

BUYERS' GUIDE

National Framework for Workstation Client Devices

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Lenovo

A collaborative
contract placed
on behalf of the
Scottish Public Sector
by Scottish Procurement





We are XMA.

We deliver innovative IT solutions that enhance how people learn, teach, govern, deliver healthcare and do business. We are a team of over 250 specialists, based across the UK who bring together over 30 years of experience, world class vendor partnerships and broad service delivery capabilities on the ground and in the cloud.

Part of an independently owned British group, we are based in Nottingham, Reading, Halifax, Glasgow, Cwmbran and London. We have national reach and a local touch. Our UK-based data centre and ISO:27001 accreditation means we can host your data, applications and infrastructure in the cloud, securely.

We are a compliant route to purchase, with presence on local and national frameworks for hardware supply and services. Our partners are the biggest names in computing, infrastructure and print. We take their products and build, deliver and maintain solutions that work for you.



About the Framework

XMA was awarded The Scottish Government National Framework for Workstation Client Devices in March 2016. The framework enables public sector organisations in Scotland to purchase from the enclosed range of Workstation Devices.

Buyers are reminded of the obligations contained in the Procurement Reform (Scotland) Act 2014 in relation to the award of contracts valued equal to or greater than £50,000 including those awarded as a result of a framework call-off/mini competition. In particular, Buyers should note that in accordance with Section 23(2) the award of contracts must be publicised on the Public Contracts Scotland website and in accordance with Section 35 contracts must be registered in the contracting authority's "contracts register".

Why Lenovo Workstations?

Lenovo are the Worlds number 1 PC brand and have been driving innovation in the market for over 25 years!

With a larger than ever focus on our Workstation product range, Lenovo are starting to replicate this success within this product line and are starting to take the market by storm – sustainable market growth through industry leading innovation:

- Industry Fastest Growing Workstation Brand Worldwide!
- Industry's Most Reliable Desktop & Mobile Workstations - broad range of devices ensuring a solution for every requirements
- Increased system performance through Lenovo's Performance Tuner (LPT) – achieving more with less
- Patented Workstation Diagnostic solutions – significantly reduce time spent diagnosing system faults
- Patented Tri-Channel Cooling – up to 61% lower running temps than top competition
- The World's Best Designed Desktop Workstation – Tool-Less & Modular in design
- 100% Scalable & Upgradable – Tool-Less & Modular, Quick & Easy to Upgrade
- Military Spec Tested ThinkPad Credentials – Engineered to Last!

Lenovo's innovation at its best:

Lenovo Performance Tuner (LPT) – A free of charge software tool which could increase application performance by up to 25% on any ThinkStation product! LPT detects which ISV applications are installed on your WorkStation and can dynamically optimise your machine depending on which application is open at any given time. Not using an ISV application? Not an issue, with LPT you can even create custom profiles for any application that is installed on your machine:

- Customize Resources Affinity by SW Application
- Customize Graphical Settings
- Manage your Power Settings

ThinkStation Diagnostics (when system is online)

- Desktop application that notifies a user of any errors the system detects
- This application is stand-alone application, preloaded with every system
- Provides error code + description of issue, warranty information and also step-by-step troubleshooting

Lenovo PC Diagnostics (when system is offline)

- Mobile App for both Android and iOS devices (replaces ThinkStation Diagnostics App)
- Designed as a failsafe for diagnostics in case the system will not boot
- Instead of using a cable for transfer, diagnostic information will be sent by a series of audible tones
- The audio tones are translated to a specific error message, which will be displayed on your smartphone

Cooling

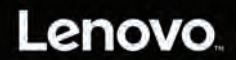
Despite being able to fit up 2 x Xeon CPUs (up to 56 physical cores) and 3 x NVIDIA Quadro GV100 cards in a single chassis, the system is fitted with just three system fans meaning that the Workstations are considerably quieter and more energy efficient than any of the competition.

Despite only having three fans, Lenovo's patented Tri-Channel cooling system ensures efficient cooling throughout – in fact, the system is so efficient that Lenovo Workstations can run up to 61.5% cooler than the competition.

ThinkStation P330 (from £411.70 - see page 14)

The P330 is Lenovo's entry level workstation however offers more than entry level performance. Boasting 8th gen Core I and Xeon processors and NVIDIA Quadro Professional 3D graphics, the P330 range is more than capable of driving Web Development, 2D\3D workflows as well as delivering a fluid VR experience. Available in both "Tower" and "Small Form Factors" and in a wide variety of specs, a solution can be built to meet any size of project and/or budget.

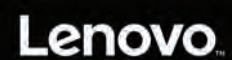
Perfect for 3D CAD, Engineering, Architectural Design, Simple Rendering and Smaller Scale VR Projects.



ThinkStation P330 Tiny (from £680.50 - see page 16)

The Lenovo ThinkStation P330 Tiny is the world's smallest ISV certified professional workstations. Just 1litre in size (1L), this small yet mighty graphics workstation can deliver a serious punch. Do not let its small size deceive you, these are some seriously powerful workstations. Featuring Intel core i7 8th gen CPU's, up to 32GB of DDR Memory, up to 4GB NVIDIA Quadro Professional 3d Graphics and 2TB of NVMe PCI-Express storage; capable of driving 6x 4K displays (@ 60Hz) the Lenovo Tiny Workstation portfolio is the most innovative range on the market today. Available with Wi-Fi, Bluetooth and supports the entire portfolio of Lenovo Think 'Tiny' accessories (VESA Mounts, Desk Stands, Clamps, Mounts etc).

