90%</td> </tr> </tbody> </table>	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)	Humidity - operating, non-condensing	A4: 8%-90%. A3:8%-85%. A2:8%-80%	Humidity - storage (with package), non-condensing	8%-90%
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	Humidity - operating, non-condensing	A4: 8%-90%. A3:8%-85%. A2:8%-80%											
	Humidity - storage (with package), non-condensing	8%-90%											
	<i>Models should meet the following requirements to support A3 and A4:</i>												
	<ul style="list-style-type: none"> Processors with TDP higher than or equal to 150-Watt and Xeon 4112, 5122, 6126, 6128, 6132, 6134, 6134M, and 8156 processors not installed Both NVMe 2.5" SSD and NVMe PCIe adapter not installed GPU not installed Must have redundant PSU RAID super capacitor module cannot be installed on the bottom of the air baffle, but only can be installed on the chassis. 												
Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/												



Expansion slots	
Slot 1-2 (riser card 1)	Supports one of the following for riser card 1: Option 1: PCIe 3.0 x8/x16 (slot 1-2). Low profile for x8, low profile or full height half length for x16 Option 2: PCIe 3.0 x8 ML2/x16 (slot 1-2). Low profile for x8 ML2, low profile or full height half length for x16 Option 3: PCIe 3.0 x16 ML2/x8 (slot 1-2). Low profile for x16 ML2, low profile or full height half length for x8 Option 4: 2x 2.5" drive bay, for 10 x 2.5" model only
Slot 3 (riser card 2)	PCIe 3.0 x 16, low profile, requires 2nd CPU. When slot 2 is full height, slot 3 cannot be used

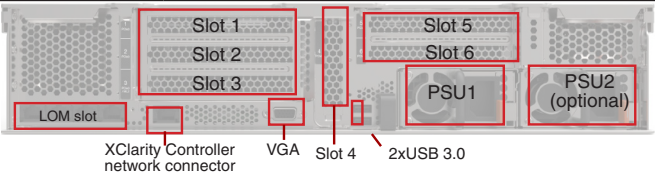
System unique options	
7XH7A05896	Lenovo SR530/SR570/SR630 2.5" SATA/SAS 8-Bay Backplane Kit
7XH7A05893	Lenovo SR530/SR570/SR630 x8/x16 PCIe LP+FH Riser 1 Kit
7XH7A05895	Lenovo SR630 x16ML2/x8 PCIe LP+FH Riser 1 Kit
7XH7A05894	Lenovo SR630 x8ML2/x16 PCIe LP+FH Riser 1 Kit
7XH7A02682	Lenovo SR530/SR570/SR630 x8/x16 PCIe LP+LP Riser 1 Kit
7XH7A02683	Lenovo SR630 x8ML2/x16 PCIe LP+LP Riser 1 Kit
7XH7A02684	Lenovo SR630 x16ML2/x8 PCIe LP+LP Riser 1 Kit
7XH7A02685	Lenovo SR530/SR570/SR630 x16 PCIe LP Riser 2 Kit
7XH7A06252	Lenovo SR630 Rear HDD Kit
7Z17A02577	Lenovo COM Port Upgrade Kit
7Z17A02579	Lenovo SR530/SR570/SR630 Front VGA Connector Upgrade Kit
7Z17A02581	Lenovo 1U Security Bezel



ThinkSystem SR650 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																																			
Form factor	2U rack																																																																																																			
Dimensions	Height: 86.5 mm (3.4 in). Width: 482 mm (19.0 in) with rack latches. Depth: 763.7 mm (30.1 in)																																																																																																			
Weight	Maximum configuration: 70.54 lb (32 kg)																																																																																																			
Processor	Up to two 205W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 28 cores at 2.7GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s																																																																																																			
Chipset	Intel C624 Platform Controller Hub																																																																																																			
Memory offering	Up to 24 DIMM sockets. Each processor supports up to 12 DIMM sockets with 6 channels. Supports following:																																																																																																			
	<table border="1"> <thead> <tr> <th>Memory Type</th> <th>Speed</th> <th>Offering</th> </tr> </thead> <tbody> <tr> <td>Intel Optane DC Persistent Memory</td> <td>DDR4-2666</td> <td>128GB/256GB/512GB</td> </tr> <tr> <td>RDIMM</td> <td>DDR4-2933</td> <td>8GB/16GB/32GB/64GB</td> </tr> <tr> <td>3DS RDIMM</td> <td>DDR4-2933</td> <td>128GB</td> </tr> <tr> <td>Performance+ RDIMM</td> <td>DDR4-2933</td> <td>16GB/32GB/64GB</td> </tr> <tr> <td>Performance+ 3DS RDIMM</td> <td>DDR4-2933</td> <td>128GB</td> </tr> <tr> <td>RDIMM</td> <td>DDR4-2666</td> <td>8GB/16GB/32GB</td> </tr> <tr> <td>LRDIMM</td> <td>DDR4-2666</td> <td>64GB</td> </tr> <tr> <td>3DS RDIMM</td> <td>DDR4-2666</td> <td>64GB/128GB</td> </tr> </tbody> </table>	Memory Type	Speed	Offering	Intel Optane DC Persistent Memory	DDR4-2666	128GB/256GB/512GB	RDIMM	DDR4-2933	8GB/16GB/32GB/64GB	3DS RDIMM	DDR4-2933	128GB	Performance+ RDIMM	DDR4-2933	16GB/32GB/64GB	Performance+ 3DS RDIMM	DDR4-2933	128GB	RDIMM	DDR4-2666	8GB/16GB/32GB	LRDIMM	DDR4-2666	64GB	3DS RDIMM	DDR4-2666	64GB/128GB																																																																								
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Memory capacity	<ul style="list-style-type: none"> 3TB with 24x 128GB 3DS RDIMM and dual M or L SKU processor 6TB with 12x 512GB DC Persistent Memory (memory mode) and dual L SKU processor 7.5TB with 12x 512GB DC Persistent Memory (memory mode) + 12x 128GB 3DS RDIMM and dual L SKU processor 																																																																																																			
Memory protection	ECC, memory mirroring, and memory sparing																																																																																																			
Storage controllers	One dedicated internal RAID slot for most RAID/HBA adapters.																																																																																																			
	<table border="1"> <thead> <tr> <th>Feature</th> <th>Interface</th> <th>Drive type</th> <th>RAID levels</th> <th>JBOD</th> <th>Cache</th> <th>Cache protection</th> <th>FastPath</th> <th>Max qty</th> </tr> </thead> <tbody> <tr> <td>530-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>None</td> <td>None</td> <td>Yes</td> <td>2</td> </tr> <tr> <td>730-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>1GB</td> <td>None</td> <td>No</td> <td>3</td> </tr> <tr> <td>930-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>2GB</td> <td>Flash backup</td> <td>Yes</td> <td>3</td> </tr> <tr> <td>930-16i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> <td>1</td> </tr> <tr> <td>930-24i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> <td>1</td> </tr> <tr> <td>430-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> <td>3</td> </tr> <tr> <td>430-16i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> <td>1</td> </tr> <tr> <td>930-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> <td>5</td> </tr> <tr> <td>430-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> <td>5</td> </tr> <tr> <td>430-16e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> <td>5</td> </tr> </tbody> </table>	Feature	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Max qty	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes	2	730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No	3	930-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	2GB	Flash backup	Yes	3	930-16i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	1	930-24i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	1	430-8i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	3	430-16i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	1	930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	5	430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	5	430-16e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	5
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Note: 730-8i is available in China only. 930-8e, 430-8e, and 430-16e will be placed in slot 4 firstly. 930-24i will be placed in slot 1 firstly.																																																																																																				
Supports the following disk bay configurations, optional rear bay occupies riser card 1 location:																																																																																																				
Disk drive bays	<table border="1"> <thead> <tr> <th>Chassis</th> <th>Maximum Disk Bay Configuration</th> <th>2x 3.5" Rear Bays Support</th> </tr> </thead> <tbody> <tr> <td rowspan="2">12x 3.5"</td> <td>12x 3.5" HS SATA/SAS</td> <td>Yes</td> </tr> <tr> <td>8x 3.5" HS SATA/SAS + 4x 3.5" AnyBay</td> <td>Yes</td> </tr> <tr> <td rowspan="2">8x 3.5"</td> <td>8x 3.5" HS SATA/SAS</td> <td>Yes</td> </tr> <tr> <td>24x 2.5" HS SATA/SAS</td> <td>Yes</td> </tr> <tr> <td rowspan="6">24x 2.5"</td> <td>20x 2.5" HS SATA/SAS + 4x 2.5" AnyBay</td> <td>Yes</td> </tr> <tr> <td>16x 2.5" HS SATA/SAS + 8x 2.5" AnyBay</td> <td>Yes</td> </tr> <tr> <td>12x 2.5" HS SATA/SAS + 12x 2.5" AnyBay</td> <td>No</td> </tr> <tr> <td>8x 2.5" HS SATA/SAS + 16x 2.5" U.2</td> <td>No</td> </tr> <tr> <td>20x U.2</td> <td>No</td> </tr> <tr> <td>24x U.2</td> <td>No</td> </tr> <tr> <td rowspan="3">16x 2.5"</td> <td>16x 2.5" HS SATA/SAS</td> <td>Yes</td> </tr> <tr> <td>12x 2.5" HS SATA/SAS + 4x 2.5" AnyBay</td> <td>Yes</td> </tr> <tr> <td>8x 2.5" HS SATA/SAS + 8x 2.5" AnyBay</td> <td>Yes</td> </tr> </tbody> </table>	Chassis	Maximum Disk Bay Configuration	2x 3.5" Rear Bays Support	12x 3.5"	12x 3.5" HS SATA/SAS	Yes	8x 3.5" HS SATA/SAS + 4x 3.5" AnyBay	Yes	8x 3.5"	8x 3.5" HS SATA/SAS	Yes	24x 2.5" HS SATA/SAS	Yes	24x 2.5"	20x 2.5" HS SATA/SAS + 4x 2.5" AnyBay	Yes	16x 2.5" HS SATA/SAS + 8x 2.5" AnyBay	Yes	12x 2.5" HS SATA/SAS + 12x 2.5" AnyBay	No	8x 2.5" HS SATA/SAS + 16x 2.5" U.2	No	20x U.2	No	24x U.2	No	16x 2.5"	16x 2.5" HS SATA/SAS	Yes	12x 2.5" HS SATA/SAS + 4x 2.5" AnyBay	Yes	8x 2.5" HS SATA/SAS + 8x 2.5" AnyBay	Yes																																																																		
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Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																																																																																				
Internal storage	<table border="1"> <tbody> <tr> <td rowspan="5">For 3.5" bay (3.5" disks or 2.5" disks with 3.5" tray)</td> <td>3.5" HDD, SATA6Gbps, 7.2K</td> <td>1TB/2TB/4TB/6TB/8TB/10TB</td> </tr> <tr> <td>3.5" HDD, SAS12Gbps, 7.2K</td> <td>1TB/2TB/4TB/4TB SED FIPS/6TB/10TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 15K</td> <td>300GB/600GB</td> </tr> <tr> <td>2.5" SSD, SATA6Gbps</td> <td>240GB/480GB</td> </tr> <tr> <td>2.5" NVMe SSD, AnyBay</td> <td>960GB/1.92TB/3.84TB</td> </tr> <tr> <td rowspan="7">For 2.5" bay</td> <td>2.5" HDD, SATA6Gbps, 7.2K</td> <td>1TB/2TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 7.2K</td> <td>1TB/2TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 10K</td> <td>300GB/300GB SED/600GB/600GB SED/900GB/1.2TB/1.8TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 15K</td> <td>300GB/600GB/900GB</td> </tr> <tr> <td>2.5" SSD, SAS12Gbps</td> <td>400GB/800GB/3.84TB/7.68TB</td> </tr> <tr> <td>2.5" SSD, SATA6Gbps</td> <td>240GB/480GB</td> </tr> <tr> <td>2.5" NVMe SSD, AnyBay</td> <td>800GB/960GB/1.6TB/1.92TB/3.84TB</td> </tr> <tr> <td>PCIe 3.0 x4, HHHL adapter</td> <td>NVMe SSD</td> <td>1.6TB/1.92TB/3.2TB/3.84TB</td> </tr> <tr> <td>M.2 boot drive</td> <td>M.2 SATA SSD</td> <td>32GB/128GB/480GB</td> </tr> </tbody> </table>	For 3.5" bay (3.5" disks or 2.5" disks with 3.5" tray)	3.5" HDD, SATA6Gbps, 7.2K	1TB/2TB/4TB/6TB/8TB/10TB	3.5" HDD, SAS12Gbps, 7.2K	1TB/2TB/4TB/4TB SED FIPS/6TB/10TB	2.5" HDD, SAS12Gbps, 15K	300GB/600GB	2.5" SSD, SATA6Gbps	240GB/480GB	2.5" NVMe SSD, AnyBay	960GB/1.92TB/3.84TB	For 2.5" bay	2.5" HDD, SATA6Gbps, 7.2K	1TB/2TB	2.5" HDD, SAS12Gbps, 7.2K	1TB/2TB	2.5" HDD, SAS12Gbps, 10K	300GB/300GB SED/600GB/600GB SED/900GB/1.2TB/1.8TB	2.5" HDD, SAS12Gbps, 15K	300GB/600GB/900GB	2.5" SSD, SAS12Gbps	400GB/800GB/3.84TB/7.68TB	2.5" SSD, SATA6Gbps	240GB/480GB	2.5" NVMe SSD, AnyBay	800GB/960GB/1.6TB/1.92TB/3.84TB	PCIe 3.0 x4, HHHL adapter	NVMe SSD	1.6TB/1.92TB/3.2TB/3.84TB	M.2 boot drive	M.2 SATA SSD	32GB/128GB/480GB																																																																			
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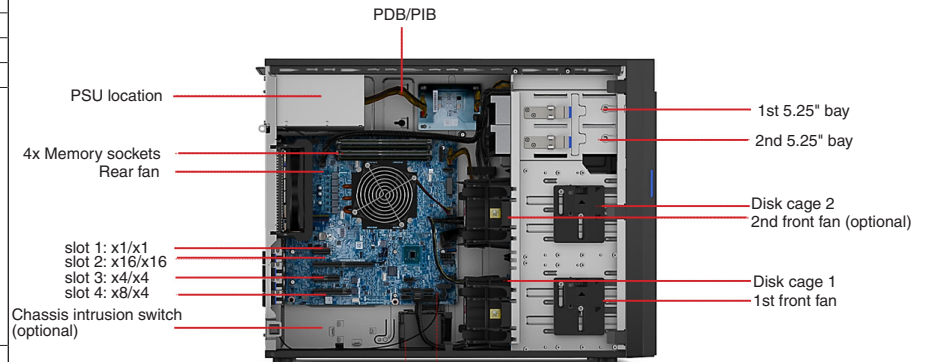
Components	Specification												
Optical	No internal optical bay. Optional USB DVD±RW optical drive												
Network interfaces	One dedicated management port. One LOM slot for customized LOM with up to four RJ-45 or SFP+ ports, up to 10GbE. Wake-on-LAN and NC-SI are available on Port 0 of LOM. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot.												
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel												
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.4/7.3/6.9. SUSE Linux Enterprise Server 12 SP3/12 SP2/11 SP4. VMware ESXi 6.5U1/6.5/6.0 U3												
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Provisioning Manager. Essentials. Light Path Diagnostics												
GPU support	Requires riser card with PCIe x16 slot. 2nd or 3rd GPU requires 2nd CPU. Supports up to 2 FHFL and double width GPU adapters, or up to 3 FHFL and single width GPU adapters												
Base warranty	MT 7X05: 1-year limited onsite service with 9x5/NBD MT 7X06: 3-year limited onsite service with 9x5/NBD												
Power supply	Up to two redundant hot-swap 550W/750W/1100W/1600W 80 PLUS Platinum qualified AC power supplies. Or up to two redundant hot-swap 750W Titanium qualified AC power supplies. 750W Titanium and 1600W Platinum are 200V - 240V, others are 100V - 240V												
Video	Integrated Matrox G200 in XClarity Controller												
Cooling	Five fans (4+1) for single processor model, six fans (5+1) for dual processor model												
Front ports	One XClarity Controller USB connector, one USB 3.0, one optional VGA												
Rear ports	One VGA, two USB 3.0, one XClarity Controller network connector. Optional COM port												
Environmental specification	Supports ASHRAE A4 with limitations.												
	<table border="1"> <tbody> <tr> <td>Temperature - operating</td> <td>A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)</td> </tr> <tr> <td>Temperature - non operating (no package)</td> <td>-10°C to 60°C (14°F to 140°F)</td> </tr> <tr> <td>Temperature - non operating (with package)</td> <td>-40°C to 70°C (-40°F to 158°F)</td> </tr> <tr> <td>Altitude - operating</td> <td>(Unpressurized): 0-10000ft (0-3048m)</td> </tr> <tr> <td>Humidity - operating, non-condensing</td> <td>A4: 8%-90%. A3: 8%-85%. A2: 8%-80%</td> </tr> <tr> <td>Humidity - storage (with package), non-condensing</td> <td>8%-90%</td> </tr> </tbody> </table>	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)	Humidity - operating, non-condensing	A4: 8%-90%. A3: 8%-85%. A2: 8%-80%	Humidity - storage (with package), non-condensing	8%-90%
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)											
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	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)											
	Humidity - operating, non-condensing	A4: 8%-90%. A3: 8%-85%. A2: 8%-80%											
	Humidity - storage (with package), non-condensing	8%-90%											
	Models should meet the following requirements to support A3 and A4:												
	<ul style="list-style-type: none"> NVMe drives not installed PCIe flash adapter not installed Graphic processing unit (GPU) not installed Must have redundant PSU Certain processors not installed: <ul style="list-style-type: none"> Processors with TDP more than or equal to 150-watt not installed On 16 x 2.5", 24 x 2.5", and 12 x 3.5" models, the following processors not installed: Intel Xeon 4112, 5122, 6126, 6128*, 6132*, 6134, 6134M*, and 8156 processors (Processors marked with * will be available later) 												
Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/												
													
