ThinkServer W.E.

Product Specifications Reference

Version 455, June 2014

ThinkServer® Servers

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Summary of Changes

This section describes the changes made in this version of ThinkServer PSREF and in previous version.
This section includes changes for the three most recent versions, starting with Version 450.
This edition might also include minor corrections and editorial changes which are not identified.

June 18, 2014 - Version 455

Additions in this update

- New product
  ThinkServer RS140 ann June 10, 2014. Includes the following pages:
  ThinkServer RS140 with 3.5” Disk Bay TopSeller Models - 70F9 (June 2014)
  ThinkServer RS140 with 2.5” Disk Bay TopSeller Models - 70F3 (June 2014)

Withdrawals in this update

- ThinkServer RD330, RD430, RD530, RD630 withdrawn) j l sba d ipt _l l h\ T B

Feburary 25, 2014 - Version 450

Additions in this update

- New section
  ThinkServer Servers, contains all ThinkServer servers pages
- New section
  ThinkServer Storage, contains ThinkServer storage pages
- New section
  Summary of changes, contains changes list for the three most recent versions
- New product

  ThinkServer TD340 ann January 21, 2014. Includes the following pages:
  ThinkServer TD340 Overview
  ThinkServer TD340 TopSeller Models - 70B7 (January 2014)
  ThinkServer TD340 TopSeller Models - 70B5 (January 2014)
  ThinkServer TD340 Platform Systems Specifications - I of II
  ThinkServer TD340 Platform Systems Specifications - II of II
  ThinkServer TD340 Optional Configurations
  ThinkServer TD340 Operating System and Virtualization Supportability Matrix
- New product
  ThinkServer SA120 ann February 11, 2014. Includes the following pages:
  ThinkServer SA120 Direct Attached Storage Photography
  ThinkServer SA120 Direct Attached Storage - Standard Models

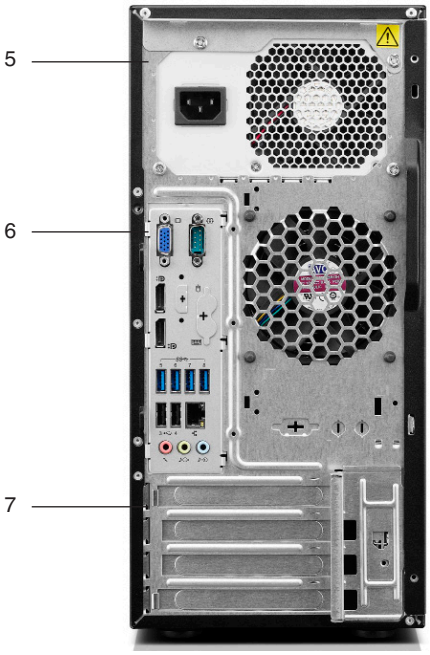
Changes in this update

- Updates Expansion slots informations on ThinkServer RD330 and RD340

ThinkServer TS140 - Overview

Front view

1. Optional slim optical + 3.5" drive bay in standard 5.25" bay
2. Optional 3.5" hard drive bay
3. Power Button
4. Front I/O: 2 USB 3.0 (blue)



Rear view

5. Power Supply:
   280 watts 80 PLUS Bronze/450 watts 80 PLUS Platinum
6. Rear I/O: 2 USB 2.0
   4 USB 3.0(blue)
   1 serial (9-pin)
   1 RJ-45 (GbE)
   1 line-in
   1 line-out
   1 microphone-in
   2 DisplayPort (for Intel HD Graphics)
   1 VGA (for Intel HD Graphics)
7. 1 PCIe 3.0 x16
   1 PCIe 2.0 x1
   1 PCIe 2.0 x16 (x4 elec)
   1 PCI

Internal

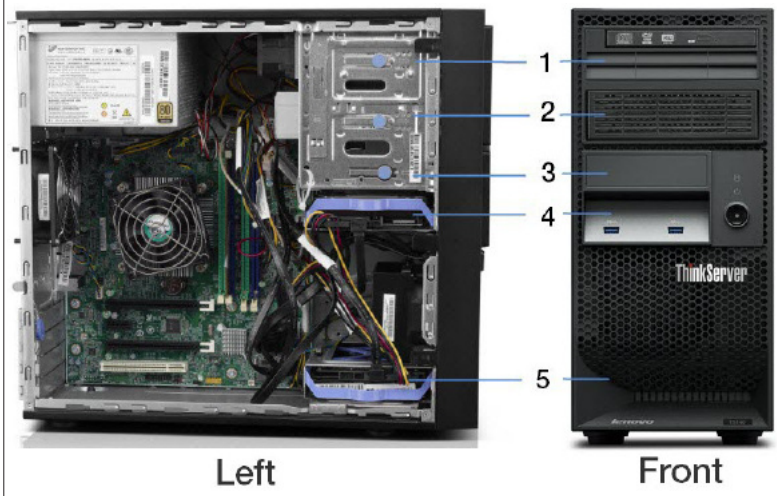
- One LGA1150 socket, supports one processor from Intel Xeon E3-1200 v3, Core-i3 4000, and Pentium families
- 4 DIMM sockets, supports up to 32GB ECC UDIMM memory
- Up to four 3.5" hard drive bays, two 3.5" hard drive bays standard

Mechanical

- Raven black color; metal case
- Rack-mountable to 5U
- 6.89"W x 16.97"D x 14.76"H
- 175mm W x 431mm D x 375mm H
- 28.66 lb (13kg) max configuration
- 25-liter

ThinkServer TS140 Platform Specifications - System Specifications (I of III)

<table>
<tr><th>Components</th><th>Specification</th></tr>
<tr><td>Form factor</td><td>Tower, rack-mountable to 5U via ThinkServer Tower to Rack Shelf Conversion Kit (Option PN: 0C19515)</td></tr>
<tr><td>Chipset</td><td>Intel C226 Chipset</td></tr>
<tr><td>Systems management</td><td>• Intel Active Management Technology 9 on models with Xeon processor
(KVM function needs Intel Xeon E3-12x5 v3 processors)
• EasyStartup
• EasyUpdate</td></tr>
<tr><td>Processor</td><td>One LGA1150 socket,
supports one processor from Intel Xeon E3-1200 v3, Core-i3 4000, and Pentium G3000 families,
integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors.

The following processors are supported:
<table>
<tr><th>Processor Number</th><th># of Cores</th><th># of Threads</th><th>Clock Speed</th><th>Max Turbo Frequency</th><th>Cache</th><th>Memory speed</th><th>ECC Memory Supported</th><th>Processor Graphics</th></tr>
<tr><td>Xeon E3-1285 v3</td><td>4</td><td>8</td><td>3.6 GHz</td><td>4 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics 4700</td></tr>
<tr><td>Xeon E3-1280 v3</td><td>4</td><td>8</td><td>3.6 GHz</td><td>4 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Xeon E3-1275 v3</td><td>4</td><td>8</td><td>3.5 GHz</td><td>3.9 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics 4600</td></tr>
<tr><td>Xeon E3-1270 v3</td><td>4</td><td>8</td><td>3.5 GHz</td><td>3.9 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Xeon E3-1245 v3</td><td>4</td><td>8</td><td>3.4 GHz</td><td>3.8 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics 4600</td></tr>
<tr><td>Xeon E3-1240 v3</td><td>4</td><td>8</td><td>3.4 GHz</td><td>3.8 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Xeon E3-1230 v3</td><td>4</td><td>8</td><td>3.3 GHz</td><td>3.7 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Xeon E3-1225 v3</td><td>4</td><td>4</td><td>3.2 GHz</td><td>3.6 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics 4600</td></tr>
<tr><td>Xeon E3-1220 v3</td><td>4</td><td>4</td><td>3.1 GHz</td><td>3.5 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Core i3-4340</td><td>2</td><td>4</td><td>3.6 GHz</td><td></td><td>4 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics 4600</td></tr>
<tr><td>Core i3-4330</td><td>2</td><td>4</td><td>3.5 GHz</td><td></td><td>4 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics 4600</td></tr>
<tr><td>Core i3-4130</td><td>2</td><td>4</td><td>3.4 GHz</td><td></td><td>3 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics 4400</td></tr>
<tr><td>Pentium G3430</td><td>2</td><td>2</td><td>3.3 GHz</td><td></td><td>3 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics</td></tr>
<tr><td>Pentium G3420</td><td>2</td><td>2</td><td>3.2 GHz</td><td></td><td>3 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics</td></tr>
<tr><td>Pentium G3220</td><td>2</td><td>2</td><td>3 GHz</td><td></td><td>3 MB</td><td>DDR3-1333</td><td>Yes</td><td>Intel HD Graphics</td></tr>
</table>
Notes:
All information is provided by Intel and may be changed at any time without notice. The information herein is provided “as-is”.
Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/</td></tr>
<tr><td>Memory type</td><td>1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available</td></tr>
<tr><td>Memory DIMM sockets</td><td>Four 240-pin DIMM sockets</td></tr>
<tr><td>Memory capacity</td><td>Up to 32GB (8GBx4)</td></tr>
<tr><td>Memory protection</td><td>ECC</td></tr>
<tr><td>Additional memory disclaimers</td><td>● Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs</td></tr>
<tr><td>Onboard SATA controller</td><td>Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s,
RAID 0, 1, 5, 10 support</td></tr>
<tr><td>Drive bays</td><td>Supports one 5.25" optical and two 3.5" disk drive bays in standard models, direct cable, no hot-swap
up to one slim optical and four 3.5"/2.5" disk drive bays (pending 2.5" disk drives availability):
 

1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
3: Optional 3rd 2.5" drive bay
4: Standard 3.5"/2.5" primary drive bay
5: Standard 3.5"/2.5" 2nd drive bay

Notes:
● Standard optical and hard drive bays are included in models;
optional optical and hard drive bays are available on models with the corresponding drives only
● Image above is for reference only. Model in this image contains optional slim optical + 3.5" 2nd hard drive bay with supplemental fan (Bay 1) and optional 3.5" 3rd hard drive bay (Bay 2)
● Optional slim optical + 3.5" drive bay (Bay 1) and optional 3rd 2.5" drive bay (Bay 3) can not be supported concurrently on one model.</td></tr>
</table>

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ThinkServer TS140 Platform Specifications (II of III)

Components	Specification
Optical	Supports DVD±RW or DVD ROM, 1.6" high or slim, SATA interface

Graphics	• Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see ***Rear ports*** section)
	• Also supports the following optional discrete graphics adapters:
	  • NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB
	  • NVIDIA Quadro 600, PCIe x16 adapter, 1GB

Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Expansion Slots	Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec) Slot 4: half-length, full-height, PCI 2.3
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 280 watts, autosensing, 85% PSU, 80 PLUS Bronze qualified • One fixed 450 watts, autosensing, 92% PSU, 80 PLUS Platinum qualified
Security	• Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal) • Power-on password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all)
Mechanical	• Raven black color; metal case • 6.89"W x 16.97"D x 14.76"H • 175mm W x 431mm D x 375mm H • 28.66 lb (13kg) max configuration • 25-liter
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal (standard bays) • Toolless adapter retention • Illuminated front icons
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified • RoHS-compliant
EMC	FCC Class A
240VA	Supports
Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
Temperature - non operating (no package)	-10 °C to 60 °C
Temperature - non operating (with package)	-40 °C to 70 °C
Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)
Humidity - operating	10%~80%, non-condensing
Humidity - non operating (no package)	10%~90%, non-condensing
Humidity - non operating (with package)	10%~90%, non-condensing
Acoustic noise (idle/working mode)	See nested table below

Category	Min Configuration	Best Configuration
CPU	1 CPU	1 CPU
Optical Drive	0 DVD	1 DVD
Drive Bays	Up to one	Up to three
HDD	1x 500GB SATA	3x 500GB SATA
Memory	1x 2GB UDIMM	1x 2GB UDIMM
PSU	280W	450W
RAID	Embedded SATA	Embedded RAID
Add-on card	No	1xVGA
Sound Pressure (operating)	26 dB(A)	35 dB(A)
Sound Pressure (idle)	25 dB(A)	34 dB(A)

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ThinkServer TS140 Platform Specifications - System Specifications (III of III)

Components	Specification
Warranty	1 or 3-year limited warranty, parts and labor, more services information see S-TS1 and S-TS3 sheet
Preloaded operating systems	• Windows Server® 2012 Foundation • Windows Server 2012 Essentials • Windows Server 2012 Standard
Supported operating systems and virtualization software	• Windows 7 • Windows 8 • Windows Server 2008 R2 Standard • Windows Server 2008 R2 Enterprise • Windows Small Business Server 2011 Essentials • Windows Small Business Server 2011 Standard • Windows Small Business Server 2011 Premium Add-On *Notes:* *1. Supported only, no preloaded models* *2. Windows 7 and Windows 8 are not supported by EasyStartup*

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ThinkServer TS140 (70A4) - TopSeller (September 2013)

Product Specifications Reference (PSREF)

Type-model*	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A4000K++	Pentium G3220 (2C/3GHz/3MB/1333MHz)	1600MHz ECC	4GBx1	Intel HD	No	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A4000L++	Pentium G3220 (2C/3GHz/3MB/1333MHz)	1600MHz ECC	4GBx1	Intel HD	No	1x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A4000M++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	1x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A4000N++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	No	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A4000P++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	8GBx2	Intel HD P4600	No	2x1TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A4000Q++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1

** Model in italics shows that this is a Global Model.*
Country Code "++": WE models listed above might not be available in all WE countries

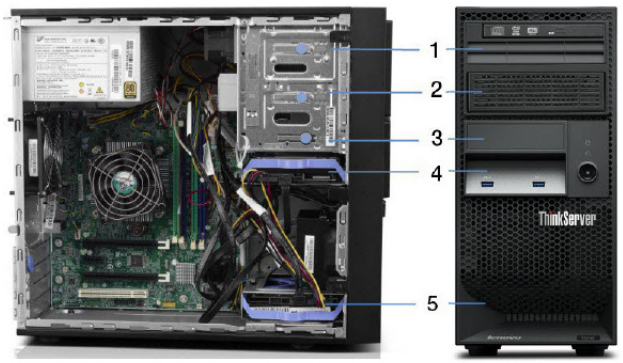
- ***For detailed ThinkServer TS140 platform specifications, please see ThinkServer TS140 Platform Specifications sheet***

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*

Graphics	• Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see ***Rear ports*** section)
	• Also supports the following optional discrete graphics adapters:
	  • NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB
	  • NVIDIA Quadro 600, PCIe x16 adapter, 1GB

Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified • One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 5U via optional ThinkServer Tower to Rack Shelf Conversion Kit *(Option PN: 0C19515)*
Mechanical	• 25-liter, raven black color; metal case • (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm • 28.66 lb (13kg) max configuration
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal (standard bays) • Toolless adapter retention • Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified/ • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS140 Platform Specifications* sheet

Drive bays



1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
3: Optional 3rd 2.5" drive bay
4: Standard 3.5"/2.5" primary drive bay
5: Standard 3.5"/2.5" 2nd drive bay

Note:
4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
3x3.5" bays models: Bay 2, 4, 5 are included in models
2x3.5" bays models: Bay 4, 5 are included in models

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal)
- Power-on password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS140 (70A4) - TopSeller (September 2013) - II

Product Specifications Reference (PSREF)

Type-model*	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A4000R++	Core i3-4330 (2C/3.5GHz/4MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD 4600	No	1x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A4000S++	Core i3-4330 (2C/3.5GHz/4MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD 4600	No	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A4000T++	Core i3-4330 (2C/3.5GHz/4MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD 4600	No	1x1TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A4000U++	Core i3-4330 (2C/3.5GHz/4MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD 4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A4000V++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A4001K++	Pentium G3220 (2C/3GHz/3MB/1333MHz)	1600MHz ECC	4GBx1	Intel HD	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1

** Model in italics shows that this is a Global Model.*
Country Code "++": WE models listed above might not be available in all WE countries

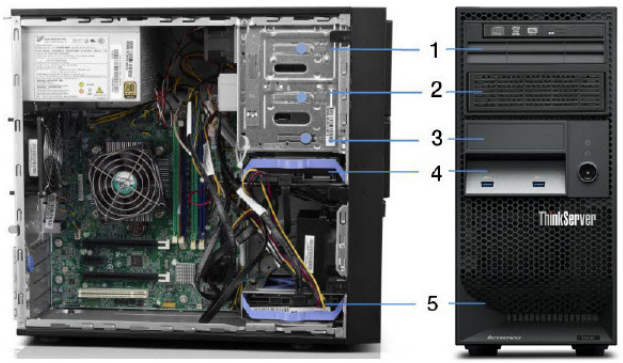
• ***For detailed ThinkServer TS140 platform specifications, please see ThinkServer TS140 Platform Specifications sheet***

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*

Graphics	• Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see ***Rear ports*** section)
	• Also supports the following optional discrete graphics adapters:
	  • NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB
	  • NVIDIA Quadro 600, PCIe x16 adapter, 1GB

Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified • One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 5U via optional ThinkServer Tower to Rack Shelf Conversion Kit *(Option PN: 0C19515)*
Mechanical	• 25-liter, raven black color; metal case • (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm • 28.66 lb (13kg) max configuration
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal (standard bays) • Toolless adapter retention • Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified/ • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS140 Platform Specifications* sheet

Drive bays



1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
3: Optional 3rd 2.5" drive bay
4: Standard 3.5"/2.5" primary drive bay
5: Standard 3.5"/2.5" 2nd drive bay

Note:
4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
3x3.5" bays models: Bay 2, 4, 5 are included in models
2x3.5" bays models: Bay 4, 5 are included in models

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal)
- Power-on password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS140 (70A5) - TopSeller (September 2013)

Product Specifications Reference (PSREF)

Type-model*	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A50000++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	Foundation	1
70A50001++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	Foundation	3
70A50005++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx2	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	Foundation	3
70A50007++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	Essentials	3
70A50008++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x1TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	Foundation	3
70A5000H++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	No	1
70A5000J++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	No	3
70A5000K++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	1x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	No	1

** Model in italics shows that this is a Global Model.*
Country Code "++": WE models listed above might not be available in all WE countries

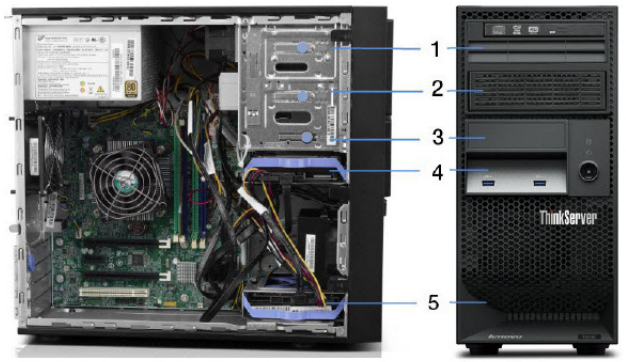
- ***For detailed ThinkServer TS140 platform specifications, please see ThinkServer TS140 Platform Specifications sheet***

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*

Graphics	• Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see ***Rear ports*** section)
	• Also supports the following optional discrete graphics adapters:
	  • NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB
	  • NVIDIA Quadro 600, PCIe x16 adapter, 1GB

Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified • One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 5U via optional ThinkServer Tower to Rack Shelf Conversion Kit *(Option PN: 0C19515)*
Mechanical	• 25-liter, raven black color; metal case • (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm • 28.66 lb (13kg) max configuration
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal (standard bays) • Toolless adapter retention • Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified/ • RoHS-compliant More environmental information and requirements, please see ThinkServer TS140 Platform Specifications sheet

Drive bays



1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
3: Optional 3rd 2.5" drive bay
4: Standard 3.5"/2.5" primary drive bay
5: Standard 3.5"/2.5" 2nd drive bay

Note:
4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
3x3.5" bays models: Bay 2, 4, 5 are included in models
2x3.5" bays models: Bay 4, 5 are included in models

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal)
- Power-on password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS140 (70A5) - TopSeller (September 2013) - II

Product Specifications Reference (PSREF)

Type-model*	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A5000V++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 0	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD	No	No	450W	No	Foundation	1
70A5000W++	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	No	3
70A5000X++	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	No	1
70A5000Y++	Xeon E3-1275 v3 (4C/3.5GHz/8MB/1600MHz)	1600MHz ECC	4GBx2	Intel HD P4600	RAID 1	2x1TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	No	3
70A50010++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx2	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	No	3
70A50011++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	No	3
70A50012++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	No	1
70A50013++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x1TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	No	3
70A50014++	Xeon E3-1275 v3 (4C/3.5GHz/8MB/1600MHz)	1600MHz ECC	4GBx2	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	No	3

** Model in italics shows that this is a Global Model.*
Country Code "++": WE models listed above might not be available in all WE countries

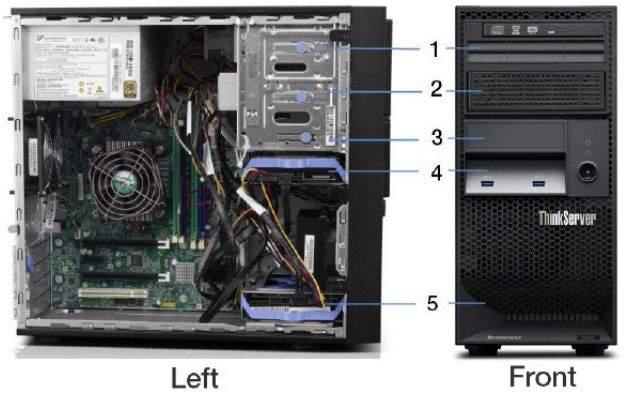
• ***For detailed ThinkServer TS140 platform specifications, please see ThinkServer TS140 Platform Specifications sheet***

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*

Graphics	• Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports
	(detailed information please see ***Rear ports*** section)
	• Also supports the following optional discrete graphics adapters:
	  • NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB
	  • NVIDIA Quadro 600, PCIe x16 adapter, 1GB

Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified • One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 5U via optional ThinkServer Tower to Rack Shelf Conversion Kit *(Option PN: 0C19515)*
Mechanical	• 25-liter, raven black color; metal case • (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm • 28.66 lb (13kg) max configuration
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal (standard bays) • Toolless adapter retention • Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified/ • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS140 Platform Specifications* sheet

Drive bays



1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
3: Optional 3rd 2.5" drive bay
4: Standard 3.5"/2.5" primary drive bay
5: Standard 3.5"/2.5" 2nd drive bay

Note:
4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
3x3.5" bays models: Bay 2, 4, 5 are included in models
2x3.5" bays models: Bay 4, 5 are included in models

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal)
- Power-on password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS140 (70A0) - September 2013

Product Specifications Reference (PSREF)

Type-model*	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage (Drive bays)	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A00003++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	2GBx4	Intel HD P4600	RAID 0	4x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	1xParallel	1xI350-T2	280W	No	Foundation	1
70A00006++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	2GBx4	Intel HD P4600	RAID 0	4x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	2xIntel CT	280W	No	Foundation	1
70A00007++	Xeon E3-1230 v3 (4C/3.3GHz/8MB/1600MHz)	1600MHz ECC	4GBx3	NVS 300	RAID 1	2x4TB 3.5" SATA (2x3.5" Bay)	DVD±RW	No	1xI350-T4	280W	No	No	1
70A0001B++	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	2GBx4	Intel HD P4600	RAID 0	4x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	1xParallel	1xI350-T2	280W	No	Foundation	1

** Model in italics shows that this is a Global Model.*
Country Code "++": WE models listed above might not be available in all WE countries

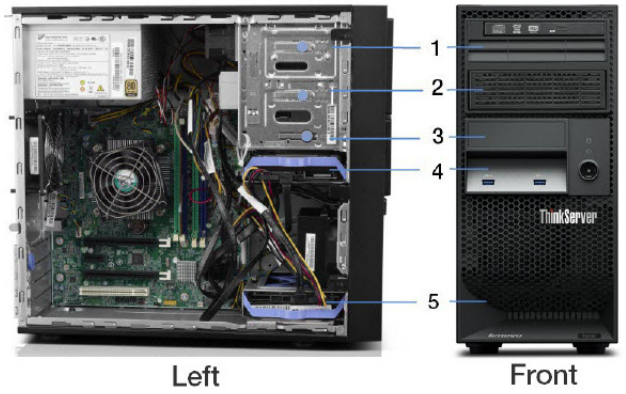
- ***For detailed ThinkServer TS140 platform specifications, please see ThinkServer TS140 Platform Specifications sheet***

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*

Graphics	• Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see ***Rear ports*** section)
	• Also supports the following optional discrete graphics adapters:
	  • NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB
	  • NVIDIA Quadro 600, PCIe x16 adapter, 1GB

Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified • One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 5U via optional ThinkServer Tower to Rack Shelf Conversion Kit *(Option PN: 0C19515)*
Mechanical	• 25-liter, raven black color; metal case • (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm • 28.66 lb (13kg) max configuration
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal (standard bays) • Toolless adapter retention • Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified/ • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS140 Platform Specifications* sheet

Drive bays



1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
3: Optional 3rd 2.5" drive bay
4: Standard 3.5"/2.5" primary drive bay
5: Standard 3.5"/2.5" 2nd drive bay

Note:
4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
3x3.5" bays models: Bay 2, 4, 5 are included in models
2x3.5" bays models: Bay 4, 5 are included in models

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal)
- Power-on password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS140 (70A1) - September 2013

Product Specifications Reference (PSREF)

Type-model*	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage (Drive bays)	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A10000++	Xeon E3-1280 v3 (4C/3.6GHz/8MB/1600MHz)	1600MHz ECC	8GBx4	NVS 300	RAID 10	4x4TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	1xParallel	2xIntel CT	450W	No	Foundation	1
70A10001++	Xeon E3-1280 v3 (4C/3.6GHz/8MB/1600MHz)	1600MHz ECC	8GBx4	Quadro 600	RAID 10	4x2TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	1xIntel CT	450W	No	Foundation	1
70A10002++	Xeon E3-1285 v3 (4C/3.6GHz/8MB/1600MHz)	1600MHz ECC	4GBx4	Intel HD P4700	RAID 5	3x3TB 3.5" SATA (3x3.5" Bay)	DVD±RW	No	I350-T4+ Intel CT	450W	No	No	1
70A10005++	Xeon E3-1280 v3 (4C/3.6GHz/8MB/1600MHz)	1600MHz ECC	8GBx4	NVS 300	RAID 10	4x4TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	1xParallel	2xIntel CT	450W	No	Foundation	1

** Model in italics shows that this is a Global Model.*
Country Code "++": WE models listed above might not be available in all WE countries

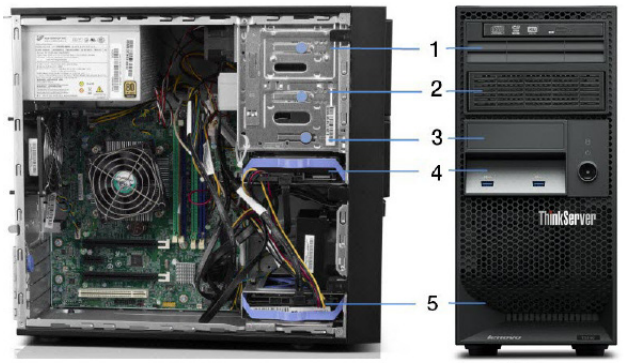
- ***For detailed ThinkServer TS140 platform specifications, please see ThinkServer TS140 Platform Specifications sheet***

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*

Graphics	• Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see ***Rear ports*** section)
	• Also supports the following optional discrete graphics adapters:
	  • NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB
	  • NVIDIA Quadro 600, PCIe x16 adapter, 1GB

Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified • One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 5U via optional ThinkServer Tower to Rack Shelf Conversion Kit *(Option PN: 0C19515)*
Mechanical	• 25-liter, raven black color; metal case • (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm • 28.66 lb (13kg) max configuration
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal (standard bays) • Toolless adapter retention • Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified/ • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS140 Platform Specifications* sheet

Drive bays



1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
3: Optional 3rd 2.5" drive bay
4: Standard 3.5"/2.5" primary drive bay
5: Standard 3.5"/2.5" 2nd drive bay

Note:
4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
3x3.5" bays models: Bay 2, 4, 5 are included in models
2x3.5" bays models: Bay 4, 5 are included in models

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal)
- Power-on password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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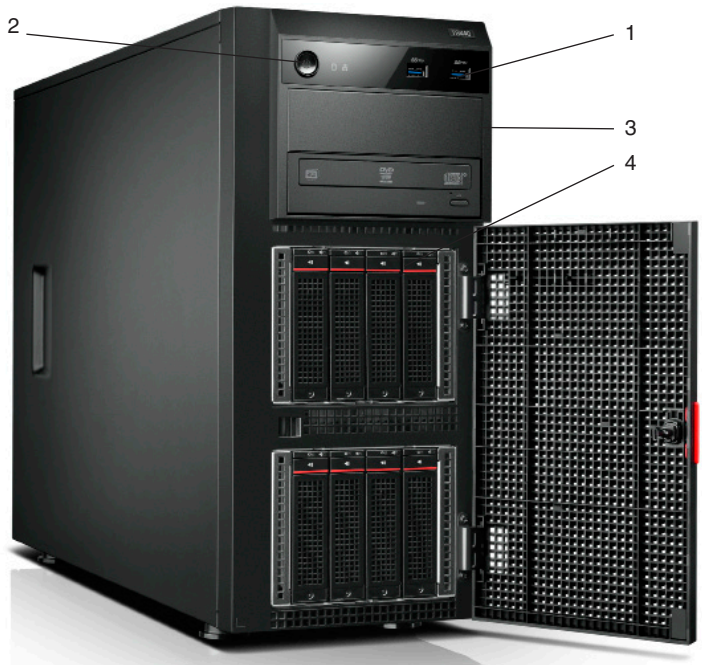
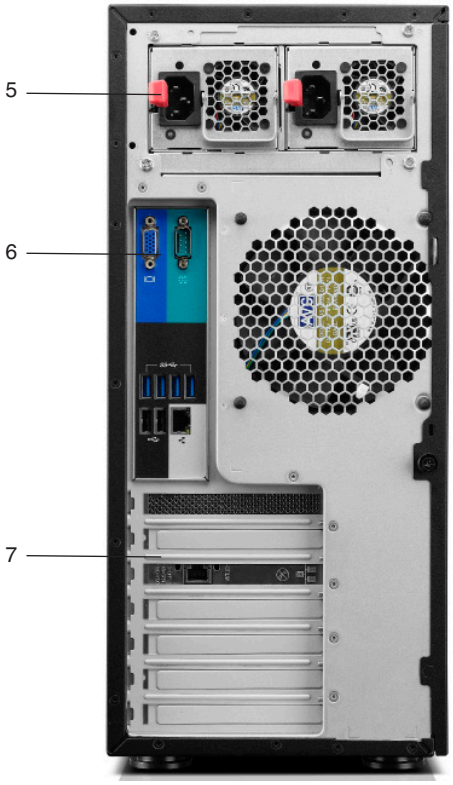
ThinkServer TS440 - Overview



Front view

1. Front I/O: 2 USB 3.0 (blue)
2. Power Button
3. Two 5.25" optical drive bays
   (up to one optical on models with onboard SATA controller)
4. Eight 3.5" hot-swap drive bays
   (Also supports:
   4 x 3.5" direct cable bays,
   or 4 x 3.5" hot-swap bays,
   or 8 x 2.5" hot-swap bays)



Rear view

5. Power Supply:
   Up to two redundant 450 watts 80 PLUS Gold or
   fixed one 450 watts 80 PLUS Platinum
6. Rear I/O: 2 USB 2.0
   4 USB 3.0(blue)
   1 serial (9-pin)
   1 RJ-45 (GbE)
   1 VGA (for Intel HD Graphics)
7. 1 PCIe 3.0 x16 (with optional RAID adapter)
   1 PCIe 2.0 x1
   1 PCIe 2.0 x16 (x4 elec, with optional ethernet adapter)
   1 PCI

Internal

- One LGA1150 socket, supports one processor from Intel Xeon E3-1200 v3 family
- 4 DIMM sockets, supports up to 32GB ECC UDIMM memory
- Up to eight hard drive bays

Mechanical

- Tower, business black color, metal case
- Rack-mountable to 5U
- W x H (without foot) x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm
- 61.7 lb (28kg) max configuration

ThinkServer TS440 Platform Specifications - I of III

<table>
<tr><th>Components</th><th>Specification</th></tr>
<tr><td>Form factor</td><td>Tower, rack-mountable to 5U via ThinkServer Tower to Rack Shelf Conversion Kit (Option PN: 0C19515)</td></tr>
<tr><td>Chipset</td><td>Intel C226 Chipset</td></tr>
<tr><td>Systems management</td><td>• Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors)
• EasyStartup
• EasyUpdate</td></tr>
<tr><td>Processor</td><td>One LGA1150 socket,
supports one processor from Intel Xeon E3-1200 v3 family,
integrated 2-channel DDR3 memory controller, optional integrated processor graphics on Xeon E5-12X5 v3 processors.