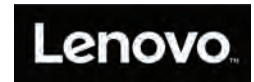
Perfect for power office, 2D/3D CAD, building information modelling, desktop publishing, digital signage, software development and more.



ThinkStation P520 (from £1210 - see page 17)

The Lenovo ThinkStation P520 (33L) is the fastest performing desktop workstation. Powered by the latest Intel Xeon W series of CPU paired with the innovative Intel Basin Falls chipset architecture, this supremely fast, yet scalable workstation is the most advanced workstations in our portfolio. Capable of delivering clock speeds up to 4.5GHz and available with up to 18x processing cores, the ThinkStation P520 can deliver superior performance when you need it most; helping you cut through complex digital workflows faster and more efficiently than ever before.

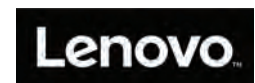
Perfect for 3D CAD Design, Simulation, Building Information Modelling, Rendering and much more.



ThinkStation P720 and P920 P720 (from £1210 - see page 19) P920 (from £1738 - see page 21)

The Lenovo ThinkStation P720 (33L) and range topping ThinkStation P920 (55L) represent the pinnacle of desktop computing power and performance at Lenovo. Powered by up to two Intel Xeon Scalable CPUs (Bronze, Silver, Gold or Platinum Editions) paired with the innovative Intel Purley chipset architecture this bleeding edge portfolio of dual processor workstations has been developed to handle anything that you can throw at it. Capable of delivering up to 112x processing computing threads (56x processor cores) with up to 2TB of system memory, the ThinkStation P720/920 can deliver absolute performance and system scalability when you need it most. Configurable with up to 5x GPUs (P920) and with support for the NVIDIA Quadro GV100 these top of the range computing systems can not only meet, but exceed the rigorous performance and memory requirements of even the most challenging of digital workflows.

Perfect for 3D rendering & simulation tasks, visual effects, video editing, seismic analysis and reservoir modelling, big data, artificial intelligence, research projects and more.



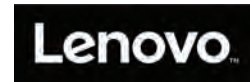
ThinkPad P52 and P72

P52 (from £748 - see page 23)

P72 (from £3222.45 - see page 25)

The ThinkPad P52 and P72 set the new standard for mobile workstations; combining the legacy of ThinkPad build quality and cutting-edge technology. Breaking down barriers, the ThinkPad P52 and P72 allow users to do more and go farther; whether it's increased performance within traditional ISV workflows, AR and VR content creation, or deployment of mobile AI the ThinkPad's have revolutionised what can be achieved with a 15inch and 17inch Workstation (respectively). 8th gen Intel Core I and Xeon processors, up to 128GB, 6TB of storage, Pro VR ready certified P3200/P5200 NVIDIA GPU's (respectively) with both 4K and 400nits 100% Adobe colour gamut displays, these ThinkPad Mobile Workstation's are geared up to handle some of the most complex workflows in the market.

Perfect for complex 3D CAD, Power Office, Desktop Publishing/ Graphics, Media/Web Design, Visual Effects, Analysis, Simulation & Modelling, Architectural Layouts and more.



P72 only with P4000 or greater graphics card

ThinkPad P52s and P1

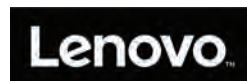
P52s (from £935 - see page 23)

P1 (from £1435.35 - see page 26)

The Lenovo ThinkPad P52s is our thinnest and lightest professional mobile workstations. Featuring Lenovo exclusive Power Bridge technology this light-weight, portable 15.6" laptop workstation can deliver over 17hrs of battery life and features Intel Core i7 8th generation quad-core processors, up to 32GB of memory and NVIDIA Quadro professional workstation graphics. Weighing in at just under 2Kg, yet featuring a supremely bright LED backlit display (FHD+ & UHD/4K options available) the ThinkPad P52s delivers on performance, battery life, screen resolution, graphical power and weight; making it the perfect companion for anyone requiring an ISV certified mobile workstation whilst travelling for long periods of time.

Perfect for 2D & 3D CAD, Power Office, Desktop Publishing/Graphics, Media/Web Design, Architectural Layouts and more.

From the office to the boardroom to your clients, the ThinkPad P1 maximizes performance in a sleek 1.76KG notebook. Designed For Architecture Principals, C-staff, Designers and Engineers who need workstation performance in an Ultrabook™ format and with weights starting at just 1.76KG, this latest gen device is supplied with 8th Gen Intel Core and Xeon CPU's, Up to 4TB of M.2 Storage, 64GB RAM and NVIDIA Quadro P2000 GPU's, making this Lenovo's most powerful ThinkPad Notebook ever.



Intel Processors – Core i vs. Xeon

Intel designs a wide variety of central processor units (CPUs) for use in all manner of different computing platforms, from smart phones through to desktop PC, workstations and servers. Within enterprise class ‘full-fat’ workstations the Intel Xeon range of processors is king; delivering the highest levels of performance, features and reliability to users with any size or scope of workflow.