Expansion slots													
Slot 1-3 (riser card 1)	Supports one of the following for riser card 1: Option 1: PCIe 3.0 x8/x8/x8 (slot 1-3). Full height, half length. Option 2: PCIe 3.0 x16/x8 (slot 1 and 3). Full height, full length for x16. Full height, half length for x8 Option 3: PCIe 3.0 x8/x8/x8 ML2 (slot 1-3). Full height, half length Option 4: PCIe 3.0 x8/x16 ML2 (slot 1 and 3). Full height, half length Option 5: Two rear 3.5" disk bays, 12 x 3.5" models only												
Slot 4 (onboard)	PCIe 3.0 x8, low profile												
Slot 5 (riser card 2)	PCIe 3.0 x16, full height, full length, requires 2nd CPU												
Slot 6 (riser card 2)	PCIe 3.0 x16, full height, half length, requires 2nd CPU												

ThinkSystem ST250 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																								
Form factor	Tower or 4U rack with optional rack mount kit																																																																																								
Dimensions	Height: 430 mm (16.93 in), width: 175 mm (6.89 in), depth: 565.7 mm (22.27 in)																																																																																								
Weight	Maximum configuration: 51.94 lb (23.56 kg)																																																																																								
Processor	Up to one Intel Xeon E family processor, up to 95W, up to 6 cores at 3.8GHz, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one 8th Intel Core i3 processor, up to 91W, up to 4 cores at 4.0GHz, up to 8MB cache, up to DDR4-2400 memory speed. Or up to one Intel Pentium Gold processor, up to 54W, 2 cores at 3.9GHz, 4MB cache, DDR4-2400 memory speed																																																																																								
Chipset	Intel C246 Platform Controller Hub																																																																																								
Memory	4 DIMM sockets with 2 channels, 2 DIMMs per channel. UDIMM. DDR4-2666.																																																																																								
Memory capacity	64GB with 4x 16GB UDIMMs																																																																																								
Memory protection	ECC																																																																																								
Storage controllers	Supports the following RAID/HBA adapters:																																																																																								
	<table border="1"> <thead> <tr> <th>RAID adapter</th> <th>Interface</th> <th>Drive type</th> <th>RAID levels</th> <th>JBOD</th> <th>Cache</th> <th>Cache protection</th> <th>FastPath</th> </tr> </thead> <tbody> <tr> <td>Onboard SATA</td> <td>6Gbps SATA</td> <td>SATA</td> <td>0/1/10/5</td> <td>Yes</td> <td>None</td> <td>None</td> <td>No</td> </tr> <tr> <td>530-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>None</td> <td>None</td> <td>Yes</td> </tr> <tr> <td>730-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>1GB</td> <td>None</td> <td>No</td> </tr> <tr> <td>930-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>2GB</td> <td>Flash backup</td> <td>Yes</td> </tr> <tr> <td>930-16i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> </tr> <tr> <td>430-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> </tr> <tr> <td>430-16i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> </tr> <tr> <td>430-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> </tr> <tr> <td>430-16e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> </tr> <tr> <td>930-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> </tr> </tbody> </table>	RAID adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Onboard SATA	6Gbps SATA	SATA	0/1/10/5	Yes	None	None	No	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes	730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No	930-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	2GB	Flash backup	Yes	930-16i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	430-8i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	430-16i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	430-16e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes
	RAID adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath																																																																																	
	Onboard SATA	6Gbps SATA	SATA	0/1/10/5	Yes	None	None	No																																																																																	
	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes																																																																																	
	730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No																																																																																	
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430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-																																																																																		
430-16e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-																																																																																		
930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes																																																																																		
Disk drive bays	Supports 4 or 8 front 3.5" SATA simple-swap bays. Or 4 or 8 front 3.5" SATA/SAS HS bays. Or 8 or 16 front 2.5" SATA/SAS HS bays. Or 4x 3.5" plus 8x 2.5" hybrid SATA/SAS HS bays. Optional one internal M.2 SSD for boot, consumes one onboard SATA port																																																																																								
Disk support	For 3.5" SS bay																																																																																								
	3.5" HDD, SATA6Gbps, 7.2K	1TB/2TB/4TB/6TB/8TB																																																																																							
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M.2 SSD	M.2 SATA SSD	32GB/128GB/480GB																																																																																							
Optical	Two 5.25" bays for half-height optical, LTO-7 SAS or RDX USB 3.0 tape drive. Up to two optical or one tape drive																																																																																								
Network interfaces	Two onboard GbE port via integrated gigabit ethernet Broadcom BCM5720 plus one dedicated management port. Optional PCIe ethernet adapters are available																																																																																								
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 or 2.0 compliant, Optional TCM in China only. Optional chassis intrusion switch, Kensington lock, and pad lock																																																																																								
Operating systems supported	Microsoft Windows Server 2019/2016/2012 R2. Red Hat Enterprise Linux 7.5. SUSE Linux Enterprise Server 12 SP3. VMware vSphere (ESXi) 6.7/6.5 U2																																																																																								
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. LEDs on front panel show the status of power, ID, network, simple-swap disks, and system error																																																																																								
GPU support	Up to one optional GPU, NVIDIA Quadro P620 or Quadro P2000																																																																																								
Base warranty	MT 7Y45: 3-year limited onsite service with 9x5/NBD MT 7Y46: 1-year limited onsite service with 9x5/NBD																																																																																								
Power supply	Supports one of the following PSU: <ul style="list-style-type: none"> One fixed power supply, 250W. 80 PLUS Platinum certified. Up to two redundant hot-swap power supplies, 550W each. 80 PLUS Platinum certified 																																																																																								

Components	Specification
Video	Integrated Matrox G200 in XClarity Controller
Cooling	One fixed rear fan, one fixed front fan, CPU fan, PSU fan. One optional front fan for 2nd disk drive cage
Front ports	One XClarity Controller USB connector, one USB 3.1 Gen 1
Rear ports	2x USB 3.1 Gen 2. 2x USB 3.1 Gen 1. 2x RJ-45. 1x XClarity Controller network connector. 1x COM. 1x VGA
Environmental specification	Supports ASHRAE A2
Environmental certification	Energy Star Server 2.1 certified



Expansion slots

Supports three PCIe 3.0 slots as following:

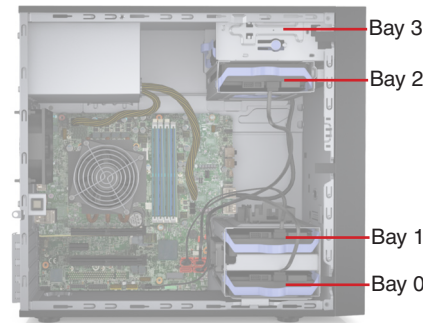
Slot 1	PCIe 3.0 x1, full height, half length, links to PCH
Slot 2	PCIe 3.0 x16, full height, half length, links to CPU
Slot 3	PCIe 3.0 x4, full height, half length, links to PCH
Slot 4	PCIe 3.0 x8 (negotiable link width x4), full height, half length, links to PCH

Partial options for ThinkSystem ST250

ThinkSystem 8GB TruDDR4 (1Rx8, 1.2V) 2666 MHz UDIMM	4ZC7A08696
ThinkSystem 16GB TruDDR4 (2Rx8, 1.2V) 2666 MHz UDIMM	4ZC7A08699
ThinkSystem 3.5" 1TB 7.2K SATA 6Gb Hot Swap 512n HDD	7XB7A00049
ThinkSystem 3.5" 8TB 7.2K SATA 6Gb Hot Swap 512e HDD	7XB7A00053
900GB 15K 12Gbps SAS 2.5" G4HS 512e HDD	7XB7A00023
300GB 10K 12Gbps SAS 2.5" G4HS HDD	7XB7A00024
600GB 10K 12Gbps SAS 2.5" G4HS HDD	7XB7A00025
900GB 10K 12Gbps SAS 2.5" G4HS HDD	7XB7A00026
1.2TB 10K 12Gbps SAS 2.5" G4HS HDD	7XB7A00027
1.8TB 10K 12Gbps SAS 2.5" G4HS 512e HDD	7XB7A00028
2.4TB 10K SAS 12Gb HS 512e HDD	7XB7A00069
300GB 10K 12Gbps SAS 2.5" G4HS SED	7XB7A00030
1TB 7.2K 12Gbps NL SAS 2.5" G4HS HDD	7XB7A00034
2TB 7.2K 12Gbps NL SAS 2.5" G4HS HDD	7XB7A00035
M.2 CV3 128GB SATA SSD	7N47A00130
ThinkSystem ST50/ST250 Rack Mount Kit	4M17A12785

ThinkSystem ST50 Platform Specifications

Components	Specification																																																																
Form factor	Tower or 4U rack with optional rack mount kit																																																																
Dimensions	Height: 375 mm (14.76 in), width: 175 mm (6.89 in), depth: 407 mm (16.0 in)																																																																
Weight	Maximum configuration: 24.7 lb (11.2 kg)																																																																
Processor	Up to one Intel Xeon E family processor, up to 95W, up to 6 cores at 3.8GHz, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one 8th Intel Core i3 processor, up to 91W, up to 4 cores at 4.0GHz, up to 8MB cache, up to DDR4-2400 memory speed. Or up to one Intel Pentium Gold processor, up to 54W, 2 cores at 3.9GHz, 4MB cache, DDR4-2400 memory speed Or up to one Intel Celeron processor, up to 54W, 2 cores at 3.2GHz, 2MB cache, DDR4-2400 memory speed																																																																
Chipset	Intel C246 Platform Controller Hub																																																																
Memory	4 DIMM sockets with 2 channels, 2 DIMMs per channel. UDIMM. DDR4-2666. Non-ECC UDIMM are supported in China only																																																																
Memory capacity	64GB with 4x 16GB UDIMMs, both ECC and Non-ECC																																																																
Memory protection	ECC																																																																
Storage controllers	Supports the following RAID/HBA adapters:																																																																
	<table border="1"> <thead> <tr> <th>RAID adapter</th> <th>Interface</th> <th>Drive type</th> <th>RAID levels</th> <th>JBOD</th> <th>Cache</th> <th>Cache protection</th> <th>FastPath</th> </tr> </thead> <tbody> <tr> <td>Onboard SATA</td> <td>6Gbps SATA</td> <td>SATA</td> <td>0/1/10/5</td> <td>Yes</td> <td>None</td> <td>None</td> <td>No</td> </tr> <tr> <td>530-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>None</td> <td>None</td> <td>Yes</td> </tr> <tr> <td>730-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>1GB</td> <td>None</td> <td>No</td> </tr> <tr> <td>930-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>2GB</td> <td>Flash backup</td> <td>Yes</td> </tr> <tr> <td>430-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> </tr> <tr> <td>430-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> </tr> <tr> <td>930-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> </tr> </tbody> </table>	RAID adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Onboard SATA	6Gbps SATA	SATA	0/1/10/5	Yes	None	None	No	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes	730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No	930-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	2GB	Flash backup	Yes	430-8i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes
	RAID adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath																																																									
	Onboard SATA	6Gbps SATA	SATA	0/1/10/5	Yes	None	None	No																																																									
	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes																																																									
	730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No																																																									
	930-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	2GB	Flash backup	Yes																																																									
	430-8i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-																																																									
	430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-																																																									
	930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes																																																									
Disk drive bays	Up to 4x 3.5"/2.5" Non-hot swap SATA/SAS cabled drive, HDD, SSD, or mixing of HDD and SSD. 4th bay is optional with 5.25" to 3.5" conversion kit and occupies 5.25" bay																																																																
SD card reader	Up to two SD card with optional SD card module, 32GB or 64GB																																																																
Disk support	<table border="1"> <tbody> <tr> <td>3.5" HDD, SATA6Gbps, 7.2K</td> <td>1TB/2TB/4TB/6TB/8TB</td> </tr> <tr> <td>2.5" SSD, SATA6Gbps</td> <td>240GB/480GB/960GB</td> </tr> <tr> <td>SD card</td> <td>32GB/64GB</td> </tr> </tbody> </table>	3.5" HDD, SATA6Gbps, 7.2K	1TB/2TB/4TB/6TB/8TB	2.5" SSD, SATA6Gbps	240GB/480GB/960GB	SD card	32GB/64GB																																																										
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2.5" SSD, SATA6Gbps	240GB/480GB/960GB																																																																
SD card	32GB/64GB																																																																
Optical	One 5.25" bays for half-height optical, LTO-7 SAS or RDX USB 3.0 tape drive, or 4th disk bay plus one slim optical																																																																
Network interfaces	One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available																																																																
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 or 2.0 compliant, Optional TCM in China only. Optional chassis intrusion switch, Kensington lock, and pad lock																																																																
Operating systems supported	Microsoft Windows Server 2019/2016. Red Hat Enterprise Linux 7.5. VMware vSphere (ESXi) 6.5 U2																																																																
Systems management	Intel Active Management Technology 12 on Xeon models, Intel Standard Manageability on other models																																																																
GPU support	Up to one optional NVIDIA Quadro P620																																																																
Base warranty	MT 7Y48: 3-year limited onsite service with 9x5/NBD MT 7Y49: 1-year limited onsite service with 9x5/NBD																																																																
Power supply	Supports one 250W or 400W power supply, 100V - 240V, 92% PSU. Climate Savers Computing Platinum and 80 PLUS Platinum qualified. 400W PSU supports one 6+2-pin aux power connector.																																																																
Video	Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i3, or Intel UHD Graphics 610 in Pentium and Celeron processors																																																																
Cooling	Two fixed system fans, CPU fan, PSU fan, and optional media bay fan																																																																
Front ports	2x USB 3.1 Gen 1 Type A																																																																
Rear ports	2x USB 3.1 Gen 1 Type A. 2x USB 2.0 Type-A. 1x RJ-45. 1x COM. 1x line-out. 2x DP (DP needs Core, Pentium, Celeron, or -G suffix Xeon processor)																																																																
Environmental specification	Supports ASHRAE A2																																																																
Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/																																																																