The following processors are supported:
<table>
<tr><th>Processor Number</th><th># of Cores</th><th># of Threads</th><th>Clock Speed</th><th>Max Turbo Frequency</th><th>Cache</th><th>Memory speed</th><th>ECC Memory Supported</th><th>Processor Graphics</th></tr>
<tr><td>Xeon E3-1285 v3</td><td>4</td><td>8</td><td>3.6 GHz</td><td>4 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics P4700</td></tr>
<tr><td>Xeon E3-1280 v3</td><td>4</td><td>8</td><td>3.6 GHz</td><td>4 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Xeon E3-1275 v3</td><td>4</td><td>8</td><td>3.5 GHz</td><td>3.9 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics P4600</td></tr>
<tr><td>Xeon E3-1270 v3</td><td>4</td><td>8</td><td>3.5 GHz</td><td>3.9 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Xeon E3-1245 v3</td><td>4</td><td>8</td><td>3.4 GHz</td><td>3.8 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics P4600</td></tr>
<tr><td>Xeon E3-1240 v3</td><td>4</td><td>8</td><td>3.4 GHz</td><td>3.8 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Xeon E3-1230 v3</td><td>4</td><td>8</td><td>3.3 GHz</td><td>3.7 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Xeon E3-1225 v3</td><td>4</td><td>4</td><td>3.2 GHz</td><td>3.6 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics P4600</td></tr>
<tr><td>Xeon E3-1220 v3</td><td>4</td><td>4</td><td>3.1 GHz</td><td>3.5 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
</table>
Notes:
All information is provided by Intel and may be changed at any time without notice. The information herein is provided “as-is”.
Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/</td></tr>
<tr><td>Memory type</td><td>1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available</td></tr>
<tr><td>Memory DIMM sockets</td><td>Four 240-pin DIMM sockets</td></tr>
<tr><td>Memory capacity</td><td>Up to 32GB (8GBx4)</td></tr>
<tr><td>Memory protection</td><td>ECC</td></tr>
<tr><td>Additional memory disclaimers</td><td>● Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs</td></tr>
<tr><td>Onboard SATA controller</td><td>Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s,
RAID 0, 1, 5, 10 support</td></tr>
<tr><td>Discreted SATA/SAS controller (optional)</td><td>Supports the following:
• ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support;
optional upgrade key for ThinkServer RAID 500 adapter,
add RAID 5, 50 support
• ThinkServer RAID 700 adapter (LSI SAS 9260-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s,
RAID 0, 1, 5, 6, 10, 50, 60 support;
optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter

Notes:
RAID 50 and 60 are supported on 8 hard drive bays models only</td></tr>
<tr><td>Drive bays</td><td>Supports two 5.25" optical bays, up to two optical drives (up to one optical on models with onboard SATA controller);
supports up to eight hard drive bays, one of the following are supported:
• 4 x 3.5" DC: Four 3.5" hard drive bays, no hot-swap, direct cable (onboard RAID 100 controller, SATA only)
• 4 x 3.5" HS: Four 3.5" hot-swap hard drive bays (onboard RAID 100 controller for SATA, discrete RAID adapter for SATA/SAS)
• 8 x 3.5" HS: Eight 3.5" hot-swap hard drive bays (needs discrted RAID adapter, supports SATA/SAS)
• 8 x 2.5" HS: Eight 2.5" hot-swap hard drive bays (needs discrted RAID adapter, supports SATA/SAS)

8 x 2.5" hot-swap 4 x 3.5" hot-swap 8 x 3.5" hot-swap

Notes:
Hard drive bays are behind front cover</td></tr>
</table>

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ThinkServer TS440 Platform Specifications - II of III

Components	Specification
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface
Graphics	• Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see ***Rear ports*** section) • Also supports the following optional discrete graphics adapters: • NVIDIA NVS 300, PCIe x1 adapter, 512MB
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Expansion Slots	Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec) Slot 4: half-length, full-height, PCI 2.3
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 450 watts, universal, 80 PLUS® Platinum qualified • Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security	• Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all)
Mechanical	• Tower, business black color, metal case • W x H (without foot) x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm • 61.7 lb (28kg) max configuration • Rack-mountable to 5U
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified • RoHS-compliant
EMC	FCC Class A
240VA	Supports
Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
Temperature - non operating (no package)	-10 °C to 60 °C
Temperature - non operating (with package)	-40 °C to 70 °C
Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)
Humidity - operating	10%~80%, non-condensing
Humidity - non operating (no package)	10%~90%, non-condensing
Humidity - non operating (with package)	10%~90%, non-condensing
Acoustic noise (idle/working mode)	See table below

Category	Mainstream Configuration	Full Configuration
CPU	Xeon	Xeon
Optical Drive	DVD-ROM	DVD-ROM
HDD Controller	onboard SATA	SAS Controller
HDD Bays	4 x 3.5“ SATA (direct cable)	8 x 3.5“ SAS (hot-swap)
HDD	4x 1TB SATA	8x 600GB SAS
Memory	1 x 2GB UDIMM ECC	4 x 4GB UDIMM ECC
PSU	Fixed	Redundant
Management	Basic IPMI mgmt, reporting	Basic IPMI mgmt, reporting
RAID	SATA RAID 0/1	SAS RAID 5
Sound Pressure (operating)	40.5 dB(A)	42.0 dB(A)
Sound Pressure (idle)	32.0 dB(A)	38.0 dB(A)

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ThinkServer TS440 Platform Specifications - III of III

Components	Specification
Warranty	1 or 3-year limited warranty, parts and labor, more services information see S-TS1 and S-TS3 sheet
Preloaded operating systems	• Windows Server® 2012 Foundation • Windows Server 2012 Essentials • Windows Server 2012 Standard
Supported operating systems and virtualization software	• Windows Server 2008 R2 Standard • Windows Server 2008 R2 Enterprise • Windows Server 2012 Datacenter • Windows Small Business Server 2011 Essentials • Windows Small Business Server 2011 Standard • Windows Small Business Server 2011 Premium Add-On • Red Hat Enterprise Linux 6.4 • VMware ESXi 5.1 U1 (Discrete RAID controller, add-on ethernet controller, and Intel Xeon E3-12x5 v3 processors are needed) *Notes:* *1. Supported only, no preloaded models* *2. For latest VMware compatibility list for ThinkServer, please see http://www.vmware.com/resources/compatibility/search.php* *3. For latest Red Hat compatibility list for ThinkServer, please see https://hardware.redhat.com/* *4. These supported operating systems are also supported by EasyStartup*

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ThinkServer TS440 (70AQ) - TopSeller (September 2013)

Product Specifications Reference (PSREF)

Type-model[1]	Processor	Memory type	Memory DIMMs	Graphics	Disk Bays[2]	RAID controller	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Windows Server 2012 Preloaded	Power Supply	Base on-site warranty (-year)
70AQ000A++	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5 HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000B++	Xeon E3-1245 v3 (4C/3.4GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5 HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000J++	Xeon E3-1245 v3 (4C/3.4GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5 HS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000K++	Xeon E3-1275 v3 (4C/3.5GHz/ 8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	4x3.5 HS	RAID 700+Battery (discrete, 0/1/5/6/10/50/60)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000L++	Xeon E3-1245 v3 (4C/3.4GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5 HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	1
70AQ000M++	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	8x2.5 HS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD±RW	No	No	No	2x450W (hot-swap, redundant with 2)	3

1. Model in italics shows that this is a Global Model. 2. HS = Hot-swap, DC = Direct cable, non-hot swap
Country Code "++": WE models listed above might not be available in all WE countries

● ***For detailed ThinkServer TS440 platform specifications, please see ThinkServer TS440 Platform Specifications sheet***

Systems management	• Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors) • EasyStartup • EasyUpdate
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated Intel HD Graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*
Graphics	• Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see ***Rear ports*** section) • Supports optional discrete NVIDIA NVS 300 adapter, PCIe x1, 512MB
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Discreted SATA/ SAS controller (optional)	Supports the following: • ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support; optional upgrade key for ThinkServer RAID 500 adapter, add RAID 5, 50 support • ThinkServer RAID 700 adapter (LSI SAS 9260-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support; optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter *Notes:* *RAID 50 and 60 are supported on 8 hard drive bays models only*
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter (2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 450 watts, universal, 80 PLUS® Platinum qualified • Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS440 Platform Specifications* sheet

Optical Bays

- Two 5.25" optical bays for all models

(Up to one optical on onboard SATA controller models)

Hard Drive Bays

- Four 3.5" hard drive bays, no hot-swap, direct cable (4x3.5" DC)
- Four 3.5" hot-swap hard drive bays (4x3.5" HS)
- Eight 3.5" hot-swap hard drive bays (8x3.5" HS)
- Eight 2.5" hot-swap hard drive bays (8x2.5" HS)

8 x 2.5" HS

4 x 3.5" HS

8 x 3.5" HS

Mechanical

- Tower, business black color, metal case
- W x Hx D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm
- 61.7 lb (28kg) max configuration
- Rack-mountable to 5U (via optional Tower to Rack Shelf Conversion Kit, not included in standard model)
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Administrator password
- User password
- Front panel key lock
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS440 (70AQ) - TopSeller (November 2013)

Product Specifications Reference (PSREF)

Type-model[1]	Processor	Memory type	Memory DIMMs	Graphics	Disk Bays[2]	RAID controller	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Windows Server 2012 Preloaded	Power Supply	Base on-site warranty (-year)
70AQ0010++	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	8x2.5" HS SATA/SAS	RAID 500 (discrete, 0/1/10)	No	Open	DVD±RW	No	No	No	2x450W (hot-swap, redundant with 2)	3
70AQ0011++	Xeon E3-1245 v3 (4C/3.4GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS SATA	RAID 100 (onboard, 0/1/5/10)	No	Open	DVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ0012++	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS SATA	RAID 100 (onboard, 0/1/5/10)	No	Open	DVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ0013++	Xeon E3-1275 v3 (4C/3.5GHz/ 8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	4x3.5" HS SATA/SAS	RAID 700+Battery (discrete, 0/1/5/6/10/50/60)	No	Open	DVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ0014++	Xeon E3-1245 v3 (4C/3.4GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS SATA/SAS	RAID 500 (discrete, 0/1/10)	No	Open	DVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ0015++	Xeon E3-1245 v3 (4C/3.4GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS SATA	RAID 100 (onboard, 0/1/5/10)	No	Open	DVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	1

1. Model in italics shows that this is a Global Model. 2. HS = Hot-swap, DC = Direct cable, non-hot swap
Country Code "++": WE models listed above might not be available in all WE countries

● ***For detailed ThinkServer TS440 platform specifications, please see ThinkServer TS440 Platform Specifications sheet***

Systems management	• Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors) • EasyStartup • EasyUpdate
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated Intel HD Graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*
Graphics	• Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see ***Rear ports*** section) • Supports optional discrete NVIDIA NVS 300 adapter, PCIe x1, 512MB
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Discreted SATA/ SAS controller (optional)	Supports the following: • ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support; optional upgrade key for ThinkServer RAID 500 adapter, add RAID 5, 50 support • ThinkServer RAID 700 adapter (LSI SAS 9260-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support; optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter *Notes:* *RAID 50 and 60 are supported on 8 hard drive bays models only*
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter (2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 450 watts, universal, 80 PLUS® Platinum qualified • Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS440 Platform Specifications* sheet

Optical Bays

- Two 5.25" optical bays for all models

(Up to one optical on onboard SATA controller models)

Hard Drive Bays

- Four 3.5" hard drive bays, no hot-swap, direct cable (4x3.5" DC)
- Four 3.5" hot-swap hard drive bays (4x3.5" HS)
- Eight 3.5" hot-swap hard drive bays (8x3.5" HS)
- Eight 2.5" hot-swap hard drive bays (8x2.5" HS)

8 x 2.5" HS

4 x 3.5" HS

8 x 3.5" HS

Mechanical

- Tower, business black color, metal case
- W x Hx D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm
- 61.7 lb (28kg) max configuration
- Rack-mountable to 5U (via optional Tower to Rack Shelf Conversion Kit, not included in standard model)
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Administrator password
- User password
- Front panel key lock
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS440 (70AQ) - TopSeller (December 2013)

Product Specifications Reference (PSREF)

Type-model[1]	Processor	Memory type	Memory DIMMs	Graphics	Disk Bays[2]	RAID controller	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Windows Server 2012 Preloaded	Power Supply	Base on-site warranty (-year)
70AQ000C++	Xeon E3-1245 v3 (4C/3.4GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	8xHS SATA/SAS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000D++	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	8xHS SATA/SAS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000X++	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	8xHS SATA/SAS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	1
70AQ000Y++	Xeon E3-1245 v3 (4C/3.4GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	8xHS SATA/SAS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	1

1. Model in italics shows that this is a Global Model. 2. HS = Hot-swap, DC = Direct cable, non-hot swap
Country Code "++": WE models listed above might not be available in all WE countries

● ***For detailed ThinkServer TS440 platform specifications, please see ThinkServer TS440 Platform Specifications sheet***

Systems management	• Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors) • EasyStartup • EasyUpdate
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated Intel HD Graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*
Graphics	• Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see ***Rear ports*** section) • Supports optional discrete NVIDIA NVS 300 adapter, PCIe x1, 512MB
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Discreted SATA/ SAS controller (optional)	Supports the following: • ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support; optional upgrade key for ThinkServer RAID 500 adapter, add RAID 5, 50 support • ThinkServer RAID 700 adapter (LSI SAS 9260-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support; optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter *Notes:* *RAID 50 and 60 are supported on 8 hard drive bays models only*
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter (2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 450 watts, universal, 80 PLUS® Platinum qualified • Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS440 Platform Specifications* sheet

Optical Bays

- Two 5.25" optical bays for all models

(Up to one optical on onboard SATA controller models)

Hard Drive Bays

- Four 3.5" hard drive bays, no hot-swap, direct cable (4x3.5" DC)
- Four 3.5" hot-swap hard drive bays (4x3.5" HS)
- Eight 3.5" hot-swap hard drive bays (8x3.5" HS)
- Eight 2.5" hot-swap hard drive bays (8x2.5" HS)

8 x 2.5" HS

4 x 3.5" HS

8 x 3.5" HS

Mechanical

- Tower, business black color, metal case
- W x Hx D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm
- 61.7 lb (28kg) max configuration
- Rack-mountable to 5U (via optional Tower to Rack Shelf Conversion Kit, not included in standard model)
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Administrator password
- User password
- Front panel key lock
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS440 (70AN) - TopSeller (September 2013)

Product Specifications Reference (PSREF)

Type-model[1]	Processor	Memory type	Memory DIMMs	Graphics	Disk Bays[2]	RAID controller	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Windows Server 2012 Preloaded	Power Supply	Base on-site warranty (-year)
70AN0000++	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5 DC	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD±RW	No	No	No	Fixed 450W (no redundant)	1
70AN0003++	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5 DC	RAID 100 (onboard, 0/1/5/10)	RAID 1	2x500GB 3.5 SATA	1xDVD±RW	No	No	No	Fixed 450W (no redundant)	1
70AN0004++	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5 DC	RAID 100 (onboard, 0/1/5/10)	RAID 1	2x500GB 3.5 SATA	1xDVD±RW	No	No	No	Fixed 450W (no redundant)	3
70AN0005++	Xeon E3-1275 v3 (4C/3.5GHz/ 8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	4x3.5 DC	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD±RW	No	No	No	Fixed 450W (no redundant)	3
70AN0006++	Xeon E3-1275 v3 (4C/3.5GHz/ 8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	4x3.5 DC	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD±RW	No	No	No	Fixed 450W (no redundant)	1

1. Model in italics shows that this is a Global Model. 2. HS = Hot-swap, DC = Direct cable, non-hot swap
Country Code "++": WE models listed above might not be available in all WE countries

- ***For detailed ThinkServer TS440 platform specifications, please see ThinkServer TS440 Platform Specifications sheet***

Systems management	• Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors) • EasyStartup • EasyUpdate
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated Intel HD Graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*
Graphics	• Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see ***Rear ports*** section) • Supports optional discrete NVIDIA NVS 300 adapter, PCIe x1, 512MB
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Discreted SATA/ SAS controller (optional)	Supports the following: • ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support; optional upgrade key for ThinkServer RAID 500 adapter, add RAID 5, 50 support • ThinkServer RAID 700 adapter (LSI SAS 9260-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support; optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter *Notes:* *RAID 50 and 60 are supported on 8 hard drive bays models only*
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter (2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 450 watts, universal, 80 PLUS® Platinum qualified • Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS440 Platform Specifications* sheet

Optical Bays

- Two 5.25" optical bays for all models

(Up to one optical on onboard SATA controller models)

Hard Drive Bays

- Four 3.5" hard drive bays, no hot-swap, direct cable (4x3.5" DC)
- Four 3.5" hot-swap hard drive bays (4x3.5" HS)
- Eight 3.5" hot-swap hard drive bays (8x3.5" HS)
- Eight 2.5" hot-swap hard drive bays (8x2.5" HS)

8 x 2.5" HS

4 x 3.5" HS

8 x 3.5" HS

Mechanical

- Tower, business black color, metal case
- W x Hx D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm
- 61.7 lb (28kg) max configuration
- Rack-mountable to 5U (via optional Tower to Rack Shelf Conversion Kit, not included in standard model)
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Administrator password
- User password
- Front panel key lock
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS440 (70AN) - TopSeller (November 2013)

Product Specifications Reference (PSREF)

Type-model[1]	Processor	Memory type	Memory DIMMs	Graphics	Disk Bays[2]	RAID controller	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Windows Server 2012 Preloaded	Power Supply	Base on-site warranty (-year)
70AN0007++	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" DC SATA	RAID 100 (onboard, 0/1/5/10)	No	Open	DVD±RW	No	No	No	Fixed 450W (non-hot swap, no redundant)	1
70AN0008++	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" DC SATA	RAID 100 (onboard, 0/1/5/10)	1	2x500GB 3.5" SATA	DVD±RW	No	No	No	Fixed 450W (non-hot swap, no redundant)	1
70AN0009++	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" DC SATA	RAID 100 (onboard, 0/1/5/10)	1	2x500GB 3.5" SATA	DVD±RW	No	No	No	Fixed 450W (non-hot swap, no redundant)	3
70AN000A++	Xeon E3-1275 v3 (4C/3.5GHz/ 8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	4x3.5" DC SATA	RAID 100 (onboard, 0/1/5/10)	No	Open	DVD±RW	No	No	No	Fixed 450W (non-hot swap, no redundant)	3
70AN000B++	Xeon E3-1275 v3 (4C/3.5GHz/ 8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	4x3.5" DC SATA	RAID 100 (onboard, 0/1/5/10)	No	Open	DVD±RW	No	No	No	Fixed 450W (non-hot swap, no redundant)	1

1. Model in italics shows that this is a Global Model. 2. HS = Hot-swap, DC = Direct cable, non-hot swap
Country Code "++": WE models listed above might not be available in all WE countries

- ***For detailed ThinkServer TS440 platform specifications, please see ThinkServer TS440 Platform Specifications sheet***

Systems management	• Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors) • EasyStartup • EasyUpdate
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated Intel HD Graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*
Graphics	• Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see ***Rear ports*** section) • Supports optional discrete NVIDIA NVS 300 adapter, PCIe x1, 512MB
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Discreted SATA/ SAS controller (optional)	Supports the following: • ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support; optional upgrade key for ThinkServer RAID 500 adapter, add RAID 5, 50 support • ThinkServer RAID 700 adapter (LSI SAS 9260-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support; optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter *Notes:* *RAID 50 and 60 are supported on 8 hard drive bays models only*
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter (2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 450 watts, universal, 80 PLUS® Platinum qualified • Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS440 Platform Specifications* sheet

Optical Bays

- Two 5.25" optical bays for all models

(Up to one optical on onboard SATA controller models)

Hard Drive Bays

- Four 3.5" hard drive bays, no hot-swap, direct cable (4x3.5" DC)
- Four 3.5" hot-swap hard drive bays (4x3.5" HS)
- Eight 3.5" hot-swap hard drive bays (8x3.5" HS)
- Eight 2.5" hot-swap hard drive bays (8x2.5" HS)

8 x 2.5" HS

4 x 3.5" HS

8 x 3.5" HS

Mechanical

- Tower, business black color, metal case
- W x Hx D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm
- 61.7 lb (28kg) max configuration
- Rack-mountable to 5U (via optional Tower to Rack Shelf Conversion Kit, not included in standard model)
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Administrator password
- User password
- Front panel key lock
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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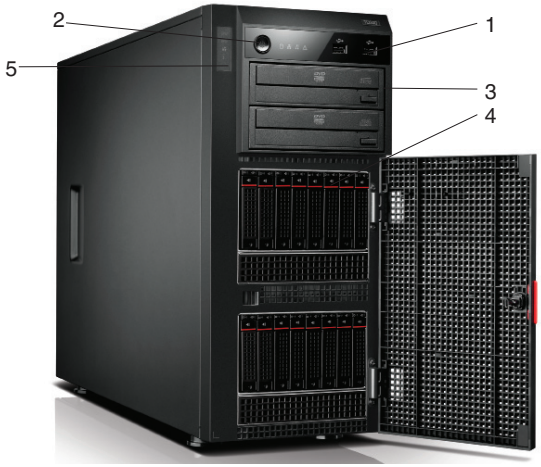
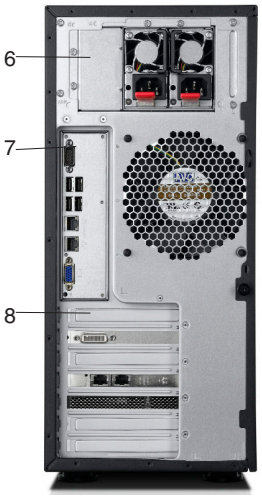
ThinkServer TD340 Overview



Front view

1. Front I/O: 2 USB 2.0
2. Power Button
3. Two 5.25" optical drive bays
4. 16 x 2.5" hot-swap drive bays
   (on selected models,
   also supports one of the following:
   4 x 3.5" direct cable bays,
   or 4 x 3.5" hot-swap bays,
   or 8 x 3.5" hot-swap bays,
   or 8 x 2.5" hot-swap bays)
5. Intelligent Diagnostics Module (optional)



Rear view

6. Hot-swap power supplies, 800W, 80 PLUS Gold
   (on selected models, also supports one fixed
   power supply, 625W, 80 PLUS Bronze)
7. Rear I/O: 4 USB 2.0
   1 Serial (9-pin)
   2 RJ-45 (one for dedicate/share
   management)
   1 VGA
8. Expansion slots*:
   1 PCIe 3.0 x8 (*near rear I/O, 2nd CPU is needed*)
   1 PCIe 3.0 x16
   1 PCIe 3.0 x8 (*2nd CPU is needed*)
   1 PCIe 3.0 x8 (*2nd CPU is needed*)
   1 PCIe 3.0 x8 (*x4 elec*)
   1 PCI
   * *Add-on ethernet adapter, RAID adapter,*
   and graphics adapter are optional

Internal

- Two LGA1356 sockets, supports up to two processors from Intel Xeon E5-2400 v2 and E5-2400 families
- 12 DIMM sockets, supports up to 192GB ECC LV RDIMM or 48GB ECC LV UDIMM memory
- Up to 16 x 2.5" hard drive bays

Mechanical

- Tower, business black color, metal case
- Rack-mountable to 5U
- W x H (without foot) x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm
- 57.32 lb (26kg) max configuration

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ThinkServer TD340 TopSeller Models - 70B7 (January 2014)

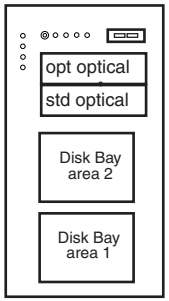
Type-model	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Optical	Discrete ethernet	Intelligent Diagnostics (IDM)	ThinkServer Management Module (TMM) Premium	Tower to Rack kit	Discrete Graphics	TPM	Preloaded OS	Power Supply	Warranty (-year, on-site)
70B7000Axx	Xeon E5-2407 v2 4C/2.4GHz/10MB/1333MHz	No	4GBx1 1600MHz LVRDIMM	4x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	No	No	1x800W Redundant	3
70B7000Gxx	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	4GBx1 1600MHz LVRDIMM	8x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	No	No	1x800W Redundant	3
70B7000Kxx	Xeon E5-2407 v2 4C/2.4GHz/10MB/1333MHz	No	4GBx1 1600MHz LVRDIMM	8x3.5" HS (SATA/SAS)	RAID500	Open	DVD±RW	No	IDM	No	No	No	No	No	1x800W Redundant	3
70B70017xx	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8x3.5" HS (SATA/SAS)	RAID710 +CacheVault	Open	DVD±RW	No	IDM	No	No	No	No	No	1x800W Redundant	3
70B7001Jxx	Xeon E5-2403 v2 4C/1.8GHz/10MB/1333MHz	No	4GBx1 1600MHz LVRDIMM	8x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	No	No	1x800W Redundant	1
70B7001Lxx	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	4GBx1 1600MHz LVRDIMM	8x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	No	No	1x800W Redundant	1
70B7002Axx	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8x2.5" HS (SATA/SAS)	RAID710 +CacheVault	Open	DVD±RW	No	IDM	No	No	No	No	No	1x800W Redundant	1
70B7002Fxx	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8x2.5" HS (SATA/SAS)	RAID700	Open	DVD±RW	No	IDM	TMM Premium	No	No	No	No	2x800W Redundant	3

- ***For detailed platform specifications, please see ThinkServer TD340 Platform Specifications sheets***
- ***For optional configurations of ThinkServer TD340, please see ThinkServer TD340 Optional Configurations sheets***
- ***For ThinkServer TD340 operating system and virtualization supportability, please see ThinkServer TD340 Operating System and Virtualization Supportability Matrix sheets***
- ***For Lenovo services upgrade options for ThinkServer TD340, please see ThinkServer TD340 Services Upgrade Options sheets***

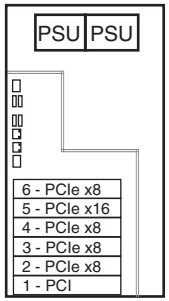
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory capacity	Up to **192GB** DDR3 LV RDIMM (16GB x 12), or up to **48GB** DDR3 LV UDIMM (4GB x 12)
Memory protection	ECC, memory mirroring, memory sparing
RAID support	Supports one of the following, depending on models: RAID 100: RAID 0, 1, 10 standard, optional upgrade key for RAID 5 RAID 300: RAID 0, 1, 10 standard, optional upgrade key for RAID 5 RAID 500: RAID 0, 1, 10 standard, optional upgrade key for RAID 5, 50 RAID 700: RAID 0, 1, 10, 5, 50, 6, 60 standard, 512MB cache, optional intelligent Battery Backup Unit RAID 710: RAID 0, 1, 10, 5, 50, 6, 60 standard, 1GB cache, optional CacheVault flash cache with super capacitor/CacheCade Pro 2.0/FastPath key **RAID 50, 60 are functional on 8 or 16 disk bay models only, RAID100 supports SATA drives only*
Optical drive (optional)	Supports two half-height 5.25" optical bays, up to two optical drives
Onboard network	Two Gigabit Ethernet port via two Intel 82574L, either port can work as dedicate/share management (via BIOS setting)
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) on selected models, IDM LED lights indicate failing component category
Systems management (TMM Premium is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional **ThinkServer Management Module Premium** for iKVM functions • Front control panel LEDs shows the status of power, hard drive activity, network, system • ThinkServer EasyStartup/EasyManage/EasyUpdate
Power supply	Supports one of the follwing, depending on models: • One fixed 625 watts, universal, 80 PLUS Bronze qualified • Up to two redundant 800 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) on selected models

Environmental certifications	• **Energy Star Server 2.0** qualified for models with 800 watts hot-swap PSU • **Energy Star Server 1.1** qualified for models with 625 watts fixed PSU • RoHS-compliant

Front



Rear***



*** Some models: one 625W fixed power supply

Mechanical

- Tower, rack-mountable to 5U via optional conversion kit *(Conversion kit is not included in model)*
- 7.68" W x 23.4" D x 16.9" H *(without foot)*
- 195mm W x 595mm D x 430mm H *(without foot)*
- 57.3 lb (26kg) max configuration

Disk bay Configurations

Supports one of the following, depending on models:
- 4 x 3.5" non-hot swap SATA disk bays *(uses Disk bay area 1)*
- 4 x 3.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1)*
- 8 x 3.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1 and 2)*
- 8 x 2.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1)*
- 16 x 2.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1 and 2)*

Expansion Slots

Up to six expansion slots**:
Slot 1: half-length, full-height, 32-bit PCI 2.3
Slot 2: half-length, full-height, PCIe 3.0 x8 (*x4 elec*)
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: half-length, full-height, PCIe 3.0 x8
Slot 5: half-length, full-height, PCIe 3.0 x16
Slot 6: half-length, full-height, PCIe 3.0 x8 (*near CPU*)

*** Single processor models: Slot 1, 2, 5 are functional*
Dual processor models: All six slot are functional

Ports

Front ports:	Two USB 2.0
Rear ports:	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one for dedicate/share mgmt), one analog VGA DB-15 connector
Internal USB:	One internal USB port (Type A)

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ThinkServer TD340 TopSeller Models - 70B5 (January 2014)