Intel’s consumer and high-end business processors based on their Core i technology can be popular; however the differences between the Core i range of CPUs and the Intel Xeon CPUs should be noted and we have listed some of these in the table below:

	Core i7	Xeon
Support for ECC Memory	No	Yes
Support Intel vPro/AMT	Only certain models	Yes
Multi-CPU Support	No	Yes
Extended Memory Support	Max 64GB	Max 2TB+
PCI-Express Support	PCI-E Gen3 - 40x Lanes	PCI-E Gen3 - 40x Lanes
Native PCI bus Support	No	Yes
Extended Lifecycle/Roadmap	No – 12/18 months	Yes - 36 months

If there is a requirement to upgrade from a Core-I to Xeon CPU, or from a 4 core Xeon CPU to a Xeon CPU with more than 4 cores, you must also upgrade the Microsoft licence from Win10 Pro 64 to Win 10 Pro for WS edition.

OS Upgrade options - required when upgrading Core-I to 4 core Xeon, and from 4 core to more than 4 core Xeon CPU's:

Code	Description	Price
SBB0Q40115	Win10 Pro WS up to 4C DPK (Core-i to 4 core Xeon)	£40.00
SBB0Q40117	Win 10 Pro WS over 4C SC DG DPK (4 core to more than 4 core Xeon)	£120.00

NVIDIA Graphics – GeForce vs. Quadro

NVIDIA is the world's leading manufacturer of graphics processor units (GPUs). They produce a wide variety of technologies for both enterprise class and consumer level users, each with varying features and requirements. For graphics workstations NVIDIA's Quadro range of ISV certified graphics and the world's #1 choice for professional users; delivering outstanding levels of performance, reliability all backed by bleeding edge features and software tools. On the consumer side, with gaming being the main customer base the NVIDIA GeForce range of graphics cards is king; however there is often some misconception that Quadro & GeForce are similar and this isn't always the case. Both NVIDIA Quadro & NVIDIA GeForce are based on the same generation of NVIDIA GPU technology (so graphics performance is the same); however this is where the similarities end and there quite a few differences.

	GeForce	Quadro
Class\Certifications	Consumer grade cards - not ISV certified	Professional\enterprise grade graphics cards which have received ISV certifications
Manufacturing Process	Cards are not manufactured by NVidia therefore components are liable to changing from one card to another	Cards are manufactured by NVidia using a strict set of components and a fixed BOM
Image Management	As cards components are subject to change, the drivers are also likely to be different - this makes it difficult to build a standard SCCM driver pack\image for multiple machines in an environment	As cards are manufactured with a set component list, there is only one driver to manage which simplifies SCCM imaging\ driver packages
Driver Development	Driver development is carried out by the manufacturer of the specific cards, different drivers may offer varied support so performance may differ. There is also no fixed route to request bug fixes	NVidia invest far more in driver development on Quadro to optimize for CAD applications especially with OpenGL and also to respond to bug fix requests
Support	No escalation path for technical support as NVIDIA provide a reference design only, it's down to the ODM as to how it's implemented	As cards are manufactured by NVidia, there are fixed support routes\channels within NVidia available for customers
Lifecycle	No fixed road map for the cards	As cards are manufactured by NVidia, there are fixed road maps for the products
*bit Colour Support	Limited to 8bit colour display - systems like PACS require a minimum of 10bit as do some applications within the Adobe portfolio - exception when using Direct X (as opposed to OpenGL) however professional applications typically only have support for OpenGL	Able to support up to 32bit colour in both DirectX and OpenGL
Multiple Cards	If multiple cards are used in a single chassis, the core count will scale with the number of cards however the memory doesn't so it will not improve FPS\ability to buffer	If multiple cards are used in a single chassis, the core count will scale with the number of cards as does the memory improving both processing power and FPS\ability to buffer
Memory	GeForce cards have restricted memory/frame buffers and do NOT support ECC	NVIDIA Quadro GPUs have typically DOUBLE the frame buffer of GeForce and support ECC with high-end models



Graphics Cards Options

NVIDIA Quadro P400

Delivers great mainstream professional application performance

Description	Specification
CUDA Cores	256
Peak single precision FP32	0.641 TFlops
GPU Memory	2GB GDDR5
Memory Interface	64-bit
Memory Bandwidth	32GB/s
System Interface	PCI Express 3.0 x16
Display Connectors	mDP 1.4 (3)
Warranty	3 years

The new NVIDIA Quadro P400 combines the latest Pascal GPU architecture with 2GB of ultra-fast on-board memory to deliver great performance for a range of professional applications. A single-slot, low-profile form factor makes it compatible with even the most space and power-constrained chassis. Support for three 4K displays (4096 x 2160 at 60Hz) with HDR color gives you a wide visual workspace to view your work in extremely high resolution.

Professionals are increasingly looking to lower the total cost of their computing solutions. Today's modern multi-application workflows require users to evaluate the impact of workstation functionality and performance against cost to ensure that any savings achieved by lower cost computing solutions will not result in schedule impacts and business loss.

With support for DisplayPort 1.4, the P400 can drive resolutions of up to 5K (5120 x 2880) at 60 Hz from a single cable. You can combine up to four Quadro GPUs in one system to simplify the deployment of display walls or other immersive display environments. DisplayPort 1.4 offers HDR color support, enabling brighter displays, more saturated colors and a greater than 10,000 to 1 contrast ratio.