Disk bays

Bay 0	3.5" bay, HDD or SSD
Bay 1	3.5" bay, HDD or SSD
Bay 2	3.5" bay, HDD or SSD
Bay 3	One of the following: <ul style="list-style-type: none"> • half-height optical • tape drive • 3.5" bay + slim optical

Expansion slots

Supports three PCIe 3.0 slots as following:

Slot 1	PCIe 3.0 x16, full height, half length, links to CPU
Slot 2	PCIe 3.0 x1, full height, half length, links to PCH
Slot 3	PCIe 3.0 x16 (negotiable link width x4), full height, half length, links to PCH

Partial options for ThinkSystem ST50

ThinkSystem 8GB TruDDR4 (1Rx8, 1.2V) 2666 MHz UDIMM	4ZC7A08696
ThinkSystem 16GB TruDDR4 (2Rx8, 1.2V) 2666 MHz UDIMM	4ZC7A08699
ThinkSystem ST50 3.5" 1TB 7.2K SATA 6Gb Non-Hot Swap 512n HDD	4XB7A13554
ThinkSystem ST50 3.5" 2TB 7.2K SATA 6Gb Non-Hot Swap 512n HDD	4XB7A13555
ThinkSystem ST50 3.5" 4TB 7.2K SATA 6Gb Non-Hot Swap 512n HDD	4XB7A13556
ThinkSystem ST50 3.5" 6TB 7.2K SATA 6Gb Non-Hot Swap 512e HDD	4XB7A13557
ThinkSystem ST50 3.5" 8TB 7.2K SATA 6Gb Non-Hot Swap 512e HDD	4XB7A13558
ThinkSystem ST50 3.5" Intel S4510 240GB Entry SATA 6Gb Non Hot Swap SSD	4XB7A14914
ThinkSystem ST50 3.5" Intel S4510 480GB Entry SATA 6Gb Non Hot Swap SSD	4XB7A14915
ThinkSystem ST50 3.5" Intel S4510 960GB Entry SATA 6Gb Non Hot Swap SSD	4XB7A14916
ThinkSystem ST50 HH ODD / Tape Cable Kit	4Z57A13568
ST50 5.25 to 3.5 HDD kit W/ Slim ODD	4M17A12096
ST50 DP to HDMI Dongle Kit	4X97A12100
ST50 DP to VGA Dongle Kit	4X97A12099
ThinkSystem ST50 Super Cap Bracket & Cable Kit	4M17A12094
ST50 Dual SD Cards Adapter Kit	4M17A12095
ThinkSystem ST50/ST250 Rack Mount Kit	4M17A12785



ThinkSystem ST550 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification		
Form factor	Tower or 4U rack		
Dimensions	Without foot stands and security door: Height: 425.5 mm (16.8 in). Width: 175.8 mm (6.92 in). Depth: 666.4 mm (26.24 in)		
Weight	Maximum configuration: 81.35 lb (36.9 kg)		
Processor	Up to two 125W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 20 cores at 2.0GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s		
Chipset	Intel C621 Platform Controller Hub		
Memory	Up to 12 DIMM sockets. Each processor supports up to 6 DIMM sockets with 6 channels. DDR4-2933 or DDR4-2666. RDIMMs		
Memory capacity	Up to 768GB with 12 x 64 GB DIMMs and two processors		
Memory protection	ECC, memory mirroring, and memory sparing		
Storage controllers	Supports the following RAID/HBA adapters:		
	<i>Note: 730-8i is available in China only. All RAID/HBA adapters should be placed in slot 1 firstly.</i>		
Disk drive bays	Supports 4 or 8 front 3.5" SATA simple-swap bays. Or 4 or 8 front 3.5" SATA/SAS HS bays. Or 8 or 16 front 2.5" SATA/SAS HS bays with maximum 4 AnyBay. Optional 4 front 2.5" HS bays are supported on hot-swap models, takes place in two 5.25" bays location Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring		
Internal storage	For 3.5" SS bay	3.5" HDD, SATA6Gbps, 7.2K	1TB/2TB/4TB/6TB/8TB/10TB
	For 3.5" bay	3.5" HDD, SATA6Gbps, 7.2K	1TB/2TB/4TB/6TB/8TB/10TB
	(3.5" disks or 2.5" disks with 3.5" tray)	3.5" HDD, SAS12Gbps, 7.2K	1TB/2TB/4TB/6TB/10TB
		2.5" HDD, SAS12Gbps, 15K	300GB/600GB
	For 2.5" bay	2.5" SSD, SATA6Gbps	240GB/480GB
		2.5" HDD, SATA6Gbps, 7.2K	1TB/2TB
		2.5" HDD, SAS12Gbps, 7.2K	1TB/2TB
		2.5" HDD, SAS12Gbps, 10K	300GB/600GB/900GB/1.2TB/1.8TB
		2.5" HDD, SAS12Gbps, 15K	300GB/600GB/900GB
		2.5" SSD, SAS12Gbps	400GB/800GB/3.84TB
2.5" SSD, SATA6Gbps		240GB/480GB	
2.5" NVMe SSD, AnyBay		1.92TB/3.84TB	
	M.2 SATA SSD	32GB/128GB/480GB	
Optical	Two 5.25" bays for optical and tape drive. Supports DVD-ROM or DVD±RW drives, half-height. Supports LTO-6 SAS, LTO-7 SAS, and RDX USB 3.0 tape drives		
Network interfaces	Integrated one dedicated management port plus two GbE ports. Optional PCIe adapters are supported. NC-SI and Wake-on-LAN are available on GbE port 1 (See right)		
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel. Optional chassis intrusion switch		
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.3/6.9. SUSE Linux Enterprise Server 12 SP2/11 SP4. VMware vSphere (ESXi) 6.5/6.0 U3		
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. Provisioning Manager. Essentials. LEDs on front panel show the status of power, ID, network, simple-swap disks, and system error		
GPU support	Up to two optional NVIDIA Quadro P2000 or Quadro P6000		

Components	Specification	
Base warranty	MT 7X09: 1-year limited onsite service with 9x5/NBD MT 7X10: 3-year limited onsite service with 9x5/NBD	
Power supply	Supports one fixed 450W 80 PLUS Gold qualified AC power supply, non-hot swap, no redundant. Or up to two redundant hot-swap 550W/750W/100W 80 PLUS Platinum qualified AC power supplies. Or up to two redundant hot-swap 750W Titanium qualified AC power supplies. 750W Titanium is 200V - 240V, others are 100V - 240V	
Video	Integrated Matrox G200 in XClarity Controller	
Cooling	Up to four fans with one for redundant. Two fans for single processor, three fans for dual processor or single processor with 4 x 2.5" HS bay installed. 4th fan is N + 1 redundant or GPU installed	
Front ports	One XClarity Controller USB connector, one USB 3.0	
Rear ports	One VGA, two USB 3.0, four USB 2.0, two ethernet (RJ-45), one XClarity Controller network connector. Optional COM port	
Environmental specification	Supports ASHRAE A4 with limitations.	
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating, non-condensing	A4: 8%-90%. A3: 8%-85%. A2: 20%-80%
	Humidity - storage (with package), non-condensing	8%-90%
	<i>Models should meet the following requirements to support A3 and A4:</i>	
	<ul style="list-style-type: none"> System rear fan required, no system fan fail 450W fixed power supply not installed, redundant power supplies required NVMe SSD not installed GPU not installed When 4 x 2.5" bay installed, only support up to 2TB SAS HDD/SSD and all SATA HDD/SSD 	
	Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/

Expansion slots

Slot 1 (CPU1)	PCIe 3.0 x8, full height, half length
Slot 2 (CPU1)	PCIe 3.0 x16, full height, half length
Slot 3 (CPU1)	PCIe 3.0 x16, full height, full length, double-width
Slot 4 (CPU2)	PCIe 3.0 x16 (x8 elec), full height, full length
Slot 5 (CPU2)	PCIe 3.0 x16, full height, full length, double-width
Slot 6 (CPU1)	PCIe 3.0 x8 (x4 elec), full height, full length

Note: All expansion cards and redundant PSU are optional.

System unique options	Part Number	Description
	7X77A03475	ThinkSystem ST550 2.5" SATA/SAS 4-Bay Backplane Kit
	7X77A03476	ThinkSystem ST550 2.5" Anybay 8-Bay Backplane Kit
	7TP7A04369	ThinkSystem ST550 2.5" 8-Bay Backplane Kit
	7TP7A04370	ThinkSystem ST550 3.5" SATA/SAS 4-Bay Backplane kit
	7X77A03481	ThinkSystem ST550 3.5" Simple Swap Bracket Plate
	7X77A03484	ThinkSystem ST550 4U Security Bezel
	7X77A03485	ThinkSystem ST550 CMA kit
	7X77A03488	ThinkSystem ST550 4U Tower to Rack Conversion Kit
	7Z17A02577	ThinkSystem ST550 COM Port Upgrade Kit
	7XH7A06781	ThinkSystem ST550 Front Mid FAN Module for 4x2.5" ODD conversion
	7TP7A04371	ThinkSystem ST550 Rear FAN Module for RDN FAN

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Warranty: For a copy of applicable warranties, write to: Lenovo Warranty Information, 1009 Think Place, Morrisville, NC, 27560. Lenovo makes no representation or warranty regarding third party products or services. The Lenovo Limited Warranty applies only to Lenovo hardware products purchased for your own use, and does not transfer upon resale.

Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

Lenovo Services:

Carry-in or Mail-in Service: Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.

Depot or Courier Service: Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Expedited Depot: Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Onsite / In-home Service: Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.

International Warranty Service (IWS): PC repair coverage for customers who require a critical warranty repair while travelling internationally. Visit www.lenovo.com/internationalwarranty for details. Visit www.lenovo.com/warranty for Lenovo Warranty Services terms and conditions for complete details and restrictions.

Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.

Visit <http://psref.lenovo.com/> for the latest version of Product Specifications Reference.

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Lenovo™ **ThinkVision**

PSREF



Product Specifications Reference

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Summary of Changes

This section describes the technical changes made in this edition.

This edition might also include minor corrections and editorial changes which are not identified.

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Additions in this update

▶ **New product(s)**

ThinkVision T27p-10 announced May 2019

▶ **New model(s)**

None

▶ **Others**

None

Withdrawals in this update

▶ **Withdrawn product(s)**

ThinkVision P27 is withdrawn in the book

ThinkVision T24i is withdrawn in the book

ThinkVision T2423 is withdrawn in the book

ThinkVision T2424z is withdrawn in the book


ThinkVision T2220VA is withdrawn in the book

ThinkVision T2364t is withdrawn in the book


ThinkVision T2224z is withdrawn in the book

ThinkVision Pro2820 is withdrawn in the book




<p>Name E1922s Wide Flat Panel Monitor Case color Black Type-model 60G2AAR6US / 60G2AAT6EU Panel TFT-LCD, twisted nematic (TN), White LED backlight Viewable image size 18.5" (470mm) diagonal Max view area (W x H) 16.1" x 9.1" / 409.8mm x 230.4mm Native resolution 1366x768 Aspect ratio 16:9 Pixel pitch (mm) 0.3mm Dot/Pixel per Inch 85 dpi Brightness 200 nits or cd/m² (typical) Contrast ratio 600:1 (typical) Pixel response time 5ms (typical) Color gamut 72% Viewing angle at 10:1 CR 180° (+/- 90°) horizontal, 100° (+/- 50°) vertical Stand Tilt adjustable stand Bezel width Sides: 0.73" (18.5mm) Dimensions (HxWxD) 13.44" H x 17.65" W x 6.58" D; 341.5mm H x 448.4mm W x 167.2mm D Power supply 13.7 watts typical, 17 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 6.03 lb; 2.74 kg Limited warranty⁴ 3 year (includes backlight) Available date March 2014</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 18.5-inch monitor • Supports HD 1366x768 resolution • Supports VESA mount (100mm) • Mercury free panel and arsenic free glass • Kensington lock slot ready for enhanced security • Support Lenovo Tiny PC via VESA mount • Supports optional soundbar • Microsoft® Windows® 7 certified • Microsoft Windows 8 / Windows 8.1 certified 				
<p>VESA-compliant² VESA DPMS-compliant Power management ENERGY STAR® 7.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO (TCO Displays 7.0), WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision E1922s Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600, 832x624 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA: 1366x768</p> <p>Presets / user settings Standard presets: 15 user settings: 16</p>					
<p>Viewing adjustments Tilt: 20° backward, -5° forward Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (control buttons on front) for automatic image setup and adjustment for brightness Multiple input None Monitor connectors VGA 15-pin D-shell, analog, blue Signal cables detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, 1.8 meter analog signal cable, 1.8 meter black power cord</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				




<p>Name E2054 Wide Flat Panel Monitor Case color Raven black Type-model 60DFAAR1US / 60DFAAT1EU Panel TFT-LCD, In-Plane Switching (IPS), LED backlight Viewable image size 19.5" (494mm) diagonal Max view area (W x H) 16.48" x 10.33" / 418.6mm x 262.4mm Native resolution 1440x900 Aspect ratio 16:10 Pixel pitch (mm) 0.097mm x 0.292mm Dot/Pixel per Inch 87 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 7ms (typical) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt adjustable stand Bezel width Top: 0.71" (18.0mm) Bottom: 0.70" (17.9mm) Sides: 1.02" (26.0mm) Dimensions (HxWxD) 14.65" H x 17.95" W x 7.41" D; 372.0mm H x 456.0mm W x 188.3mm D Power supply 16 watts typical, 20 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 6.17 lb; 2.8 kg Limited warranty 3 year (includes backlight) Available date November 2015</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 19.5-inch monitor • Supports HD 1440x900 resolution • Supports VESA mount (100mm) • Mercury free panel and arsenic free glass • Kensington lock slot ready for enhanced security • Support Lenovo Tiny PC via VESA mount • Microsoft® Windows® 7 certified • Microsoft Windows 8 / Windows 8.1 certified • Microsoft Windows 10 certified
<p>VESA-compliant VESA DPMS-compliant Power management ENERGY STAR® 6.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO (TCO Displays 6.0), WEEE, RoHS, EPEAT™ Silver rating</p>	<div style="text-align: center;">  <p>ThinkVision E2054 Wide Monitor</p> </div>
<p>Preset resolutions VGA: 640x480, 720x400 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x768, 1280x1024 WXGA: 1366x768 WXGA+: 1440x900</p> <p>Presets / user settings Standard presets: 18 user settings: 10</p>	
<p>Viewing adjustments Tilt: 22° backward, -5° forward Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (control buttons on front) for automatic image setup and adjustment for brightness Multiple input None Monitor connectors VGA 15-pin D-shell, analog, blue Signal cables detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>	
<p>Ship group Monitor with stand, 1.8 meter analog signal cable, 1.8 meter black power cord</p>	