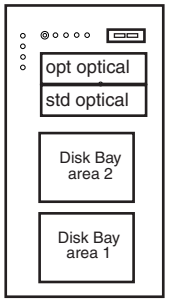
Type-model	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Optical	Discrete ethernet	Intelligent Diagnostics (IDM)	ThinkServer Management Module (TMM) Premium	Tower to Rack kit	Discrete Graphics	TPM	Preloaded OS	Power Supply	Warranty (-year, on-site)
70B50007xx	Xeon E5-2403 v2 4C/1.8GHz/10MB/1333MHz	No	4GBx1 1600MHz LVUDIMM	4x3.5" DC (SATA)	RAID100 +Upgrade	Open	DVD±RW	No	IDM	No	No	No	No	No	625W fixed	3
70B5000Cxx	Xeon E5-2403 v2 4C/1.8GHz/10MB/1333MHz	No	4GBx1 1600MHz LVRDIMM	4x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	No	No	625W fixed	3

- ***For detailed platform specifications, please see ThinkServer TD340 Platform Specifications sheets***
- ***For optional configurations of ThinkServer TD340, please see ThinkServer TD340 Optional Configurations sheets***
- ***For ThinkServer TD340 operating system and virtualization supportability, please see ThinkServer TD340 Operating System and Virtualization Supportability Matrix sheets***
- ***For Lenovo services upgrade options for ThinkServer TD340, please see ThinkServer TD340 Services Upgrade Options sheets***

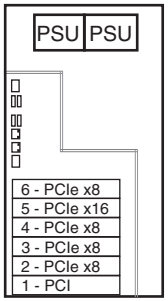
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory capacity	Up to **192GB** DDR3 LV RDIMM (16GB x 12), or up to **48GB** DDR3 LV UDIMM (4GB x 12)
Memory protection	ECC, memory mirroring, memory sparing
RAID support	Supports one of the following, depending on models: RAID 100: RAID 0, 1, 10 standard, optional upgrade key for RAID 5 RAID 300: RAID 0, 1, 10 standard, optional upgrade key for RAID 5 RAID 500: RAID 0, 1, 10 standard, optional upgrade key for RAID 5, 50 RAID 700: RAID 0, 1, 10, 5, 50, 6, 60 standard, 512MB cache, optional intelligent Battery Backup Unit RAID 710: RAID 0, 1, 10, 5, 50, 6, 60 standard, 1GB cache, optional CacheVault flash cache with super capacitor/CacheCade Pro 2.0/FastPath key **RAID 50, 60 are functional on 8 or 16 disk bay models only, RAID100 supports SATA drives only*
Optical drive (optional)	Supports two half-height 5.25" optical bays, up to two optical drives
Onboard network	Two Gigabit Ethernet port via two Intel 82574L, either port can work as dedicate/share management (via BIOS setting)
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) on selected models, IDM LED lights indicate failing component category
Systems management (TMM Premium is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional **ThinkServer Management Module Premium** for iKVM functions • Front control panel LEDs shows the status of power, hard drive activity, network, system • ThinkServer EasyStartup/EasyManage/EasyUpdate
Power supply	Supports one of the follwing, depending on models: • One fixed 625 watts, universal, 80 PLUS Bronze qualified • Up to two redundant 800 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) on selected models

Environmental certifications	• **Energy Star Server 2.0** qualified for models with 800 watts hot-swap PSU • **Energy Star Server 1.1** qualified for models with 625 watts fixed PSU • RoHS-compliant

Front



Rear***



*** Some models: one 625W fixed power supply

Mechanical

- Tower, rack-mountable to 5U via optional conversion kit *(Conversion kit is not included in model)*
- 7.68" W x 23.4" D x 16.9" H *(without foot)*
- 195mm W x 595mm D x 430mm H *(without foot)*
- 57.3 lb (26kg) max configuration

Disk bay Configurations

Supports one of the following, depending on models:
- 4 x 3.5" non-hot swap SATA disk bays *(uses Disk bay area 1)*
- 4 x 3.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1)*
- 8 x 3.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1 and 2)*
- 8 x 2.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1)*
- 16 x 2.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1 and 2)*

Expansion Slots

Up to six expansion slots**:
Slot 1: half-length, full-height, 32-bit PCI 2.3
Slot 2: half-length, full-height, PCIe 3.0 x8 (*x4 elec*)
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: half-length, full-height, PCIe 3.0 x8
Slot 5: half-length, full-height, PCIe 3.0 x16
Slot 6: half-length, full-height, PCIe 3.0 x8 (*near CPU*)

*** Single processor models: Slot 1, 2, 5 are functional*
Dual processor models: All six slot are functional

Ports

Front ports:	Two USB 2.0
Rear ports:	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one for dedicate/share mgmt), one analog VGA DB-15 connector
Internal USB:	One internal USB port (Type A)

See footnotes for more detailed information
Model(s) announced January 21, 2014

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ThinkServer TD340 Platform Systems Specifications - I of II

<table>
<tr><th>Components</th><th>Specifications</th></tr>
<tr><td>Mechanical</td><td>• Tower, rack-mountable to 5U via optional conversion kit
• 7.68" W x 23.4" D x 16.9" H (without foot)
• 195mm W x 595mm D x 430mm H (without foot)
• 57.3 lb (26kg) max configuration</td></tr>
<tr><td>Chipset</td><td>Intel C606 Chipset</td></tr>
<tr><td>Processors</td><td>Two LGA1356 sockets, supports up to two processors from Intel Xeon E5-2400 v2 or Xeon E5-2400 families, the following processor options are supported:
<table>
<tr><th rowspan="2">Processor Number</th><th colspan="8">Processors Specifications*</th><th rowspan="2">Part Number</th></tr>
<tr><th># of Cores</th><th># of Threads</th><th>Clock Speed</th><th>Max Turbo Frequency</th><th>Cache</th><th>QPI Speed</th><th>Max TDP</th><th>Memory Speed</th></tr>
<tr><td colspan="10">Intel Xeon E5-2400 v2 Series</td></tr>
<tr><td>Xeon E5-2470 v2</td><td>10</td><td>20</td><td>2.4 GHz</td><td>3.2 GHz</td><td>25MB</td><td>8 GT/s</td><td>95W</td><td>DDR3-1600</td><td>0C19561</td></tr>
<tr><td>Xeon E5-2450L v2</td><td>10</td><td>20</td><td>1.7 GHz</td><td>2.1 GHz</td><td>25MB</td><td>7.2 GT/s</td><td>60W</td><td>DDR3-1600</td><td>0C19568</td></tr>
<tr><td>Xeon E5-2450 v2</td><td>8</td><td>16</td><td>2.5 GHz</td><td>3.3 GHz</td><td>20MB</td><td>8 GT/s</td><td>95W</td><td>DDR3-1600</td><td>0C19562</td></tr>
<tr><td>Xeon E5-2440 v2</td><td>8</td><td>16</td><td>1.9 GHz</td><td>2.4 GHz</td><td>20MB</td><td>7.2 GT/s</td><td>95W</td><td>DDR3-1600</td><td>0C19563</td></tr>
<tr><td>Xeon E5-2430L v2</td><td>6</td><td>12</td><td>2.4 GHz</td><td>2.8 GHz</td><td>15MB</td><td>7.2 GT/s</td><td>60W</td><td>DDR3-1600</td><td>0C19569</td></tr>
<tr><td>Xeon E5-2430 v2</td><td>6</td><td>12</td><td>2.5 GHz</td><td>3 GHz</td><td>15MB</td><td>7.2 GT/s</td><td>80W</td><td>DDR3-1600</td><td>0C19564</td></tr>
<tr><td>Xeon E5-2420 v2</td><td>6</td><td>12</td><td>2.2 GHz</td><td>2.7 GHz</td><td>15MB</td><td>7.2 GT/s</td><td>80W</td><td>DDR3-1600</td><td>0C19565</td></tr>
<tr><td>Xeon E5-2407 v2</td><td>4</td><td>4</td><td>2.4 GHz</td><td>2.4 GHz</td><td>10MB</td><td>6.4 GT/s</td><td>80W</td><td>DDR3-1333</td><td>0C19566</td></tr>
<tr><td>Xeon E5-2403 v2</td><td>4</td><td>4</td><td>1.8 GHz</td><td>1.8 GHz</td><td>10MB</td><td>6.4 GT/s</td><td>80W</td><td>DDR3-1333</td><td>0C19567</td></tr>
<tr><td colspan="10">Intel Xeon E5-2400 Series</td></tr>
<tr><td>Xeon E5-2420</td><td>6</td><td>12</td><td>1.9 GHz</td><td>2.4 GHz</td><td>15MB</td><td>7.2 GT/s</td><td>95 W</td><td>DDR3-1333</td><td>0A89456</td></tr>
</table>
Notes:
All processors specifications is provided by Intel and may be changed at any time without notice.
The information herein is provided “as-is”.
Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/</td></tr>
<tr><td>Memory type</td><td>1600MHz, LV UDIMM or LV RDIMM, DDR3, 3-channel per processor, 240-pin</td></tr>
<tr><td>Memory DIMMs</td><td>Twelve DIMM sockets, six DIMM sockets per processor</td></tr>
<tr><td>Memory capacity</td><td>Up to 192GB DDR3 LV RDIMM (16GB x 12) or up to 48GB DDR3 LV UDIMM (4GB x 12)</td></tr>
<tr><td>Memory protection</td><td>ECC, memory mirroring, memory sparing</td></tr>
<tr><td>Additional memory disclaimers</td><td>• Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs
• Maximum memory operating speed are 1333MT/s on LV UDIMM models
• Over six DIMMs requires dual processors
• Mixing of LV UDIMM or LV RDIMM is not supported</td></tr>
<tr><td>Disk bays configurations</td><td>Supports one of the following disk bay configurations:
4 x 3.5" non-hot swap disk bays, supports SATA non-hot swap hard drives
4 x 3.5" hot-swap Disk bays, supports SATA/SAS hot-swap hard drives or SSD drives
8 x 3.5" hot-swap Disk bays, supports SATA/SAS hot-swap hard drives or SSD drives
8 x 2.5" hot-swap Disk bays, supports SATA/SAS hot-swap hard drives or SSD drives
16 x 2.5" hot-swap Disk bays, supports SATA/SAS hot-swap hard drives or SSD drives</td></tr>
<tr><td>RAID support</td><td>
<table>
<tr><th>RAID adapter</th><th>Disk type</th><th>RAID support*</th><th>Cache</th><th>Transfer rates</th><th>Optional upgrades</th></tr>
<tr><td>RAID 100 (onboard)</td><td>SATA</td><td>0, 1, 10</td><td></td><td>6Gb/s</td><td>optional upgrade key, add RAID 5 support</td></tr>
<tr><td>RAID 300 (onboard)</td><td>SATA/SAS</td><td>0, 1, 10</td><td></td><td>6Gb/s</td><td>optional upgrade key, add RAID 5 support</td></tr>
<tr><td>RAID 500 (LSI 9240-8i)</td><td>SATA/SAS</td><td>0, 1, 10</td><td></td><td>6Gb/s</td><td>optional upgrade key, add RAID 5, 50 support</td></tr>
<tr><td>RAID 700 (LSI 9260-8i)</td><td>SATA/SAS</td><td>0, 1, 10, 5, 50, 6, 60</td><td>512MB</td><td>6Gb/s</td><td>optional intelligent Battery Backup Unit (iBBU08)</td></tr>
<tr><td>RAID 710 (LSI 9270CV-8i)</td><td>SATA/SAS</td><td>0, 1, 10, 5, 50, 6, 60</td><td>1GB</td><td>6Gb/s</td><td>• optional CacheVault (CV) flash cache with super capacitor
• optional CacheCade Pro 2.0
• optional FastPath key</td></tr>
</table>
*RAID 50, 60 are functional on 8 or 16 disk bay models only, RAID100 supports SATA drives only</td></tr>
<tr><td>Optical drive (optional)</td><td>Supports two half-height 5.25" optical bays, up to two optical drives</td></tr>
<tr><td>Onboard network</td><td>Two Gigabit Ethernet port via two Intel 82574L, either port can be set to dedicate/share management via BIOS</td></tr>
</table>

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ThinkServer TD340 Platform Systems Specifications - II of II

Components	Specifications	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one for dedicate/share mgmt), one analog VGA DB-15 connector	
Internal USB	One internal USB port (Type A)	
Expansion Slots	Up to six PCI-Express slots (only slot 1, 2, 5 are functional for single processor models): Slot 1: half-length, full-height, 32-bit PCI 2.3 Slot 2: half-length, full-height, PCIe 3.0 x8 (*x4 elec*) Slot 3: half-length, full-height, PCIe 3.0 x8 Slot 4: half-length, full-height, PCIe 3.0 x8 Slot 5: half-length, full-height, PCIe 3.0 x16 Slot 6: half-length, full-height, PCIe 3.0 x8 (*near CPU*)	
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on rear (*Maximum resolution: 1600x1200@60Hz).* Discrete NVIDIA NVS 300 graphics adapter is available on selected models	
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) on selected models, IDM LED lights indicate failing component category	
Systems management (TMM Premium is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional **ThinkServer Management Module** Premium for iKVM functions • Front control panel LEDs shows the status of power, hard drive activity, network, system • ThinkServer EasyStartup/EasyManage/EasyUpdate	
Security features (TPM is optional)	Power-on password/administrator password/ Trusted Platform Module (TCG 1.2-compliant, optional)	
Power supply	Supports one of the follwing, depending on models: • One fixed 625 watts, universal, 80 PLUS Bronze qualified • Up to two redundant 800 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies	
Safety, environment, and certifications	Environmental certifications	• **Energy Star Server 2.0** qualified for models with 800 watts hot-swap PSU • **Energy Star Server 1.1** qualified for models with 625 watts fixed PSU • RoHS-compliant
	EMC	FCC Class A, CSA, CE
	240VA	Supports
	Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
	Temperature - non operating (no package)	-10 °C to 60 °C
	Temperature - non operating (with package)	-40 °C to 60 °C
	Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)
	Humidity - operating	10%~80%, non-condensing
	Humidity - non operating (no package)	8%~90%, non-condensing
	Humidity - non operating (with package)	8%~90%, non-condensing
	Acoustic noise (idle/working mode)	

Category	System Configuration	
	Entry level	High-end
CPU	1 x CPU	2 x CPU
Optical Drive	1 DVD-ROM	1 DVD-ROM
Drive Bays	4 x 3.5“ direct cable	8 x 3.5“ hot-swap
HDD	2 x 500GB 3.5“ SATA	8 x 2TB 3.5" SAS
Memory	2GB x 1 (LV UDIMM)	8GB x 12 (LV RDIMM)
PSU	1 x 625 watts fixed	1 x 800 watts hot-swap
RAID	RAID 1	RAID 5
Expansion Adapters	No	1 x RAID 700 2 x Ethernet Adapters
Sound Pressure (operating)	37.0 dB(A)	42.0 dB(A)
Sound Pressure (idle)	35.0 dB(A)	38.0 dB(A)

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ThinkServer TD340 Optional Configurations

Partial list of accessories supported on ThinkServer TD340
ThinkServer Ready accessories are available through Lenovo Business Partners. Locate a Business Partner near you at: **bplocator.lenovo.com**

Option Number	Option Description
	Processors
0A89456	Intel Xeon E5-2420 Processor Option for ThinkServer TD340
0C19561	Intel Xeon E5-2470 v2 Processor Option for ThinkServer TD340
0C19562	Intel Xeon E5-2450 v2 Processor Option for ThinkServer TD340
0C19563	Intel Xeon E5-2440 v2 Processor Option for ThinkServer TD340
0C19564	Intel Xeon E5-2430 v2 Processor Option for ThinkServer TD340
0C19565	Intel Xeon E5-2420 v2 Processor Option for ThinkServer TD340
0C19566	Intel Xeon E5-2407 v2 Processor Option for ThinkServer TD340
0C19567	Intel Xeon E5-2403 v2 Processor Option for ThinkServer TD340
0C19568	Intel Xeon E5-2450L v2 Processor Option for ThinkServer TD340
0C19569	Intel Xeon E5-2430L v2 Processor Option for ThinkServer TD340
	Memory
0C19499	ThinkServer 4GB DDR3L-1600MHz (1Rx8) ECC UDIMM
0C19500	ThinkServer 8GB DDR3L-1600MHz (2Rx8) ECC UDIMM
0C19533	ThinkServer 4GB DDR3L-1600MHz (1Rx8) RDIMM
0C19534	ThinkServer 8GB DDR3L-1600MHz (2Rx8) RDIMM
0C19535	ThinkServer 16GB DDR3L-1600MHz (2Rx4) RDIMM
	Drives - 3.5"
	3.5" Cabled SATA Hard Drives
0C19501	ThinkServer 3.5” 500GB 7.2K Enterprise SATA 6Gbps Hard Drive
0C19502	ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hard Drive
0C19503	ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hard Drive
0C19504	ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hard Drive
0C19505	ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hard Drive
	3.5" Hot Swap SATA Hard Drives
0A89473	ThinkServer 500GB 3.5" 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
0A89474	ThinkServer 1TB 3.5" 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
0A89475	ThinkServer 2TB 3.5" 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
0A89477	ThinkServer 3TB 3.5" 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
0C19520	ThinkServer 4TB 3.5" 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
	3.5" Hot Swap 7.2K SAS Hard Drives
0C19530	ThinkServer 3.5" 1TB 7.2K SAS 6Gbps Hot Swap Hard Drive
0C19531	ThinkServer 3.5" 2TB 7.2K SAS 6Gbps Hot Swap Hard Drive
0C19532	ThinkServer 3.5" 3TB 7.2K SAS 6Gbps Hot Swap Hard Drive
	3.5" Hot Swap 15K SAS Hard Drives
67Y2616	ThinkServer 3.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive
4XB0F28644	ThinkServer 3.5" 600GB 15K SAS 6Gbps Hot Swap Hard Drive
	3.5" Hot Swap SATA Solid State Drives
0C19571	ThinkServer 2.5" 100GB MLC SATA Solid State Drive with 3.5" Kit
0C19572	ThinkServer 2.5" 200GB MLC SATA Solid State Drive with 3.5" Kit
0C19573	ThinkServer 2.5" 400GB MLC SATA Solid State Drive with 3.5" Kit
	Drives - 2.5"
	2.5" Hot Swap SATA Hard Drives
0C19495	ThinkServer 500GB 7.2K 2.5" Enterprise SATA 6Gbps Hot Swap Hard Drive
0C19496	ThinkServer 1TB 7.2K 2.5" Enterprise SATA 6Gbps Hot Swap Hard Drive
	2.5" Hot Swap 10K SAS Hard Drives
67Y2619	ThinkServer 300GB 2.5" 10K SAS 6Gbps Hot Swap Hard Drive
67Y2621	ThinkServer 600GB 2.5" 10K SAS 6Gbps Hot Swap Hard Drive
0A89409	ThinkServer 900GB 2.5" 10K SAS 6Gbps Hot Swap Hard Drive
	2.5" Hot Swap SATA Solid State Drives
0A89418	ThinkServer 2.5" 200GB MLC SATA Solid State Drive (HS)
0A89419	ThinkServer 2.5" 400GB MLC SATA Solid State Drive (HS)
0A89420	ThinkServer 2.5" 100GB MLC SATA Solid State Drive (HS)

Option Number	Option Description
	RAID
0A89422	ThinkServer RAID 300 Upgrade Key for Advanced RAID
0A89464	ThinkServer RAID 500 Adapter II
0A89407	ThinkServer RAID 500 Upgrade Key for Advanced RAID
0A89463	ThinkServer RAID 700 Adapter II
67Y2647	ThinkServer RAID 700 Battery
0C19489	ThinkServer RAID 710 Adapter
0C19490	ThinkServer RAID CacheVault Data Protection for RAID 710
0C19491	ThinkServer RAID FastPath Feature Upgrade Key for RAID 710
0C19492	ThinkServer RAID CacheCade Pro 2.0 Feature Upgrade Key for RAID 710
	Ethernet
0C19506	ThinkServer 1Gbps Ethernet I350-T2 Server Adapter
0C19507	ThinkServer 1Gbps Ethernet I350-T4 Server Adapter
0C19486	Lenovo 10Gbps Ethernet X520-DA2 Server Adapter (SPF+)
0C19487	Lenovo 10Gbps Ethernet X520-SR2 Server Adapter (Fibre)
0C19497	Lenovo 10Gbps Ethernet X540-T2 Server Adapter
0C19488	Lenovo 10Gbps Ethernet Fiber Module
	HBA
0C19476	ThinkServer LPe1250 Single Port 8Gb Fibre Channel HBA by Emulex
0C19478	ThinkServer LPe12002 Dual Port 8Gb Fibre Channel HBA by Emulex
0C19483	ThinkServer QLE8242-CU-CK Dual Port CNA by QLogic
0C19482	ThinkServer QLE2562 Dual Port 8Gb Fibre Channel HBA by QLogic
	Redundant Power Supply
4X20E54691	ThinkServer 800W Gold Hot Swap Redundant Power Supply for Tower
	Other
0C19515	ThinkServer Tower to Rack Shelf Conversion Kit
67Y2624	ThinkServer Management Controller Premium Upgrade
73P5220	Lenovo Preferred Pro Keyboard USB - US English 103P
06P4069	Lenovo Optical Mouse
	Microsoft Windows Server ROK
4XI0E51561	Windows Server 2012 R2 Standard ROK (2 CPU/2VMs)
4XI0E51562	Windows Server 2012 R2 Datacenter ROK (2 CPU)
4XI0E51563	Windows Server 2012 R2 Essentials ROK (1-2 CPU)
82972SM	Windows Server 2012 Standard ROK (2 CPU/2VMs)
82972DM	Windows Server 2012 Datacenter ROK (2 CPU)
82972EM	Windows Server 2012 Essentials ROK (1-2 CPU)

For more information on server accessories, please visit:
www.lenovo.com/support/accessories
www.lenovo.com/support/thinkserveraccessories
www.lenovo.com/support/security

Other accessories at **www.lenovo.com/accessories**

Accessories Guide pdf at **www.lenovo.com/accessoriesguide**

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ThinkServer TD340 Operating System and Virtualization Supportability Matrix

List of operating system and virtualization software supported on ThinkServer TD340

Operating System/Virtualization	Certified	Support ROK	Supports EasyStartup	Preloaded
Windows Server 2008 x86 Edition				
Windows Server 2008 Standard Edition (x86)			•	
Windows Server 2008 Enterprise Edition (x86)			•	
Windows Server 2008 Datacenter Edition (x86)			•	
Windows Server 2008 x64 Edition				
Windows Server 2008 Standard Edition (x64) (Include Hyper-v)	•		•	
Windows Server 2008 Enterprise Edition (x64) (Include Hyper-v)	•		•	
Windows Server 2008 Datacenter Edition (x64) (Include Hyper-v)	•		•	
Windows Server 2008 R2 (x64) with SP1				
Windows Server 2008 Standard Edition R2 with SP1(Include Hyper-v)	•	•	•	
Windows Server 2008 Enterprise Edition R2 with SP1(Include Hyper-v)	•	•	•	
Windows Server 2008 Datacenter Edition R2 with SP1(Include Hyper-v)	•	•	•	
Windows Small Business Server 2011				
Windows Small Business Server 2011 Essentials	•		•	
Windows Small Business Server 2011 Standard	•	•	•	
Windows Small Business Server Premium Add-On (including Hyper-V)	•	•	•	
Windows Server 2012				
Windows Server 2012 Standard (Include Hyper-v)	•	•	•	•
Windows Server 2012 Datacenter (Include Hyper-v)	•	•	•	•
Windows Server 2012 Essentials	•	•	•	•
Windows Server 2012 R2				
Windows Server 2012 R2 Standard (Include Hyper-v)	•	•	•	•
Windows Server 2012 R2 Datacenter (Include Hyper-v)	•	•	•	•
Windows Server 2012 R2 Essentials	•	•	•	•
Windows Server 2012 R2 Hyper-V	•		•	
SUSE Linux Enterprise Server x86				
SUSE Linux Enterprise Server 10 sp4 (32 bit)			•	
SUSE Linux Enterprise Server 11 sp2 (32 bit)	•		•	
SUSE Linux Enterprise Server x64				
SUSE Linux Enterprise Server 10 sp4 (64 bit)			•	
SUSE Linux Enterprise Server 11 sp2 (64 bit)	•		•	
RedHat Enterprise Linux Server (RHEL) x86				
RedHat RHEL 5.9 (32 bit)	•		•	
RedHat RHEL 5.10 (32 bit)	•		•	
RedHat RHEL 6.4 (32 bit)	•		•	
RedHat RHEL 6.5 (32 bit)	•		•	
RedHat Enterprise Linux Server x64				
RedHat RHEL 5.9 (64 bit)	•		•	
RedHat RHEL 5.10 (64 bit)	•		•	
RedHat RHEL 6.4 (64 bit)	•		•	
RedHat RHEL 6.5 (64 bit)	•		•	
VMware x64				
Vmware ESXi 5.1 U1	•		•	•
Vmware ESXi 5.5	•		•	•
Citrix				
Citrix XenServer 6.1	•		•	
Citrix XenServer 6.02	•		•	

Note:

- *For more information on ThinkServer operating system and virtualization software, please visit ThinkServer Software page: http://shop.lenovo.com/us/en/servers/thinkserver/server-software.html*
- *For ThinkServer operating system and virtualization software options, please visit ThinkServer OS and virtualization Options document: http://www.lenovo.com/images/products/server/pdfs/datasheets/ThinkServer_OS_&_Virtualization_Options_Datasheet.pdf*

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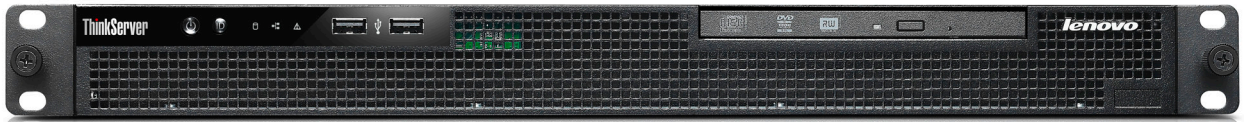
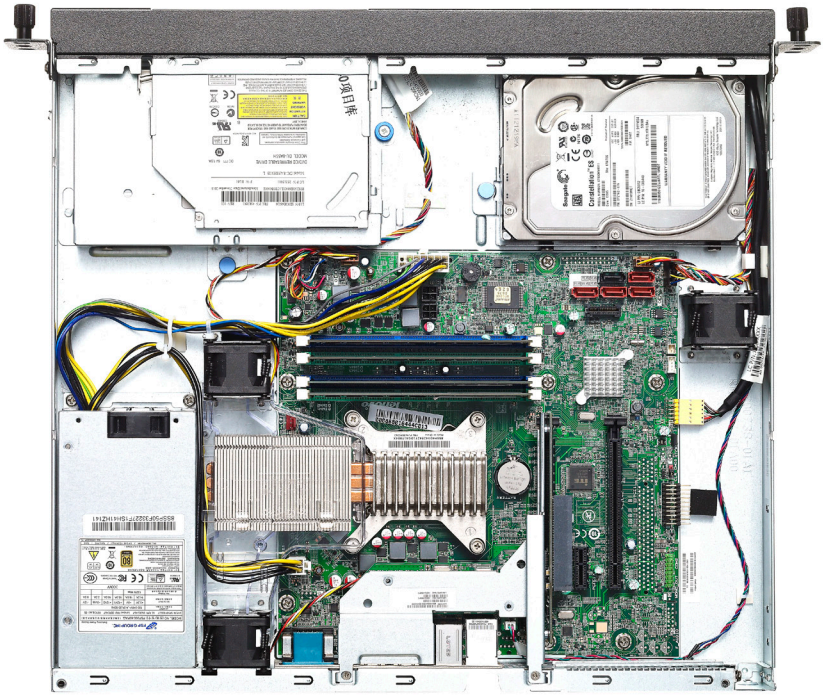
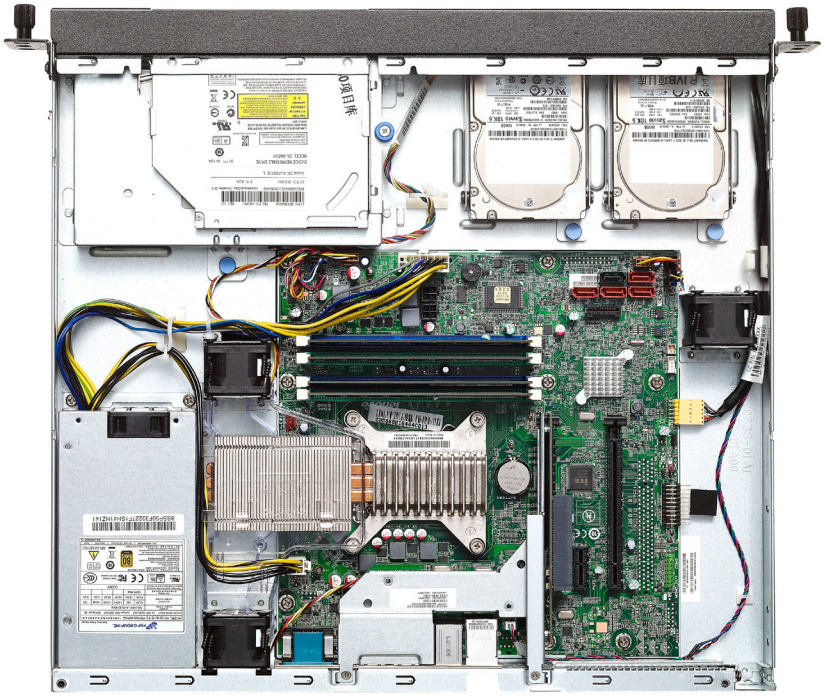




ThinkServer RS140 with 3.5" disk drive bay



ThinkServer RS140 with 2.5" disk drive bay

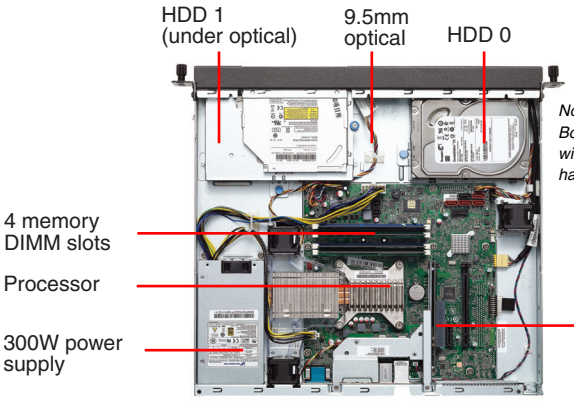
ThinkServer RS140 with 3.5" Disk Bay TopSeller Models - 70F9 (June 2014)