NVIDIA Quadro P620

Powerful Professional Graphics with expansive 4K Visual Workspace

Description	Specification
CUDA Cores	384
Peak single precision FP32	1.195 TFlops
GPU Memory	2GB GDDR5
Memory Interface	128-bit
Memory Bandwidth	64GB/s
System Interface	PCI Express 3.0 x16
Display Connectors	mDP 1.4

The NVIDIA Quadro P620 combines a 512 CUDA core Pascal GPU, large on-board memory and advanced display technologies to deliver amazing performance for a range of professional work ows. 2 GB of ultra- fast GPU memory enables the creation of complex 2D and 3D models and a exible single-slot, low-pro le form factor makes it compatible with even the most space and power-constrained chassis. Support for up to four 4K displays (4096x2160 @ 60 Hz) with HDR color gives you an expansive visual workspace to view your creations in stunning detail.

NVIDIA Quadro P1000

Delivering demanding visual computing workflow performance

Description	Specification
CUDA Cores	640
Peak single precision FP32	1.894 TFlops
GPU Memory	4GB GDDR5
Memory Interface	128-bit
Memory Bandwidth	80GB/s
System Interface	PCI Express 3.0 x16
Display Connectors	mDP 1.4 (4)
Warranty	3 years

The new Quadro P1000 combines the latest GPU architecture and display technologies, delivering up to 60% better performance than the previous generation. Powered by NVIDIA Pascal GPU technology, the P1000 is the most powerful low-profile professional graphics solution available, providing professional users with the most memory and best performance available in a small form factor workstation graphics card.

The P1000's advanced and power efficient Pascal architecture GPU, 4K and 5K display support, and extensive ISV certification provide the most powerful low profile graphics solution available, delivering the performance and capabilities required by demanding professional applications in a compact and powerful professional graphics card. An expansive visual workspace of up to four 4K displays lets professionals view their designs, scenes or projects in stunning detail.

NVIDIA Quadro P2000

The perfect balance of performance, compelling features and compact form factor

Description	Specification
CUDA Cores	1024
Peak single precision FP32	1.894 TFlops
GPU Memory	5GB GDDR5
Memory Interface	160-bit
Memory Bandwidth	140GB/s
System Interface	PCI Express 3.0 x16
Display Connectors	mDP 1.4 (4)
Warranty	3 years

The Quadro P2000 is the perfect balance of performance, compelling features, and compact form factor delivering incredible creative experience and productivity across a variety of professional 3D applications. It features a Pascal GPU with 1024 CUDA cores, large 5 GB GDDR5 on-board memory, and the power to drive up to four 5K (5120x2880 @ 60Hz) displays natively. This makes it an excellent choice for accelerating product development and content creation work ows that demand uid interactivity with large, complex 3D models and scenes.

NVIDIA Quadro P4000

The world's most powerful single slot professional graphics card

Description	Specification
CUDA Cores	1792
Peak single precision FP32	5.2 TFlops
GPU Memory	8GB DDR5
Memory Interface	256-bit
Memory Bandwidth	243GB/s
System Interface	PCI Express 3.0 x16
Display Connectors	DP 1.4 [4] + Stereo
DisplayPort 1.2	Yes
Warranty	3 years

The new NVIDIA VR Ready Quadro P4000 combines a 1792 CUDA Core Pascal GPU, large 8GB GDDR5 memory and advanced display technologies to deliver the performance and features that are required by demanding professional applications. The ability to create an expansive visual workspace of up to four 5K displays (5120 x 2880 at 60Hz) with HDR color support lets you view your creations in stunning detail. The P4000 is specially designed with the performance necessary to drive immersive VR environments. Additionally, you can create massive digital signage solutions by connecting multiple P4000s via Quadro Sync II. The new Quadro P4000 combines the latest GPU architecture and display technologies to deliver the best performance and features available in a single slot professional graphics card solution. The P4000 enables users to create large, complex designs, render detailed photo realistic imagery, and create detailed, lifelike VR experiences.

NVIDIA Quadro P5000

Performance and features master challenging professional

Description	Specification
CUDA Cores	2560
Peak single precision FP32	8.9 TFlops
GPU Memory	16GB GDDR5X
Memory Interface	256-bit
Memory Bandwidth	288GB/s
System Interface	PCI Express 3.0 x16
Display Connectors	DP 1.4 (4) + DVI-D DL (1) + Stereo
Display Connectors 1.2	Yes
Warranty	3 years

The NVIDIA Quadro P5000 combines the latest GPU, memory and display technologies, resulting in outstanding performance and breakthrough capabilities. Professionals across a range of industries can now create their most complex designs, solve the most challenging visualization problems and experience their creations within the most detailed, lifelike and immersive VR environments. Additionally, you can create massive digital signage solutions by connecting multiple P5000s via Quadro Sync II. The new P5000's carefully tuned balance of graphics and single precision (FP32) compute performance, fast and expansive GDDR5X GPU memory, alongside sophisticated VR hardware and software optimizations coupled with advanced development frameworks, allow the creation of extremely large and complex designs, rapid rendering of photorealistic imagery, and startlingly immersive VR experiences.

NVIDIA Quadro P6000

The world's most powerful workstation graphics solution

Description	Specification
CUDA Cores	3840
Peak single precision FP32	12 TFlops
GPU Memory	24GB GDDR5X
Memory Interface	384-bit
Memory Bandwidth	432GB/s
System Interface	PCI Express 3.0 x16
Display Connectors	DP 1.4 (4) + DVI-D DL (1) + Stereo
Display Connectors 1.2	Yes
Warranty	3 years

The NVIDIA Quadro P6000 is the most advanced pure professional graphics solution ever created, combining the latest GPU, memory and display technologies that result in unprecedented performance and breakthrough capabilities. Professionals across a range of industries can now create their most complex designs, solve the most challenging visualization problems and experience their creations within the most detailed, lifelike and immersive VR environments. Additionally, you can create massive digital signage solutions by connecting multiple P6000s via Quadro Sync II.