<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				




<p>Name LT1913p Square Flat Panel Monitor Case color Black Type-model 60FBHAR1US / 60FBHAT1EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 19.0" (480.0mm) diagonal Max view area (W x H) 14.76" x 11.80" (374.7mm x 299.8mm) Optimum resolution 1280x1024 Max pixel rate 205MHz (VGA), 165MHz (DVI) Aspect ratio 5:4 Pixel pitch (mm) 0.0976 (H) x 0.2928 (V) mm Dot/Pixel per Inch 86.8 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 7ms (typical) Color gamut 72% Viewing angle at 10:1 CR 178° horizontal, 178° vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width Sides: 0.68" (17.4mm); top: 0.68" (17.4mm); bottom: 0.68" (17.4mm) Dimensions (HxWxD) 14.63" H x 16.18" W x 10.40" D; 371.5mm H x 411.0mm W x 264.2mm D Power supply 24 watts typical, 27 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 10.69 lb; 4.85kg Limited warranty⁴ 3 year (includes backlight) Available date April 2015</p>	<p>Features</p> <ul style="list-style-type: none"> • 19-inch Square IPS LED backlight panel • Supports 1280x1024 resolution • Supports ThinkCentre Tiny Clamp Bracket • Mercury and arsenic free glass • Low Halogen • Recycled content in plastic material • Supports optional soundbar • Microsoft® Windows® 7 certified • Microsoft Windows 8 / Windows 8.1 certified • Microsoft Windows 10 certified 								
<p>VESA-compliant² VESA DDC2B/C1, EDID 1.3 Power management ENERGY STAR® 7.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 1.1, WEEE, RoHS, EPEAT™ Gold rating, ULE Gold</p> <p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600, 823x624 XGA: 1024x768, 1152x864, 1152x900 SXGA: 1280x1024</p> <p>Presets / user settings Standard presets: 20; user settings: 20</p>	 <p>ThinkVision LT1913p Square Monitor</p>								
<p>Viewing adjustments Tilt: 30° back, -5° forward; lift: 4.3" (110mm); swivel: +/- 45° Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for automatic image setup, input switch, and brightness Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) Digital Visual Interface (DVI-D), digital, white, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DVI-D at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>									
<p>Ship group Monitor, attached stand, Setup poster, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DVI-D cable, 1.8 meter black power cord</p>									
<p>Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p>Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td>73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td>45K1620</td> </tr> <tr> <td>Lenovo Security Cable Lock</td> <td>57Y4303</td> </tr> <tr> <td>Lenovo Easy Reach Monitor Stand</td> <td>55Y9258</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620	Lenovo Security Cable Lock	57Y4303	Lenovo Easy Reach Monitor Stand	55Y9258
Kensington MicroSaver Cable Lock	73P2582								
Kensington Twin Head Cable Lock	45K1620								
Lenovo Security Cable Lock	57Y4303								
Lenovo Easy Reach Monitor Stand	55Y9258								




<p>Name T1714 Square Flat Panel Monitor Case color Black Type-model 60FDHAR1US / 60FDHAT1EU Panel TFT-LCD, twisted nematic (TN), White LED backlight Viewable image size 17.0" (432mm) diagonal Max view area (W x H) 13.3" x 10.6" (337.9mm x 270.3mm) Optimum resolution 1280x1024 Aspect ratio 5:4 Pixel pitch (mm) 0.264mm Dot/Pixel per Inch 96 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 5ms (typical) Color gamut 72% Viewing angle at 10:1 CR 170° (+/- 85°) horizontal, 160° (+/- 80°) vertical Stand Tilt stand Bezel width Sides: 0.69" (17.5mm) Dimensions (HxWxD, including stand) 14.72" H x 14.74" W x 7.87" D; 373.9mm H x 374.5mm W x 200mm D Power supply 14.0 watts typical, 18.0 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 5.75 lb; 2.61kg Limited warranty 3 year (includes backlight) Available date September 2015</p>	<p>Features</p> <ul style="list-style-type: none"> • 17-inch Square LCD monitor • Supports SXGA 1280x1024 resolution • Includes dual input connection for attachment to two systems concurrently (analog and digital) • Mercury Arsenic free glass • Supports optional soundbar • Microsoft® Windows® 7 certified • Microsoft Windows 8 certified • Microsoft Windows 8.1 certified • Microsoft Windows 10 certified 						
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® 7.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T1714 Monitor</p> </div>						
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768, 1152x864, SXGA: 1280x800, 1280x1024</p> <p>Presets / user settings Standard presets: 17; user settings: 17</p>							
<p>Viewing adjustments Tilt: 22° back, -5° forward Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for automatic image setup and brightness Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) Digital Visual Interface (DVI-D), digital, white, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DVI-D at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>							
<p>Ship group Monitor and stand, Setup poster, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DVI-D cable, 1.8 meter black power cord</p>	<p>Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p> <p>Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td>73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td>45K1620</td> </tr> <tr> <td>Lenovo Easy Reach Monitor Stand</td> <td>55Y9258</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620	Lenovo Easy Reach Monitor Stand	55Y9258
Kensington MicroSaver Cable Lock	73P2582						
Kensington Twin Head Cable Lock	45K1620						
Lenovo Easy Reach Monitor Stand	55Y9258						



<p>Name T1714p Square Flat Panel Monitor Case color Black Type-model 60FELAR1US / 60FELAT1EU Panel TFT-LCD, twisted nematic (TN), White LED backlight Viewable image size 17.0" (432mm) diagonal Max view area (W x H) 13.3" x 10.6" (337.9mm x 270.3mm) Optimum resolution 1280x1024 Aspect ratio 5:4 Pixel pitch (mm) 0.264mm Dot/Pixel per Inch 96 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 5ms (typical) Color gamut 72% Viewing angle at 10:1 CR 170° (+/- 85°) horizontal, 160° (+/- 80°) vertical Stand Tilt height adjustable stand Bezel width Sides: 0.69" (17.5mm) Dimensions (HxWxD, including stand) 17.63" H x 14.74" W x 9.61" D; 447.9mm H x 374.5mm W x 244.2mm D Power supply 14.0 watts typical, 18.0 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 8.71 lb; 3.95kg Limited warranty 3 year (includes backlight) Available date September 2015</p>	<p>Features</p> <ul style="list-style-type: none"> • 17-inch Square LCD monitor • Supports SXGA 1280x1024 resolution • Includes dual input connection for attachment to two systems concurrently (analog and digital) • Mercury Arsenic free glass • Supports Lenovo Tiny PC and 3rd party thin client via optional Lenovo bracket • Supports optional soundbar • Microsoft® Windows® 7 certified • Microsoft Windows 8 certified • Microsoft Windows 8.1 certified • Microsoft Windows 10 certified 						
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® 7.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T1714p Monitor</p> </div>						
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768, 1152x864, SXGA: 1280x800, 1280x1024 Presets / user settings Standard presets: 22; user settings: 22</p>							
<p>Viewing adjustments Tilt: 22° back, -5° forward; lift: 4.3" (110mm) Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for automatic image setup and brightness Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) Digital Visual Interface (DVI-D), digital, white, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DVI-D at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>	<p>Ship group Monitor and stand, Setup poster, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DVI-D cable, 1.8 meter black power cord</p>						
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> <tr> <td>Lenovo Easy Reach Monitor Stand</td> <td style="text-align: right;">55Y9258</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620	Lenovo Easy Reach Monitor Stand	55Y9258
Kensington MicroSaver Cable Lock	73P2582						
Kensington Twin Head Cable Lock	45K1620						
Lenovo Easy Reach Monitor Stand	55Y9258						




<p>Name T2054p Wide Flat Panel Monitor Bezel color Raven black Type-model 60G1MAR2US / 60G1MAT2EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight</p> <p>Viewable image size 19.5" (495mm) diagonal Max view area (W x H) 16.48" x 10.33" (418.6mm x 262.4mm) Native resolution 1440x900 Aspect ratio 16:10 Pixel pitch (mm) 0.2915 x 0.2915 mm Dot/Pixel per Inch 87 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 7ms (typical) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, and height adjustable Bezel width Sides: 0.67" (17.0mm) Dimensions (HxWxD) 13.62" H x 17.88" W x 9.55" D; 345.9mm H x 454.2mm W x 242.6mm D</p> <p>Power supply 14.5 watts typical, 21 watts maximum, <0.3 watts standby/suspend, universal, integrated (no external brick-like power supply)</p> <p>Weight 8.16 lb; 3.70 kg Limited warranty⁴ 3 year (includes backlight) Available date September 2015</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 19.5-inch monitor • Supports 1440x900 resolution • Supports ThinkCentre Tiny Clamp Bracket • Includes dual input connection for attachment to two systems concurrently (analog and digital) • EPEAT Gold certified • Supports optional soundbar • Microsoft® Windows® 7 certified • Microsoft Windows 8 / Windows 8.1 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant² VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T2054p Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x480, 720x400, 720x576 SVGA: 800x600 XGA: 1024x768, 1152x864 SXGA: 1280x800, 1280x1024 WXGA: 1366x768 WXGA+: 1440x900</p> <p>Presets / user settings Standard presets: 22 user settings: 16</p>					
<p>Viewing adjustments <i>Tilt: 22° backward, -5° forward; lift: 4.3" (110mm); swivel: +/-45°; detachable stand</i> Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for automatic image setup, dual input and brightness Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant</p> <p>Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter</p> <p>Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				



<p>Name E21 Wide Flat Panel Monitor Bezel color Black Type-model 61B9JAR1US / 61B9JAT1EU Panel TFT-LCD, twisted nematic (TN), White LED backlight Viewable image size 20.7" (525.78mm) diagonal Max view area (W x H) 18.03" x 10.14" (457.92mm x 257.58mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.2385 x 0.2385 mm Dot/Pixel per Inch 106 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 5ms (typical) Color gamut 72% Viewing angle at 10:1 CR 170° (+/- 85°) horizontal, 160° (+/- 80°) vertical Stand Tilt adjustable stand Bezel width Sides: 0.6" (15.3mm) Dimensions (HxWxD) 14.6" H x 19.31" W x 8.07" D; 370.9mm H x 490.5mm W x 204.9mm D Power supply 18 watts typical, 23 watts maximum, <0.3 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 5.82 lb; 2.64 kg Limited warranty 3 year (includes backlight) Available date August 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 20.7-inch monitor • Supports 1920x1080 resolution • Supports ThinkCentre Tiny Clamp Bracket • Supports optional soundbar • EPEAT Gold certified • Low Blue Light certification • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision E21 Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600, 832x624 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA+: 1440x900 WSXGA+: 1680x1050 Full HD: 1920x1080</p> <p>Presets display modes Standard presets: 22</p>					
<p>Viewing adjustments Tilt: 22° back, -5° forward Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub None Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) DisplayPort (1.2), digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter black power cord</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				




<p>Name E24 Wide Flat Panel Monitor Bezel color Black Type-model 61B7JAR6US / 61B7JAT6EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 23.8" (604.7mm) diagonal Max view area (W x H) 20.75" x 11.67" (527.04mm x 296.46mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.2745 x 0.2745 mm Dot/Pixel per Inch 92.5 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt adjustable stand Bezel width <i>Sides:</i> 0.51" (13mm) Dimensions (HxWxD) 15.9" H x 21.81" W x 8.07" D; 403.8mm H x 554mm W x 204.9mm D Power supply 18 watts typical, 23 watts maximum, <0.3 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 8.2 lb; 3.7 kg Limited warranty 3 year (includes backlight) Available date August 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 23.8-inch monitor • Supports 1920x1080 resolution • Supports ThinkCentre Tiny VESA mount • Supports optional soundbar • Includes dual input connection for attachment to two systems concurrently • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision E24 Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600, 832x624 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA: 1366x768 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080</p> <p>Presets display modes Standard presets: 24; user settings: 20</p>					
<p>Viewing adjustments <i>Tilt:</i> 22° back, -5° forward Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub None Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
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Kensington Twin Head Cable Lock	45K1620				
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>					




<p>Name P24h Wide Flat Panel Monitor Bezel color Black Type-model 61AEGAR3US / 61AEGAT3EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 23.8" (604.7mm) diagonal Max view area (W x H) 20.74" x 11.67" (526.9mm x 296.4mm) Native resolution 2560x1440 Aspect ratio 16:9 Pixel pitch (mm) 0.2058x 0.2058 mm Dot/Pixel per Inch 124 dpi Brightness 300 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 4ms (extreme) / 6ms (typical) Color gamut 99% sRGB Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width <i>Sides:</i> 0.08" (2.0mm) Dimensions (HxWxD) 14.7" H x 21.26" W x 10.3" D; 373.4mm H x 540.2mm W x 261.75mm D Power supply 24 watts typical, 120 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 12.54 lb; 5.69 kg Limited warranty 3 year (includes backlight) Available date April 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 23.8-inch monitor • Supports 2560x1440 resolution • Supports optional soundbar • Supports ThinkCentre Tiny Clamp Bracket • Includes dual input connection for attachment to two systems concurrently • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision P24h Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x480, 720x400 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x1024 WXGA: 1366x768 WXGA+: 1440x900, 1680x900 WSXGA+: 1680x1050 Full HD: 1920x1080, 1920x1200 QHD: 2560x1440 Presets display modes HDMI: 22; DP: 14</p>					
<p>Viewing adjustments <i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.3" (110mm); <i>swivel:</i> +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub USB Hub: one USB 3.1 Type-C upstream port, four USB 3.0 Type-A downstream ports Multimedia Audio-out, optional sound bar supported Camera None Multiple input Support HDMI, DisplayPort, USB 3.1 Type-C, DisplayPort-out Monitor connectors (1) 2*HDMI (1.4), digital, HDCP-compliant (2) DisplayPort (1.2), digital, HDCP-compliant (3) DisplayPort-out, digital (4) USB 3.1 Type-C Signal cables (1) USB 3.1 Type-C cable, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter USB 3.1 Type-C cable, 1.8 meter black power cord</p>	<p style="text-align: center;">Accessories</p> <table border="0" style="width: 100%;"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
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Kensington Twin Head Cable Lock	45K1620				
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>					