Type-model	Processor (Core/GHz/Cache/Memory speed/Intel HD Graphics)	Memory	RAID controller	Pre-conf RAID	Storage	Optical	Discrete ethernet	Rail kit	Preloaded OS	Base warranty (-year, on-site)
70F90003xx	Pentium G3220 2C/3GHz/3MB/1333MHz/Intel HD	1 x 4GB 1600MHz ECC	RAID 100	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F90004xx	Celeron G1830 2C/2.8GHz/2MB/1333MHz/Intel HD	1 x 4GB 1600MHz ECC	RAID 100	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F90005xx	Xeon E3-1225 v3 4C/3.2GHz/8MB/1600MHz/Intel HD P4600	2 x 4GB 1600MHz ECC	RAID 100	RAID 1	2 x 500GB 3.5" SATA 7.2K	DVD±RW 9.5mm	No	4-Post	No	1
70F90006xx	Xeon E3-1225 v3 4C/3.2GHz/8MB/1600MHz/Intel HD P4600	1 x 4GB 1600MHz ECC	RAID 100	RAID 1	2 x 500GB 3.5" SATA 7.2K	DVD±RW 9.5mm	No	4-Post	No	3
70F90007xx	Core i3-4130 2C/3.4GHz/3MB/1600MHz/Intel HD 4400	1 x 4GB 1600MHz ECC	RAID 100	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F90008xx	Xeon E3-1225 v3 4C/3.2GHz/8MB/1600MHz/Intel HD P4600	1 x 4GB 1600MHz ECC	RAID 100	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F90009xx	Xeon E3-1245 v3 4C/3.4GHz/8MB/1600MHz/Intel HD P4600	1 x 4GB 1600MHz ECC	RAID 100	No	Open	DVD±RW 9.5mm	No	4-Post	No	1

Components	Specification
Mechanical	• 1U rack with rail kit (2-post or 4-post, depending on models) • 16.9" W x 16.2" D x 1.71" H (with rack handles) • 430mm W x 411mm D x 43.5mm H (without foot) • 7.36 kg (16.2 lb) when fully configured
Chipset	Intel C226 Chipset, one LGA1150 socket for processor
Processor *(Xeon E3-12x6 v3 will be available until Sep 2014)*	Supports one of the following, depending on models: • One quad-core Xeon E3-12x5 v3 processor (up to 4C/3.6GHz/8MB/1600MHz) • One quad-core Xeon E3-12x6 v3 processor (up to 4C/3.7GHz/8MB/1600MHz) • One dual-core Core i3 processor (up to 2C/3.7GHz/4MB/1600MHz) • One dual-core Pentium processor (up to 2C/3.4GHz/3M/1600MHz) • One dual-core Celeron processor (up to 2C/2.9GHz/2MB/1333MHz)
Memory DIMMs	Four DDR3 DIMM slots, 2-channel (integrated memory controller in processor)
Memory type/capacity	1600MHz DDR3, UDIMM, ECC; 32GB max
RAID support	RAID 0, 1 with RAID 100, RAID 500, and RAID 700. Optional intelligent Battery Backup Unit (iBBU08) is available for the RAID 700. RAID 100 supports SATA 6.0Gb/s, RAID 500 and RAID 700 supports SATA 6.0Gb/s and SAS 6.0 Gb/s
Optical drive	Supports one 9.5mm optical drive on selected model
Disk drive bays	Up to two 3.5" hard drives, non-hot swap (see right)
Onboard network interfaces	Two Gigabit Ethernet ports by Intel I210 on riser card; one Gigabit Ethernet port by Intel I217, dedicate/share management
Expansion slot	One PCI-Express slot via riser card, half-length, full-height, PCIe 3.0 x8
Front ports	Two USB 2.0
Rear ports	Four USB 3.0, two USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one VGA, one DisplayPort
Power supply	One fixed 300 watts power supply, 80-Plus Gold certified, non-hot swap
Systems management	• Intel Active Management Technology 9.1 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3/12x6 v3 processors) • ThinkServer EasyStartup/EasyUpdate
Security features	Power-on password, administrator password, and TPM (TCG 1.2-compliant)
Graphics	Integrated Intel HD Graphcis in processor
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere 5.5 (ESXi)

Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
Temperature - non operating (no package)	-10 °C to 60 °C
Temperature - non operating (with package)	-40 °C to 70 °C
Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)
Humidity - operating	10%~80%, non-condensing
Humidity - non operating (no package)	10%~90%, non-condensing
Humidity - non operating (with package)	10%~90%, non-condensing

Components	Specification
Declared Noise Emissions	Operating: < 5.2 Bels, Idle: < 5.0 Bels (Xeon E3-1225 v3/2 x 1TB 3.5" SATA/4GB x 1)
Limited warranty	1-year or 3-year limited onsite service



Note:
Both disk drive bay and optical bay come without bracket, the bracket is included in hard drive and optical drive options

Core Options for ThinkServer RS140 with 3.5" disk bay (partial)

Option	Description
4XB0F28664	ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28665	ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28666	ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28667	ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28668	ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28669	ThinkServer 3.5" 1TB 7.2K SAS 6Gbps Hard Drive for RS-Series
4XB0F28670	ThinkServer 3.5" 2TB 7.2K SAS 6Gbps Hard Drive for RS-Series
4XB0F28671	ThinkServer 3.5" 3TB 7.2K SAS 6Gbps Hard Drive for RS-Series
4XF0F28767	ThinkServer 2-Post Rail kit for RS-Series
4XF0F28772	ThinkServer 4-Post Rail kit for RS-Series
0C19498	2GB PC3-12800E 1600MHz DDR3 ECC-UDIMM
0C19499	4GB PC3-12800E 1600MHz DDR3 ECC-UDIMM
0C19500	8GB PC3-12800E 1600MHz DDR3 ECC-UDIMM
0A89464	ThinkServer RAID 500 Adapter
0A89463	ThinkServer RAID 700 Adapter
67Y2647	ThinkServer RAID 700 Battery
4XB0F28645	ThinkServer 9280-8e 6G HBA
0C19506	Ethernet Server Adapter Card Dual Port - I350-T2
0C19507	Ethernet Server Adapter Card Quad Port - I350-T4
0C19511	PCI-E to 2 Serial port card

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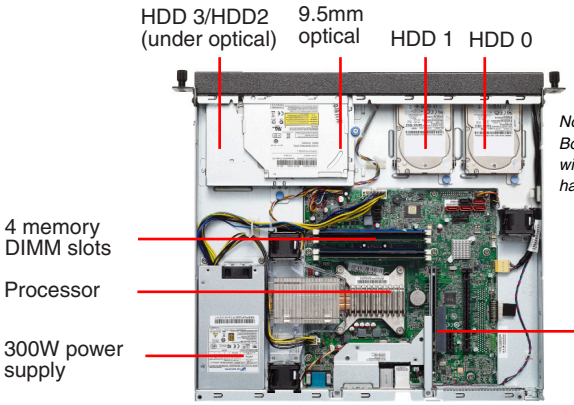
ThinkServer RS140 with 2.5" Disk Bay TopSeller Models - 70F3 (June 2014)

Type-model	Processor (Core/GHz/Cache/Memory speed/Intel HD Graphics)	Memory	RAID controller	Pre-conf RAID	Storage	Optical	Discrete ethernet	Rail kit	Preloaded OS	Base warranty (-year, on-site)
70F30002xx	Xeon E3-1245 v3 4C/3.4GHz/8MB/1600MHz/Intel HD P4600	1 x 8GB 1600MHz ECC	RAID 700 + Battery	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F30003xx	Xeon E3-1225 v3 4C/3.2GHz/8MB/1600MHz/Intel HD P4600	2 x 4GB 1600MHz ECC	RAID 100	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F30004xx	Xeon E3-1245 v3 4C/3.4GHz/8MB/1600MHz/Intel HD P4600	1 x 8GB 1600MHz ECC	RAID 100	No	Open	DVD±RW 9.5mm	No	4-Post	No	3
70F30005xx	Xeon E3-1245 v3 4C/3.4GHz/8MB/1600MHz/Intel HD P4600	1 x 8GB 1600MHz ECC	RAID 500	No	Open	DVD±RW 9.5mm	No	4-Post	No	3
70F3000Axx	Xeon E3-1245 v3 4C/3.4GHz/8MB/1600MHz/Intel HD P4600	1 x 4GB 1600MHz ECC	RAID 500	No	Open	DVD±RW 9.5mm	No	4-Post	No	1

Components	Specification
Mechanical	• 1U rack with rail kit (2-post or 4-post, depending on models) • 16.9" W x 16.2" D x 1.71" H (with rack handles) • 430mm W x 411mm D x 43.5mm H (without foot) • 6.85 kg (15.1 lb) when fully configured
Chipset	Intel C226 Chipset, one LGA1150 socket for processor
Processor *(Xeon E3-12x6 v3 will be available until Sep 2014)*	Supports one of the following, depending on models: • One quad-core Xeon E3-12x5 v3 processor (up to 4C/3.6GHz/8MB/1600MHz) • One quad-core Xeon E3-12x6 v3 processor (up to 4C/3.7GHz/8MB/1600MHz) • One dual-core Core i3 processor (up to 2C/3.7GHz/4MB/1600MHz) • One dual-core Pentium processor (up to 2C/3.4GHz/3M/1600MHz) • One dual-core Celeron processor (up to 2C/2.9GHz/2MB/1333MHz)
Memory DIMMs	Four DDR3 DIMM slots, 2-channel (integrated memory controller in processor)
Memory type/capacity	1600MHz DDR3, UDIMM, ECC; 32GB max
RAID support	RAID 0, 1, 5, 10 with RAID 100. RAID 0, 1, 10 with RAID 500. RAID 0, 1, 5, 6, 10 with RAID 700. Optional RAID 5 upgrade key is available for the RAID 500, Optional intelligent Battery Backup Unit (iBBU08) is available for the RAID 700. RAID 100 supports SATA 6.0Gb/s, RAID 500 and RAID 700 supports SATA 6.0Gb/s and SAS 6.0 Gb/s
Optical drive	Supports one 9.5mm optical drive on selected model
Disk drive bays	Up to four 2.5" hard drives, non-hot swap (see right)
Onboard network interfaces	Two Gigabit Ethernet ports by Intel I210 on riser card; one Gigabit Ethernet port by Intel I217, dedicate/share management
Expansion slot	One PCI-Express slot via riser card, half-length, full-height, PCIe 3.0 x8
Front ports	Two USB 2.0
Rear ports	Four USB 3.0, two USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one VGA, one DisplayPort
Power supply	One fixed 300 watts power supply, 80-Plus Gold certified, non-hot swap
Systems management	• Intel Active Management Technology 9.1 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3/12x6 v3 processors) • ThinkServer EasyStartup/EasyUpdate
Security features	Power-on password, administrator password, and TPM (TCG 1.2-compliant)
Graphics	Integrated Intel HD Graphcis in processor
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere 5.5 (ESXi)

Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
Temperature - non operating (no package)	-10 °C to 60 °C
Temperature - non operating (with package)	-40 °C to 70 °C
Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)
Humidity - operating	10%~80%, non-condensing
Humidity - non operating (no package)	10%~90%, non-condensing
Humidity - non operating (with package)	10%~90%, non-condensing

Components	Specification
Declared Noise Emissions	Operating: < 5.2 Bels, Idle: < 5.0 Bels (Xeon E3-1225 v3/2 x 1TB 3.5" SATA/4GB x 1)
Limited warranty	1-year or 3-year limited onsite service



Note:
Both disk drive bay and optical bay come without bracket, the bracket is included in hard drive, SSD drive and optical drive options

Core Options for ThinkServer RS140 with 2.5" disk bay (partial)

Option	Description
4XB0F28672	ThinkServer 2.5" 300GB 10K SAS 6Gbps Hard Drive for RS-Series
4XB0F28673	ThinkServer 2.5" 600GB 10K SAS 6Gbps Hard Drive for RS-Series
4XB0F28674	ThinkServer 2.5" 900GB 10K SAS 6Gbps Hard Drive for RS-Series
4XB0F28675	ThinkServer 2.5" 300GB 15K SAS 6Gbps Hard Drive for RS-Series
4XB0F28676	ThinkServer 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28677	ThinkServer 2.5" 1TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28678	ThinkServer 2.5" 120GB SATA 6Gbps Solid State Drive for RS-Series
4XB0F28679	ThinkServer 2.5" 240GB SATA 6Gbps Solid State Drive for RS-Series
4XB0F28680	ThinkServer 2.5" 480GB SATA 6Gbps Solid State Drive for RS-Series
4XF0F28767	ThinkServer 2 Post Rail kit for RS-Series
4XF0F28772	ThinkServer 4 Post Rail kit for RS-Series
0C19499	4GB PC3-12800E 1600MHz DDR3 ECC-UDIMM
0C19500	8GB PC3-12800E 1600MHz DDR3 ECC-UDIMM
0A89464	ThinkServer RAID 500 Adapter
0A89407	ThinkServer RAID 500 Upgrade Key for Advanced RAID
0A89463	ThinkServer RAID 700 Adapter
67Y2647	ThinkServer RAID 700 Battery
4XB0F28645	ThinkServer 9280-8e 6G HBA
0C19506	Ethernet Server Adapter Card Dual Port - I350-T2
0C19507	Ethernet Server Adapter Card Quad Port - I350-T4
0C19511	PCI-E to 2 Serial port card

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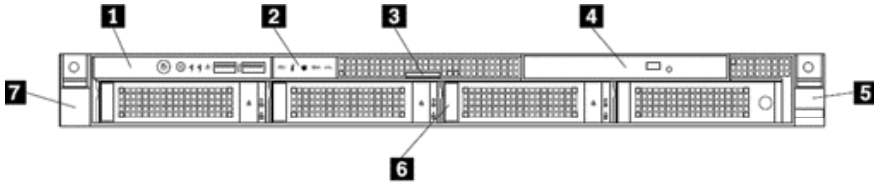
ThinkServer RD340 Overview

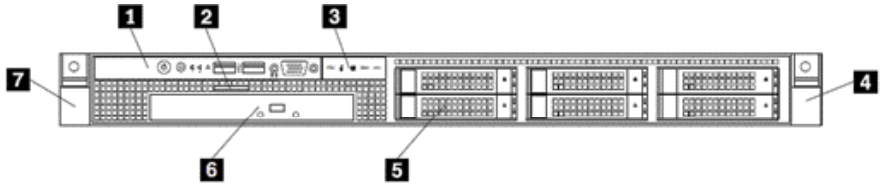
Front view - ThinkServer RD340 supports the following disk bay configurations:

ThinkServer RD340 with 4 x 3.5" Disk Drive Bays



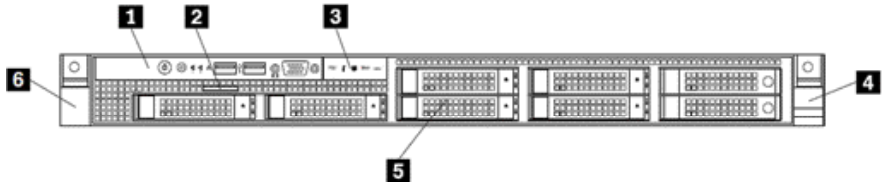
1. Front panel
   - Power Button with LED
   - ID button with LED
   - 2 Network interface status LEDs
   - System error LED
   - 2 USB 2.0
2. Intelligent Diagnostics Module (IDM basic only, optional)
3. Pull-out information card
4. Slim optical drive (optional)
5. Rack handle (right)
6. 4 x 3.5" hot-swap disk drive bays
7. Rack handle (left)

ThinkServer RD340 with 6 x 2.5" Disk Drive Bays



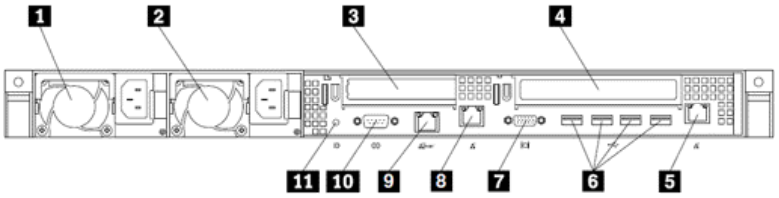
1. Front panel
   - Power Button with LED
   - ID button with LED
   - 2 Network interface status LEDs
   - System error LED
   - 2 USB 2.0
   - 1 VGA
2. Pull-out information card
3. Intelligent Diagnostics Module (IDM basic only, optional)
4. Rack handle (right)
5. 6 x 2.5" hot-swap disk drive bays
6. Slim optical drive (optional)
7. Rack handle (left)

ThinkServer RD340 with 8 x 2.5" Disk Drive Bays



1. Front panel
   - Power Button with LED
   - ID button with LED
   - 2 Network interface status LEDs
   - System error LED
   - 2 USB 2.0
   - 1 VGA
2. Pull-out information card
3. Intelligent Diagnostics Module (IDM basic only, optional)
4. Rack handle (right)
5. 8 x 2.5" hot-swap disk drive bays
6. Rack handle (left)

Rear view



1. Hot-swap redundant power supply 2 (optional)
2. Hot-swap redundant power supply 1
3. Low profile PCI Expreess slot by riser card 2
4. PCI Expreess slot by riser card 1
5. Ethernet 2 (RJ-45)
6. Four USB 2.0
7. VGA DB-15 connector
8. Ethernet 1 (RJ-45)
9. Dedicate/share management connector (RJ-45)
10. Serial
11. ID LED

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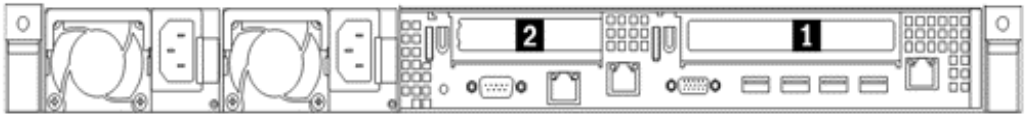
ThinkServer RD340 Platform Systems Specifications - I of II

<table>
<tr><th>Components</th><th>Specifications</th></tr>
<tr><td>Mechanical</td><td>• 1U rack with rail kit
• 19" W x 28.9" D x 1.72" H (with rack handles)
• 482.4mm W x 734mm D x 43.6mm H (with rack handles)
• 17kg (37.5 lb) when fully configured</td></tr>
<tr><td>Chipset</td><td>Intel C606 Chipset</td></tr>
<tr><td>Processors</td><td>Two LGA1356 sockets, supports up to two processors from Intel Xeon E5-2400 or Xeon E5-2400 v2 families,
up to 8 cores (E5-2400 series)/10 cores (E5-2400 v2 series), one QPI links up to 8.0GT/s,
up to 20MB (E5-2400 series)/25MB (E5-2400 v2 series) cache,
integrated 3-channel DDR3 memory controller up to 1600MHz</td></tr>
<tr><td>Memory type</td><td>1600MHz, LV RDIMM*, DDR3, 3-channel per processor, 240-pin
* By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting</td></tr>
<tr><td>Memory DIMMs</td><td>Twelve DIMM sockets, six DIMM sockets per processor</td></tr>
<tr><td>Memory protection</td><td>ECC, memory mirroring, memory sparing</td></tr>
<tr><td>Disk bays configurations</td><td>Supports one of the following configurations
• 4 x 3.5" disk bays + 1 x slim optical bay
• 6 x 2.5" disk bays + 1 x slim optical bay
• 8 x 2.5" disk bays</td></tr>
<tr><td>RAID support</td><td>
<table>
<tr><th>RAID adapter</th><th>RAID support</th><th>Cache</th><th>Transfer rates</th><th>Optional upgrades</th></tr>
<tr><td>RAID 300 (onboard)</td><td>0, 1, 10</td><td></td><td>6Gb/s</td><td>optional upgrade key, add RAID 5 support</td></tr>
<tr><td>RAID 500 (LSI 9240-8i)</td><td>0, 1, 10</td><td></td><td>6Gb/s</td><td>optional upgrade key, add RAID 5, 50 support</td></tr>
<tr><td>RAID 700 (LSI 9260-8i)</td><td>0, 1, 10, 5, 50, 6, 60</td><td>512MB</td><td>6Gb/s</td><td>optional intelligent Battery Backup Unit (iBBU08)</td></tr>
<tr><td>RAID 710 (LSI 9270CV-8i)</td><td>0, 1, 10, 5, 50, 6, 60</td><td>1GB</td><td>6Gb/s</td><td>• optional CacheVault (CV) flash cache with super capacitor
• optional CacheCade Pro 2.0
• optional FastPath key</td></tr>
</table>
</td></tr>
<tr><td>Optical drive (optional)</td><td>4 x 3.5"/6 x 2.5" models: one slim optical bay, supports one optional slim optical
8 x 2.5" models: none optical bay, optional external USB optical is needed</td></tr>
<tr><td>Onboard network</td><td>Two Gigabit Ethernet ports by Intel i350,
one Gigabit Ethernet port by Intel 82574L, dedicate/share management</td></tr>
<tr><td>Front ports</td><td>One analog VGA DB-15 connector (for 6 x 2.5"/8 x 2.5" models), two USB 2.0</td></tr>
<tr><td>Rear ports</td><td>Four USB 2.0, one serial (9-pin), two ethernet (RJ-45),
one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector</td></tr>
<tr><td>Expansion Slots</td><td> 

Two PCI-Express slots via two riser cards, riser card 1 for slot 1, riser card 2 for slot 2
Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8 (x4 elec)</td></tr>
<tr><td>Graphics</td><td>Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear;
Maximum resolution: 1920x1200@60Hz</td></tr>
<tr><td>Intelligent Diagnostics Module (optional)</td><td>Supports optional Intelligent Diagnostics Module (IDM) basic,
IDM basic LED lights indicate failing component category</td></tr>
<tr><td>Systems management (iKVM is optional)</td><td>• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions
• Front control panel LEDs shows the status of power, ID, network, system
• Lenovo SmartGrid Manager
• ThinkServer EasyStartup/EasyManage/EasyUpdate</td></tr>
<tr><td>Cooling fans</td><td>6 fans, non-hot swap, 5 + 1 redundant</td></tr>
<tr><td>Cable mgmt (opt)</td><td>Optional cable management arm on selected models</td></tr>
</table>

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ThinkServer RD340 Platform Systems Specifications - II of II

Components	Specifications	
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies	
Hot-swap parts	Disk drives, power supplies, and cooling fans	
Security features	Power-on password/administrator password/Trusted Platform Module (TCG 1.2-compliant)	
Safety, environment, and certifications	Environmental certifications	• **Energy Star Server 2.0** qualified • RoHS-compliant
	EMC	FCC Class A, CSA, CE
	240VA	Supports
	Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
	Temperature - non operating (no package)	-10 °C to 60 °C
	Temperature - non operating (with package)	-40 °C to 70 °C
	Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)
	Humidity - operating	8%~80%, non-condensing
	Humidity - non operating (no package)	8%~80%, non-condensing
	Humidity - non operating (with package)	8%~90%, non-condensing
	Acoustic noise (idle/working mode)	

	System Configuration	
Category	Entry level	High-end
CPU	1	2
Memory	4GB x 1	4GB x 12
Optical Drive	Slim optical	Slim optical
Drive Bays	4 x 3.5"	6 x 2.5"
RAID	RAID500	RAID500
HDD	2 x 500GB 3.5" SATA	6 x 300GB 2.5" SAS
PSU	550Wx1	550Wx2
Sound Pressure (operating)	45.28 dB(A)	44.74 dB(A)
Sound Pressure (idle)	45.28 dB(A)	44.95 dB(A)

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ThinkServer RD340 Optional Configurations - Processor and Memory

Rack kit	Included in models
Processor	The following processor options are available:

Processor Number	Processors Specifications*								Part Number
	# of Cores	# of Threads	Clock Speed	Max Turbo Frequency	Cache	QPI Speed	Max TDP	Memory Speed	
Intel Xeon E5-2400 v2 Series									
Xeon E5-2440 v2	8	16	1.9 GHz	2.4 GHz	20MB	7.2 GT/s	95W	DDR3-1600	0C19539
Xeon E5-2450 v2	8	16	2.5 GHz	3.3 GHz	20MB	8 GT/s	95W	DDR3-1600	0C19538
Xeon E5-2450L v2	10	20	1.7 GHz	2.1 GHz	25MB	7.2 GT/s	60W	DDR3-1600	0C19544
Xeon E5-2470 v2	10	20	2.4 GHz	3.2 GHz	25MB	8 GT/s	95W	DDR3-1600	0C19537
Xeon E5-2407 v2	4	4	2.4 GHz	2.4 GHz	10MB	6.4 GT/s	80W	DDR3-1333	0C19542
Xeon E5-2420 v2	6	12	2.2 GHz	2.7 GHz	15MB	7.2 GT/s	80W	DDR3-1600	0C19541
Xeon E5-2430 v2	6	12	2.5 GHz	3 GHz	15MB	7.2 GT/s	80W	DDR3-1600	0C19540
Xeon E5-2430L v2	6	12	2.4 GHz	2.8 GHz	15MB	7.2 GT/s	60W	DDR3-1600	0C19545
Xeon E5-2403 v2	4	4	1.8 GHz	1.8 GHz	10MB	6.4 GT/s	80W	DDR3-1333	0C19543
Intel Xeon E5-2600 v2 Series									
Xeon E5-2450L	8	16	1.8 GHz	2.3 GHz	20MB	8 GT/s	70 W	DDR3-1600	0A89450
Xeon E5-2450	8	16	2.1 GHz	2.9 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89444
Xeon E5-2440	6	12	2.4 GHz	2.9 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89445
Xeon E5-2430L	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	60 W	DDR3-1333	0A89451
Xeon E5-2407	4	4	2.2 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89448
Xeon E5-2403	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89449
Xeon E5-2430	6	12	2.2 GHz	2.7 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89446
Xeon E5-2420	6	12	1.9 GHz	2.4 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89447
Xeon E5-2470	8	16	2.3 GHz	3.1 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89443

Notes:
All processors specifications is provided by Intel and may be changed at any time without notice.
The information herein is provided "as-is".
Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/

Memory options

Memory options	Part Number
ThinkServer 4GB DDR3L-1600MHz (1RX8) RDIMM	0C19533
ThinkServer 8GB DDR3L-1600MHz (2RX8) RDIMM	0C19534
ThinkServer 16GB DDR3L-1600MHz (2RX4) RDIMM	0C19535

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ThinkServer RD340 Optional Configurations - Storage and RAID

Disk drive options for 3.5" disk bay models (8 x 3.5"/12 x 3.5")

Hot-swap disk drive options for 3.5" bay	Part Number
3.5" SATA Hard Drive	
ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89473
ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89474
ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89475
ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89477
ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19520
3.5" SAS Hard Drive	
ThinkServer 3.5" 1TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19530
ThinkServer 3.5" 2TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19531
ThinkServer 3.5" 3TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19532
ThinkServer 3.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	67Y2616
ThinkServer 3.5" 600GB 15K SAS 6Gbps Hot Swap Hard Drive	4XB0F28644
2.5" SSD for 3.5" disk bay	
ThinkServer 2.5" 100GB MLC SATA Solid State Drive to 3.5" Kit	0C19571
ThinkServer 2.5" 200GB MLC SATA Solid State Drive to 3.5" Kit	0C19572
ThinkServer 2.5" 400GB MLC SATA Solid State Drive to 3.5" Kit	0C19573

Disk drive options for 2.5" disk bay models (8 x 2.5"/16 x 2.5")

Hot-swap disk drive options for 2.5" bay	Part Number
2.5" SATA Hard Drive	
ThinkServer 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19495
ThinkServer 2.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19496
2.5" SAS Hard Drive	
ThinkServer 2.5" 300GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2619
ThinkServer 2.5" 600GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2621
ThinkServer 2.5" 900GB 10K SAS 6Gbps Hot Swap Hard Drive	0A89409
ThinkServer 2.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	0C19494
2.5" SSD	
ThinkServer 2.5" 100GB MLC SATA Solid State Drive	0A89420
ThinkServer 2.5" 200GB MLC SATA Solid State Drive	0A89418
ThinkServer 2.5" 400GB MLC SATA Solid State Drive	0A89419

RAID options

RAID controller and RAID upgrade options	Part Number
ThinkServer RAID 300 Upgrade Key for Advanced RAID	0A89422
ThinkServer RAID 500 Adapter II	0A89464
ThinkServer RAID 500 Upgrade Key for Advanced RAID	0A89407
ThinkServer RAID 700 Adapter II	0A89463
ThinkServer RAID 700 Battery	67Y2647
ThinkServer RAID 710 Adapter	0C19489
ThinkServer RAID Super Capacitor Module	0C19490
ThinkServer RAID FastPath Software Key	0C19491
ThinkServer RAID CacheCade Pro 2.0 Software Key	0C19492

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ThinkServer RD340 Optional Configurations - Network, System Management, Power Supply

Network and HBA options	Network and HBA options	Part Number
	ThinkServer 1Gbps Ethernet I350-T2 Server Adapter by Intel	0C19506
	ThinkServer 1Gbps Ethernet I350-T4 Server Adapter by Intel	0C19507
	Lenovo 10Gbps Ethernet X540-T2 Server Adapter by Intel	0C19497
	Lenovo 10Gbps Ethernet X520-DA2 Server Adapter by Intel	0C19486
	Lenovo 10Gbps Ethernet Fiber Module by Intel	0C19488
	Lenovo 10Gbps Ethernet X520-SR2 Server Adapter by Intel	0C19487
	ThinkServer QLE8242-CU-CK Dual Port CNA by QLogic	0C19483
	ThinkServer LPe1250 Single Port 8Gb Fibre Channel HBA by Emulex	0C19476
	ThinkServer LPe12002 Dual Port 8Gb Fibre Channel HBA by Emulex	0C19478
	ThinkServer QLE2562 Dual Port 8Gb Fibre Channel HBA by Qlogic	0C19482
Security options	Trusted Platform Module options	Part Number
	ThinkServer Trusted Platform Module	0A89428
Systems management options	System Management option for iKVM	Part Number
	ThinkServer Management Module Premium	67Y2624
	Cable Management option	Part Number
	ThinkServer Cable management Arm	0A89476
Power supply options	Power supply option	Part Number
	ThinkServer 550W Gold Hot Swap Redundant Power Supply	4X20E54689

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ThinkServer RD340 Operating System and Virtualization Supportability Matrix

List of operationg system and virtualization software supported on ThinkServer RD340