Designs become more complex over time. Visual effects grow in size, complexity, and scope. Scientific visualization and compute problems continue to push the boundaries of workstation capabilities. VR is changing all facets of entertainment, design, engineering, architecture, and medicine. As professional workflows grow in size and complexity, the demand for visual compute power grows with it. Quadro P6000's Pascal architecture GPU implementation, GDDR5X memory and DisplayPort 1.4 support synergistically deliver the best overall single precision FP32 performance and professional graphics solutions. The P6000 enables users to create large, complex designs, interactively render photorealistic imagery, and create detailed, lifelike VR experiences.

NVIDIA Quadro GV100

The world's most powerful workstation graphics solution

Description	Specification
CUDA Cores	5120
Deep Learning	118.5 TFlops
GPU Memory	32GB HBM2
Memory Interface	4096-bit
Memory Bandwidth	870GB/s
System Interface	PCI Express 3.0 x16
Display Connectors	DP 1.4 (4) + DVI-D DL (1) + Stereo
Display Connectors 1.2	Yes
Warranty	3 years

AI, photo realistic rendering, simulation, and VR are transforming professional workflows. Engineers can now create groundbreaking products faster. Architects can design buildings that could only have existed in their imaginations. And artists can render complex photorealistic scenes in seconds instead of hours. As applications continue to be enhanced with these technologies, professional computing tools need to keep pace.

The NVIDIA Quadro GV100 is reinventing the workstation to meet the demands of these next-generation workflows. It's powered by NVIDIA Volta, delivering the extreme memory capacity, scalability, and performance that designers, architects, and scientists need to create, build, and solve the impossible.

Based on a state-of-the-art 12nm FFN (FinFET NVIDIA) high-performance manufacturing process customized for NVIDIA to incorporate 5120 CUDA cores, the Quadro GV100 GPU is the most powerful computing platform for HPC, AI, VR and graphics workloads on professional desktops. Able to deliver more than 7.4 TFLOPS of double-precision (FP64), 14.8 TFLOPS of single-precision (FP32), 29.6 TFLOPS of half-precision (FP16), 59.3 TOPS of integer-precision (INT8), and 118.5 TFLOPS of tensor operation capability, it supports a wide range of compute-intensive workloads flawlessly.

New mixed-precision Tensor Cores purpose-built for deep learning matrix arithmetic, deliver an 8x boost in TFLOPS performance for training, compared to the previous generation. Quadro GV100 utilizes 640 Tensor Cores; each Tensor Core performs 64 floating point fused multiply-add (FMA) operations per clock, and each SM performs a total of 1024 individual floating point operations per clock.



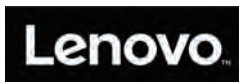
Graphics Cards ISV Certification

	P330 Tiny	P330 SFF	P330 TWR	P520C	P520	P720	P920
AutoDesk AutoCAD	✓	✓	✓	✓	✓	✓	✓
AutoDesk Inventor	✓	✓	✓	✓	✓	✓	✓
AutoDesk Revit	✓	✓	✓	✓	✓	✓	✓
AVEVA PDMS	✓	✓	✓	✓	✓	✓	✓
Bentley Microstation	✓	✓	✓	✓	✓	✓	✓
Dassault SOLIDWORKS	✓	✓	✓	✓	✓	✓	✓
Nemetschek Vectorworks	✓	✓	✓	✓	✓	✓	✓
PTC Creo	✓	✓	✓	✓	✓	✓	✓
Siemens NX	✓	✓	✓	✓	✓	✓	✓
Teamcenter	✓	✓	✓	✓	✓	✓	✓
Tecnomatrix	✓	✓	✓	✓	✓	✓	✓
Siemens Solid Edge	✓	✓	✓	✓	✓	✓	✓
Adobe			✓	✓	✓	✓	✓
Autodesk AVID			✓	✓	✓	✓	✓
Altair			✓	✓	✓	✓	✓
Barco				✓	✓	✓	✓
Eizo				✓	✓	✓	✓
Mckesson				✓	✓	✓	✓
Halliburton					✓	✓	✓
Schumberger					✓	✓	✓

P330 Fixed Workstation

Power of a Workstation, price of a Desktop

For 3D CAD, Engineering, Architectural Design, Simple Rendering, and Smaller Scale VR Projects.



- Windows 10 Pro 64 Bit for Workstations
- Intel Xeon E3-2124G (4-core, 3.40GHz, DDR4-2666, 8MB) Processor (Integrated Intel HD P630, included with G-suffixed processors)
- 16GB (2x8) DDR4 2400MHz ECC RAM (4 slots for expansion up to 64GB)
- 1TB 7200RPM SATA3 Hard Drive (supports up to 16TB through 4 x 4TB drives)
- 3 x PCI Express 3.0 x16 slots supporting up to 2 x Quadro P1000 (250W PSU) or 1 x Quadro P4000 or 2 x Quadro P2000 (400W PSU)
- Onboard Gigabit Ethernet, Intel I219LM (supports Wake-on-LAN)
- 5 x SATA 6.0Gb/s connectors for optical and disk drives, Raid 0, 1, 5, 10 support
- DVD/CD ReWriter (with two external and two internal drive bays)
- 3.5mm headphone and microphone jacks, 6 x USB 3.1, 2 x USB 2.0, 1 x USB-C, 1 x RJ45, 2 x Display Port
- 250W or 400W PSU in Tower platform, or 210W PSU in SFF platform