<p>Name P24q Wide Flat Panel Monitor Case color Black Type-model 61A5GAR3US / 61A5GAT3EU Panel TFT-LCD, IPS (In-Plane Switching), White LED backlight Viewable image size 23.8" (604.5mm) diagonal Max view area (W x H) 20.74" x 11.67" (526.85mm x 296.35mm) Optimum resolution 2560x1440 Max pixel rate 300MHz Aspect ratio 16:9 Pixel pitch (mm) 0.2058 x 0.2058mm Dot/Pixel per Inch 123 dpi Brightness 300 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 4ms Color gamut 99% sRGB Viewing angle at 10:1 CR 178° horizontal, 178° vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width <i>Sides:</i> 0.08" (2mm) Dimensions 14.7" H x 21.26" W x 10.3" D; (HxWxD, including stand) 373.4mm H x 540.2mm W x 261.75mm D Power supply 24 watts typical, 67 watts maximum (with USB), <0.5 watts sleep/off; <0.5 watts switch off integrated (no external brick-like power supply) Weight 12.35 lb; 5.6kg (including stand) Limited warranty 3 year Available date January 2017</p>	<p>Features</p> <ul style="list-style-type: none"> • 23.8-inch IPS LED backlight monitor • Supports 2560x1440 resolution • 5-Ports USB hub, support USB 3.0 • Support ThinkCentre Tiny • Supports optional soundbar • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 						
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® 7.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, RoHS, EPEAT™ Gold rating, ULE Gold</p>	 <p>ThinkVision P24q Monitor</p>						
<p>Preset resolutions VGA: 640x480, 720x400 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x1024 WXGA: 1366x768 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080, 1920x1200 QHD: 2560x1440</p> <p>Presets / user settings Standard presets: 20; user settings: 24</p>							
<p>Viewing adjustments <i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.33" (110mm); <i>swivel:</i> +/-45° Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access for menu, source switch, and brightness USB hub USB Hub: one USB 3.0 upstream port, four USB 3.0 downstream ports Multimedia Audio-out, optional sound bar supported Camera None Multiple input Support HDMI, DisplayPort, mini DisplayPort, DisplayPort-out Monitor connectors (1) 2*HDMI (1.4), digital, HDCP-compliant (2) DisplayPort (1.2), digital, HDCP-compliant (3) Mini DisplayPort, digital, HDCP-compliant Signal cables (1) detachable, mini DisplayPort to DisplayPort, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>							
<p>Ship group Monitor, detachable stand, Quick start and safety poster, 1.8 meter USB 3.0 cable, 1.8 meter mini DP to DP cable, 1.8 meter black power cord</p>	<p>Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p> <p>Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td>73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td>45K1620</td> </tr> <tr> <td>Lenovo Security Cable Lock</td> <td>57Y4303</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620	Lenovo Security Cable Lock	57Y4303
Kensington MicroSaver Cable Lock	73P2582						
Kensington Twin Head Cable Lock	45K1620						
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<p>Name T2224d Wide Flat Panel Monitor Bezel color Black Type-model 61B1JAR1US / 61B1JAT1EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 21.5" (546mm) diagonal Max view area (W x H) 18.74" x 10.54" (476.1mm x 267.8mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.248 x 0.248 mm Dot/Pixel per Inch 102 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 7ms (typical); 4ms (extreme mode) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt stand Bezel width <i>Sides:</i> 0.69" (17.6mm) Dimensions (HxWxD) 15.02" H x 20.19" W x 8.06" D; 381.4mm H x 512.9mm W x 204.9mm D Power supply 20 watts typical, 25 watts maximum <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 6.48 lb; 2.94 kg Limited warranty 3 year (includes backlight) Available date March 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 21.5-inch monitor • Supports 1920x1080 resolution • Supports optional soundbar • Supports ThinkCentre Tiny via VESA back mount • Includes dual input connection for attachment to two systems concurrently (analog and digital) • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T2224d Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA: 1280x768, 1280x800, 1366x768 WXGA+: 1440x900 WSXGA+: 1680x1050 Full HD: 1920x1080 Presets / user settings Standard presets: 22; user settings: 22</p>					
<p>Viewing adjustments <i>Tilt:</i> 22° back, -5° forward Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for automatic image setup, dual input and brightness USB hub None Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord</p>	<p style="text-align: center;">Accessories</p> <table border="0" style="width: 100%;"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
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<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>					



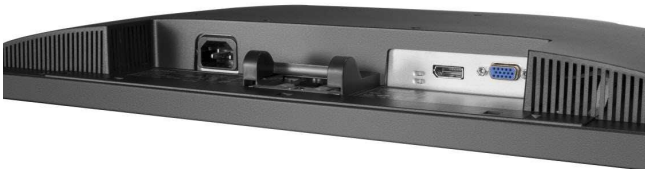
<p>Name T2254p Wide Flat Panel Monitor Bezel color Raven black Type-model 61BAMAR2US / 60E1MAR2US / 60CCMAR2US / 60CCMAT2EU / 61BAMAT2EU Panel TFT-LCD, twisted nematic (TN), White LED backlight Viewable image size 22.0" (559mm) diagonal Max view area (W x H) 18.70" x 11.70" (473.8mm x 296.1mm) Native resolution 1680x1050 Aspect ratio 16:10 Pixel pitch (mm) 0.282 x 0.282 mm Dot/Pixel per Inch 90 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 5ms (typical) Color gamut 72% Viewing angle at 10:1 CR 170° (+/- 85°) horizontal, 160° (+/- 80°) vertical Stand Tilt, swivel, pivot, and height adjustable Bezel width Sides: 0.67" (17.1mm) Dimensions (HxWxD) 14.63" H x 20.01" W x 9.55" D; 371.7mm H x 509.3mm W x 242.7mm D Power supply 20 watts typical, 25 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 10.14 lb; 4.60 kg Limited warranty 3 year (includes backlight) Available date March 2015</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 22.0-inch monitor • Supports 1680x1050 resolution • Supports ThinkCentre Tiny Clamp Bracket • Supports optional soundbar • Includes dual input connection for attachment to two systems concurrently (analog and digital) • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 8 / Windows 8.1 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p> <p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA: 1280x768, 1280x800, 1366x768 WXGA+: 1440x900 WSXGA+: 1600x900, 1680x1050</p> <p>Presets / user settings Standard presets: 28; user settings: 20</p>	<div style="text-align: center;">  <p>ThinkVision T2254p Wide Monitor</p> </div>				
<p>Viewing adjustments <i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.3" (110mm); <i>swivel:</i> +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for automatic image setup, dual input and brightness USB hub None Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant</p> <p>Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter</p> <p>Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
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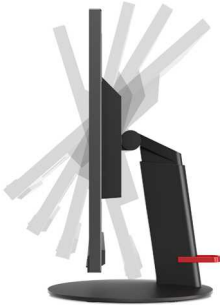
<p>Name T22i Wide Flat Panel Monitor Bezel color Black Type-model 61A9MAR1US / 61A9MAT1EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 21.5" (546mm) diagonal Max view area (W x H) 18.74" x 10.54" (476.1mm x 267.8mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.248 x 0.248 mm Dot/Pixel per Inch 102 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical); 4ms (extreme mode) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width <i>Sides:</i> 0.08" (2.0mm) Dimensions (HxWxD) 14.08" H x 19.28" W x 9.92" D; 357.6mm H x 489.7mm W x 251.9mm D Power supply 16.5 watts typical, 55 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 10.85 lb; 4.92 kg Limited warranty 3 year (includes backlight) Available date April 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 21.5-inch monitor • Supports 1920x1080 resolution • Supports optional soundbar • Supports ThinkCentre Tiny via VESA back mount • Includes dual input connection for attachment to two systems concurrently • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T22i Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA: 1280x768, 1366x768 WXGA+: 1440x900, 1680x900 WSXGA+: 1680x1050 Full HD: 1920x1080 Presets display modes HDMI: 17; DP: 17</p>					
<p>Viewing adjustments <i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.3" (110mm); <i>swivel:</i> +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0) Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter USB signal cable, 1.8 meter black power cord</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				



<p>Name T22v Wide Flat Panel Monitor Bezel color Black Type-model 61BBMAR6US / 61BBMAT6EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 21.5" (546mm) diagonal Max view area (W x H) 18.74" x 10.54" (476.1mm x 267.8mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.248 x 0.248 mm Dot/Pixel per Inch 102 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical); 4ms (extreme mode) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width <i>Sides:</i> 0.08" (2.0mm) Dimensions (HxWxD) 19.14" H x 19.28" W x 9.92" D; 485.8mm H x 489.7mm W x 251.9mm D Power supply 18 watts typical, 43 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 10.16 lb; 4.61 kg Limited warranty 3 year (includes backlight) Available date October 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 21.5-inch monitor • Supports 1920x1080 resolution • Supports optional soundbar • Supports ThinkCentre Tiny via VESA back mount • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T22v Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x480, 720x400 SVGA: 800x600, 832x624 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080 Presets display modes Presets: 24; user modes: 20</p>					
<p>Viewing adjustments <i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.3" (110mm); <i>swivel:</i> +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access for power, menu, input source select, volume up / down, speaker mute and microphone mute USB hub USB 3.0 Hub: 1 port into PC (USB 3.0); 2 ports for accessories (2 USB 3.0) Multimedia Integrated speakers, dual-array microphone, audio-in and Audio-out, optional sound bar supported Camera Integrated FHD camera with IR Multiple input Support HDMI, DisplayPort, VGA Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter USB signal cable, 1.8 meter black power cord, 1.8 meter HDMI signal cable (Row)</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				




<p>Name T2324d Wide Flat Panel Monitor Bezel color Black Type-model 60F3JAR2US / 60F3JAT2EU Panel TFT-LCD, twisted nematic (TN), White LED backlight Viewable image size 23.0" (584mm) diagonal Max view area (W x H) 20.07" x 11.29" (509.8mm x 286.7mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.2655 x 0.2655 mm Dot/Pixel per Inch 96 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 5ms (typical) Color gamut 72% Viewing angle at 10:1 CR 170° (+/- 85°) horizontal, 160° (+/- 80°) vertical Stand Tilt stand Bezel width Sides: 0.68" (17.3mm) Dimensions (HxWxD) 15.75" H x 21.48" W x 8.06" D; 400.3mm H x 545.8mm W x 204.9mm D Power supply 20 watts typical, 27 watts maximum <0.3 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 7.06 lb; 3.20 kg Limited warranty 3 year (includes backlight) Available date June 2016</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 23.0-inch monitor • Supports 1920x1080 resolution • Supports optional soundbar • Supports ThinkCentre Tiny via VESA back mount • Includes dual input connection for attachment to two systems concurrently (analog and digital) • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T2324d Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA: 1280x768, 1280x800, 1366x768 WXGA+: 1440x900 WSXGA+: 1680x1050 Full HD: 1920x1080</p> <p>Presets / user settings Standard presets: 26; user settings: 16</p>					
<p>Viewing adjustments Tilt: 22° back, -5° Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for automatic image setup, dual input and brightness USB hub None Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord</p>	<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p> <p style="text-align: center;">Accessories</p> <table border="0" style="width: 100%;"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				




<p>Name T23d-10 Wide Flat Panel Monitor Bezel color Black Type-model 61C3MAR6US / 61C3MAT6EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight</p> <p>Viewable image size 22.5" (571.5mm) diagonal Max view area (W x H) 19.5" x 12.4" (496.2mm x 313.9mm) Native resolution 1920x1200 Aspect ratio 16:10 Pixel pitch (mm) 0.25 x 0.25 mm Dot/Pixel per Inch 100.6 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width Sides: 0.09" (2.3mm) Dimensions (HxWxD) 19.37" H x 19.73" W x 9.9" D; 491.9mm H x 501.2mm W x 251.9mm D</p> <p>Power supply 15 watts typical, 18 watts maximum, <0.3 watts standby/suspend, universal, integrated (no external brick-like power supply)</p> <p>Weight 10.67 lb; 4.85 kg Limited warranty 3 year (includes backlight) Available date June 2018</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 22.5-inch monitor • Supports 1920x1200 resolution • Supports ThinkCentre Tiny Clamp Bracket • Supports optional soundbar • Includes dual input connection for attachment to two systems concurrently • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 																	
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T23d-10 Wide Monitor</p> </div>																	
<p>Preset resolutions</p> <table border="0"> <tr><td>VGA:</td><td>640x480, 720x400</td></tr> <tr><td>SVGA:</td><td>800x600</td></tr> <tr><td>XGA:</td><td>1024x768</td></tr> <tr><td>SXGA:</td><td>1280x1024</td></tr> <tr><td>WXGA:</td><td>1366x768</td></tr> <tr><td>WXGA+:</td><td>1440x900</td></tr> <tr><td>WSXGA+:</td><td>1680x1050</td></tr> <tr><td>Full HD:</td><td>1920x1080</td></tr> <tr><td>WUXGA:</td><td>1920x1200</td></tr> </table> <p>Presets display modes Standard presets: 27; user settings: 20</p>		VGA:	640x480, 720x400	SVGA:	800x600	XGA:	1024x768	SXGA:	1280x1024	WXGA:	1366x768	WXGA+:	1440x900	WSXGA+:	1680x1050	Full HD:	1920x1080	WUXGA:
VGA:	640x480, 720x400																	
SVGA:	800x600																	
XGA:	1024x768																	
SXGA:	1280x1024																	
WXGA:	1366x768																	
WXGA+:	1440x900																	
WSXGA+:	1680x1050																	
Full HD:	1920x1080																	
WUXGA:	1920x1200																	
<p>Viewing adjustments Tilt: 30° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub None Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>																		
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord, 1.8 meter HDMI signal cable (NA only)</p>																		
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620													
Kensington MicroSaver Cable Lock	73P2582																	
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Note: The specifications above may not be available in all regions.



<p>Name T23i Wide Flat Panel Monitor Bezel color Black Type-model 61ABMAR1US / 61ABMAT1EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 23" (584.2mm) diagonal Max view area (W x H) 20.36" x 11.92" (517.2mm x 302.8mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.2652 x 0.2652 mm Dot/Pixel per Inch 95.8 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width Sides: 0.08" (2.0mm) Dimensions (HxWxD) 13.3" H x 20.56" W x 10.4" D; 337.7mm H x 522.2mm W x 264.2mm D Power supply 16 watts typical, 45 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 10.85 lb; 4.92 kg Limited warranty 3 year (includes backlight) Available date April 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 23-inch monitor • Supports 1920x1080 resolution • Supports ThinkCentre Tiny Clamp Bracket • Includes dual input connection for attachment to two systems concurrently • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T23i Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x480, 720x400; SVGA: 800x600; XGA: 1024x768, 1152x864; SXGA: 1280x1024; WXGA+: 1440x900; WSXGA+: 1680x1050; Full HD: 1920x1080</p> <p>Presets display modes HDMI: 18; DP: 18</p>					
<p>Viewing adjustments Tilt: 30° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness and automatic image setup USB hub USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0) Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue; (2) HDMI (1.4), digital, HDCP-compliant; (3) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter; (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter USB signal cable, 1.8 meter black power cord</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				



<p>Name T2454p Wide Flat Panel Monitor Bezel color Raven black Type-model 60F9MAR1US / 60F9MAT1EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight</p> <p>Viewable image size 24.0" (609.6mm) diagonal Max view area (W x H) 20.41" x 12.76" (518.4mm x 324.0mm) Native resolution 1920x1200 Aspect ratio 16:10 Pixel pitch (mm) 0.270 x 0.270 mm Dot/Pixel per Inch 94 dpi Brightness 300 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 7ms (typical) Color gamut 77.4% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width Sides: 0.74" (18.8mm) Dimensions (HxWxD) 15.85" H x 21.94" W x 10.39" D; 402.5mm H x 557.4mm W x 264.2mm D</p> <p>Power supply 24 watts typical, 27 watts maximum (without USB 3.0 hub), 54 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)</p> <p>Weight 13.60 lb; 6.15 kg Limited warranty 3 year (includes backlight) Available date March 2015</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 24.0-inch monitor • Supports 1920x1200 resolution • Supports ThinkCentre Tiny Clamp Bracket • Supports optional soundbar • Includes dual input connection for attachment to two systems concurrently (analog and digital) • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 8 / Windows 8.1 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p> <p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x1024 WXGA: 1280x720, 1280x768, 1280x800 WXGA+: 1440x900 WSXGA+: 1680x1050, 1600x1200 Full HD: 1920x1080, 1920x1200</p> <p>Presets / user settings Standard presets: 21; user settings: 20</p>	<div style="text-align: center;">  <p>ThinkVision T2454p Wide Monitor</p> </div>				
<p>Viewing adjustments Tilt: 30° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for automatic image setup, dual input and brightness USB hub USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0) Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant</p> <p>Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter</p> <p>Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DisplayPort cable, 1.8 meter USB signal cable, 1.8 meter black power cord</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0" style="width: 100%;"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				



<p>Name T24d Wide Flat Panel Monitor Bezel color Black Type-model 61B4MAR1US / 61B4MAT1EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight</p> <p>Viewable image size 24" (609.6mm) diagonal Max view area (W x H) 20.41" x 12.75" (518.4mm x 324mm) Native resolution 1920x1200 Aspect ratio 16:10 Pixel pitch (mm) 0.27 x 0.27 mm Dot/Pixel per Inch 94 dpi Brightness 300 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 7ms (typical) Color gamut 99% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width Sides: 0.08" (2.0mm) Dimensions (HxWxD) 19.58" H x 20.99" W x 10.25" D; 497.4mm H x 533.2mm W x 260.4mm D</p> <p>Power supply 22 watts typical, 64 watts maximum (with USB 3.0 hub), <0.3 watts standby/suspend, universal, integrated (no external brick-like power supply)</p> <p>Weight 12.41 lb; 5.63 kg Limited warranty 3 year (includes backlight) Available date June 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 24-inch monitor • Supports 1920x1200 resolution • Supports ThinkCentre Tiny Clamp Bracket • Supports optional soundbar • Includes dual input connection for attachment to two systems concurrently • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p> <p>Preset resolutions VGA: 640x480, 720x400 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x1024 WXGA: 1366x768 WXGA+: 1440x900 WSXGA+: 1680x1050 Full HD: 1920x1080 WUXGA: 1920x1200</p> <p>Presets display modes Standard presets: 22; user settings: 20</p>	<div style="text-align: center;">  <p>ThinkVision T24d Wide Monitor</p> </div>				
<p>Viewing adjustments Tilt: 30° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0) Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant</p> <p>Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter</p> <p>Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter USB signal cable, 1.8 meter black power cord, 1.8 meter HDMI signal cable (NA only)</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				