Operating System/Virtualization	Certified	Support ROK	Supports EasyStartup	Preloaded
Windows Server 2008 x86 Edition				
Windows Server 2008 Standard Edition (x86)			•	
Windows Server 2008 Enterprise Edition (x86)			•	
Windows Server 2008 Datacenter Edition (x86)			•	
Windows Server 2008 x64 Edition				
Windows Server 2008 Standard Edition (x64) (including Hyper-V)	•		•	
Windows Server 2008 Enterprise Edition (x64) (including Hyper-V)	•		•	
Windows Server 2008 Datacenter Edition (x64) (including Hyper-V)	•		•	
Windows Server 2008 R2 (x64) with SP1				
Windows Server 2008 Standard Edition R2 with SP1 (including Hyper-V)	•	•	•	
Windows Server 2008 Enterprise Edition R2 with SP1 (including Hyper-V)	•	•	•	
Windows Server 2008 Datacenter Edition R2 with SP1 (including Hyper-V)	•	•	•	
Windows Small Business Server 2011				
Windows Small Business Server 2011 Essentials	•		•	
Windows Small Business Server 2011 Standard	•	•	•	
Windows Small Business Server Premium Add-On (including Hyper-V)	•	•	•	
Windows Server 2012				
Windows Server 2012 Standard (including Hyper-V)	•	•	•	•
Windows Server 2012 Datacenter (including Hyper-V)	•	•	•	•
Windows Server 2012 Essentials	•	•	•	•
Windows Server 2012 Hyper-V	•		•	
Windows Server 2012 R2				
Windows Server 2012 R2 Standard (including Hyper-V)	•	•	•	•
Windows Server 2012 R2 Datacenter (including Hyper-V)	•	•	•	•
Windows Server 2012 R2 Essentials	•	•	•	•
Windows Server 2012 R2 Hyper-V	•		•	
SUSE LINUX Enterprise Server x86				
SUSE LINUX Enterprise Server 10 sp4			•	
SUSE LINUX Enterprise Server 11 sp2	•		•	
SUSE LINUX Enterprise Server 11 sp3	•		•	
SUSE LINUX Enterprise Server x64				
SUSE LINUX Enterprise Server 10 sp4			•	
SUSE LINUX Enterprise Server 11 sp2	•		•	
RedHat Enterprise Linux Server (RHEL) x86				
RHEL 5.9	•		•	
RHEL 5.10	•		•	
RHEL 6.4	•		•	
RHEL 6.5	•		•	
RedHat Enterprise Linux Server x64				
RHEL 5.9	•		•	
RHEL 5.10	•		•	
RHEL 6.4	•		•	
RHEL 6.5	•		•	
Vmware x64				
Vmware ESXi 5.1 U1	•		•	•
Vmware ESXi 5.5	•	•	•	•
Microsoft Hyper V				
Microsoft Hyper-V server 2008	•		•	
Microsoft Hyper-v server 2008 R2 SP1	•		•	
Citrix				
Citrix XenServer 6.1	•		•	
Citrix XenServer 6.0.2	•		•	

Note:

- *For more information on ThinkServer operating system and virtualization software, please visit ThinkServer Software page: http://shop.lenovo.com/us/en/servers/thinkserver/server-software.html*
- *For ThinkServer operating system and virtualization software options, please visit ThinkServer OS and virtualization Options document: http://www.lenovo.com/images/products/server/pdfs/datasheets/ThinkServer_OS_&_Virtualization_Options_Datasheet.pdf*

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ThinkServer RD340 (70AB) - TopSeller - January 2014

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AB000Axx	Xeon E5-2403 v2 4C/1.8GHz/10MB/1333MHz	No	4GBx1 1600MHz LVRDIMM	4x3.5" HS	RAID300	Open	DVD±RW	No	No	IPMI	No	1	No	No	3
70AB000Kxx	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4x3.5" HS	RAID300	Open	DVD±RW	No	No	IPMI	No	1	No	No	3
70AB000Sxx	Xeon E5-2430 v2 6C/2.5GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4x3.5" HS	RAID500	Open	DVD±RW	No	No	IPMI	No	1	No	No	3
70AB001Rxx	Xeon E5-2407 v2 4C/2.4GHz/10MB/1333MHz	No	8GBx1 1600MHz LVRDIMM	4x3.5" HS	RAID300	Open	DVD±RW	No	No	IPMI	No	1	No	No	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

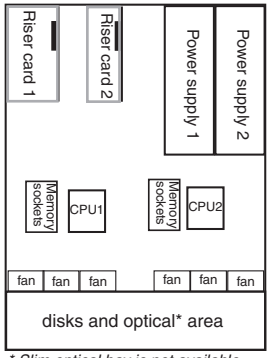
- ***For detailed platform specifications, please see ThinkServer RD340 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD340 Optional Configurations sheets***

Mechanical	• 1U rack with rail kit • 19" W x 28.9" D x 1.72" H (with rack handles) • 482.4mm W x 734mm D x 43.6mm H (with rack handles) • 17kg (37.5 lb) when fully configured
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory protection	ECC, memory mirroring, memory sparing
RAID support	See RAID support table below
Optical drive (optional)	4 x 3.5"/6 x 2.5" : one slim optical bay, supports one optional slim optical 8 x 2.5": none optical bay, optional external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) basic, IDM basic LED lights indicate failing component category
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	6 fans, non-hot swap, 5 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300 (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

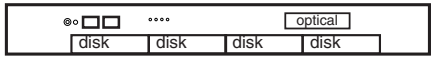
Top



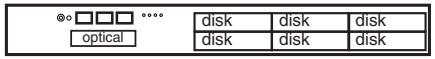
** Slim optical bay is not available on 8 x 2.5" models*

Front: Supports the following disk bay configurations:

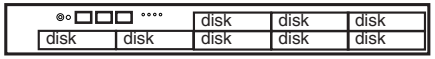
4 x 3.5"



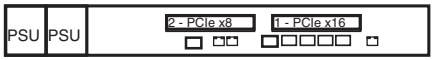
6 x 2.5"



8 x 2.5"



Rear



Expansion Slots:

Riser card 1 for slot 1, riser card 2 for slot 2
Slot 1: half-length, full-height, PCIe 3.0 x16
Slot 2: Low Profile, PCIe 3.0 x8 (x4 elec)

Front/rear Ports:

Front: 1 VGA (for 6 x 2.5"/8 x 2.5" models), 2 USB 2.0
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

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ThinkServer RD340 (70AC) - TopSeller - January 2014

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AC0005xx	Xeon E5-2407 v2 4C/2.4GHz/10MB/1333MHz	No	4GBx1 1600MHz LVRDIMM	6x2.5" HS	RAID300	Open	DVD±RW	No	No	IPMI	No	1	No	No	3
70AC000Cxx	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	6x2.5" HS	RAID500	Open	DVD±RW	No	No	IPMI	No	1	No	No	3
70AC000Dxx	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	6x2.5" HS	RAID500 +upgrade	Open	DVD±RW	No	No	IPMI	No	1	No	No	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

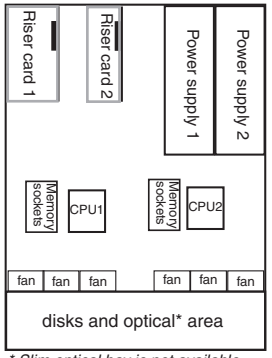
- ***For detailed platform specifications, please see ThinkServer RD340 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD340 Optional Configurations sheets***

Mechanical	• 1U rack with rail kit • 19" W x 28.9" D x 1.72" H (with rack handles) • 482.4mm W x 734mm D x 43.6mm H (with rack handles) • 17kg (37.5 lb) when fully configured
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory protection	ECC, memory mirroring, memory sparing
RAID support	(see table below)
Optical drive (optional)	4 x 3.5"/6 x 2.5" : one slim optical bay, supports one optional slim optical 8 x 2.5": none optical bay, optional external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) basic, IDM basic LED lights indicate failing component category
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	6 fans, non-hot swap, 5 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300 (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

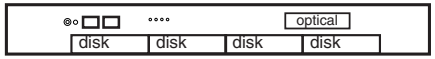
Top



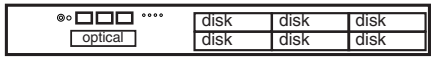
** Slim optical bay is not available on 8 x 2.5" models*

Front: Supports the following disk bay configurations:

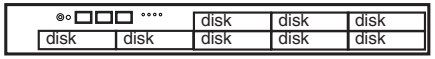
4 x 3.5"



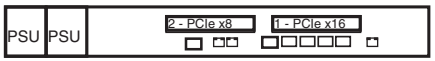
6 x 2.5"



8 x 2.5"



Rear



Expansion Slots:

Riser card 1 for slot 1, riser card 2 for slot 2
Slot 1: half-length, full-height, PCIe 3.0 x16
Slot 2: Low Profile, PCIe 3.0 x8 (x4 elec)

Front/rear Ports:

Front: 1 VGA (for 6 x 2.5"/8 x 2.5" models), 2 USB 2.0
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

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ThinkServer RD340 (70AD) - TopSeller - January 2014

Product Specifications Reference (PSREF)

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AD0007xx	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	4GBx1 1600MHz LVRDIMM	8x2.5" HS	RAID300	Open	N/A	No	No	IPMI	No	1	No	No	3
70AD000Qxx	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8x2.5" HS	RAID500 +upgrade	Open	N/A	No	No	IPMI	No	1	No	No	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

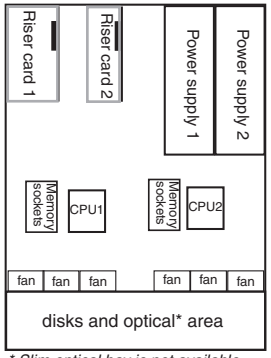
- ***For detailed platform specifications, please see ThinkServer RD340 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD340 Optional Configurations sheets***

Mechanical	• 1U rack with rail kit • 19" W x 28.9" D x 1.72" H (with rack handles) • 482.4mm W x 734mm D x 43.6mm H (with rack handles) • 17kg (37.5 lb) when fully configured
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory protection	ECC, memory mirroring, memory sparing
RAID support	(see table below)
Optical drive (optional)	4 x 3.5"/6 x 2.5" : one slim optical bay, supports one optional slim optical 8 x 2.5": none optical bay, optional external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) basic, IDM basic LED lights indicate failing component category
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	6 fans, non-hot swap, 5 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300 (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

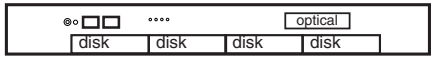
Top



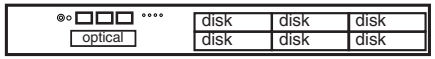
** Slim optical bay is not available on 8 x 2.5" models*

Front: Supports the following disk bay configurations:

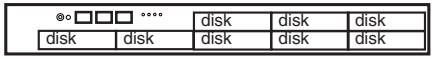
4 x 3.5"



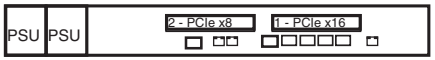
6 x 2.5"



8 x 2.5"



Rear



Expansion Slots:

Riser card 1 for slot 1, riser card 2 for slot 2
Slot 1: half-length, full-height, PCIe 3.0 x16
Slot 2: Low Profile, PCIe 3.0 x8 (x4 elec)

Front/rear Ports:

Front: 1 VGA (for 6 x 2.5"/8 x 2.5" models), 2 USB 2.0
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

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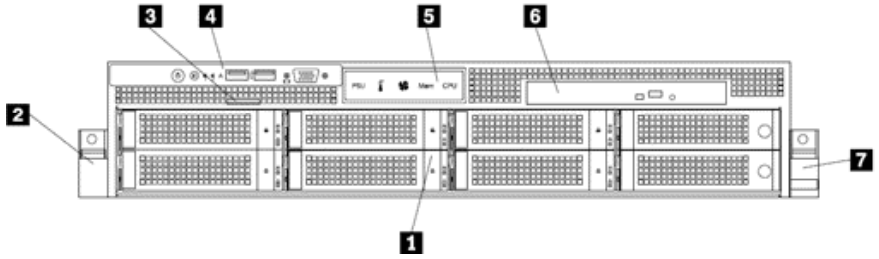
ThinkServer RD440 Overview

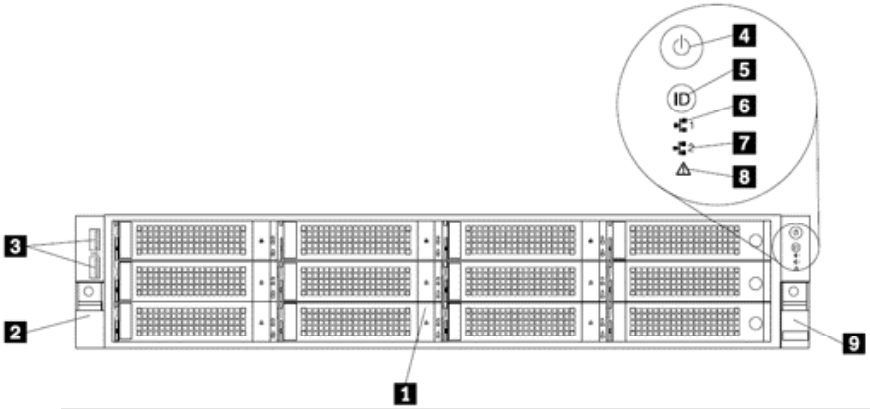
Front view - ThinkServer RD440 supports the following disk bay configurations:

ThinkServer RD440 with 8 x 3.5" Disk Drive Bays



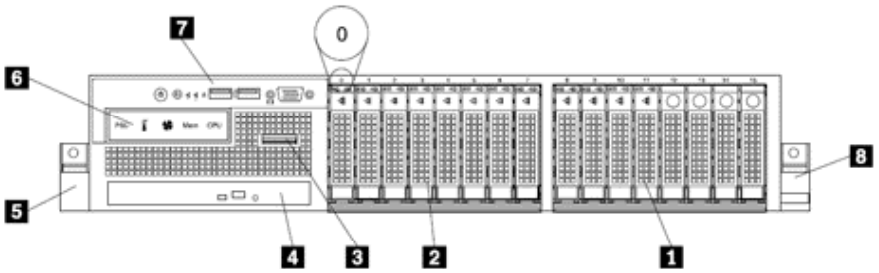
1. 8 x 3.5" hot-swap disk drive bays
2. Rack handle (left)
3. Pull-out information card
4. Front panel
   - Power Button with LED
   - ID button with LED
   - 2 Network interface status LEDs
   - System error LED
   - 2 USB 2.0
   - 1 VGA
5. Intelligent Diagnostics Module (optional)
6. Slim optical drive (optional)
7. Rack handle (right)

ThinkServer RD440 with 12 x 3.5" Disk Drive Bays



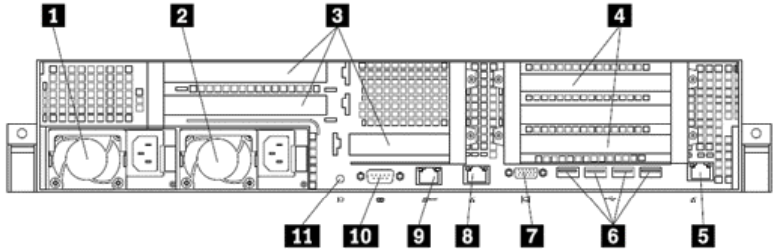
1. 12 x 3.5" hot-swap disk drive bays
2. Rack handle (left)
3. 2 USB 2.0
4. Power Button with LED
5. ID button with LED
6. Network interface status LED 1
7. Network interface status LED 2
8. System error LED
9. Rack handle (right)

ThinkServer RD440 with 2.5" Disk Drive Bays



1. 8 x hot-swap disk drive bays (for 16x2.5" hard drive bays model)
2. 8 x Hot-swap disk drive bays
3. Pull-out information card
4. Slim optical drive (optional)
5. Rack handle (left)
6. Intelligent Diagnostics Module (basic or premium, optional)
7. Front panel
   - Power Button with LED
   - ID button with LED
   - 2 Network interface status LEDs
   - System error LED
   - 2 USB 2.0
   - 1 VGA
8. Rack handle (right)

Rear view



1. Hot-swap redundant power supply 2 (optional)
2. Hot-swap redundant power supply 1
3. Three PCI Expreess slots by riser card 2
4. Two PCI Expreess slots by riser card 1
5. Ethernet 2 (RJ-45)
6. Four USB 2.0
7. VGA DB-15 connector
8. Ethernet 1 (RJ-45)
9. Dedicate/share management connector (RJ-45)
10. Serial
11. ID LED

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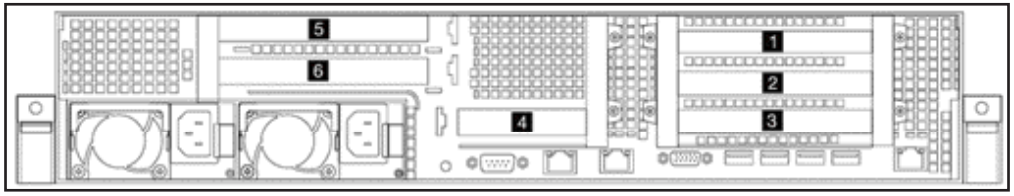
ThinkServer RD440 Platform Systems Specifications - I of II

<table>
<tr><th>Components</th><th>Specifications</th></tr>
<tr><td>Mechanical</td><td>• 2U rack with rail kit
• 19" W x 28.9" D x 3.45" H (with rack handles)
• 482.4mm W x 734mm D x 87.6mm H (with rack handles)
• 28 kg (61.73 lb) when fully configured</td></tr>
<tr><td>Chipset</td><td>Intel C606 Chipset</td></tr>
<tr><td>Processors</td><td>Two LGA1356 sockets, supports up to two processors from Intel Xeon E5-2400 or Xeon E5-2400 v2 families,
up to 8 cores (E5-2400 series)/10 cores (E5-2400 v2 series), one QPI links up to 8.0GT/s,
up to 20MB (E5-2400 series)/25MB (E5-2400 v2 series) cache,
integrated 3-channel DDR3 memory controller up to 1600MHz</td></tr>
<tr><td>Memory type</td><td>1600MHz, LV RDIMM*, DDR3, 3-channel per processor, 240-pin
* By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting</td></tr>
<tr><td>Memory DIMMs</td><td>Twelve DIMM sockets, six DIMM sockets per processor</td></tr>
<tr><td>Memory capacity</td><td>Up to 192GB DDR3 LV RDIMM (16GB x 12)</td></tr>
<tr><td>Memory protection</td><td>ECC, memory mirroring, memory sparing</td></tr>
<tr><td>Disk bays configurations</td><td>Supports one of the following configurations:
• 8 x 3.5" disk bays + 1 x slim optical bay
• 12 x 3.5" disk bays
• 8 x 2.5" disk bays + 1 x slim optical bay
• 16 x 2.5" disk bays + 1 x slim optical bay</td></tr>
<tr><td>RAID support</td><td>
<table>
<tr><th>RAID adapter</th><th>RAID support</th><th>Cache</th><th>Transfer rates</th><th>Optional upgrades</th></tr>
<tr><td>RAID 300** (onboard)</td><td>0, 1, 10</td><td></td><td>6Gb/s</td><td>optional upgrade key, add RAID 5 support</td></tr>
<tr><td>RAID 500 (LSI 9240-8i)</td><td>0, 1, 10</td><td></td><td>6Gb/s</td><td>optional upgrade key, add RAID 5, 50 support</td></tr>
<tr><td>RAID 700 (LSI 9260-8i)</td><td>0, 1, 10, 5, 50, 6, 60</td><td>512MB</td><td>6Gb/s</td><td>optional intelligent Battery Backup Unit (iBBU08)</td></tr>
<tr><td>RAID 710 (LSI 9270CV-8i)</td><td>0, 1, 10, 5, 50, 6, 60</td><td>1GB</td><td>6Gb/s</td><td>• optional CacheVault (CV) flash cache with super capacitor
• optional CacheCade Pro 2.0
• optional FastPath key</td></tr>
</table>
** RAID 300 is supported on 8 x 3.5" and 8 x 2.5" models only
</td></tr>
<tr><td>Optical drive (optional)</td><td>8 x 3.5"/8 x 2.5"/16 x 2.5" models: one slim optical bay, supports one optional slim optical
12 x 3.5" models: none optical bay, optional external USB optical is needed</td></tr>
<tr><td>Onboard network</td><td>Two Gigabit Ethernet ports by Intel i350,
one Gigabit Ethernet port by Intel 82574L, dedicate/share management</td></tr>
<tr><td>Front ports</td><td>One analog VGA DB-15 connector (for 8 x 3.5", 8 x 2.5", and 16 x 2.5" models), two USB 2.0</td></tr>
<tr><td>Rear ports</td><td>Four USB 2.0, one serial (9-pin), two ethernet (RJ-45),
one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector</td></tr>
<tr><td>Expansion Slots</td><td> 

Up to six PCI-Express slots via two riser cards, riser card 1 for slot 1-3, riser card 2 for slot 4-6
Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 2.0 x8 (x4)
Slot 4: Low Profile, PCIe 3.0 x8 (x4 elec)
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8</td></tr>
<tr><td>Graphics</td><td>Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear;
Maximum resolution: 1920x1200@60Hz</td></tr>
</table>

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ThinkServer RD440 Platform Systems Specifications - II of II

Components	Specifications	
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) or IDM Premium on selected 8 x 3.5"/8 x 2.5"/16 x 2.5" models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part	
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Front control panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate	
Security features	Power-on password/administrator password/Trusted Platform Module (TCG 1.2-compliant)	
Cooling fans	5 fans, hot-swap, 4 + 1 redundant	
Cable mgmt (opt)	Optional cable management arm on selected models	
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies	
Hot-swap parts	Disk drives, power supplies, and cooling fans	
Safety, environment, and certifications	Environmental certifications	• **Energy Star Server 2.0** qualified • RoHS-compliant
	EMC	FCC Class A, CSA, CE
	240VA	Supports
	Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
	Temperature - non operating (no package)	-10 °C to 60 °C
	Temperature - non operating (with package)	-40 °C to 70 °C
	Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)
	Humidity - operating	8%~80%, non-condensing
	Humidity - non operating (no package)	8%~80%, non-condensing
	Humidity - non operating (with package)	8%~90%, non-condensing
	Acoustic noise (idle/working mode)	

Category	System Configuration	
	Entry level	High-end
CPU	1	2
Memory	4GB x 1	4GB x 12
Optical Drive	Slim optical	None
Drive Bays	8 x 3.5"	12 x 3.5"
RAID	RAID500	RAID500
HDD	2 x 500GB 3.5" SATA	12 x 2TB 3.5" SAS
PSU	800Wx1	800Wx2
Sound Pressure (operating)	44.98 dB(A)	44.2 dB(A)
Sound Pressure (idle)	44.5 dB(A)	44.7 dB(A)

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ThinkServer RD440 Optional Configurations - Processor and Memory

Rack kit	Included in models
Processor	The following processor options are available:

Processor Number	Processors Specifications*								Part Number
	# of Cores	# of Threads	Clock Speed	Max Turbo Frequency	Cache	QPI Speed	Max TDP	Memory Speed	
Intel Xeon E5-2400 v2 Series									
Xeon E5-2440 v2	8	16	1.9 GHz	2.4 GHz	20MB	7.2 GT/s	95W	DDR3-1600	0C19539
Xeon E5-2450 v2	8	16	2.5 GHz	3.3 GHz	20MB	8 GT/s	95W	DDR3-1600	0C19538
Xeon E5-2450L v2	10	20	1.7 GHz	2.1 GHz	25MB	7.2 GT/s	60W	DDR3-1600	0C19544
Xeon E5-2470 v2	10	20	2.4 GHz	3.2 GHz	25MB	8 GT/s	95W	DDR3-1600	0C19537
Xeon E5-2407 v2	4	4	2.4 GHz	2.4 GHz	10MB	6.4 GT/s	80W	DDR3-1333	0C19542
Xeon E5-2420 v2	6	12	2.2 GHz	2.7 GHz	15MB	7.2 GT/s	80W	DDR3-1600	0C19541
Xeon E5-2430 v2	6	12	2.5 GHz	3 GHz	15MB	7.2 GT/s	80W	DDR3-1600	0C19540
Xeon E5-2430L v2	6	12	2.4 GHz	2.8 GHz	15MB	7.2 GT/s	60W	DDR3-1600	0C19545
Xeon E5-2403 v2	4	4	1.8 GHz	1.8 GHz	10MB	6.4 GT/s	80W	DDR3-1333	0C19543
Intel Xeon E5-2600 v2 Series									
Xeon E5-2450L	8	16	1.8 GHz	2.3 GHz	20MB	8 GT/s	70 W	DDR3-1600	0A89450
Xeon E5-2450	8	16	2.1 GHz	2.9 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89444
Xeon E5-2440	6	12	2.4 GHz	2.9 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89445
Xeon E5-2430L	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	60 W	DDR3-1333	0A89451
Xeon E5-2407	4	4	2.2 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89448
Xeon E5-2403	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89449
Xeon E5-2430	6	12	2.2 GHz	2.7 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89446
Xeon E5-2420	6	12	1.9 GHz	2.4 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89447
Xeon E5-2470	8	16	2.3 GHz	3.1 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89443

Notes:
All processors specifications is provided by Intel and may be changed at any time without notice.
The information herein is provided "as-is".
Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/

Memory options

Memory options	Part Number
ThinkServer 4GB DDR3L-1600MHz (1RX8) RDIMM	0C19533
ThinkServer 8GB DDR3L-1600MHz (2RX8) RDIMM	0C19534
ThinkServer 16GB DDR3L-1600MHz (2RX4) RDIMM	0C19535

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ThinkServer RD440 Optional Configurations - Storage and RAID

Disk drive options for 3.5" disk bay models (8 x 3.5"/12 x 3.5")

Hot-swap disk drive options for 3.5" bay	Part Number
3.5" SATA Hard Drive	
ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89473
ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89474
ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89475
ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89477
ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19520
3.5" SAS Hard Drive	
ThinkServer 3.5" 1TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19530
ThinkServer 3.5" 2TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19531
ThinkServer 3.5" 3TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19532
ThinkServer 3.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	67Y2616
ThinkServer 3.5" 600GB 15K SAS 6Gbps Hot Swap Hard Drive	4XB0F28644
2.5" SSD for 3.5" disk bay	
ThinkServer 2.5" 100GB MLC SATA Solid State Drive to 3.5" Kit	0C19571
ThinkServer 2.5" 200GB MLC SATA Solid State Drive to 3.5" Kit	0C19572
ThinkServer 2.5" 400GB MLC SATA Solid State Drive to 3.5" Kit	0C19573

Disk drive options for 2.5" disk bay models (8 x 2.5"/16 x 2.5")

Hot-swap disk drive options for 2.5" bay	Part Number
2.5" SATA Hard Drive	
ThinkServer 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19495
ThinkServer 2.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19496
2.5" SAS Hard Drive	
ThinkServer 2.5" 300GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2619
ThinkServer 2.5" 600GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2621
ThinkServer 2.5" 900GB 10K SAS 6Gbps Hot Swap Hard Drive	0A89409
ThinkServer 2.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	0C19494
2.5" SSD	
ThinkServer 2.5" 100GB MLC SATA Solid State Drive	0A89420
ThinkServer 2.5" 200GB MLC SATA Solid State Drive	0A89418
ThinkServer 2.5" 400GB MLC SATA Solid State Drive	0A89419

RAID options

RAID controller and RAID upgrade options	Part Number
ThinkServer RAID 300 Upgrade Key for Advanced RAID	0A89422
ThinkServer RAID 500 Adapter II	0A89464
ThinkServer RAID 500 Upgrade Key for Advanced RAID	0A89407
ThinkServer RAID 700 Adapter II	0A89463
ThinkServer RAID 700 Battery	67Y2647
ThinkServer RAID 710 Adapter	0C19489
ThinkServer RAID Super Capacitor Module	0C19490
ThinkServer RAID FastPath Software Key	0C19491
ThinkServer RAID CacheCade Pro 2.0 Software Key	0C19492

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ThinkServer RD440 Optional Configurations - Network, System Management, Power Supply

Network and HBA options

Network and HBA options	Part Number
ThinkServer 1Gbps Ethernet I350-T2 Server Adapter by Intel	0C19506
ThinkServer 1Gbps Ethernet I350-T4 Server Adapter by Intel	0C19507
Lenovo 10Gbps Ethernet X540-T2 Server Adapter by Intel	0C19497
Lenovo 10Gbps Ethernet X520-DA2 Server Adapter by Intel	0C19486
Lenovo 10Gbps Ethernet Fiber Module by Intel	0C19488
Lenovo 10Gbps Ethernet X520-SR2 Server Adapter by Intel	0C19487
ThinkServer QLE8242-CU-CK Dual Port CNA by QLogic	0C19483
ThinkServer LPe1250 Single Port 8Gb Fibre Channel HBA by Emulex	0C19476
ThinkServer LPe12002 Dual Port 8Gb Fibre Channel HBA by Emulex	0C19478
ThinkServer QLE2562 Dual Port 8Gb Fibre Channel HBA by Qlogic	0C19482

Security options

Trusted Platform Module options	Part Number
ThinkServer Trusted Platform Module	0A89428

Systems management options

System Management option for iKVM	Part Number
ThinkServer Management Module Premium	67Y2624
Cable Management option	**Part Number**
ThinkServer Cable management Arm	0A89476

Power supply options

Power supply option	Part Number
ThinkServer 800W Gold Hot Swap Redundant Power Supply for Rack	4X20E54690

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ThinkServer RD440 Operating System and Virtualization Supportability Matrix

List of operationg system and virtualization software supported on ThinkServer RD440

Operating System/Virtualization	Certified	Support ROK	Supports EasyStartup	Preloaded
Windows Server 2008 x86 Edition				
Windows Server 2008 Standard Edition (x86)			•	
Windows Server 2008 Enterprise Edition (x86)			•	
Windows Server 2008 Datacenter Edition (x86)			•	
Windows Server 2008 x64 Edition				
Windows Server 2008 Standard Edition (x64) (including Hyper-V)	•		•	
Windows Server 2008 Enterprise Edition (x64) (including Hyper-V)	•		•	
Windows Server 2008 Datacenter Edition (x64) (including Hyper-V)	•		•	
Windows Server 2008 R2 (x64) with SP1				
Windows Server 2008 Standard Edition R2 with SP1 (including Hyper-V)	•	•	•	
Windows Server 2008 Enterprise Edition R2 with SP1 (including Hyper-V)	•	•	•	
Windows Server 2008 Datacenter Edition R2 with SP1 (including Hyper-V)	•	•	•	
Windows Small Business Server 2011				
Windows Small Business Server 2011 Essentials	•		•	
Windows Small Business Server 2011 Standard	•	•	•	
Windows Small Business Server Premium Add-On (including Hyper-V)	•	•	•	
Windows Server 2012				
Windows Server 2012 Standard (including Hyper-V)	•	•	•	•
Windows Server 2012 Datacenter (including Hyper-V)	•	•	•	•
Windows Server 2012 Essentials	•	•	•	•
Windows Server 2012 Hyper-V	•		•	
Windows Server 2012 R2				
Windows Server 2012 R2 Standard (including Hyper-V)	•	•	•	•
Windows Server 2012 R2 Datacenter (including Hyper-V)	•	•	•	•
Windows Server 2012 R2 Essentials	•	•	•	•
Windows Server 2012 R2 Hyper-V	•		•	
SUSE LINUX Enterprise Server x86				
SUSE LINUX Enterprise Server 10 SP4			•	
SUSE LINUX Enterprise Server 11 SP2	•		•	
SUSE LINUX Enterprise Server 11 SP3	•		•	
SUSE LINUX Enterprise Server x64				
SUSE LINUX Enterprise Server 10 SP4			•	
SUSE LINUX Enterprise Server 11 SP2	•		•	
RedHat Enterprise Linux Server (RHEL) x86				
RHEL 5.9	•		•	
RHEL 5.10	•		•	
RHEL 6.4	•		•	
RHEL 6.5	•		•	
RedHat Enterprise Linux Server x64				
RHEL 5.9	•		•	
RHEL 5.10	•		•	
RHEL 6.4	•		•	
RHEL 6.5	•		•	
VMware x64				
VMware ESXi 5.1 U1	•		•	•
VMware ESXi 5.5	•	•	•	•
Microsoft Hyper V				
Microsoft Hyper-V server 2008	•		•	
Microsoft Hyper-v server 2008 R2 SP1	•		•	
Citrix				
Citrix XenServer 6.1	•		•	
Citrix XenServer 6.0.2	•		•	