Code	Description	Price
30C6S0TD00	Lenovo ThinkStation P330 Mini Tower W10 Pro for Workstations	£411.70
30C7S00400	Lenovo ThinkStation P330 Small Form Factor W10 Pro for Workstations	£411.70



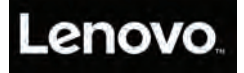
P330 Fixed Workstation Upgrade Options and Accessories

Upgrade options	Product Code	Price
Upgrade to 32GB RAM (2x16)	SBB0K65881 x 2	£153.00
Upgrade to 64GB RAM (4x16)	SBB0K65881 x 4	£535.00
256GB Solid State Drive (in addition to 1TB)	4XB0F18671	£85.00
512GB Solid State Drive (in addition to 1TB)	4XB0G69275	£162.84
1TB SSD (in addition to 1TB)	SBB0N08466	£405.00
1TB SATA HDD (in addition to 1TB)	SBB0N08458	£65.00
2TB SATA HDD (in addition to 1TB)	SBB0N08459	£66.08
4TB SATA HDD (in addition to 1TB)	SBB0N08462	£115.00
NVIDIA Quadro P400 2GB for P320	SBB0N08495	£55.46
NVIDIA Quadro P620 2GB for P320	SBB0N08620	£59.00
NVIDIA Quadro P1000 4GB for P320	SBB0N08499	£191.16
NVIDIA Quadro P2000 5GB for P320 (Tower only)	SBB0N08501	£323.40
NVIDIA Quadro P4000 8GB for P320 (Tower only)	SBB0N08502	£589.60
Lenovo P330 (3-4YR, NBD, On-Site Warranty)	5WS0Q11730	£17.70
Lenovo P330 (3-5YR, NBD, On-Site Warranty)	5WS0Q11728	£29.50
Lenovo P330 DMR (3YR)	5PS0Q11763	£7.08
Lenovo P330 DMR + (3-4YR, NBD, On-Site Warranty)	5PS0Q11739 & 5WS0Q11730	£28.04
Lenovo P330 DMR + (3-5YR, NBD, On-Site Warranty)	5PS0Q11741 & 5WS0Q11728	£33.04
Upgrade to E-2134 (3.5GHz / 4C / 8M / 2400 / 71W / Turbo / HT / GT0)	SBB0N08644	£29.50
Upgrade to E-2144G (3.6GHz / 4C / 8M / 2400 / 71W / Turbo / HT / GT2)	SBB0N08810	£55.00
Upgrade to E-2174G (3.8GHz / 4C / 8M / 2400 / 71W / Turbo / HT / GT2)	SBB0N08642	£145.00
All processors below (>4 cores) require upgrade to Win 10 OS to be ordered		
Win 10 Pro WS 4C SC DG DPK	SBB0Q40117	£120.00
Upgrade to E-2126G (3.3GHz / 6C / 6M / 2666 / 80W / Turbo / No HT / GT2)	SBB0N08647	£35.00
Upgrade to E-2136 (3.3GHz / 6C / 12M / 2666 / 80W / Turbo / HT / GT0)	SBB0N08645	£62.54
Upgrade to E-2146G (3.5GHz / 6C / 12M / 2666 / 80W / Turbo / HT / GT2)	SBB0N08643	£105.00
Upgrade to E-2176G (3.7GHz / 6C / 12M / 2666 / 80W / Turbo / HT / GT2)	SBB0N08641	£185.00
Upgrade to E-2186G (3.8GHz / 6C / 12M / 2666 / 95W / Turbo / HT / GT2) - Tower Only	SBB0N08639	£278.00
Remove Optical Drive	SGFWSOPTDG	£9.00
Remove Keyboard	SGFWSKBDG	£5.00
Remove Mouse	SGFWSMOUSEDG	£1.00

P330 Tiny Fixed Workstation Complementary Devices

Think Big with the World's Smallest Workstation - the P320 Tiny

- ISV-certified workstation performance
- Professional graphics, powerful technology
- Supports up to 6 independent displays
- Modular design for all-in-one workstation
- Wireless power on/off



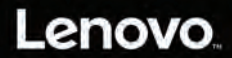
Code	Description	Price
30CES06Y00	Lenovo ThinkStation P330 Tiny (i7-8700, 16Gb, 1TB HDD, W10 Pro for Workstations, 3yrs on-site)	£680.50
0CES07000	Lenovo ThinkStation P330 Tiny (i7-8700T, 16Gb, 512GB SSD, W10 Pro for Workstations, Quadro P620 Graphics, 3yrs on-site)	£1,037.50

Upgrade options	Product Code	Price
8GB RAM DDR4-2400	SBB0P92801	£83.75
16GB RAM DDR4-2400	SBB0P92872	£167.51
Upgrade to 32GB RAM (2x16Gb)	SBB0P92872 x2	£235.00
256GB M.2 NVMe SSD (in addition to 1TB)	SBB0P92969	£89.00
512GB M.2 NVMe SSD (in addition to 1TB)	SBB0P92970	£167.00
1TB M.2 NVMe SSD (in addition to 1TB)	SBB0P92971	£335.02
256GB M.2 NVMe SSD (upgrade from 1TB)	SBB0P92969	£42.00
512GB M.2 NVMe SSD (upgrade from 1TB)	SBB0P92970	£99.00
1TB M.2 NVMe SSD (upgrade from 1TB)	SBB0P92971	£289.00

ThinkStation P520 Tower Workstation

A next-generation mainstream workstation that's powerful enough for any job and reliable enough for mission-critical environments.