ThinkVision T24i-10 MONITOR



SPECIFICATIONS

DISPLAY		DIMENSIONS (W x D x H)	
Panel Size	23.8" Wide	Size Packed	422 x 622 x 190
Panel Type	In-Plane Switchng	(mm)	16.61" x 24.48" x 7.48"
Backlight	WLED	(inches)	
Resolution (H x V)	1920 x 1080	Size Unpacked with Stand	
Aspect Ratio	16:9	Lowest Position	
Anti-Glare	Yes	(mm)	540.2 x 261.75 x 373.4
Near Edgeless Screen	Yes	(inches)	21.26" x 10.3" x 14.7"
Screen Dimensions (W x H)		Highest Position	
(mm)	527.04 x 296.46	(mm)	540.2 x 261.75 x 483.4
(inches)	20.75" x 11.67"	(inches)	21.26" x 10.3" x 19"
Maximum Brightness (Typical)	250 cd/m ²	Size Unpacked without Stand	
Viewing Angle (H/V at CR 10:1)	178°/178°	(Monitor Head Only)	
Contrast Ratio (Typical)	1000:1	(mm)	540.2 x 46.45 x 325.98
Dynamic Contrast Ratio	3M:1	(inches)	21.26" x 1.82" x 12.83"
Pixel Pitch (mm)	0.2745 x 0.2745	Stand Base Footprint Area	
Color Gamut (CIE 1931)	72% NTSC	(mm)	250 x 250
Color Support (Typical)	16.7 Million	(inches)	9.84" x 9.84"
Response Time (gray to gray)	4 ms (Extreme mode)	Weight	
OSD Controls	6 ms (Normal mode)	Packed	Starting at 16.39 lbs (7.45 kg)
Buttons	5	Unpacked	Starting at 11.33 lbs (5.15 kg)
Languages	English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian	Monitor Head Only	Starting at 7.26 lbs (3.3 kg)
		Full Container Load	1140 / 540 Units
		(40' STD / 20' STD)	
CONNECTIVITY		POWER CONSUMPTION	
Video Input Signals	VGA + HDMI™ 1.4 + DisplayPort™ 1.2	Typical	16.5 W
Video Cables Supplied (Length)	1.8 m	Maximum	55 W
USB Hub	1 x USB 3.0 ¹ (Upstream) 4 x USB 3.0 ¹ (Downstream, Incl. 1 BC)	Sleep-Mode	<0.5 W
Audio Out	Yes (3.5 mm)	Switch Off-Mode	<0.3 W
		Power Supply	Internal
		Power Voltage	90 VAC - 264 VAC
MECHANICAL		WHAT'S IN THE BOX	
Tilt Angle (Front / Back)	-5° / 30°	Monitor with Stand	
Swivel Angle (Left / Right)	+/-45°	1 x Power Cable	
Lift Range (mm)	110	1 x VGA Cable	
Pivot	+/-90°	1 x DisplayPort™ - DisplayPort™ Cable	
Cable Management	Yes	1 x HDMI™ Cable (NA Only)	
Kensington® Lock	Yes	Quick Setup Guide	
VESA® Mount (mm x mm)	Yes (100 X 100)		
Bezel Color	Raven Black	CERTIFICATIONS	
Bezel Width		EPEAT™	Gold
Top (mm / inches)	2 / 0.08"	ENERGY STAR® Rating	7.1
Sides (mm / inches)	2 / 0.08"	TCO®	7.0
		TCO Edge	2.0
		RoHS (EU 2002/95/EC)	Yes
		China Energy Efficiency Standard	Tier 2
		Windows Certification	Windows 7 / Windows 10
		TüV Eye Comfort Certification	Yes

¹ Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen 1; 10 Gbit/s for USB 3.1 Gen 2 & 20 Gbit/s for USB 3.2.



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ThinkVision T24i-19 MONITOR



SPECIFICATIONS

DISPLAY		DIMENSIONS (W x D)	
Panel Size	23.8" Wide	Size Packed (mm)	422 x 622 x 190
Panel Type	In-Plane-Switching	Size Packed (inches)	16.61" x 24.48" x 7.48"
Backlight	WLED	Size Unpacked with Stand Lowest Position (mm)	540.2 x 261.75 x 373.4
Resolution	FHD (1920 x 1080)	Size Unpacked with Stand Highest Position (mm)	540.2 x 261.75 x 483.4
Aspect Ratio	16:9	Size Unpacked without Stand (Monitor Head Only) (mm)	540.2 x 46.45 x 325.98
Anti-Glare	Yes	Size Unpacked without Stand (Monitor Head Only) (inches)	21.26" x 1.82" x 12.83"
Near Edgeless Screen	Yes	Stand Base Footprint Area (mm)	250 x 250
Screen Dimensions (W x H) (mm)	527.04 x 296.46	Stand Base Footprint Area (inches)	9.84" x 9.84"
Screen Dimensions (W x H) (inches)	20.75" x 11.67"	Weight Packed	Starting at 16.39 lbs (7.45 kg)
Brightness	250 nits	Weight Unpacked	Starting at 11.33 lbs (5.15 kg)
Viewing Angle (H/V at CR 10:1)	178°/178°	Weight Monitor Head Only	Starting at 7.26 lbs (3.3 kg)
Contrast Ratio (Typical)	1000:1	Full Container Load (40' STD / 20' STD)	1140 / 540 Units
Dynamic Contrast Ratio	3M:1		
Speakers	2 x 2W		
Pixel Pitch (mm)	0.2745 x 0.2745		
Color Gamut (CIE 1931)	72% NTSC		
Color Depth	8 bit		
Color Support (Typical)	16.7 Million		
Response Time (GtG) Extreme / Normal	4 ms / 6 ms		
OSD Controls Buttons	5		
OSD Controls Languages	English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian		
CONNECTIVITY		POWER CONSUMPTION	
Video Input Signals	VGA + HDMI™ + DisplayPort™	Typical	16.5 W
Video Cables Supplied	VGA, DisplayPort™, USB, Power, HDMI™ (for NA only)	Maximum	59 W
USB Hub	USB 3.0 (4 x down, 1 x BC)	Sleep-Mode	<0.5 W
Audio Out	Yes (3.5 mm)	Switch Off-Mode	<0.3 W
Power	Internal	Power Supply	Internal
		Power Voltage	90 VAC - 264 VAC
		ENERGY STAR® (P _{on})	13.67 W
		ENERGY STAR® (E _{TEC})	43.51 kWh
MECHANICAL		WHAT'S IN THE BOX	
Tilt Angle (Front / Back)	-5° / 30°	Monitor with Stand	
Swivel Angle (Left / Right)	+/-45°	1 x Power Cable	
Lift Range (mm)	110	1 x VGA Cable	
Pivot	+/-90°	1 x DisplayPort™ - DisplayPort™ Cable	
Stand	LTPS	1 x HDMI Cable (NA Only)	
Cable Management	Yes	Quick Setup Guide	
Kensington® Lock	Yes	CERTIFICATIONS	
VESA® Mount (mm x mm)	Yes (100 X 100)	EPEAT™	Gold
Bezel Color	Raven Black	ENERGY STAR® Rating	7.1
Bezel Width		TCO	7.0
Top (mm / inches)	2 / 0.08"	TCO Edge	2.0
Sides (mm / inches)	2 / 0.08"	ULE	Yes
		RoHS (EU 2002/95/EC)	Yes
		China Energy Efficiency Standard	Tier 2
		Windows Certification	Windows 7 / Windows 10
		TüV Eye Comfort Certification	Yes
		TINY Support	Yes
		Soundbar Support*	Yes
		Package	EPS Cushion

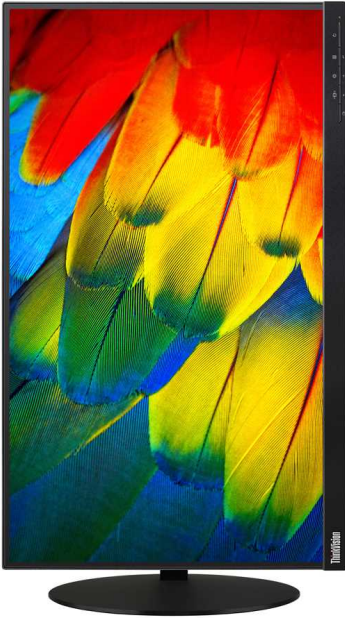
* Optional.




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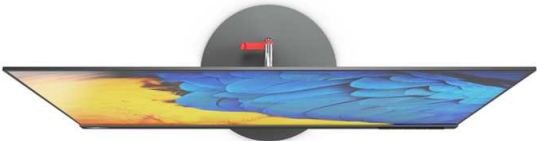
<p>Name T24m Wide Flat Panel Monitor Bezel color Black Type-model 61B8RAR3US / 61B8RAT3EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 23.8" (604.7mm) diagonal Max view area (W x H) 20.75" x 11.67" (527.04mm x 296.46mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.2745 x 0.2745 mm Dot/Pixel per Inch 92 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical) Color gamut 99% sRGB Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable Bezel width <i>Sides:</i> 0.08" (2.0mm) Dimensions (HxWxD) 19.03" H x 21.26" W x 10.3" D; 483.4mm H x 540.2mm W x 261.75mm D Power supply 17 watts typical, 110 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 12.34 lb; 5.6 kg Limited warranty 3 year (includes backlight) Available date August 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 23.8-inch monitor • Supports 1920x1080 resolution • Supports ThinkCentre Tiny Clamp Bracket • Supports optional soundbar • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T24m Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x480 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x1024 WXGA: 1366x768 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080, 1920x1200 HDMI: 19; DP: 11</p>					
<p>Viewing adjustments <i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.3" (110mm); <i>swivel:</i> +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0) Multimedia Audio-out, optional sound bar supported Multiple input Support HDMI, DisplayPort, USB 3.1 Type-C Monitor connectors (1) HDMI (1.4), digital, HDCP-compliant (2) DisplayPort (1.2), digital, HDCP-compliant (3) USB 3.1 Type-C Signal cables (1) 1.8 meter USB Type-C to USB Type-C cable Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>	<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter USB Type-C to USB Type-C cable, 1.8 meter black power cord</p>				
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				




<p>Name T24v Wide Flat Panel Monitor Bezel color Black Type-model 61BCMAR6US / 61BCMAT6EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 23.8" (604.5mm) diagonal Max view area (W x H) 20.75" x 11.67" (527.04mm x 296.46mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.2745 x 0.2745 mm Dot/Pixel per Inch 92 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical); 4ms (extreme mode) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width <i>Sides:</i> 0.08" (2.0mm) Dimensions (HxWxD) 19.72" H x 21.28" W x 10.32" D; 500.5mm H x 540.2mm W x 261.9mm D Power supply 20 watts typical, 45 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 11.18 lb; 5.07 kg Limited warranty 3 year (includes backlight) Available date October 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 23.8-inch monitor • Supports 1920x1080 resolution • Supports ThinkCentre Tiny Clamp Bracket • Supports optional soundbar • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/C1 Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p> <p>Preset resolutions VGA: 640x480, 720x400 SVGA: 800x600, 832x624 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080</p> <p>Presets display modes Presets: 24; user modes: 20</p>	 <p style="text-align: center;">ThinkVision T24v Wide Monitor</p>				
<p>Viewing adjustments <i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.3" (110mm); <i>swivel:</i> +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access for power, menu, input source select, volume up / down, speaker mute and microphone mute USB hub USB 3.0 Hub: 1 port into PC (USB 3.0); 2 ports for accessories (2 USB 3.0) Multimedia Integrated speakers, dual-array microphone, audio-in and Audio-out, optional sound bar supported Camera Integrated FHD camera with IR Multiple input Support HDMI, DisplayPort, VGA Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, HDMI at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>	<p>Viewing adjustments <i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.3" (110mm); <i>swivel:</i> +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access for power, menu, input source select, volume up / down, speaker mute and microphone mute USB hub USB 3.0 Hub: 1 port into PC (USB 3.0); 2 ports for accessories (2 USB 3.0) Multimedia Integrated speakers, dual-array microphone, audio-in and Audio-out, optional sound bar supported Camera Integrated FHD camera with IR Multiple input Support HDMI, DisplayPort, VGA Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, HDMI at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>				
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter USB signal cable, 1.8 meter black power cord, 1.8 meter HDMI signal cable (Row)</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				




<p>Name X24 Pro Wide Flat Panel Monitor Bezel color Black Type-model 60E4ECR1US / 60E4ECT1US / 60E4ECT1EU Panel TFT-LCD, AH-IPS (In-Plane Switching), White LED backlight Viewable image size 23.8" (604.5mm) diagonal Max view area (W x H) 20.75" x 11.67" (527.0mm x 296.5mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.2745 x 0.2745 mm Dot/Pixel per Inch 92 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 7ms (typical) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt stand Bezel width <i>Sides:</i> 0.09" (2.3mm) Dimensions (HxWxD) 17.61" H x 21.30" W x 9.39" D; 447.4mm H x 540.9mm W x 238.4mm D Power supply 20 watts typical, 90 watts maximum, <0.5 watts standby/suspend, universal, external power supply Weight 9.26 lb; 4.20 kg Limited warranty 1 year (includes backlight) Available date July 2016</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 23.8-inch monitor • Supports 1920x1080 resolution • Includes dual input connection for attachment to two systems concurrently • EPEAT Silver certified • Intel RealSense 3D camera • Stereo speakers 3 watts x 2 • One cable docking through USB 3.1 Type C with power delivery • Windows Hello certified • Microsoft® Windows® 10 certified 				
<p>Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 6.0, WEEE, RoHS, EPEAT™ Silver rating</p> <p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x1024 WXGA: 1366x768 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080</p> <p>Presets / user settings Standard presets: 16; user settings: 20</p>	<div style="text-align: center;">  <p>ThinkVision X24 Pro Wide Monitor</p> </div>				
<p>Viewing adjustments <i>Tilt:</i> 22° back, -5° forward Rotating screen None On screen display On screen display with digital user controls Control features Direct access (buttons on side bezel) for dual input and brightness USB hub USB Hub: two USB 3.1 Type-C and one micro USB 3.0 ports Multimedia Integrated stereo speakers (3 watts x 2), built-in microphone Camera RealSense 3D camera SR300 Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) mDP, Mini DisplayPort, digital, HDCP-compliant (2) USB Type-C, digital Signal cables (1) detachable, mDP to DP, digital, 2.0 meter (2) DP to mDP adapter (3) Micro USB 3.0 cable Mounting features None Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, ThinkPad 90W Square tip power adaptor, 2.0 meter Mini DisplayPort to DisplayPort signal cable (with DP to mDP adapter), Micro USB 3.0 cable (for using camera)</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0" style="width: 100%;"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				