Note:

- *For more information on ThinkServer operating system and virtualization software, please visit ThinkServer Software page: http://shop.lenovo.com/us/en/servers/thinkserver/server-software.html*
- *For ThinkServer operating system and virtualization software options, please visit ThinkServer OS and virtualization Options document: http://www.lenovo.com/images/products/server/pdfs/datasheets/ThinkServer_OS_&_Virtualization_Options_Datasheet.pdf*

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ThinkServer RD440 (70AH) - TopSeller - January 2014

Product Specifications Reference (PSREF)

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AH0000++	Xeon E5-2403 v2 4C/1.8GHz/10MB/1333MHz	No	4GBx1 1600MHz LVRDIMM	8X3.5" HS	RAID300	Open	DVD±RW	No	IDM	IPMI	No	1	TPM	No	3
70AH0006++	Xeon E5-2403 v2 4C/1.8GHz/10MB/1333MHz	No	4GBx1 1600MHz LVRDIMM	8X3.5" HS	RAID300	Open	DVD±RW	No	IDM	IPMI	No	1	No	No	3
70AH000F++	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8X3.5'" HS	RAID300	Open	DVD±RW	No	IDM	IPMI	No	1	No	No	3
70AH001M++	Xeon E5-2407 v2 4C/2.4GHz/10MB/1333MHz	No	8GBx1 1600MHz LVRDIMM	8X3.5" HS	RAID300	Open	DVD±RW	No	IDM	IPMI	No	1	No	No	3
70AH001N++	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8X3.5" HS	RAID700	Open	DVD±RW	No	IDM Premium	iKVM	No	1	No	No	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

- ***For detailed platform specifications, please see ThinkServer RD440 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD440 Optional Configurations sheets***

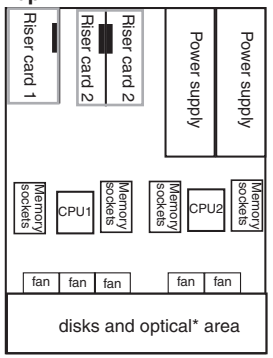
Mechanical	• 2U rack with rail kit • 19" W x 28.9" D x 3.45" H (with rack handles) • 482.4mm W x 734mm D x 87.6mm H (with rack handles) • 26.5 kg (58.42 lb) when fully configured
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory protection	ECC, memory mirroring, memory sparing
RAID support	See RAID table below
Optical drive (optional)	8 x 3.5"/8 x 2.5"/16 x 2.5": one slim optical bay, supports one slim optical 12 x 3.5" : none optical bay, external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) or IDM Premium on selected 8 x 3.5"/8 x 2.5"/16 x 2.5" models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	5 fans, hot swap, 4 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300* (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

***RAID 300 is supported on 8 x 3.5" and 8 x 2.5" models only*

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) on selected models
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

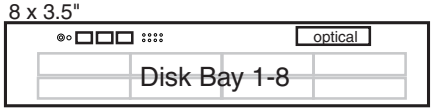
Top



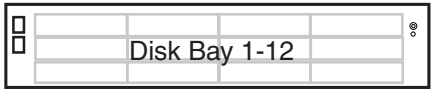
** Slim optical bay is not available on 12 x 3.5" models*

Front: Supports the following disk bay configurations:

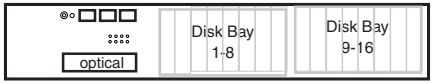
8 x 3.5"



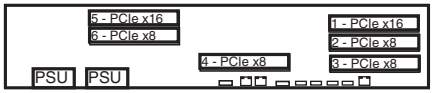
12 x 3.5"



8 x 2.5"/16 x 2.5" *(Bay 9-16 are available on 16 x 2.5" models)*



Rear



Expansion Slots:

Up to six PCI-Express slots via two riser cards, riser card 1 for slot 1-3, riser card 2 for slot 4-6:
Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 2.0 x8 (x4)
Slot 4: Low Profile, PCIe 3.0 x8 (x4 elec)
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Front/rear Ports:

Front: 1 VGA (for 6 x 2.5"/8 x 2.5" models),
2 USB 2.0
Rear: 4 USB 2.0, 1 serial (9-pin),
2 ethernet (RJ-45),
1 RJ-45 (dedicate/share mgmt),
1 VGA

See footnotes for more detailed information
Model(s) announced Januray 21, 2014

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ThinkServer RD440 (70AJ) - TopSeller - January 2014

Product Specifications Reference (PSREF)

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AJ0013xx	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	12X3.5" HS	RAID700 +Battery	Open	N/A	No	N/A	IPMI	No	1	No	No	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

- ***For detailed platform specifications, please see ThinkServer RD440 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD440 Optional Configurations sheets***

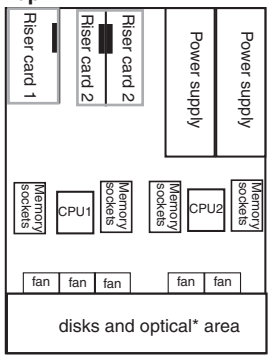
Mechanical	• 2U rack with rail kit • 19" W x 28.9" D x 3.45" H (with rack handles) • 482.4mm W x 734mm D x 87.6mm H (with rack handles) • 26.5 kg (58.42 lb) when fully configured
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory protection	ECC, memory mirroring, memory sparing
RAID support	See RAID adapter table below
Optical drive (optional)	8 x 3.5"/8 x 2.5"/16 x 2.5": one slim optical bay, supports one slim optical 12 x 3.5" : none optical bay, external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) or IDM Premium on selected 8 x 3.5"/8 x 2.5"/16 x 2.5" models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	5 fans, hot swap, 4 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300* (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

***RAID 300 is supported on 8 x 3.5" and 8 x 2.5" models only*

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) on selected models
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

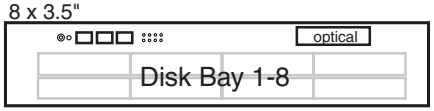
Top



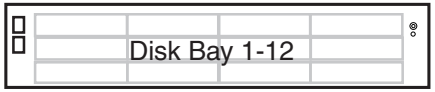
** Slim optical bay is not available on 12 x 3.5" models*

Front: Supports the following disk bay configurations:

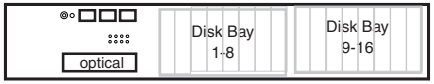
8 x 3.5"



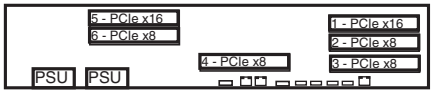
12 x 3.5"



8 x 2.5"/16 x 2.5" *(Bay 9-16 are available on 16 x 2.5" models)*



Rear



Expansion Slots:

Up to six PCI-Express slots via two riser cards,
riser card 1 for slot 1-3, riser card 2 for slot 4-6:
Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 2.0 x8 (x4)
Slot 4: Low Profile, PCIe 3.0 x8 (x4 elec)
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Front/rear Ports:

Front: 1 VGA (for 6 x 2.5"/8 x 2.5" models),
2 USB 2.0
Rear: 4 USB 2.0, 1 serial (9-pin),
2 ethernet (RJ-45),
1 RJ-45 (dedicate/share mgmt),
1 VGA

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ThinkServer RD440 (70B3) - TopSeller - January 2014

Product Specifications Reference (PSREF)

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70B3000Pxx	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	16X2.5" HS	RAID710 +CacheVault	Open	DVD±RW	No	IDM	IPMI	No	1	No	No	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

- ***For detailed platform specifications, please see ThinkServer RD440 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD440 Optional Configurations sheets***

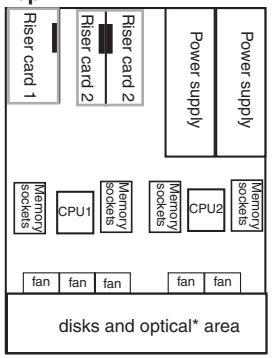
Mechanical	• 2U rack with rail kit • 19" W x 28.9" D x 3.45" H (with rack handles) • 482.4mm W x 734mm D x 87.6mm H (with rack handles) • 26.5 kg (58.42 lb) when fully configured
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory protection	ECC, memory mirroring, memory sparing
RAID support	See table below
Optical drive (optional)	8 x 3.5"/8 x 2.5"/16 x 2.5": one slim optical bay, supports one slim optical 12 x 3.5" : none optical bay, external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) or IDM Premium on selected 8 x 3.5"/8 x 2.5"/16 x 2.5" models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	5 fans, hot swap, 4 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300* (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

***RAID 300 is supported on 8 x 3.5" and 8 x 2.5" models only*

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) on selected models
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

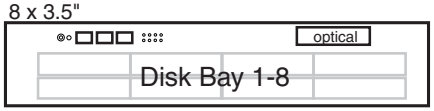
Top



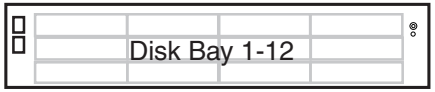
** Slim optical bay is not available on 12 x 3.5" models*

Front: Supports the following disk bay configurations:

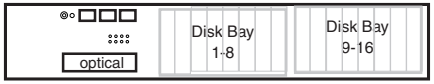
8 x 3.5"



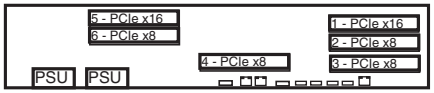
12 x 3.5"



8 x 2.5"/16 x 2.5"*(Bay 9-16 are available on 16 x 2.5" models)*



Rear



Expansion Slots:

Up to six PCI-Express slots via two riser cards, riser card 1 for slot 1-3, riser card 2 for slot 4-6:
Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 2.0 x8 (x4)
Slot 4: Low Profile, PCIe 3.0 x8 (x4 elec)
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Front/rear Ports:

Front: 1 VGA (for 6 x 2.5"/8 x 2.5" models),
2 USB 2.0
Rear: 4 USB 2.0, 1 serial (9-pin),
2 ethernet (RJ-45),
1 RJ-45 (dedicate/share mgmt),
1 VGA

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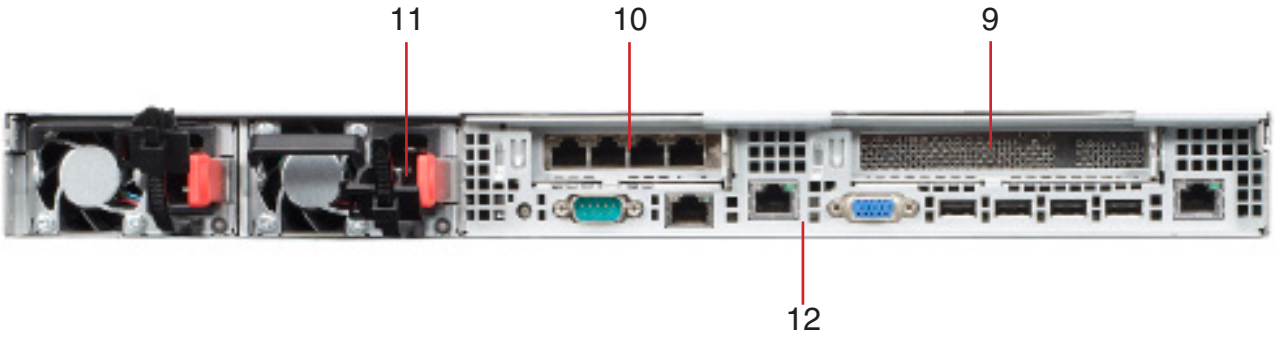
ThinkServer RD540 Overview - Front and Rear

ThinkServer RD540 with 4x3.5" Disk Drive Bays

ThinkServer RD540 with 8x2.5" Disk Drive Bays



Front View

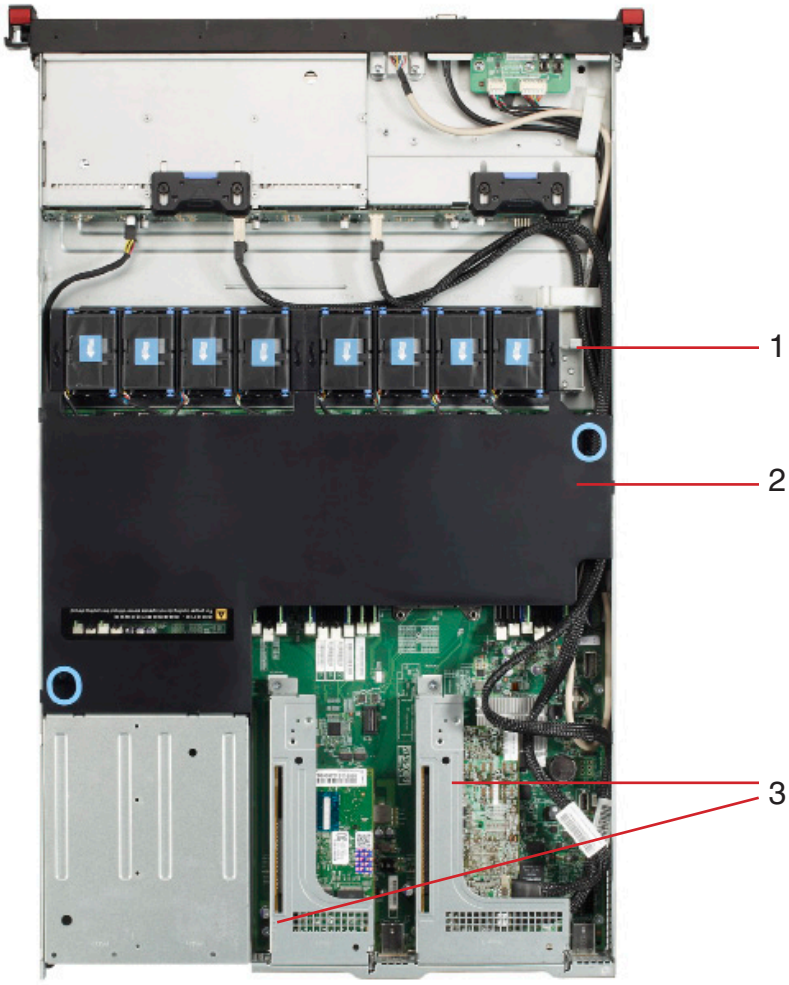
1. Hot-swap disk drive bays
2. Power Button with LED
3. ID button with LED
4. 2 Network interface status LEDs
5. 2 USB 2.0
6. Intelligent Diagnostics Module (optional)
7. Optical (optional, for 3.5" disk drive bay model)
8. VGA (for 2.5" disk drive bay model)

Rear View

9. PCI Express slots 1*
10. PCI Express slots 2*
11. Hot-swap power supplies
12. Rear ports:
    4 USB 2.0
    1 serial
    2 ethernet
    1 RJ-45 (dedicate/share mgmt)
    1 VGA

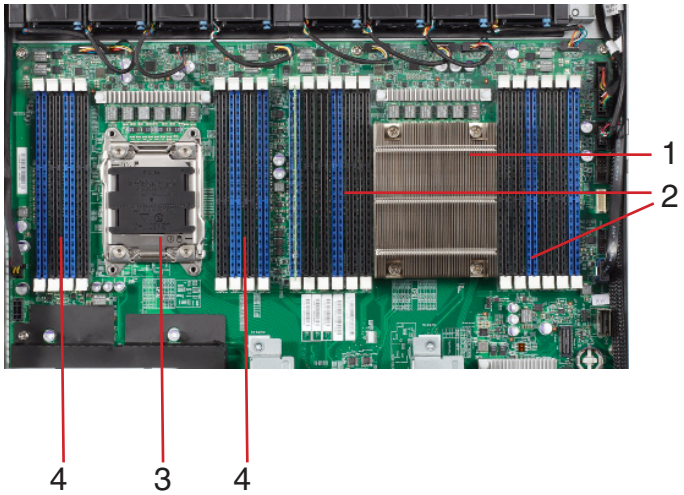
*Adapters are optional

ThinkServer RD540 Overview - Internal



Internal View

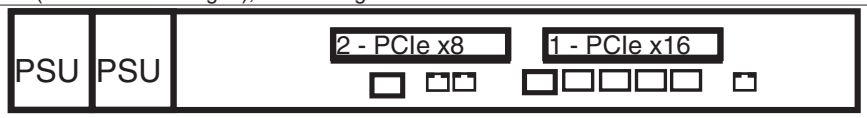
1. Non-hot swap cooling fans
2. Processors and memory DIMM sockets (under cooling shroud, see below)
3. PCI Express slots (*Adapters are optional)



Processors and Memory DIMM Sockets (under cooling shroud)

1. CPU 1
2. 12 Memory DIMM sockets for CPU 1
3. CPU 2 (optional)
4. 8 Memory DIMM sockets for CPU 2 (for dual processors model)

ThinkServer RD540 Platform Specifications

<table>
<tr><th>Components</th><th colspan="2">Specifications</th></tr>
<tr><td>Chipset</td><td colspan="2">Intel C602J Chipset</td></tr>
<tr><td>Mechanical</td><td colspan="2">• 1U rack
• 19"W x 28.9"D x 1.72"H (with rack handles)
• 482.4mm W x 734mm D x 43.6mm H (with rack handles)
• 17kg (37.5 lb) when fully configured</td></tr>
<tr><td>Front ports</td><td colspan="2">Two USB 2.0, one analog VGA DB-15 connector (for 8x2.5" disk bays models)</td></tr>
<tr><td>Rear ports</td><td colspan="2">Four USB 2.0, one serial (9-pin), two ethernet (RJ-45),
one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector</td></tr>
<tr><td>Expansion Slots</td><td colspan="2"> 

Two PCI-Express slots via two riser cards, riser card 1 for slot 1, riser card 2 for slot 2
Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8</td></tr>
<tr><td>Graphics</td><td colspan="2">Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front (for 8x2.5" disk bays models),
one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz</td></tr>
<tr><td>Hot-swap parts</td><td colspan="2">Disk drives, power supplies</td></tr>
<tr><td rowspan="11">Safety, environment, and certifications</td><td>Environmental certifications</td><td>• Energy Star Server 2.0 qualified
• RoHS-compliant</td></tr>
<tr><td>EMC</td><td>FCC Class A, CSA CE</td></tr>
<tr><td>240VA</td><td>Supports</td></tr>
<tr><td>Temperature - operating</td><td>50 °F to 95 °F (10 °C to 35 °C)</td></tr>
<tr><td>Temperature - non operating (no package)</td><td>-10 °C to 60 °C</td></tr>
<tr><td>Temperature - non operating (with package)</td><td>-40 °C to 70 °C</td></tr>
<tr><td>Altitude - operating</td><td>Supported Altitude (unpressurized): 0-10000ft (0-3048m)</td></tr>
<tr><td>Humidity - operating</td><td>8%~80%, non-condensing</td></tr>
<tr><td>Humidity - non operating (no package)</td><td>8%~80%, non-condensing</td></tr>
<tr><td>Humidity - non operating (with package)</td><td>8%~90%, non-condensing</td></tr>
<tr><td>Acoustic noise (idle/working mode)</td><td>
<table>
<tr><th>Category</th><th>Normal Configuration</th><th>High Performance Configuration</th></tr>
<tr><td>CPU</td><td>1</td><td>2</td></tr>
<tr><td>HDD</td><td>2x 900GB 2.5" SAS 6Gb/s</td><td>8x 900GB 2.5" SAS 6Gb/s</td></tr>
<tr><td>Memory</td><td>1x 8GB 1600MHz LVRDIMM</td><td>20x 8GB 1600MHz LVRDIMM</td></tr>
<tr><td>PCIe adapters</td><td>I350</td><td>I350</td></tr>
<tr><td>PSU</td><td>1x 800W</td><td>2x 800W</td></tr>
<tr><td>RAID</td><td>RAID 700 adapter</td><td>RAID 700 adapter</td></tr>
<tr><td>Sound Pressure (operating)</td><td>38.6 dB(A)</td><td>38.7 dB(A)</td></tr>
<tr><td>Sound Pressure (idle)</td><td>39.0 dB(A)</td><td>40.0 dB(A)</td></tr>
</table>
</td></tr>
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ThinkServer RD540 (70AU) - TopSeller (October 2013)

Product Specifications Reference (PSREF)

Type-model[1]	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AU000G++	1xE5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	4GBx1	8x2.5"	RAID500	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000H++	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx4	8x2.5"	RAID710 +CacheVault	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000J++	1xE5-2630 v2 6C/2.6GHz/ 15MB/1600MHz	4GBx4	8x2.5"	RAID710 +CacheVault	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000K++	1xE5-2640 v2 8C/2GHz/ 20MB/1600MHz	4GBx4	8x2.5"	RAID710 +CacheVault	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000L++	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID500	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000M++	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx2	8x2.5"	RAID500	Open	No	No	IPMI	No	No	800Wx1	No	3

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

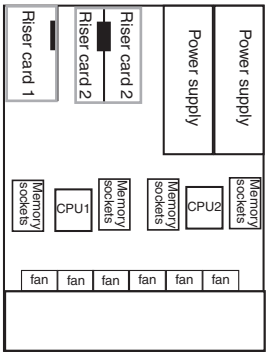
- ***For detailed platform specifications, please see ThinkServer RD540 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD540, please see ThinkServer RD540 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	1600MHz, RDIMM and LV RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays
RAID support	See RAID table below
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see ThinkServer RD540 Platform Specifications

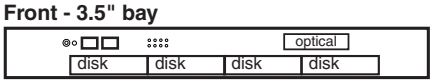
RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades
RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key

* All RAID adapters supports SAS and SATA drives
** RAID 50 and 60 are supported on 8x2.5" disk bays models

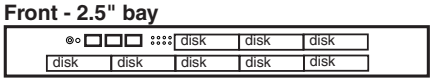
2U Rack top



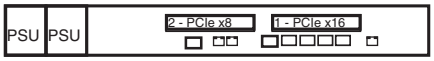
Front - 3.5" bay



Front - 2.5" bay



Rear



Front and Rear Ports

Front: 2 USB 2.0
1 VGA (for 8x2.5" disk bays models)
Rear: 4 USB 2.0
1 serial (9-pin)
2 ethernet (RJ-45)
1 RJ-45 (dedicate/share mgmt)
1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

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ThinkServer RD540 (70AU) - TopSeller (October 2013) - II

Product Specifications Reference (PSREF)

Type-model[1]	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AU000N++	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx2	8x2.5"	RAID710 +CacheVault	Open	No	No	IPMI	No	No	800Wx2	No	3
70AU000P++	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx1	8x2.5"	RAID700 +Battery	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000Q++	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx1	8x2.5"	RAID500	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000R++	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx2	8x2.5"	RAID710 +CacheVault	Open	No	No	IPMI	No	No	800Wx1	No	3

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

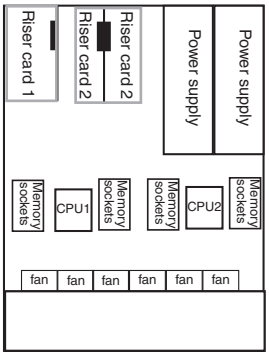
- ***For detailed platform specifications, please see ThinkServer RD540 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD540, please see ThinkServer RD540 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	1600MHz, RDIMM and LV RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays
RAID support	See RAID table below
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see ThinkServer RD540 Platform Specifications

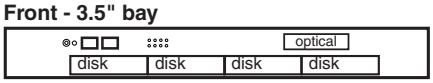
RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades
RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key

* All RAID adapters supports SAS and SATA drives
** RAID 50 and 60 are supported on 8x2.5" disk bays models

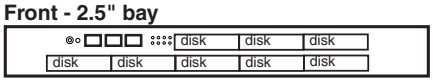
2U Rack top



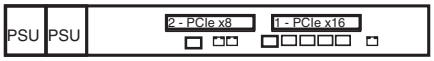
Front - 3.5" bay



Front - 2.5" bay



Rear



Front and Rear Ports

Front: 2 USB 2.0
1 VGA (for 8x2.5" disk bays models)
Rear: 4 USB 2.0
1 serial (9-pin)
2 ethernet (RJ-45)
1 RJ-45 (dedicate/share mgmt)
1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

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ThinkServer RD540 (70AU) - TopSeller (November 2013)

Product Specifications Reference (PSREF)

Type-model[1]	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AU0013++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx4	8x2.5"	RAID710+CacheVault	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU0014++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx2	8x2.5"	RAID500	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU0015++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx2	8x2.5"	RAID710+CacheVault	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU0016++	1xXeon E5-2630 v2 6C/2.6GHz/ 15MB/1600MHz	4GBx4	8x2.5"	RAID710+CacheVault	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU0017++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx2	8x2.5"	RAID710+CacheVault	Open	No	No	IPMI	No	No	800Wx2	No	3
70AU0018++	1xXeon E5-2640 v2 8C/2GHz/ 20MB/1600MHz	4GBx4	8x2.5"	RAID710+CacheVault	Open	No	No	IPMI	No	No	800Wx1	No	3

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

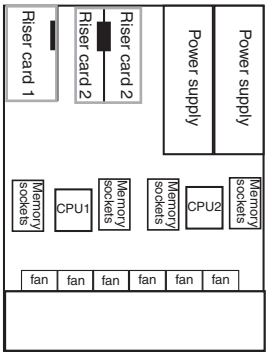
- ***For detailed platform specifications, please see ThinkServer RD540 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD540, please see ThinkServer RD540 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	1600MHz, RDIMM and LV RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays
RAID support	See RAID adapter table below
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see ThinkServer RD540 Platform Specifications

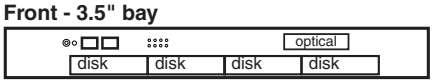
RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades
RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key

* All RAID adapters supports SAS and SATA drives
** RAID 50 and 60 are supported on 8x2.5" disk bays models

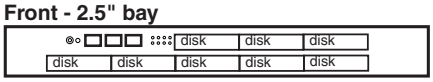
2U Rack top



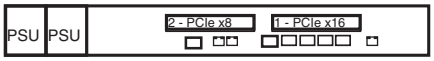
Front - 3.5" bay



Front - 2.5" bay



Rear



Front and Rear Ports

Front: 2 USB 2.0
1 VGA (for 8x2.5" disk bays models)
Rear: 4 USB 2.0
1 serial (9-pin)
2 ethernet (RJ-45)
1 RJ-45 (dedicate/share mgmt)
1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

See footnotes for important warranty information
Model(s) announced November 26, 2013

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ThinkServer RD540 (70AU) - TopSeller (November 2013) - II

Product Specifications Reference (PSREF)

Type-model[1]	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AU0019++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx1	8x2.5"	RAID700+Battery	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU001A++	1xXeon E5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	4GBx1	8x2.5"	RAID500	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU001B++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID500	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU001C++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID500	Open	No	No	iKVM	No	No	800Wx1	No	3
70AU001D++	1xXeon E5-2630 v2 6C/2.6GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID700+Battery	Open	No	No	iKVM	No	No	800Wx2	No	3
70AU001E++	1xXeon E5-2660 v2 10C/2.2GHz/ 25MB/1866MHz	16Gx1	8x2.5"	RAID700+Battery	Open	No	No	iKVM	No	No	800Wx2	No	3

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

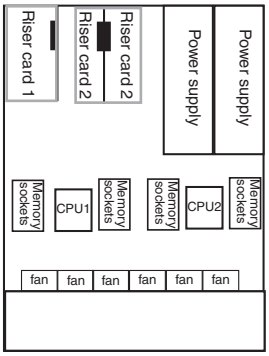
- ***For detailed platform specifications, please see ThinkServer RD540 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD540, please see ThinkServer RD540 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	1600MHz, RDIMM and LV RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays
RAID support	See RAID adapter table below
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see ThinkServer RD540 Platform Specifications

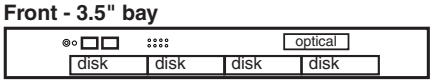
RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades
RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key

* All RAID adapters supports SAS and SATA drives
** RAID 50 and 60 are supported on 8x2.5" disk bays models

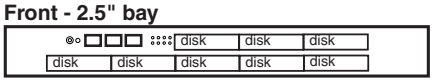
2U Rack top



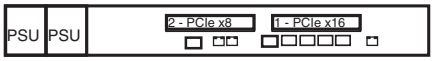
Front - 3.5" bay



Front - 2.5" bay



Rear



Front and Rear Ports

Front: 2 USB 2.0
1 VGA (for 8x2.5" disk bays models)
Rear: 4 USB 2.0
1 serial (9-pin)
2 ethernet (RJ-45)
1 RJ-45 (dedicate/share mgmt)
1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

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ThinkServer RD540 (70AU) - TopSeller (December 2013)

Product Specifications Reference (PSREF)

Type-model[1]	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AU000G++	1xXeon E5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	4GBx1	8x2.5"	RAID500	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000H++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx4	8x2.5"	RAID710+CacheVault	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000J++	1xXeon E5-2630 v2 6C/2.6GHz/ 15MB/1600MHz	4GBx4	8x2.5"	RAID710+CacheVault	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000K++	1xXeon E5-2640 v2 8C/2GHz/ 20MB/1600MHz	4GBx4	8x2.5"	RAID710+CacheVault	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000L++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID500	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000M++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx2	8x2.5"	RAID500	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000N++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx2	8x2.5"	RAID710+CacheVault	Open	No	No	IPMI	No	No	800Wx2	No	3

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

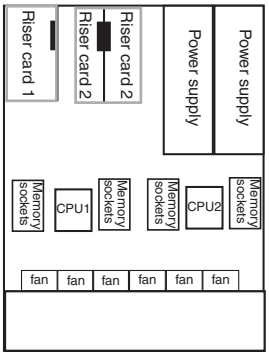
- ***For detailed platform specifications, please see ThinkServer RD540 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD540, please see ThinkServer RD540 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	1600MHz, RDIMM and LV RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays
RAID support	See RAID adapter table below
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see ThinkServer RD540 Platform Specifications

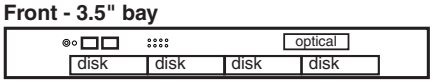
RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades
RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key

* All RAID adapters supports SAS and SATA drives
** RAID 50 and 60 are supported on 8x2.5" disk bays models

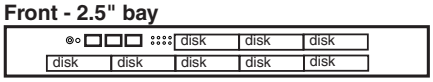
2U Rack top



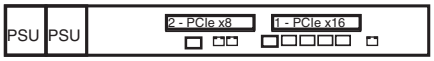
Front - 3.5" bay



Front - 2.5" bay



Rear



Front and Rear Ports

Front: 2 USB 2.0
1 VGA (for 8x2.5" disk bays models)
Rear: 4 USB 2.0
1 serial (9-pin)
2 ethernet (RJ-45)
1 RJ-45 (dedicate/share mgmt)
1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

See footnotes for important warranty information
Model(s) announced December 3, 2013

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ThinkServer RD540 (70AU) - TopSeller (December 2013) - II