The ThinkStation® P520 is scalable, flexible, and gives you the power, performance and usability you need. Superior design features include Flex Trays that hold up to two drives for total flexibility.



Code	Description	Price
From 30BFS06T00	ThinkStation P520, Intel W-2123 (4 cores, 3.60GHz, DDR4-2666, 8.25MB), 2 x 8GB DDR4 PC4-2400 ECC RDIMM, 512GB SSD M.2 PCIe NVMe OPAL, 2TB 7200RPM SATA3 3.5", No Graphics, DVDRW, Windows 10 Pro, 3 Years Onsite NBD, 900W PSU	£1,210.00
Good 30BFS06W00	ThinkStation P520, Intel W-2123 (4 cores, 3.60GHz, DDR4-2666, 8.25MB), 2 x 8GB DDR4 PC4-2400 ECC RDIMM, 512GB SSD M.2 PCIe NVMe OPAL, P4000 16GB Graphics, DVDRW, Windows 10 Pro, 3 Years Onsite NBD, 690W PSU	£1,661.00
Better 30BFS06R00	ThinkStation P520, Intel W-2123 (4 cores, 3.60GHz, DDR4-2666, 8.25MB), 2 x 8GB DDR4 PC4-2400 ECC RDIMM, 512GB SSD M.2 PCIe NVMe OPAL, 2TB 7200RPM SATA3 3.5", P5000 16GB Graphics, DVDRW, Windows 10 Pro, 3 Years Onsite NBD, 690W PSU	£2,394.70
Best 30BFS06S00	ThinkStation P520, Intel W-2123 (4 cores, 3.60GHz, DDR4-2666, 8.25MB), 2 x 8GB DDR4 PC4-2400 ECC RDIMM, 512GB SSD M.2 PCIe NVMe OPAL, 2TB 7200RPM SATA3 3.5", P6000 24GB Graphics, DVDRW, Windows 10 Pro, 3 Years Onsite NBD, 900W PSU	£4,334.00



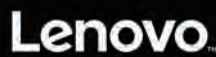
P520 Fixed Workstation Upgrade Options

(for devices prefixed with 30BFS06T00)

Upgrade options	Product Code	Price
Upgrade to Intel Xeon Skylake-W W-2125, 4 Cores, 4.0GHz, 8.25MB Cache, DDR4-2666, Turbo, HT, 120W	SBB0N08417	£161.00
All processors below (>4 cores) require upgrade to Win 10 OS to be ordered		
Win 10 Pro WS 4C SC DG DPK	SBB0Q40117	£120.00
Upgrade to Intel Xeon Skylake-W W-2133, 6 Cores, 3.6GHz, 8.25MB Cache, DDR4-2666, Turbo, HT, 140W	SBB0N08416	£245.47
Upgrade to Intel Xeon Skylake-W W-2135, 6 Cores, 3.7GHz, 8.25MB Cache, DDR4-2666, Turbo, HT, 140W	SBB0N08415	£437.54
Upgrade to Intel Xeon Skylake-W W-2145, 8 Cores, 3.7GHz, 11MB Cache, DDR4-2666, Turbo, HT, 140W	SBB0N08414	£615.08
Upgrade to Intel Xeon Skylake-W W-2155, 10 Cores, 3.3GHz, 13.75MB Cache, DDR4-2666, Turbo, HT, 140W	SBB0N08413	£891.12
Upgrade to Intel Xeon Skylake-W W-2195, 18 Cores, 2.3GHz, 24.75MB Cache, DDR4-2666, Turbo, HT, 140W	SBB0N08613	£1,958.33
16GB DDR4-2666 Memory	SBB0K66061	£226.42
32GB DDR4-2666 Memory	SBB0K66062	£389.00
NVIDIA Quadro P2000	SBB0K66141	£310.55
NVIDIA Quadro P4000	SBB0K66142	£560.47
NVIDIA Quadro P5000	SBB0K66146	£1,274.63
NVIDIA Quadro P6000	SBB0K66148	£3,283.49
2x NVIDIA Quadro P5000 (SLI)	SBB0K66147	£2,549.26
NVIDIA GeForce GTX1060	SBB0N08117	£311.30
NVIDIA GeForce GTX1070	SBB0N08118	£473.00
NVIDIA GeForce GTX1080	SBB0N08119	£583.00
2TB 7.2K SATA HDDs	SBB0K66064	£71.95
4TB 7.2K SATA HDDs	SBB0K66065	£131.87
6TB 7.2K SATA HDDs	SBB0K66066	£171.00
Intel 10GbE Ethernet Adaptor	4XC0F28732	£27.43
Intel Thunderbolt Port (Front)	SBB0K66157	£107.69
USB 3.1 Type C Adaptor (Rear)	SBB0N08335	£18.81
Mini DP to DP	SBB0K65511	£5.00
PSU Upgrade 690W - 900W	SBB0K66115	£25.00

ThinkStation P720 Tower

Perfect for 3D rendering & simulation tasks, visual effects, video editing, seismic analysis and reservoir modelling, big data, artificial intelligence, research projects and more.