<p>Name X24-20 Flat Panel Monitor Bezel color Raven black Type-model 61BDGAR3US / 61BDGAT3EU Panel TFT-LCD, IPS (In-Plane Switching), White LED backlight Viewable image size 23.8" (604.5mm) diagonal Max view area (W x H) 20.75" x 11.67" (527.0mm x 296.5mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.2745 x 0.2745 mm Dot/Pixel per Inch 92 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical) Color gamut 72% (NTSC) Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt stand Bezel width <i>Sides:</i> 0.04" (1.1mm) Dimensions (HxWxD) 12.85" H x 21.16" W x 8.66" D; 326.4mm H x 537.4mm W x 220mm D Power supply 20 watts typical, 25 watts maximum, <0.5 watts standby/suspend, universal, external power supply Weight 7.3 lb; 3.3 kg Limited warranty 3 year (includes backlight) Available date December 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 23.8-inch monitor • Supports 1920x1080 resolution • Includes dual input connection for attachment to two systems concurrently • EPEAT Silver certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Silver rating</p>	<div style="text-align: center;">  <p>ThinkVision X24-20 Monitor</p> </div>				
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x1024 WXGA: 1366x768 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080 Presets / user settings Standard presets: 18; user settings: 0</p>					
<p>Viewing adjustments <i>Tilt:</i> 30° back, -5° forward Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on side bezel) for power, dual input and brightness USB hub None Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) HDMI (1.4a), digital, HDCP-compliant (2) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, HDMI at each end, digital, 1.8 meter Mounting features None Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter HDMI signal cable, 1.8 meter black power cord</p>	<div style="text-align: center;"> <p>Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p> </div> <div style="text-align: center;"> <p>Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p> </div>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				



<p>Name P27h Wide Flat Panel Monitor Case color Black Type-model 61AFGAR1US / 61AFGAT1EU Panel TFT-LCD, IPS (In-Plane Switching), White LED backlight Viewable image size 27" (685.8mm) diagonal Max view area (W x H) 23.49" x 13.21" (596.7mm x 335.7mm) Optimum resolution 2560x1440 Max pixel rate 300MHz Aspect ratio 16:9 Pixel pitch (mm) 0.2331 x 0.2331mm Dot/Pixel per Inch 109 dpi Brightness 350 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 4ms (extreme) / 6ms (typical) Color gamut 99% sRGB Viewing angle at 10:1 CR 178° horizontal, 178° vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width Sides: 0.08" (2mm) Dimensions (HxWxD, including stand) 513mm H x 611.6mm W x 269.8mm D Power supply 38 watts typical, 140 watts maximum (with USB), <0.5 watts sleep/off; <0.5 watts switch off integrated (no external brick-like power supply) Weight 15.43 lb; 7.0kg (including stand) Limited warranty 3 year Available date April 2017</p>	<p>Features</p> <ul style="list-style-type: none"> • 27-inch IPS LED backlight monitor • Supports 2560x1440 resolution • 5-Ports USB hub, support USB 3.0 • Supports optional soundbar • Support ThinkCentre Tiny • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 						
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® 7.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, RoHS, EPEAT™ Gold rating, ULE Gold</p>	<div style="text-align: center;">  <p>ThinkVision P27h Monitor</p> </div>						
<p>Preset resolutions VGA: 640x480, 720x400 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x1024 WXGA: 1366x768 WXGA+: 1440x900, 1680x900 WSXGA+: 1680x1050 Full HD: 1920x1080, 1920x1200 QHD: 2560x1440</p>							
<p>Presets display modes HDMI: 22; DP: 14</p>							
<p>Viewing adjustments Tilt: 30° back, -5° forward; lift: 4.33" (110mm); swivel: +/-45° Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub USB Hub: one USB 3.1 Type-C upstream port, four USB 3.0 Type-A downstream ports Multimedia Audio-out, optional sound bar supported Camera None Multiple input Support HDMI, DisplayPort, USB 3.1 Type-C, DisplayPort-out Monitor connectors (1) 2*HDMI (1.4), digital, HDCP-compliant (2) DisplayPort (1.2), digital, HDCP-compliant (3) DisplayPort-out, digital (4) USB 3.1 Type-C Signal cables (1) USB 3.1 Type-C cable, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>							
<p>Ship group Monitor, detachable stand, Quick start and safety poster, 1.8 meter USB 3.1 Type-C cable, 1.8 meter black power cord</p>							
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> <tr> <td>Lenovo Security Cable Lock</td> <td style="text-align: right;">57Y4303</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620	Lenovo Security Cable Lock	57Y4303
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Kensington Twin Head Cable Lock	45K1620						
Lenovo Security Cable Lock	57Y4303						



<p>Name P27u Wide Flat Panel Monitor Case color Black Type-model 61CBGAR1US / 61CBGAT1EU / 61CBGAR1EU / 61B0GAR1US / 61B0GAT1EU Panel TFT-LCD, IPS (In-Plane Switching), White LED backlight Viewable image size 27" (684.7mm) diagonal Max view area (W x H) 23.49" x 13.21" (596.74mm x 335.66mm) Optimum resolution 3840x2160 Max pixel rate 600MHz Aspect ratio 16:9 Pixel pitch (mm) 0.1554 x 0.1554mm Dot/Pixel per Inch 163 dpi Brightness 350 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical) Color gamut 1.457 sRGB Viewing angle at 10:1 CR 178° horizontal, 178° vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width <i>Sides: 0.08" (2mm)</i> Dimensions (HxWxD, including stand) 20.21" H x 24.08" W x 10.62" D; 513.3mm H x 611.6mm W x 269.8mm D Power supply 50 watts typical, 160 watts maximum (with USB), <0.5 watts sleep/off; <0.3 watts switch off integrated (no external brick-like power supply) Weight 15.32 lb; 6.95kg (including stand) Limited warranty 3 year Available date August 2017</p>	<p>Features</p> <ul style="list-style-type: none"> • 27-inch IPS LED backlight monitor • Supports 3840x2160 resolution • 5-Ports USB hub, support USB 3.0 • Support ThinkCentre Tiny • Supports optional soundbar • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 						
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® 7.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating, ULE Gold</p>	 <p>ThinkVision P27u Monitor</p>						
<p>Preset resolutions VGA: 640x480, 720x400, 720x480, 720x576 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x720, 1280x800, 1280x1024 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080, 1920x1200 QHD: 2560x1440 UHD: 3840x2160</p> <p>Presets / user settings Standard presets: 27; user settings: 20</p>							
<p>Viewing adjustments <i>Tilt: 30° back, -5° forward; lift: 4.33" (110mm); swivel: +/-45°</i> Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub USB Hub: one USB 3.1 Type-C port, four USB 3.0 Type-A downstream ports Multimedia Audio-out, optional sound bar supported Camera None Multiple input Support HDMI, DisplayPort, USB 3.1 Type-C Monitor connectors (1) 2*HDMI (2.0), digital, HDCP-compliant (2) DisplayPort (1.2), digital, HDCP-compliant (3) USB 3.1 Type-C Signal cables (1) detachable, DisplayPort to DisplayPort, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>							
<p>Ship group Monitor, detachable stand, Quick start and safety poster, 1.8 meter USB Type-C to USB Type-C cable, 1.8 meter DP to DP cable, 1.8 meter HDMI to HDMI cable (NA only), 1.8 meter black power cord, 1.8 meter USB Type-C to USB Type-A cable</p>							
<p>Limited Warranty See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p>Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td>73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td>45K1620</td> </tr> <tr> <td>Lenovo Security Cable Lock</td> <td>57Y4303</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620	Lenovo Security Cable Lock	57Y4303
Kensington MicroSaver Cable Lock	73P2582						
Kensington Twin Head Cable Lock	45K1620						
Lenovo Security Cable Lock	57Y4303						



ThinkVision P32u-10 MONITOR



SPECIFICATIONS

DISPLAY		ENVIRONMENTAL	
Panel Size	32"	Temperature	
Panel Type	In-Plane Switching	Operating	0°C – 40°C
Backlight	WLED	Non-Operating	-20°C – 60°C
Resolution	3840 x 2160	Humidity	
Aspect Ratio	16:9	Operating	8% – 80%
Anti-Glare	Yes	Non-Operating	5% – 95%
Screen Dimensions (W x H) (mm)	708.48 (H) x 398.52 (V)	Altitude	
Maximum Brightness (Typical)	300 cd/m ²	Operating	0 ft – 5000 ft
Viewing Angle (H/V at CR 10:1)	178°/178°	Non-Operating	0 ft – 40,000 ft
Contrast Ratio (Typical)	1000:1	Arsenic-Free Glass	Yes
Dynamic Contrast Ratio	3M:1	PVC-Free	Yes
Pixel Pitch (W x H) (mm)	0.1845 (H) x 0.1845 (V)	Mercury-Free	Yes
Dot/Pixel Per Inch (DP/PPI)	137	PCC % of Plastic Resins	85% with >25 g Plastic Parts
Color Gamut (1931)	99.5% AdobeRGB		
Response Time (Typical)	6 ms		
POWER CONSUMPTION		DIMENSIONS (W x D x H)	
Typical	70 W	Size Packed	
Maximum	200 W	(mm)	844 x 228 x 528
Sleep-Mode	≤0.5 W	(inches)	33.23" x 8.98" x 20.79"
Switch Off-Mode	≤0.5 W	Size Unpacked with Stand	
Power Supply	External	Lowest Position	
Power Voltage	90 VAC – 264 VAC	(mm)	726.7 x 350 x 497.8
Voltage Dynamic Frequency	47 Hz – 63 Hz	(inches)	28.61" x 13.78" x 19.6"
		Highest Position	
		(mm)	726.7 x 350 x 606.8
		(inches)	28.61" x 13.78" x 23.89"
		Size Unpacked without Stand	
		(Monitor Head Only)	
		(mm)	726.7 x 63.3 x 431.5
		(inches)	28.61" x 2.49" x 16.99"
		Distance from Table to Panel	
		Lowest Pixel at Bottom of Screen	
		(mm / inches)	90.9 / 3.58"
		Highest Pixel at Top of Screen	
		(mm / inches)	489.4 / 19.27"
		Stand Base Footprint Area	
		(mm / inches)	350 x 350 / 13.78" x 13.78"
		Weight	
		Packed	Starting at 29.32 lbs (13.3 kg)
		Unpacked	Starting at 22.05 lbs (10 kg)
		Monitor Head Only	Starting at 15.21 lbs (6.9 kg)
SIGNAL INPUT		COMPLIANCE	
Video Input Signals	2 x HDMI™ 2.0 + DisplayPort™ 1.2 + Thunderbolt™ 3.0-In + Thunderbolt™ 3.0-Out	EPEAT™	Gold
Video Cables Supplied	HDMI™, DisplayPort™, Thunderbolt™ 3.0	ENERGY STAR® Rating	7.0
Video Cable Length	2 m for Thunderbolt™, 1.8 m for HDMI™ and DisplayPort™	TCO	TCO 7.0 / TCO Edge 2.0
USB Hub	Yes (4 x Downstream, 1 x BC)	Windows Certification	Windows 7 / Windows 10
USB Cable Supplied	Yes (USB Type-A to Type-B)	China Energy Efficiency Standard	Tier 2
Audio-Out	Yes (3.5 mm)		
SIGNAL INTERFACE / PERFORMANCE		WARRANTY AND AVAILABILITY	
Horizontal Frequency	30 kHz – 160 kHz	Warranty	3 Years
Vertical Frequency	23 Hz – 80 Hz	Geography Availability	WW
Native Resolution	3840 x 2160		
Maximum Pixel Clock Speed / Bandwidth	HDMI™ : 600 MHz Display Port™: 5.4 Gbps Thunderbolt™: 10 Gbps		
Preset / User	28 / 20		
OSD Buttons	5 Buttons		
OSD Languages	English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian		
MECHANICAL			
Tilt Angle (Front / Back)	-5° / 22°		
Swivel Angle (Left / Right)	45° / 45°		
Lift (mm)	110		
(CW / CCW)	90° / 90°		
VESA® Mount (mm)	100 x 100		
Kensington® Lock Slot	Yes		
Cable Management	Yes		
Bezel Color	Raven Black		
Bezel Width			
Top (mm / inches)	2 / 0.08"		
Bottom (mm / inches)	23.8 / 0.94"		
Sides (mm / inches)	2 / 0.08"		



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ThinkVision P44w-10

Specifications

DISPLAY

Panel Size

43.4 inches

Screen Dimensions (H x V)

1052.3 x 328.8mm
41.4 x 12.9 inches

Panel Type

VA NearEdgeless,
anti-glare

Curvature

1800R

Backlight

WLED

Aspect Ratio

32:10

Resolution

3840 x 1200

HDR

VESA Certified DisplayHDR™ 400

Pixel Pitch (H x V)

0.2740 x 0.2740mm

Viewing Angle (H x V)

178°/178°

Response Time (gray to gray)

4/6ms (extreme/typical)

Refresh Rate

Max. 144Hz

Contrast Ratio (typical)

3000:1

Dynamic Contrast Ratio (typical)

3M:1

Color Support (typical)

1.07B

Color Gamut

sRGB: 99.5%
BT.709: 99.5%
DCI-P3: 90%

Brightness

380 nits (typical)
450 nits (peak)

CONNECTIVITY

Video Input Signals

2 x HDMI 2.0
1 x DP1.4
1 x USB Type-C Gen1 (DP1.2 Alt Mode)
1 x USB Type-C Gen2 (DP1.4 Alt Mode)

Video Cable Length

1.5m for USB Type-C Gen2
1.8m for others

Audio Out

Yes (3.5mm)

USB Hub

Yes

USB Upstream

2 x USB 3.1 (1 x USB Type-C Gen1,

1 x USB Type-C Gen2)

USB Downstream

4 x USB 3.1 Gen1 (1 BC)

Power

Internal

Power Consumption

Typical/Max: 70W/250W
Switch-off Mode: <0.5W
Sleep/Off Mode: <0.5W

DIMENSIONS

Size Packed (D x H x W)

1219 x 500 x 376mm
47.99 x 19.68 x 14.80 inches

Size Unpacked w/stand (D x H x W) (Lowest Position)

269.8 x 461.1 x 1058.3mm
10.62 x 18.15 x 41.67 inches

Size Unpacked w/stand (D x H x W) (Highest Position)

269.8 x 591.1 x 1058.3mm
10.62 x 23.27 x 41.67 inches

Size Unpacked w/o stand (D x H x W) (Head Only)

137.2 x 366.1 x 1058.3mm
5.40 x 14.21 x 41.67 inches

Weight Packed

18.59kg/40.98lbs.

Weight Unpacked

13.45kg/29.65lbs.

Weight (Monitor Head Only)

9.35kg/20.61lbs.