Product Specifications Reference (PSREF)

Type-model[1]	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AU000P++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx1	8x2.5"	RAID700+Battery	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000Q++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx1	8x2.5"	RAID500	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000R++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx2	8x2.5"	RAID710+CacheVault	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU0010++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID500	Open	No	No	iKVM	No	No	800Wx1	No	3
70AU0011++	1xXeon E5-2630 v2 6C/2.6GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID700+Battery	Open	No	No	iKVM	No	No	800Wx2	No	3
70AU0012++	1xXeon E5-2660 v2 10C/2.2GHz/ 25MB/1866MHz	16Gx1	8x2.5"	RAID700+Battery	Open	No	No	iKVM	No	No	800Wx2	No	3

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

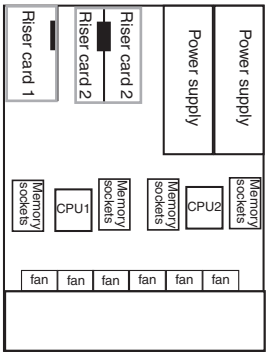
- ***For detailed platform specifications, please see ThinkServer RD540 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD540, please see ThinkServer RD540 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	1600MHz, RDIMM and LV RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays
RAID support	See RAID adapter table below
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see ThinkServer RD540 Platform Specifications

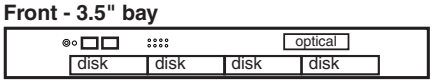
RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades
RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key

* All RAID adapters supports SAS and SATA drives
** RAID 50 and 60 are supported on 8x2.5" disk bays models

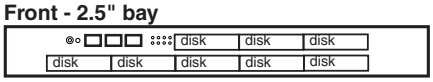
2U Rack top



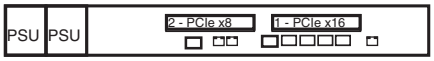
Front - 3.5" bay



Front - 2.5" bay



Rear



Front and Rear Ports

Front: 2 USB 2.0
1 VGA (for 8x2.5" disk bays models)
Rear: 4 USB 2.0
1 serial (9-pin)
2 ethernet (RJ-45)
1 RJ-45 (dedicate/share mgmt)
1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

See footnotes for important warranty information
Model(s) announced December 3, 2013

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ThinkServer RD540 Optional Configurations - Processor and Memory

Rack kit	Included in models
Processor	Two LGA2011 sockets, supports up to two processors from Intel **Xeon E5-2600** or **Xeon E5-2600 v2** families, up to 8 cores (E5-2600 series)/12 cores (E5-2600 v2 series), two QPI links up to 8.0GT/s each, up to 20MB (E5-2600 series)/30MB (E5-2600 v2 series) cache, integrated 4-channel DDR3 memory controller up to 1600MHz (E5-2600 series)/1866MHz (E5-2600 v2 series). The following processor options are available:

Processor Number	Processors Specifications*								Part Number
	# of Cores	# of Threads	Clock Speed	Max Turbo Frequency	Cache	QPI Speed	Max TDP	Memory Speed	
Intel Xeon E5-2600 Series									
Xeon E5-2680	8	16	2.7 GHz	3.5 GHz	20MB	8 GT/s	130 W	DDR3-1600	0A89430
Xeon E5-2670	8	16	2.6 GHz	3.3 GHz	20MB	8 GT/s	115 W	DDR3-1600	0A89431
Xeon E5-2667	6	12	2.9 GHz	3.5 GHz	15MB	8 GT/s	130 W	DDR3-1600	0A89435
Xeon E5-2665	8	16	2.4 GHz	3.1 GHz	20MB	8 GT/s	115 W	DDR3-1600	0A89432
Xeon E5-2660	8	16	2.2 GHz	3 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89462
Xeon E5-2650L	8	16	1.8 GHz	2.3 GHz	20MB	8 GT/s	70 W	DDR3-1600	0A89434
Xeon E5-2650	8	16	2 GHz	2.8 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89433
Xeon E5-2643	4	8	3.3 GHz	3.5 GHz	10MB	8 GT/s	130 W	DDR3-1600	0A89440
Xeon E5-2640	6	12	2.5 GHz	3 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89436
Xeon E5-2630L	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	60 W	DDR3-1333	0A89439
Xeon E5-2630	6	12	2.3 GHz	2.8 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89437
Xeon E5-2620	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89438
Xeon E5-2609	4	4	2.4 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89441
Xeon E5-2603	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89442
Intel Xeon E5-2600 v2 Series									
Xeon E5-2697 v2	12	24	2.7 GHz	3.5 GHz	30MB	8 GT/s	130 W	DDR3-1866	0C19546
Xeon E5-2695 v2	12	24	2.4 GHz	3.2 GHz	30MB	8 GT/s	115 W	DDR3-1866	0C19547
Xeon E5-2690 v2	10	20	3 GHz	3.6 GHz	25MB	8 GT/s	130 W	DDR3-1866	0C19548
Xeon E5-2680 v2	10	20	2.8 GHz	3.6 GHz	25MB	8 GT/s	115 W	DDR3-1866	0C19549
Xeon E5-2670 v2	10	20	2.5 GHz	3.3 GHz	25MB	8 GT/s	115 W	DDR3-1866	0C19550
Xeon E5-2667 v2	8	16	3.3 GHz	4 GHz	25MB	8 GT/s	130 W	DDR3-1866	0C19553
Xeon E5-2660 v2	10	20	2.2 GHz	3 GHz	25MB	8 GT/s	95 W	DDR3-1866	0C19551
Xeon E5-2650 v2	8	16	2.6 GHz	3.4 GHz	20MB	8 GT/s	95 W	DDR3-1866	0C19552
Xeon E5-2650L v2	10	20	1.7 GHz	2.1 GHz	25MB	7.2 GT/s	70 W	DDR3-1600	0C19554
Xeon E5-2640 v2	8	16	2 GHz	2.5 GHz	20MB	7.2 GT/s	95 W	DDR3-1600	0C19555
Xeon E5-2630 v2	6	12	2.6 GHz	3.1 GHz	15MB	7.2 GT/s	80 W	DDR3-1600	0C19558
Xeon E5-2630L v2	6	12	2.4 GHz	2.8 GHz	15MB	7.2 GT/s	60 W	DDR3-1600	0C19556
Xeon E5-2620 v2	6	12	2.1 GHz	2.6 GHz	15MB	7.2 GT/s	80 W	DDR3-1600	0C19557
Xeon E5-2609 v2	4	4	2.5 GHz		10MB	6.4 GT/s	80 W	DDR3-1333	0C19559
Xeon E5-2603 v2	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1333	0C19560

Notes:
All processors specifications is provided by Intel and may be changed at any time without notice. The information herein is provided "as-is".
Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/

Memory type	1600MHz, RDIMM and LV RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMM sockets	twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory capacity	Up to 320GB (16GBx20)
Memory protection	ECC, memory mirroring, memory sparing

Memory options

Memory options	Part Number
ThinkServer 4GB DDR3L-1600MHz (1RX8) RDIMM	0C19533
ThinkServer 8GB DDR3L-1600MHz (2RX8) RDIMM	0C19534
ThinkServer 16GB DDR3L-1600MHz (2RX4) RDIMM	0C19535

Notes:
- *Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs*
- *By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting*
- *When using Intel Xeon E5-2600 series processors, LV RIMM is needed to run at 1.5V to support all 20 memory DIMM sockets. If LV RIMM runs at 1.35V, only 16 memory DIMM sockets are functional (8 of 12 for CPU 1, 8 for CPU 2)*

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ThinkServer RD540 Optional Configurations - Storage and RAID

Disk drive bays

Supports one of the following configurations:
- 8 x 3.5" SAS/SATA disk drive bays
- 8 x 2.5" SAS/SATA disk drive bays
- 16 x 2.5" SAS/SATA disk drive bays

Disk drive options

Disk drive options	Part Number
Hot-swap Disk drive for 3.5" bay	
3.5" SATA Hard Drive	
ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89473
ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89474
ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89475
ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89477
ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19520
3.5" SAS Hard Drive	
ThinkServer 3.5" 1TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19530
ThinkServer 3.5" 2TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19531
ThinkServer 3.5" 3TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19532
ThinkServer 3.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	67Y2616
ThinkServer 3.5" 600GB 15K SAS 6Gbps Hot Swap Hard Drive	67Y2618
2.5" SSD for 3.5" disk bay	
ThinkServer 2.5" 100GB MLC SATA Solid State Drive to 3.5" Kit	0C19571
ThinkServer 2.5" 200GB MLC SATA Solid State Drive to 3.5" Kit	0C19572
ThinkServer 2.5" 400GB MLC SATA Solid State Drive to 3.5" Kit	0C19573
Hot-swap Disk drive for 2.5" bay	
2.5" SATA Hard Drive	
ThinkServer 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19495
ThinkServer 2.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19496
2.5" SAS Hard Drive	
ThinkServer 2.5" 300GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2619
ThinkServer 2.5" 600GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2621
ThinkServer 2.5" 900GB 10K SAS 6Gbps Hot Swap Hard Drive	0A89409
ThinkServer 2.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	0C19494
2.5" SSD	
ThinkServer 2.5" 100GB MLC SATA Solid State Drive	0A89420
ThinkServer 2.5" 200GB MLC SATA Solid State Drive	0A89418
ThinkServer 2.5" 400GB MLC SATA Solid State Drive	0A89419

RAID support

RAID adapter	RAID support	Device Support	Cache	Host bus type	Data transfer rates (per port)	Optional upgrades
ThinkServer RAID 500 (LSI® SAS 9240-8i)	0, 1, 10	SAS/SATA		PCI Express	6Gb/s	optional upgrade key, add RAID 5, 50 support
ThinkServer RAID 700 (LSI SAS 9260-8i)	0, 1, 10, 5, 50, 6, 60	SAS/SATA	512MB	PCI Express	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
ThinkServer RAID 710 (LSI SAS 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	SAS/SATA	1GB	PCI Express	6Gb/s	• optional CacheVault flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath

RAID options

RAID controller and RAID upgrade options	Part Number
ThinkServer RAID 500 Adapter II	0A89464
ThinkServer RAID 500 Upgrade Key for Advanced RAID	0A89407
ThinkServer RAID 700 Adapter II	0A89463
ThinkServer RAID 700 Battery	67Y2647
ThinkServer RAID 710 Adapter	0C19489
ThinkServer RAID 710 Super Capacitor Module (CacheVault)	0C19490
ThinkServer RAID 710 FastPath Software Key	0C19491
ThinkServer RAID 710 CacheCade Pro 2.0 Software Key	0C19492

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ThinkServer RD540 Optional Configurations - Network, System Management, Power Supply

Network options	Network and HBA options	Part Number
	ThinkServer 1Gbps Ethernet I350-T2 Server Adapter by Intel	0C19506
	ThinkServer 1Gbps Ethernet I350-T4 Server Adapter by Intel	0C19507
	Lenovo 10Gbps Ethernet X540-T2 Server Adapter by Intel	0C19497
	Lenovo 10Gbps Ethernet X520-DA2 Server Adapter by Intel	0C19486
	Lenovo 10Gbps Ethernet Fiber Module by Intel	0C19488
	Lenovo 10Gbps Ethernet X520-SR2 Server Adapter by Intel	0C19487
	ThinkServer QLE8242-CU-CK Dual Port CNA by QLogic	0C19483
	HBA	
	ThinkServer LPe1250 Single Port 8Gb Fibre Channel HBA by Emulex	0C19476
	ThinkServer LPe12002 Dual Port 8Gb Fibre Channel HBA by Emulex	0C19478
Security options	Trusted Platform Module options	Part Number
	ThinkServer Trusted Platform Module	0A89428
Systems management options for iKVM	System Management options	Part Number
	ThinkServer Management Module Premium	67Y2624
Power supply options	Power supply options	Part Number
	ThinkServer 800W Gold Hot Swap Redundant Power Supply for Rack	4X20E54690

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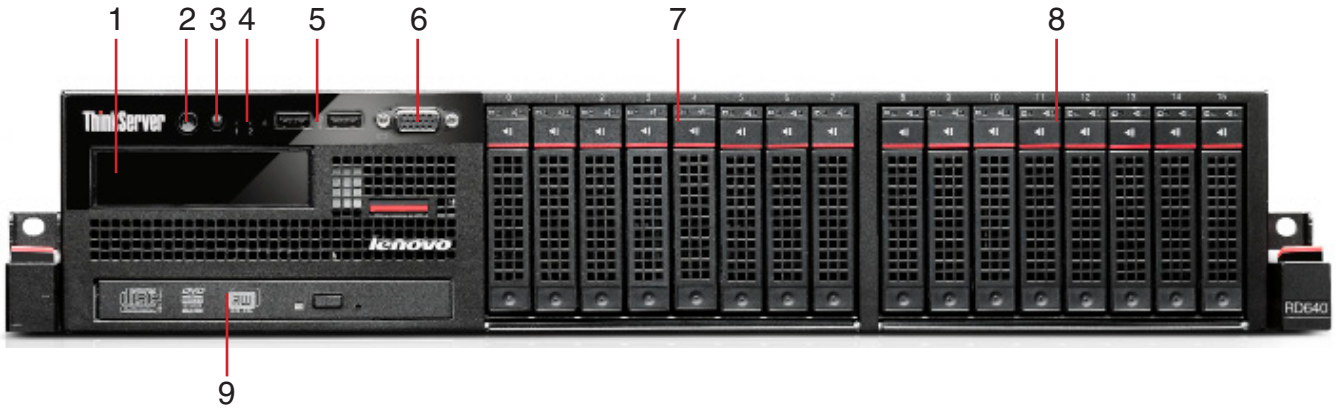
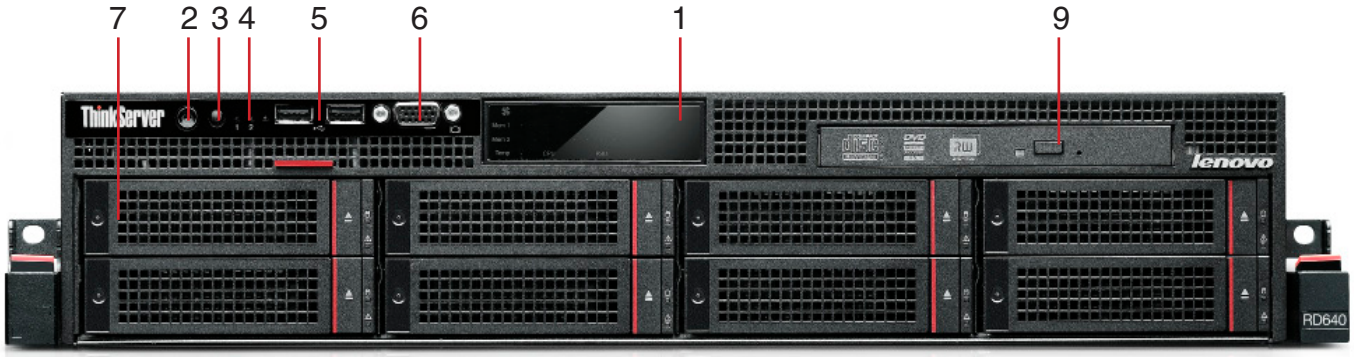
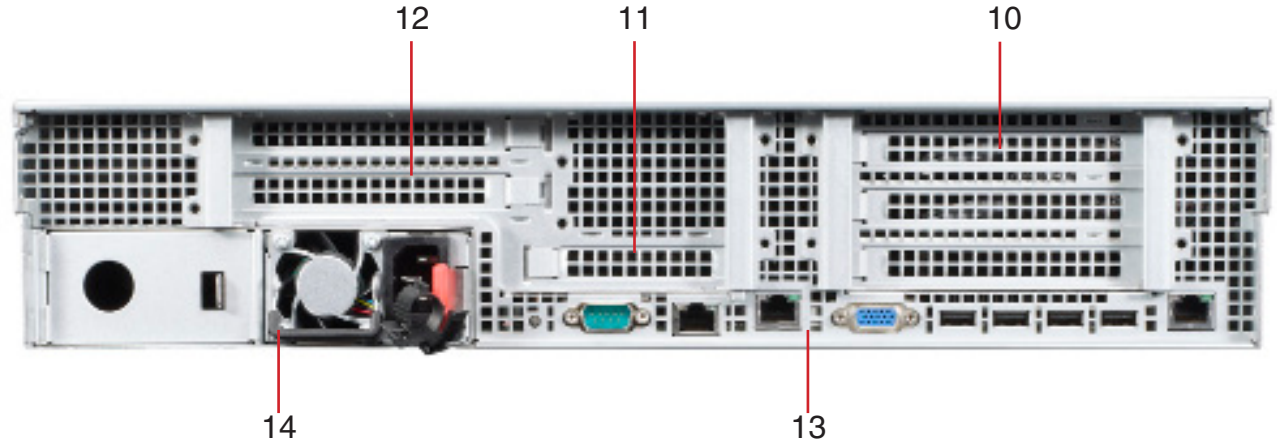
ThinkServer RD640 Overview - Front and Rear



ThinkServer RD640 with 8x2.5"/16x2.5" Disk Drive Bays



ThinkServer RD640 with 8x3.5" Disk Drive Bays



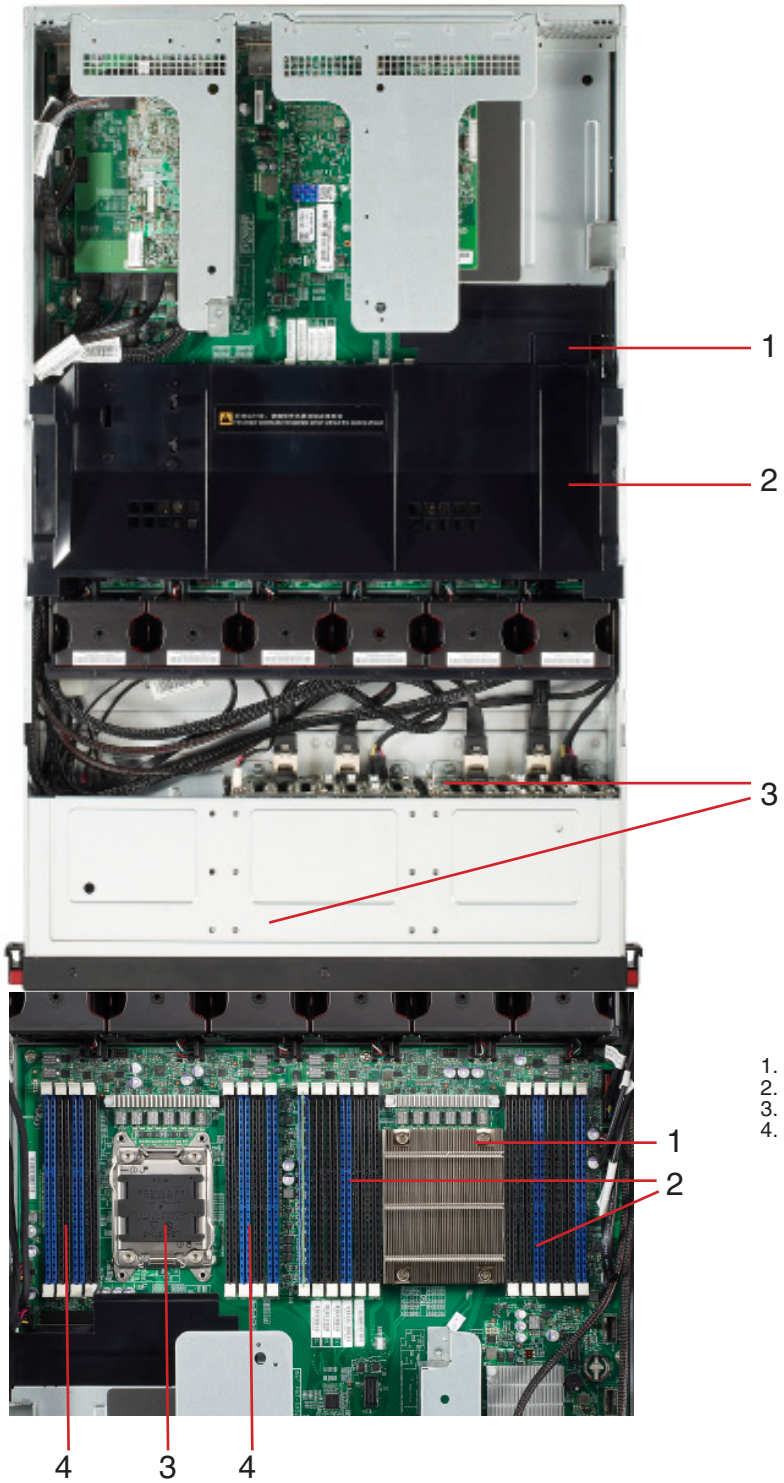
Front View

1. Intelligent Diagnostics Premium Module (optional)
2. Power Button with LED
3. ID button with LED
4. 2 Network interface status LEDs
5. 2 USB 2.0
6. 1 VGA
7. Hot-swap disk drive bays
8. Hot-swap disk drive bays for 16x2.5" hard drive bays model
9. Optical (optional)

Rear View

10. PCI Express slots 1-3
11. PCI Express slots 4
12. PCI Express slots 5-6 (for dual processors model)
13. Rear ports:
    4 USB 2.0
    1 serial
    2 ethernet
    1 RJ-45 (dedicate/share mgmt)
    1 VGA
14. Hot-swap power supplies

ThinkServer RD640 Overview - Internal



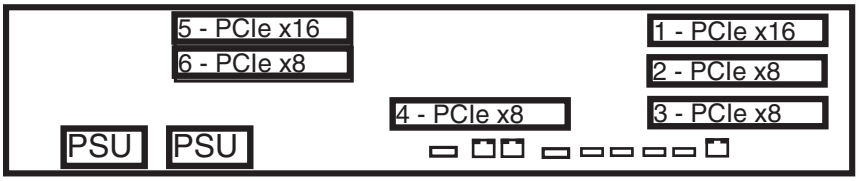
Internal View

1. Hot-swap cooling fans
2. Processors and memory DIMM sockets (under cooling shroud, see below)
3. PCI Express slots

Processors and Memory DIMM Sockets (under cooling shroud)

1. CPU 1
2. 12 Memory DIMM sockets for CPU 1
3. CPU 2 (optional)
4. 8 Memory DIMM sockets for CPU 2 (for dual processors model)

ThinkServer RD640 Platform Specifications

<table>
<tr><th>Components</th><th colspan="3">Specifications</th></tr>
<tr><td>Chipset</td><td colspan="3">Intel C602J Chipset</td></tr>
<tr><td>Mechanical</td><td colspan="3">• 2U rack with rail kit
• 19"W x 28.9"D x 3.45"H (with rack handles)
• 482.4mm W x 734mm D x 87.6mm H (with rack handles)
• 26.5 kg (58.42 lb) when fully configured</td></tr>
<tr><td>Front ports</td><td colspan="3">Two USB 2.0, one analog VGA DB-15 connector</td></tr>
<tr><td>Rear ports</td><td colspan="3">Four USB 2.0, one serial (9-pin), two ethernet (RJ-45),
one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector</td></tr>
<tr><td>Expansion Slots</td><td colspan="3"> 

Up to six PCI-Express slots via two riser cards, riser card 1 for slot 1-3, riser card 2 for slot 4-6
Slot 1: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCI Express 3.0 x8
Slot 3: half-length, full-height, PCI Express 3.0 x8
Slot 4: Low Profile, PCI Express 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCI Express 3.0 x8</td></tr>
<tr><td>Graphics</td><td colspan="3">Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear;
Maximum resolution: 1920x1200@60Hz</td></tr>
<tr><td>Hot-swap parts</td><td colspan="3">Disk drives, power supplies, and cooling fans</td></tr>
<tr><td rowspan="11">Safety, environment, and certifications</td><td>Environmental certifications</td><td colspan="2">• Energy Star Server 1.1 qualified
• RoHS-compliant</td></tr>
<tr><td>EMC</td><td colspan="2">FCC Class A, CSA CE</td></tr>
<tr><td>240VA</td><td colspan="2">Supports</td></tr>
<tr><td>Temperature - operating</td><td colspan="2">50 °F to 95 °F (10 °C to 35 °C)</td></tr>
<tr><td>Temperature - non operating (no package)</td><td colspan="2">-10 °C to 60 °C</td></tr>
<tr><td>Temperature - non operating (with package)</td><td colspan="2">-40 °C to 70 °C</td></tr>
<tr><td>Altitude - operating</td><td colspan="2">Supported Altitude (unpressurized): 0-10000ft (0-3048m)</td></tr>
<tr><td>Humidity - operating</td><td colspan="2">8%~80%, non-condensing</td></tr>
<tr><td>Humidity - non operating (no package)</td><td colspan="2">8%~80%, non-condensing</td></tr>
<tr><td>Humidity - non operating (with package)</td><td colspan="2">8%~90%, non-condensing</td></tr>
<tr><td>Acoustic noise (idle/working mode)</td><td colspan="2"><table>
<tr><th>Category</th><th>Normal Configuration</th><th>Best Configuration</th></tr>
<tr><td>CPU</td><td>1</td><td>2</td></tr>
<tr><td>HDD</td><td>2x 900GB 2.5" SAS 6Gb/s</td><td>16x 900GB 2.5" SAS 6Gb/s</td></tr>
<tr><td>Memory</td><td>1x 8GB 1600MHz LVRDIMM</td><td>20x 8GB 1600MHz LVRDIMM</td></tr>
<tr><td>PCIe adapters</td><td>I350
X520-DA2
Emulex LPe16002</td><td>I350
X520-DA2
Emulex LPe16002</td></tr>
<tr><td>PSU</td><td>1x 800W</td><td>2x 800W</td></tr>
<tr><td>RAID</td><td>RAID 700 adapter</td><td>RAID 700 adapter</td></tr>
<tr><td>Sound Pressure (operating)</td><td>44.1 dB(A)</td><td>42.91 dB(A)</td></tr>
<tr><td>Sound Pressure (idle)</td><td>44.4 dB(A)</td><td>43.8 dB(A)</td></tr>
</table></td></tr>
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ThinkServer RD640 (70B0) - TopSeller (October 2013)

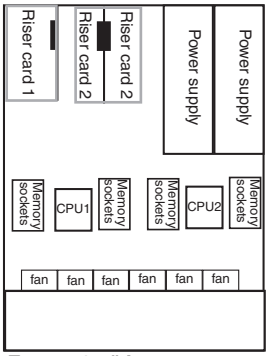
Type-model[1]	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70B00007++	1xE5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	4GBx1	16x2.5"	RAID710	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B00008++	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B00009++	1xE5-2630 v2 6C/2.6GHz/ 15MB/1600MHz	4GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B0000A++	1xE5-2640 v2 8C/2GHz/ 20MB/1600MHz	4GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B0000B++	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	16x2.5"	RAID700	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B0000C++	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx2	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx2	No	3
70B0000D++	1xE5-2640 v2 8C/2GHz/ 20MB/1600MHz	4GBx2	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B0000E++	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3

1. *Model in italics is Global model*

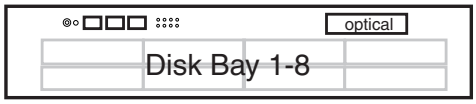
- ***For detailed platform specifications, please see ThinkServer RD640 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD640, please see ThinkServer RD640 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	1600MHz, LV RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays
RAID support	RAID adapter* / RAID support / Cache / Transfer rates / Optional upgrades RAID 500 (LSI® 9240-8i) / 0, 1, 10 / / 6Gb/s / optional upgrade key, add RAID 5, 50 support RAID 700 (LSI 9260-8i) / 0, 1, 10, 5, 50, 6, 60 / 512MB / 6Gb/s / optional intelligent Battery Backup Unit (iBBU08) RAID 710 (LSI 9270CV-8i) / 0, 1, 10, 5, 50, 6, 60 / 1GB / 6Gb/s / • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key * All RAID adapters supports SAS and SATA drives
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer RD640 Platform Specifications*

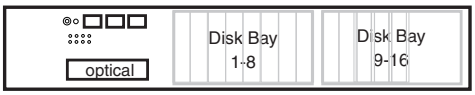
2U Rack top



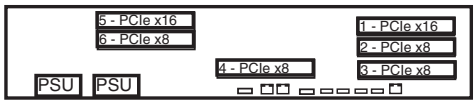
Front - 3.5" bay



Front - 2.5" bay *(Bay 9-16 comes with 16x2.5" models)*



Rear



Front and Rear Ports

Front: 2 USB 2.0, 1 VGA
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: Low Profile, PCIe 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Mechanical

- 2U rack with rail kit
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

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ThinkServer RD640 (70B0) - TopSeller (November 2013)

Product Specifications Reference (PSREF)

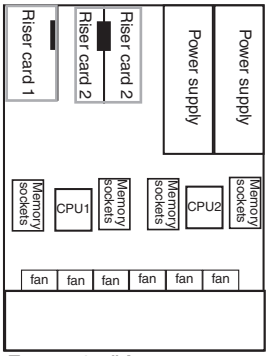
Type-model[1]	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70B0000V++	1xXeon E5-2630 v2 6C/2.6GHz/ 15MB/1600MHz	4GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B0000W++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	16x2.5"	RAID700	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B0000X++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B0000Y++	1xXeon E5-2640 v2 8C/2GHz/ 20MB/1600MHz	4GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B00010++	1xXeon E5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	4GBx1	16x2.5"	RAID710	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B00011++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx2	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx2	No	3
70B00012++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B00013++	1xXeon E5-2640 v2 8C/2GHz/ 20MB/1600MHz	4GBx2	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3

1. *Model in italics is Global model*

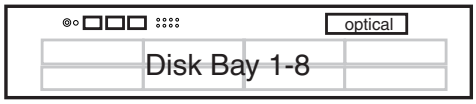
- ***For detailed platform specifications, please see ThinkServer RD640 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD640, please see ThinkServer RD640 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	1600MHz, LV RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays
RAID support	RAID adapter* / RAID support / Cache / Transfer rates / Optional upgrades RAID 500 (LSI® 9240-8i) / 0, 1, 10 / / 6Gb/s / optional upgrade key, add RAID 5, 50 support RAID 700 (LSI 9260-8i) / 0, 1, 10, 5, 50, 6, 60 / 512MB / 6Gb/s / optional intelligent Battery Backup Unit (iBBU08) RAID 710 (LSI 9270CV-8i) / 0, 1, 10, 5, 50, 6, 60 / 1GB / 6Gb/s / • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key * All RAID adapters supports SAS and SATA drives
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see ThinkServer RD640 Platform Specifications

2U Rack top



Front - 3.5" bay



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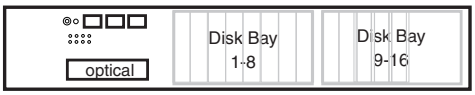
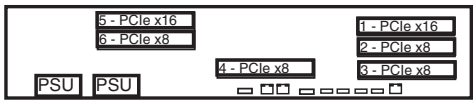


Rear



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Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
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Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: Low Profile, PCIe 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Mechanical

- 2U rack with rail kit
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

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ThinkServer RD640 (70B0) - TopSeller (December 2013)