SPECIAL FEATURES

Anti-Glare

Yes

PIP/PBP

Yes

Software

Yes (ThinkColor)

Speaker

Supports optional Harman
Kardon certified speaker

MECHANICAL

Tilt Angle (front/back)

-5°/22°

Swivel Angle (left/right)

±30°

Lift (Max. range)

Yes (130mm)

VESA Mount Capability

Yes (100 x 100mm)

Kensington™ Lock Slot

Yes

Cable Management

Yes

Bezel Color

Raven Black

Bezel Width (side)

2.4mm

Bezel Width (top/bottom)

2.4/25.6mm

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable
1 x HDMI cable
1 x DP cable
1 x USB Type-C Gen2 cable
1 x USB Type-C to Type-A cable
Quick setup guide

CERTIFICATIONS

ENERGY STAR® Rating

71

CCC

Yes

RoHS

Yes

ULE

Gold

TCO

8.0

Windows Certification

Windows 7, Windows 10

China Energy Efficiency Standard

Tier 2

Ambient Operating Temperature

0°C to 45°C

TÜV Eye Comfort

Yes



*with FreeSync support graphic cards

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ThinkVision® T27i-10

DISPLAY

Panel Size

27 inch

Screen Dimensions (H x V) (mm)

597.89 (H) × 336.31 (V)

Panel Type

In-Plane Switching

Backlight

WLED

Aspect Ratio

16:9

Resolution

1920 × 1080

Pixel Pitch (H x V) (mm)

0.3110 × 0.3110

Viewing angle (H x V)

178° / 178°

Response Time (gray to gray)

4 ms (extreme mode)

6 ms (normal mode)

Contrast Ratio (typical)

1000:1

Dynamic Contrast Ratio (typical)

3M:1

Color Gamut NTSC (CIE 1931)

72%

Color Support

16.7M

CONNECTIVITY

Video Input Signals

VGA + HDMI 1.4 + DP 1.2

USB Hub

Yes

1 x USB 3.0 (Upstream)

4 x USB 3.0 (Downstream, incl. 1BC)

Cable Length

1.8 m

Audio Out

Yes (3.5 mm)

Power Consumption

22W (Typical) / 58W (max) at On mode;

<0.5W at Sleep mode; <0.3W at Switch off mode

MULTI-MEDIA

Optional Soundbar Support

Yes

DIMENSIONS

Size Packed (D x H x W) (mm/inch)

187 x 455 x 715 mm / 7.362 x 17.913 x 28.15 inch

Size Unpacked w/stand (D x H x W) (mm/inch) (Lowest Position)

269.8 x 403.3 x 611.9 mm / 10.62 x 15.88 x 24.09 inch

Size Unpacked w/stand (D x H x W) (mm/inch) (Highest Position)

269.8 x 513.3 x 611.9 mm / 10.62 x 20.21 x 24.09 inch

Size Unpacked w/o stand (D x H x W) (mm/inch) (Head Only)

49.9 x 366.5 x 611.9 mm / 1.96 x 14.43 x 24.09 inch

Weight Packed (kg/lbs.)

9.32kg / 20.55 lbs.

Weight Unpacked (kg/lbs.)

6.55kg / 14.44 lbs.

Weight (Monitor Head Only) (kg/lbs.)

4.60kg / 10.14 lbs.

SPECIAL FEATURES

Anti-Glare

Yes

Thin Client Support (Tiny)

Yes

(by Tiny Clamp Bracket Kit+VESA

mount PN:4XFON82412+

PN:4XFON03161)

MECHANICAL

Tilt Angle (front/back)

-5°/30°

Swivel Angle (left/right)

-45°/+45°

Lift (Max range)

110 mm

Pivot

-90°/90°

VESA Mount

Yes (100 mm)

Kensington™ Lock Slot

Yes

Cable Management

Yes

Bezel Color

Raven Black

Bezel Width (Side)

2.0 mm

WHAT'S IN THE BOX

Monitor with stand

1 x Power cable

1 x DP-DP cable

1 x HDMI cable (NA only)

1 x USB 3.0 cable

Quick setup guide

CERTIFICATIONS

ENERGY STAR Rating

7.0

CCC

Yes

TCO

7.0

EPEAT™

Gold

ULE

Gold

Windows Certification

Windows 7, Windows 10

China Energy Efficiency Standard

Tier 2

Ambient Operating Temperature

0°C to 40°C

Eye Comfort Certification

Yes



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Specifications may vary depending upon region.



ThinkVision T27p-10

DISPLAY

Panel Size
27.0 inches

Screen Dimensions (H x V)
596.74 x 335.66mm

Panel Type
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
3840 x 2160 pixels

Pixel Pitch (H x V)
0.1554 x 0.1554mm

Viewing Angle (H x V)
178°/178°

Response Time (gray to gray)
4ms (extreme mode)
6ms (normal mode)

Refresh Rate
60Hz

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Brightness (typical)
350 cd/m²

Color Gamut sRGB (CIE 1931)
99%

Color Support
1.07 Billion

POWER

Power Consumption (Typical/Max)
50W/140W

Power Consumption Sleep/Off Mode
<0.5W

Power Consumption Switch Off-Mode
<0.3W

Power Supply
Internal

ENERGY STAR® (P_{on})
23.40W

ENERGY STAR® (E_{TEC})
101.94kWh

Voltage Required
100-240VAC (50/60Hz)

CONNECTIVITY

Video Input Signals
HDMI 2.0 + DP 1.2 + USB 3.1 Type-C™
(DP 1.2 Alt Mode)

Video Cables Supplied
USB 3.1 Type-C™ + HDMI

Video Cable Length
1.8m

USB Hub
Yes

USB Upstream
1 x USB 3.1 Gen1 (by USB Type-C™)

USB Downstream
4 x USB 3.1 Gen1 (with 1 BC)

Audio Out

Yes (3.5mm)

DIMENSIONS

Size Packed (D x H x W)
732 x 210 x 453mm/
28.82 x 8.27 x 17.83 inches

Size Unpacked w/stand (D x H x W) (mm/inch)
269.8 x 403.3 x 611.6mm/
10.62 x 15.88 x 24.08 inches

Size Unpacked w/o stand (D x H x W) (mm/inch) (Head Only)
45.5 x 368.4 x 611.6mm/
1.79 x 14.5 x 24.08 inches

Weight Packed
11.00kg/24.25lbs.

Weight Unpacked
6.95kg/15.32lbs.

Weight (Monitor Head Only)
5.0kg/11.02lbs.

SPECIAL FEATURES

Smart Power*
Yes

Anti-glare
Yes

ThinkCentre Tiny Support
Yes

Optional Soundbar Support
Yes

MECHANICAL

Tilt Angle (front/back)
-5°/30°

Swivel Angle (left/right)
+/-45°

Lift
Yes (110mm)

Pivot
+/-90°

VESA Mount Capability
Yes (100 x 100mm)

Kensington™ Lock Slot
Yes

Bezel Width (Side)
2.0mm

Bezel Width (top/bottom)
2.0/24.5mm

WHAT'S IN THE BOX

Monitor with stand
1 x Power Cable
1 x HDMI Cable
1 x USB Type-C™ to Type-C™ cable
Quick Setup Guide

CERTIFICATIONS

ENERGY STAR® Rating
7.1

EU RoHS
Yes

CCC
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 2

TÜV Eye Comfort
Yes

TCO
TCO 8.0/TCO Edge 2.0

ULE
Gold




*The Smart Power function intelligently detects overall power consumption and dynamically manages the power delivery to each device. 75W power delivery can be achieved when downstream USB ports are not connected and OSD brightness setting is <61.

Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

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Specifications may vary depending upon region.



<p>Name X1 Wide Flat Panel Monitor Case color Black Type-model 60E2GAR1US / 60E2GAT1US / 60E2GAT1EU Panel TFT-LCD, IPS (In-Plane Switching), White LED backlight Viewable image size 27" (684.7mm) diagonal Max view area (W x H) 23.49" x 13.21" (596.7mm x 335.7mm) Optimum resolution 3840x2160 Max pixel rate 600MHz Aspect ratio 16:9 Pixel pitch (mm) 0.16 x 0.16mm Dot/Pixel per Inch 163 dpi Brightness 300 nits or cd/m² (typical) Contrast ratio 1300:1 (typical) Pixel response time 6ms Color gamut 99% Viewing angle at 10:1 CR 178° horizontal, 178° vertical Stand Tilt stand Bezel width Sides: 0.088" (2.23mm) Dimensions (HxWxD, including stand) 19.35" H x 24.19" W x 10.63" D; 491.4mm H x 614.5mm W x 270.0mm D Power supply 40 watts typical, 130 watts maximum (with USB), <0.5 watts sleep/off; <0.5 watts switch off Weight 14.11 lb; 6.40kg (including stand) Limited warranty⁴ 3 year Available date March 2016</p>	<p>Features</p> <ul style="list-style-type: none"> • 27-inch IPS LED backlight monitor with speaker • Supports 3840x2160 resolution • 5-Ports USB hub, support USB Type-C • 3watts x 2 stereo speakers • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 						
<p>VESA-compliant² VESA DDC2B/CI Power management ENERGY STAR® 7.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, RoHS, EPEAT™ Silver rating, ULE Gold</p>	<div style="text-align: center;">  <p>ThinkVision X1 Monitor</p> </div>						
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA: 1280x720, 1280x768, 1280x800, 1360x768 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080, 1920x1200 UHD: 3840x2160</p> <p>Presets / user settings Standard presets: 20; user settings: 20</p>							
<p>Viewing adjustments <i>Tilt: 22° back, -5° forward;</i> Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (touch buttons on front) for menu, mute, volume up/down, and brightness USB hub USB Hub: one USB 3.1 Type-C upstream port, four USB 3.0 Type-A downstream ports Multimedia Integrated stereo speakers (3 watts x 2), built-in microphone Camera Full HD camera with LED light Multiple input Support HDMI, DisplayPort Monitor connectors (1) HDMI (1.4), digital, HDCP-compliant (2) DisplayPort (1.2), digital, HDCP-compliant Signal cables (1) detachable, HDMI at each end, digital, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>							
<p>Ship group Monitor, detachable stand, Quick start and safety poster, 1.8 meter DisplayPort cable, 1.8 meter HDMI cable, 1.8 meter USB Type-C cable, 1.8 meter USB Type-C to Type-A cable, 1.8 meter black power cord, mini DP to DP adapter, power adapter (135W)</p>	<p>Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p> <p>Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td>73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td>45K1620</td> </tr> <tr> <td>Lenovo Security Cable Lock</td> <td>57Y4303</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620	Lenovo Security Cable Lock	57Y4303
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See footnotes for important warranty information



ThinkVision X1 (2nd GEN) MONITOR

EXTREME STYLISH, EXTREME FOREFRONT.



THE MILESTONE OF X-SERIES, 27" FULL-SCREEN, 4K, THUNDERBOLT™ 3 MONITOR.

Pushing the limit of screen share ratio with innovative technology, the 27" Lenovo™ ThinkVision® X1 (2nd GEN) display brings full-screen and ultra-slim appearance in elegant design. With 4K resolution and >99% sRGB color gamut, you will be assured of excellent watching experience and Thunderbolt™ 3 interface will bring the best user experience. "Motor" camera is first used on monitor, which will move up and down automatically and with it you will own standard VoIP system.

WHY YOU SHOULD BUY THE LENOVO THINKVISION X1 (2nd GEN) MONITOR



Full-screen appearance

With world's slimmest (4.7 mm) 27" 4K TBT monitor you will experience full-screen 4-side Near-Edgeless display with the screen ratio of approximately 93%. The monitor also comes with a metal stand and a base.



Brilliant performance

The 4K UHD IPS screen displays 3840 x 2160 resolution at 60 Hz, 99% sRGB color gamut, 10-bit depth, with 1.07 billion color support assures you stunning visuals and superb color experience.



Convenient user experience

Total versatility with Thunderbolt™ 3 interface supporting 4K + USB 3.0 & 45W PD + motor-camera with dual-array microphone. A Think RedDot tracking button is integrated in the back cover.

THE LENOVO THINKVISION X1 (2nd GEN) MONITOR IS BEST SUITED FOR

1

The Executives and CXO of company.

2

SOHO and Gold Collars with high income.

3

Trendsetters who pursue an extreme and forefront monitor.



ThinkVision X1 (2nd GEN) MONITOR



SPECIFICATIONS

DISPLAY		ENVIRONMENTAL	
Panel Size	27"	Temperature Operating	0°C - 45°C
Panel Type	IPS	Temperature Non-Operating	-20°C - 60°C
Backlight	WLED	Humidity Operating	8% - 80%
Resolution	3840 (H) x 2160 (V)	Humidity Non-Operating	5% - 95%
Aspect Ratio	16:9	Altitude Operating	16,000 ft
Anti-Glare	Yes	Altitude Non-Operating	40,000 ft
Screen Dimensions (W x H) (mm)	596.7 (H) x 335.7 (V)	Arsenic-Free Glass	Yes
Maximum Brightness (Typical)	350 cd/m ²	PVC-Free	Yes (W/O cable)
Viewing Angle (H/V at CR 10:1)	178°/178°	Mercury-Free	Yes
Contrast Ratio (Typical)	1000:1	PCC % of Plastic Resins	25%
Dynamic Contrast Ratio	3M:1		
Pixel Pitch (W x H) (mm)	0.1554 x 0.1554		
Dot/Pixel Per Inch (DP/PPI)	163		
Color Gamut (CIE 1931)	99% sRGB		
Response Time (Extreme/Typical/Off)	4/6/14 ms (G-to-G)		
POWER CONSUMPTION		DIMENSIONS (W x D x H)	
Typical	65 W	Size Packed (mm)	718 x 140 x 470
Maximum	135 W	Size Packed (inches)	28.27" x 5.51" x 18.5"
Sleep-Mode	0.5 W	Size Unpacked with Stand (mm)	609.74 x 234.81 x 474.76
Switch Off-Mode	0.5 W	Size Unpacked with Stand (inches)	24" x 9.24" x 18.69"
Power Supply	External	Size Unpacked without Stand (Monitor Head Only) (mm)	609.74 x 32.7 x 351.71
Power Voltage	100 VAC - 240 VAC	Size Unpacked without Stand (Monitor Head Only) (inches)	24" x 1.29" x 13.85"
Voltage Dynamic Frequency	50 Hz - 60 Hz	Distance from Table to Panel Lowest Pixel at Bottom of Screen (mm / inches)	134 / 5.276"
SIGNAL INPUT		Distance from Table to Panel Highest Pixel at Top of Screen (mm / inches)	450 / 17.717"
Video Input Signals	DisplayPort™ 1.2 + HDMI™ 2.0 + Thunderbolt™ 3	Stand Base Footprint Area (mm)	234.81 x 234.81
Video Cables Supplied	HDMI™ + Thunderbolt™ 3	Stand Base Footprint Area (inches)	9.24" x 9.24"
Video Cable Length	1.8 m	Weight Packed	Starting at 18.45 lbs (8.37 kg)
USB Hub	Yes (4 x USB 3.0)	Weight Unpacked	Starting at 12.21 lbs (5.54 kg)
USB Cable Supplied	N/A	Weight Monitor Head Only	Starting at 9.46 lbs (4.29 kg)
Audio-Jack	Yes		
SIGNAL INTERFACE / PERFORMANCE		COMPLIANCE	
Horizontal Frequency	30 kHz - 136 kHz	EPEAT™	Silver
Vertical Frequency	30 Hz - 60 Hz	ENERGY STAR® Rating	7.0
Native Resolution	3840 x 2160	ULE	Silver
Maximum Pixel Clock Speed/Bandwidth	20 Gbps	TCO®	7.0
Default Color Temperature	6500K	RoHS	Yes
Preset Modes	24	Windows Certification	Windows 10
OSD Buttons	2 Buttons + Tracking Point	China Energy Label	Grade 2
OSD Languages	English, French, Italian, German, Spanish, Japanese, Chinese, Russian		
MECHANICAL		WARRANTY AND AVAILABILITY	
Tilt Angle (Front / Back)	-5° / 30°	Warranty	3 Years
Swivel Angle (Left / Right)	N/A	Geography Availability	WW
Lift (mm)	N/A		
Pivot	N/A		
VESA® Mount (mm)	N/A		
Kensington® Lock Slot	Yes		
Cable Management	Yes		
Bezel Color	N/A		
Bezel Width Top (mm / inches)	1.2 / 0.05"		
Bezel Width Bottom (mm / inches)	1.2 / 0.05"		
Bezel Width Sides (mm / inches)	1.2 / 0.05"		



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Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

Lenovo Services:

Carry-in or Mail-in Service: Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.

Depot or Courier Service: Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Expedited Depot: Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Onsite / In-home Service: Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.

International Warranty Service (IWS): PC repair coverage for customers who require a critical warranty repair while travelling internationally. Visit www.lenovo.com/internationalwarranty for details. Visit www.lenovo.com/warranty for Lenovo Warranty Services terms and conditions for complete details and restrictions.

Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.

Visit <http://psref.lenovo.com/> for the latest version of Product Specifications Reference.

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