Product Specifications Reference (PSREF)

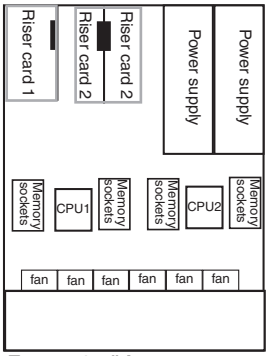
Type-model[1]	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70B0000M++	1xXeon E5-2630 v2 6C/2.6GHz/ 15MB/1600MHz	4GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B0000N++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	16x2.5"	RAID700	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B0000P++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B0000Q++	1xXeon E5-2640 v2 8C/2GHz/ 20MB/1600MHz	4GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B0000R++	1xXeon E5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	4GBx1	16x2.5"	RAID710	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B0000S++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx2	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx2	No	3
70B0000T++	1xXeon E5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	4GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3
70B0000U++	1xXeon E5-2640 v2 8C/2GHz/ 20MB/1600MHz	4GBx2	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM	IPMI	No	No	800Wx1	No	3

1. *Model in italics is Global model*

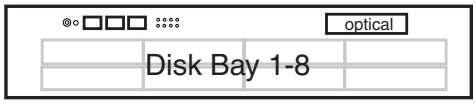
- ***For detailed platform specifications, please see ThinkServer RD640 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD640, please see ThinkServer RD640 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	1600MHz, LV RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays
RAID support	RAID adapter* / RAID support / Cache / Transfer rates / Optional upgrades RAID 500 (LSI® 9240-8i) / 0, 1, 10 / / 6Gb/s / optional upgrade key, add RAID 5, 50 support RAID 700 (LSI 9260-8i) / 0, 1, 10, 5, 50, 6, 60 / 512MB / 6Gb/s / optional intelligent Battery Backup Unit (iBBU08) RAID 710 (LSI 9270CV-8i) / 0, 1, 10, 5, 50, 6, 60 / 1GB / 6Gb/s / • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key * All RAID adapters supports SAS and SATA drives
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see ThinkServer RD640 Platform Specifications

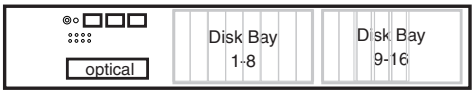
2U Rack top



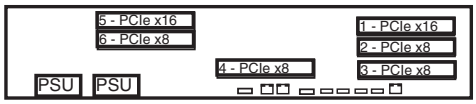
Front - 3.5" bay



Front - 2.5" bay *(Bay 9-16 comes with 16x2.5" models)*



Rear



Front and Rear Ports

Front: 2 USB 2.0, 1 VGA
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: Low Profile, PCIe 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Mechanical

- 2U rack with rail kit
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

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ThinkServer RD640 (70AW) - October 2013

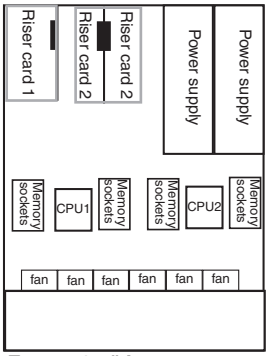
Type-model[1]	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AW0002++	2xE5-2650 v2 8C/2.6GHz/ 20MB/1866MHz	8GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM Premium	IPMI	350T2	No	800Wx2	No	3
70AW0003++	2xE5-2660 v2 10C/2.2GHz/ 25MB/1866MHz	8GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM Premium	IPMI	X520DA2	No	800Wx2	No	3
70AW0004++	2xE5-2690 v2 10C/3GHz/ 25MB/1866MHz	8GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM Premium	IPMI	X520DA2	No	800Wx2	No	3

1. *Model in italics is Global model*

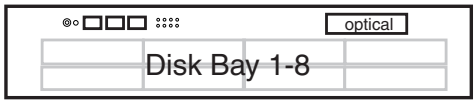
- ***For detailed platform specifications, please see ThinkServer RD640 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD640, please see ThinkServer RD640 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	1600MHz, LV RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays
RAID support	RAID adapter* / RAID support / Cache / Transfer rates / Optional upgrades RAID 500 (LSI® 9240-8i) / 0, 1, 10 / / 6Gb/s / optional upgrade key, add RAID 5, 50 support RAID 700 (LSI 9260-8i) / 0, 1, 10, 5, 50, 6, 60 / 512MB / 6Gb/s / optional intelligent Battery Backup Unit (iBBU08) RAID 710 (LSI 9270CV-8i) / 0, 1, 10, 5, 50, 6, 60 / 1GB / 6Gb/s / • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key * All RAID adapters supports SAS and SATA drives
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer RD640 Platform Specifications*

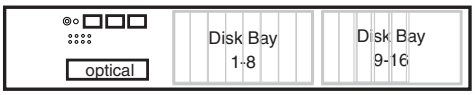
2U Rack top



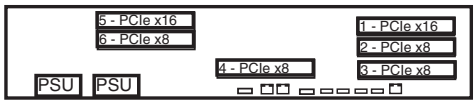
Front - 3.5" bay



Front - 2.5" bay *(Bay 9-16 comes with 16x2.5" models)*



Rear



Front and Rear Ports

Front: 2 USB 2.0, 1 VGA
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: Low Profile, PCIe 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Mechanical

- 2U rack with rail kit
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

© Lenovo

ThinkServer RD640 (70AW) - November 2013

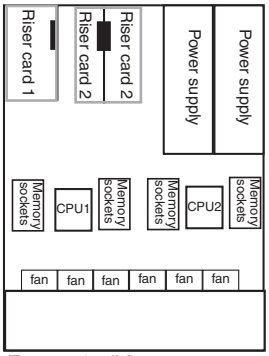
Type-model[1]	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AW000C++	2xXeon E5-2650 v2 8C/2.6GHz/ 20MB/1866MHz	8GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM Pre-mium	IPMI	350-T2	No	800Wx2	No	3
70AW000D++	2xXeon E5-2660 v2 10C/2.2GHz/ 25MB/1866MHz	8GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM Pre-mium	IPMI	X520DA2	No	800Wx2	No	3

1. *Model in italics is Global model*

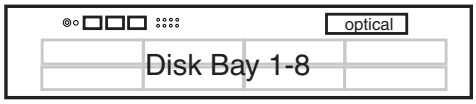
- ***For detailed platform specifications, please see ThinkServer RD640 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD640, please see ThinkServer RD640 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	1600MHz, LV RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays
RAID support	RAID adapter* / RAID support / Cache / Transfer rates / Optional upgrades RAID 500 (LSI® 9240-8i) / 0, 1, 10 / / 6Gb/s / optional upgrade key, add RAID 5, 50 support RAID 700 (LSI 9260-8i) / 0, 1, 10, 5, 50, 6, 60 / 512MB / 6Gb/s / optional intelligent Battery Backup Unit (iBBU08) RAID 710 (LSI 9270CV-8i) / 0, 1, 10, 5, 50, 6, 60 / 1GB / 6Gb/s / • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key * All RAID adapters supports SAS and SATA drives
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer RD640 Platform Specifications*

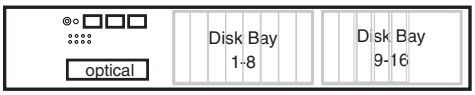
2U Rack top



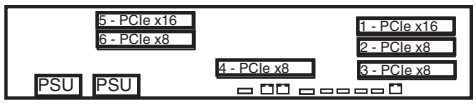
Front - 3.5" bay



Front - 2.5" bay *(Bay 9-16 comes with 16x2.5" models)*



Rear



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Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: Low Profile, PCIe 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Mechanical

- 2U rack with rail kit
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

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ThinkServer RD640 (70AW) - December 2013

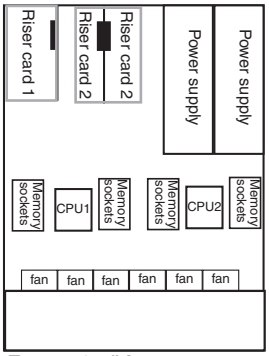
Type-model[1]	Intel Xeon Processor(s)	1600MHz LV RDIMM memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AW0009++	2xXeon E5-2690 v2 10C/3GHz/ 25MB/1866MHz	8GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM Pre-mium	IPMI	X520DA2	No	800Wx2	No	3
70AW000A++	2xXeon E5-2650 v2 8C/2.6GHz/ 20MB/1866MHz	8GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM Pre-mium	IPMI	350-T2	No	800Wx2	No	3
70AW000B++	2xXeon E5-2660 v2 10C/2.2GHz/ 25MB/1866MHz	8GBx4	16x2.5"	RAID710 +CacheVault	Open	DVD±RW	IDM Pre-mium	IPMI	X520DA2	No	800Wx2	No	3

1. *Model in italics is Global model*

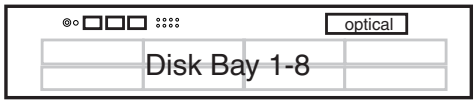
- ***For detailed platform specifications, please see ThinkServer RD640 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD640, please see ThinkServer RD640 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	1600MHz, LV RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays
RAID support	RAID adapter* / RAID support / Cache / Transfer rates / Optional upgrades RAID 500 (LSI® 9240-8i) / 0, 1, 10 / / 6Gb/s / optional upgrade key, add RAID 5, 50 support RAID 700 (LSI 9260-8i) / 0, 1, 10, 5, 50, 6, 60 / 512MB / 6Gb/s / optional intelligent Battery Backup Unit (iBBU08) RAID 710 (LSI 9270CV-8i) / 0, 1, 10, 5, 50, 6, 60 / 1GB / 6Gb/s / • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key * All RAID adapters supports SAS and SATA drives
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer RD640 Platform Specifications*

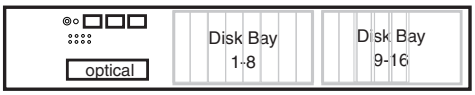
2U Rack top



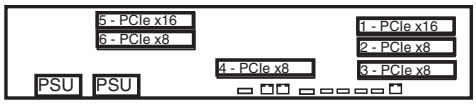
Front - 3.5" bay



Front - 2.5" bay *(Bay 9-16 comes with 16x2.5" models)*



Rear



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Slot 4: Low Profile, PCIe 3.0 x8
Slot 5-6 are available on dual processors models:
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Mechanical

- 2U rack with rail kit
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

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ThinkServer RD640 Optional Configurations - Processor and Memory

Rack kit	Included in models
Processor	Two LGA2011 sockets, supports up to two processors from Intel **Xeon E5-2600** or **Xeon E5-2600 v2** families, up to 8 cores (E5-2600 series)/12 cores (E5-2600 v2 series), two QPI links up to 8.0GT/s each, up to 20MB (E5-2600 series)/30MB (E5-2600 v2 series) cache, integrated 4-channel DDR3 memory controller up to 1600MHz (E5-2600 series)/1866MHz (E5-2600 v2 series). The following processor options are available:

Processor Number	Processors Specifications*								Part Number
	# of Cores	# of Threads	Clock Speed	Max Turbo Frequency	Cache	QPI Speed	Max TDP	Memory Speed	
Intel Xeon E5-2600 Series									
Xeon E5-2690	8	16	2.9 GHz	3.8 GHz	20MB	8 GT/s	135 W	DDR3-1600	0A89429
Xeon E5-2680	8	16	2.7 GHz	3.5 GHz	20MB	8 GT/s	130 W	DDR3-1600	0A89430
Xeon E5-2670	8	16	2.6 GHz	3.3 GHz	20MB	8 GT/s	115 W	DDR3-1600	0A89431
Xeon E5-2667	6	12	2.9 GHz	3.5 GHz	15MB	8 GT/s	130 W	DDR3-1600	0A89435
Xeon E5-2665	8	16	2.4 GHz	3.1 GHz	20MB	8 GT/s	115 W	DDR3-1600	0A89432
Xeon E5-2660	8	16	2.2 GHz	3 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89462
Xeon E5-2650L	8	16	1.8 GHz	2.3 GHz	20MB	8 GT/s	70 W	DDR3-1600	0A89434
Xeon E5-2650	8	16	2 GHz	2.8 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89433
Xeon E5-2643	4	8	3.3 GHz	3.5 GHz	10MB	8 GT/s	130 W	DDR3-1600	0A89440
Xeon E5-2640	6	12	2.5 GHz	3 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89436
Xeon E5-2630L	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	60 W	DDR3-1333	0A89439
Xeon E5-2630	6	12	2.3 GHz	2.8 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89437
Xeon E5-2620	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89438
Xeon E5-2609	4	4	2.4 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89441
Xeon E5-2603	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89442
Intel Xeon E5-2600 v2 Series									
Xeon E5-2697 v2	12	24	2.7 GHz	3.5 GHz	30MB	8 GT/s	130 W	DDR3-1866	0C19546
Xeon E5-2695 v2	12	24	2.4 GHz	3.2 GHz	30MB	8 GT/s	115 W	DDR3-1866	0C19547
Xeon E5-2690 v2	10	20	3 GHz	3.6 GHz	25MB	8 GT/s	130 W	DDR3-1866	0C19548
Xeon E5-2680 v2	10	20	2.8 GHz	3.6 GHz	25MB	8 GT/s	115 W	DDR3-1866	0C19549
Xeon E5-2670 v2	10	20	2.5 GHz	3.3 GHz	25MB	8 GT/s	115 W	DDR3-1866	0C19550
Xeon E5-2667 v2	8	16	3.3 GHz	4 GHz	25MB	8 GT/s	130 W	DDR3-1866	0C19553
Xeon E5-2660 v2	10	20	2.2 GHz	3 GHz	25MB	8 GT/s	95 W	DDR3-1866	0C19551
Xeon E5-2650 v2	8	16	2.6 GHz	3.4 GHz	20MB	8 GT/s	95 W	DDR3-1866	0C19552
Xeon E5-2650L v2	10	20	1.7 GHz	2.1 GHz	25MB	7.2 GT/s	70 W	DDR3-1600	0C19554
Xeon E5-2640 v2	8	16	2 GHz	2.5 GHz	20MB	7.2 GT/s	95 W	DDR3-1600	0C19555
Xeon E5-2630 v2	6	12	2.6 GHz	3.1 GHz	15MB	7.2 GT/s	80 W	DDR3-1600	0C19558
Xeon E5-2630L v2	6	12	2.4 GHz	2.8 GHz	15MB	7.2 GT/s	60 W	DDR3-1600	0C19556
Xeon E5-2620 v2	6	12	2.1 GHz	2.6 GHz	15MB	7.2 GT/s	80 W	DDR3-1600	0C19557
Xeon E5-2609 v2	4	4	2.5 GHz		10MB	6.4 GT/s	80 W	DDR3-1333	0C19559
Xeon E5-2603 v2	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1333	0C19560

Notes:
All processors specifications is provided by Intel and may be changed at any time without notice. The information herein is provided "as-is".
Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/

Memory type	1600MHz, RDIMM and LV RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMM sockets	twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory capacity	Up to 320GB (16GBx20)
Memory protection	ECC, memory mirroring, memory sparing

Memory options

Memory options	Part Number
ThinkServer 4GB DDR3L-1600MHz (1RX8) RDIMM	0C19533
ThinkServer 8GB DDR3L-1600MHz (2RX8) RDIMM	0C19534
ThinkServer 16GB DDR3L-1600MHz (2RX4) RDIMM	0C19535

Notes:
- *Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs*
- *By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting*
- *When using Intel Xeon E5-2600 series processors, LV RIMM is needed to run at 1.5V to support all 20 memory DIMM sockets. If LV RIMM runs at 1.35V, only 16 memory DIMM sockets are functional (8 of 12 for CPU 1, 8 for CPU 2)*

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ThinkServer RD640 Optional Configurations - Storage and RAID

Disk drive bays

Supports one of the following configurations:
- 8 x 3.5" SAS/SATA disk drive bays
- 8 x 2.5" SAS/SATA disk drive bays
- 16 x 2.5" SAS/SATA disk drive bays

Disk drive options

Disk drive options	Part Number
Hot-swap Disk drive for 3.5" bay	
3.5" SATA Hard Drive	
ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89473
ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89474
ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89475
ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89477
ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19520
3.5" SAS Hard Drive	
ThinkServer 3.5" 1TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19530
ThinkServer 3.5" 2TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19531
ThinkServer 3.5" 3TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19532
ThinkServer 3.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	67Y2616
ThinkServer 3.5" 600GB 15K SAS 6Gbps Hot Swap Hard Drive	67Y2618
2.5" SSD for 3.5" disk bay	
ThinkServer 2.5" 100GB MLC SATA Solid State Drive to 3.5" Kit	0C19571
ThinkServer 2.5" 200GB MLC SATA Solid State Drive to 3.5" Kit	0C19572
ThinkServer 2.5" 400GB MLC SATA Solid State Drive to 3.5" Kit	0C19573
Hot-swap Disk drive for 2.5" bay	
2.5" SATA Hard Drive	
ThinkServer 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19495
ThinkServer 2.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19496
2.5" SAS Hard Drive	
ThinkServer 2.5" 300GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2619
ThinkServer 2.5" 600GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2621
ThinkServer 2.5" 900GB 10K SAS 6Gbps Hot Swap Hard Drive	0A89409
ThinkServer 2.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	0C19494
2.5" SSD	
ThinkServer 2.5" 100GB MLC SATA Solid State Drive	0A89420
ThinkServer 2.5" 200GB MLC SATA Solid State Drive	0A89418
ThinkServer 2.5" 400GB MLC SATA Solid State Drive	0A89419

RAID support

RAID adapter	RAID support	Device Support	Cache	Host bus type	Data transfer rates (per port)	Optional upgrades
ThinkServer RAID 500 (LSI® SAS 9240-8i)	0, 1, 10	SAS/SATA		PCI Express	6Gb/s	optional upgrade key, add RAID 5, 50 support
ThinkServer RAID 700 (LSI SAS 9260-8i)	0, 1, 10, 5, 50, 6, 60	SAS/SATA	512MB	PCI Express	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
ThinkServer RAID 710 (LSI SAS 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	SAS/SATA	1GB	PCI Express	6Gb/s	• optional CacheVault flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath

RAID options

RAID controller and RAID upgrade options	Part Number
ThinkServer RAID 500 Adapter II	0A89464
ThinkServer RAID 500 Upgrade Key for Advanced RAID	0A89407
ThinkServer RAID 700 Adapter II	0A89463
ThinkServer RAID 700 Battery	67Y2647
ThinkServer RAID 710 Adapter	0C19489
ThinkServer RAID 710 Super Capacitor Module (CacheVault)	0C19490
ThinkServer RAID 710 FastPath Software Key	0C19491
ThinkServer RAID 710 CacheCade Pro 2.0 Software Key	0C19492

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ThinkServer RD640 Optional Configurations - Network, System Management, Power Supply

Network options	Network and HBA options	Part Number
	ThinkServer 1Gbps Ethernet I350-T2 Server Adapter by Intel	0C19506
	ThinkServer 1Gbps Ethernet I350-T4 Server Adapter by Intel	0C19507
	Lenovo 10Gbps Ethernet X540-T2 Server Adapter by Intel	0C19497
	Lenovo 10Gbps Ethernet X520-DA2 Server Adapter by Intel	0C19486
	Lenovo 10Gbps Ethernet Fiber Module by Intel	0C19488
	Lenovo 10Gbps Ethernet X520-SR2 Server Adapter by Intel	0C19487
	ThinkServer QLE8242-CU-CK Dual Port CNA by QLogic	0C19483
	HBA	
	ThinkServer LPe1250 Single Port 8Gb Fibre Channel HBA by Emulex	0C19476
	ThinkServer LPe12002 Dual Port 8Gb Fibre Channel HBA by Emulex	0C19478
Security options	Trusted Platform Module options	Part Number
	ThinkServer Trusted Platform Module	0A89428
Systems management options for iKVM	System Management options	Part Number
	ThinkServer Management Module Premium	67Y2624
Power supply options	Power supply options	Part Number
	ThinkServer 800W Gold Hot Swap Redundant Power Supply for Rack	4X20E54690

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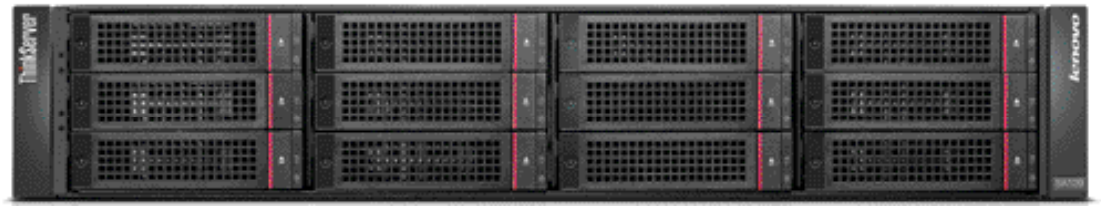
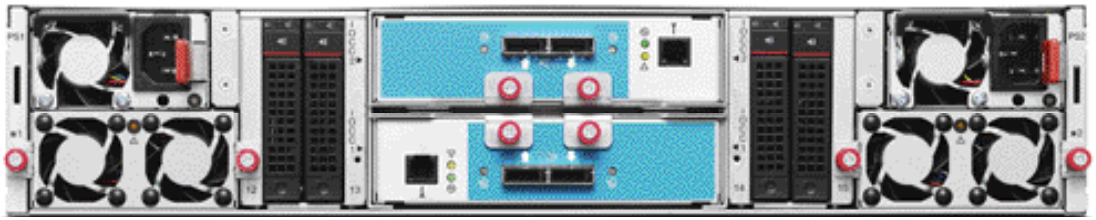
ThinkServer SA120 Direct Attached Storage Photography



Front View

Rear View
(With optional 2nd I/O module and 2nd power supply)



Rear View
(With optional 4 x 2.5" SATA SSD hot-swap disk drive bays, 2nd I/O module, and 2nd power supply)

ThinkServer SA120 Direct Attached Storage - Standard Models

Type	Type-model	I/O Module (1 or 2)	Front 12 x 3.5" disk bays for SAS disk drives	Rear 4 x 2.5" disk bays for SATA SSD	Front 3.5" SAS hot-swap drives (up to 12)	Rear 2.5" SATA SSD hot-swap drives (up to 4)	External minSAS Cable (SFF8088 to SFF8088)	Power Supply (1 or 2)	Rail kit	Base Warranty
70F1	70F10002xx	2	12 x 3.5"	No	Open	No	2 x 1m	2 x 550W	Rail kit	3
70F1	70F10003xx	1	12 x 3.5"	No	Open	No	1 x 1m	1 x 550W	Rail kit	3

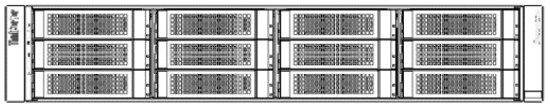
70F1:TopSeller models

Connection mode	Connects directly to host server, up to 4 enclosures per port (cascading mode)
Compatible host server and RAID controllers/Host Bus adapters	Supports the following RAID controller or Host Bus adapters on compatible host servers, RAID levels are supported by RAID controller on host server:

RAID/HBA adapters	PN	TD340 RD340 RD440 RD540 RD640	RD330 RD430 RD530 RD630
LSI 9280-8e 6Gb SAS RAID HBA by LSI (0/1/10/5/50/6/60)	4XB0F28645	Yes	Yes
LSI 9286CV-8e 6Gb SAS RAID HBA by LSI (0/1/10/5/50/6/60)	4XB0F28646	Yes	

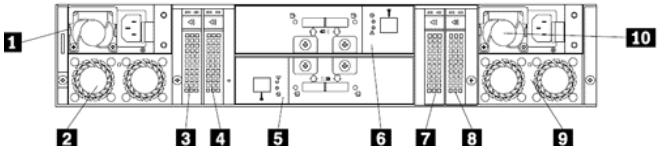
I/O Module	Supports 1 or 2 ThinkServer Storage Array 6Gbps I/O Modules, redundant with two I/O modules
Front 3.5" Disk Bays	12 x 3.5" SAS hard drive bays, hot-swap, supports 1TB/2TB/3TB/4TB 3.5" SAS 6.0Gb/s 7200 rpm hard drives
Rear 2.5" Disk Bays (optional)	Optional 4 x 2.5" SATA SSD hot-swap disk drive bays. Requires optional ThinkServer 2.5" SATA SSD Cage with SATA Interposers (4XF0F28766, includes two SSD cages for 4 bays)
Maximum storage per enclosure	Front 3.5" Disk Bays: up to 48TB (using 12 x 4TB 3.5" SAS hard drives) Optional rear 2.5" Disk Bays: up to 3.2TB (using 4 x 800GB 2.5" SSD drives)
External minSAS Cable (option)	Optional 0.5m/1.0m/2.0m/4.0m/6.0m SFF8088 to SFF8088 26-pin Mini-SAS cables
Fan module	Two fan modules standard, hot-swap, redundant, two fans per fan module
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Rail kit	Includes static rail kit for rack mount
Systems Management	• SCSI Enclosure Services (SES) command set • Enclosure management via IOCC controller • Includes one RS232 to RJ11 cable for remote debug and firmware upgrade
Mechanical	• 2U rack, static rail kit included • 19"W x 15.51"D x 3.4"H (with rack handles) • 482.6mm W x 394.05mm D x 86.6mm H (with rack handles) • 22 kg (48.5 lb) when fully configured
Environment	• **Air temperature:** Operating: 10°C to 35°C (50°F to 95°F) Storage: -40°C to 70°C (-40°F to 158°F) in original package • **Altitude:** 0-10000ft (0-3048m), unpressurized • **Humidity:** Operating: 8% to 80% (non-condensing) Storage without package: 8% to 80% (non-condensing) Storage with package: 8% to 90% (non-condensing)

Front



12 x 3.5" hot-swap SAS disk drive bays

Rear



1	Power Supply 1	5	I/O module 1
2/9	Fan modules	6	I/O module 2 (optional)
3/4/7/8	Rear 4 x 2.5" SATA SSD drive bays (optional)	10	Power Supply 2 (optional)

Rear Ports (per I/O module)

1 SAS (SFF8088) IN connector for connection to host server
1 SAS (SFF8088) OUT connector for connection to another enclosure
1 RJ-11 port for remote debug and firmware upgrade

Core Options

3.5" 1TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19530
3.5" 2TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19531
3.5" 3TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19532
3.5" 4TB 7.2K SAS 6Gbps Hot Swap Hard Drive	4XB0F28635
2.5" 100GB Mainstream Multipurpose SATA 6Gbps Hot Swap SSD	4XB0F28636
2.5" 200GB Mainstream Multipurpose SATA 6Gbps Hot Swap SSD	4XB0F28637
2.5" 400GB Mainstream Multipurpose SATA 6Gbps Hot Swap SSD	4XB0F28638
2.5" 800GB Mainstream Multipurpose SATA 6Gbps Hot Swap SSD	4XB0F28639
2.5" 120GB Value Read-Optimized SATA 6Gbps Hot Swap SSD	4XB0F28615
2.5" 240GB Value Read-Optimized SATA 6Gbps Hot Swap SSD	4XB0F28616
2.5" 300GB Value Read-Optimized SATA 6Gbps Hot Swap SSD	4XB0F28640
2.5" 480GB Value Read-Optimized SATA 6Gbps Hot Swap SSD	4XB0F28617
2.5" 800GB Value Read-Optimized SATA 6Gbps Hot Swap SSD	4XB0F28641
550W Gold Hot Swap Redundant Power Supply	4X20E54689
ThinkServer Storage Array 6Gbps IO Module	4XF0F28765
ThinkServer 2.5" SATA SSD Cage with SATA Interposers (includes two SSD cages for 4 bays)	4XF0F28766
0.5 meters 26 Pin (SFF-8088 to SFF-8088) External mini-SAS cable	4X90F31494
1 meter 26 Pin (SFF-8088 to SFF-8088) External mini-SAS cable	4X90F31495
2 meters 26 Pin (SFF-8088 to SFF-8088) External mini-SAS cable	4X90F31496
4 meters 26 Pin (SFF-8088 to SFF-8088) External mini-SAS cable	4X90F31497
6 meters 26 Pin (SFF-8088 to SFF-8088) External mini-SAS cable	4X90F31498

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Withdrawn Product Books

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PSREF books for the withdrawn systems:
http://www.lenovo.com/psref/psrefs_withdrawn.html

Availability: All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographic errors.

Warranty: For a copy of applicable product warranties, write to: Warranty Support Dept., EMEA Services, Lenovo, Eisteinova 21, 851 01 Bratislava, Slovakia. Lenovo makes no representation or warranty regarding third party products or services.

[1] **Limited warranty:** Support unrelated to a warranty issue may be subject to additional charges.

[2] **Hard drive:** GB = billion bytes, TB = trillion bytes. Accessible capacity is less.

[3] **Systems with limited onsite service** are designed to be repaired during the applicable warranty period primarily with customer-replaceable parts provided by Lenovo. Lenovo will only send a technician onsite to perform a repair if (a) remote telephone diagnosis and/or customer part replacement are unable to resolve the problem, or (b) the part is one of the few designated by Lenovo for onsite replacement. For a list of onsite replaceable parts, contact Lenovo. Support unrelated to a warranty issue may be subject to additional charges. Support phone list available at www-307.ibm.com/pc/support/site.wss/document.do?lndocid=MIGR-70552

[4] **SATA/SAS:** The system configuration supports the installation of either SATA or SAS disks. A configuration including both SATA and SAS disks is not supported.

[7] **Lenovo Services:** These services are available for machines normally used for business, professional, or trade purposes, rather than personal, family, or household purposes. Not all machine types and models are covered. Service period begins with the equipment date of purchase. Service must be purchased during the original limited product warranty period. Service levels are response time objectives and are not guarantees. If the machine problem turns out to be a Customer Replaceable Unit (CRU), a part will be express shipped to you for quick replacement. See Lenovo Warranty Services terms and conditions for complete details and restrictions.

[8] **RAID:** Supported RAID levels for a system will vary from the stated capabilities of the RAID controller due to dependencies on the number and capacity of physical disks in the system and on customer requirements for performance, fault tolerance, or data redundancy.
RAID levels and requirements:

- *RAID 0 (striping)* provides increased performance by writing data across multiple drives.
- *RAID 1 (mirroring)* provides fault tolerance by writing the data on two drives.
- *RAID 5 (striping with parity)* uses distributed parity data to provide fault tolerance more efficiently than RAID 1. Requires three or more drives.
- *RAID 6 (striped set with dual distributed parity)* provides fault tolerance from two drive failures; array continues to operate with up to two failed drives. Requires four drives.
- *RAID 10 (or RAID 1+0)* combines RAID 1 and RAID 0 to create a stripe of mirrors that is fault tolerant while offering increased performance. Requires four drives.
- *RAID 50 (or RAID 5+0)* combines RAID 5 and RAID 0 to create block-level striping with distributed parity improving performance over RAID 5. Requires six drives.
- *RAID 60 (or RAID 6+0)* combines RAID 6 and RAID 0 to create block-level striping with distributed double parity improving performance over RAID 6. Requires eight drives.

[14] **Response times may vary.** Response time is an average target and comitted service level. May exclude some holidays. Telephone support may be subject to additional charges.

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