Code	Description	Price
Good 30BBS0WW00	ThinkStation P720, Intel Xeon SILVER 4108 (8 core, 1.8GHz,11MB, DDR4 2400), 8GB DDR4 2666MHz ECC RDIMM, 1TB Hard Drive,7200RPM,3.5",SATA3, N/A, No Graphics, DVDRW, Windows 10 Pro, 3 Years Onsite NBD, 690W PSU	£1,210.00
Better 30BBS0WX00	ThinkStation P720, Intel Xeon SILVER 4110 (8 core, 2.1GHz,11MB, DDR4 2400), 4 x 8GB DDR4 2666MHz ECC RDIMM, 512GB Solid State Drive,M.2,PCIe,Opal, 2TB Hard Drive, 7200RPM, 3.5", SATA3, NVIDIA Quadro P4000 8GB 4xDP High Profile, DVDRW, Windows 10 Pro, 3 Years Onsite NBD, 900W PSU	£2,772.00
Best 30BBS0XJ00	ThinkStation P720, 2 x Intel Xeon SILVER 4116 (12 core, 1.8GHz,16.5MB, DDR4 2400), 8 x 8GB DDR4 2666MHz ECC RDIMM, 512GB Solid State Drive,M.2,PCIe,Opal, 4TB Hard Drive, 7200RPM, 3.5", SATA3, NVIDIA P5000 16GB (DVI+4DP) High Profile, DVDRW, Windows 10 Pro, 3 Years Onsite NBD, 900W PSU	£4,840.00



P720 Fixed Workstation Upgrade Options (for devices prefixed with 30BBS0WW00)

Upgrade options	Product Code	Price
Upgrade to Intel Xeon SILVER 4110,8C,2.1GHz,11MB,DDR4 2400,Turbo,HT,85W,768GB	SBB0N08382	£42.00
Upgrade to Intel Xeon SILVER 4112,4C,2.6GHz,8.25MB,DDR4 2400,Turbo,HT,85W,768GB	SBB0N08381	£59.00
Upgrade to Intel Xeon SILVER 4114,10C,2.2GHz,13.75MB,DDR4 2400,Turbo,HT,85W,768GB	SBB0N08380	£245.47
Upgrade to Intel Xeon SILVER 4116,12C,2.1GHz,16.5MB,DDR4 2400,Turbo,HT,85W,768GB	SBB0N08378	£486.00
Upgrade to 2 x Intel Xeon SILVER 4108,8C,1.8GHz,11MB,DDR4 2400,Turbo,HT,85W,768GB	SBB0N08383	£424.00
Upgrade to 2 x Intel Xeon SILVER 4110,8C,2.1GHz,11MB,DDR4 2400,Turbo,HT,85W,768GB	SBB0N08382	£490.00
Upgrade to 2 x Intel Xeon SILVER 4112,4C,2.6GHz,8.25MB,DDR4 2400,Turbo,HT,85W,768GB	SBB0N08381	£524.00
Upgrade to 2 x Intel Xeon SILVER 4114,10C,2.2GHz,13.75MB,DDR4 2400,Turbo,HT,85W,768GB	SBB0N08380	£893.00
Upgrade to 2 x Intel Xeon SILVER 4116,12C,2.1GHz,16.5MB,DDR4 2400,Turbo,HT,85W,768GB	SBB0N08378	£1,305.00
16GB DDR4-2666 Memory	SBB0K66061	£226.42
32GB DDR4-2666 Memory	SBB0K65532	£389.00
NVIDIA Quadro P2000	SBB0K65766	£310.55
NVIDIA Quadro P4000	SBB0K65767	£560.47
NVIDIA Quadro P5000	SBB0K65768	£1,274.63
NVIDIA Quadro P6000	SBB0K65769	£3,283.49
2x NVIDIA Quadro P5000 (SLI)	SBB0K65775	£2,549.26
NVIDIA GeForce GTX1060	SBB0N08117	£311.30
NVIDIA GeForce GTX1070	SBB0N08118	£473.00
NVIDIA GeForce GTX1080	SBB0N08119	£583.00
2TB 7.2K SATA HDDs	SBB0K65537	£71.95
4TB 7.2K SATA HDDs	SBB0K65539	£131.87
6TB 7.2K SATA HDDs	SBB0K65540	£171.00
Intel 10GbE Ethernet Adaptor	4XC0F28732	£27.43
Intel Thunderbolt Port (Front)	SBB0K66157	£107.69
USB 3.1 Type C Adaptor (Rear)	SBB0N08335	£18.81
PSU Upgrade 690W - 900W	SBB0K65624	£25.00
Mini DP to DP	SBB0K65511	£5.00

ThinkStation P920 Tower

Enjoy extreme performance from this dual-processor workhorse, powered by up to dual Intel® Xeon® processors and three NVIDIA® Quadro® GPUs, and featuring the most I/O in the industry. Perfect for professionals running intensive apps for rendering, simulation, visualization, deep learning, and artificial intelligence, across industries.



Code	Description	Price
30BDS0FU00	Lenovo ThinkStation P920 Tower (Intel Xeon SILVER 4114 (10 core, 2.2GHz, 13.75MB, DDR4 2400), 8Gb, 256GB SSD + 2TB HDD, DVDR, NVIDIA P400 Graphics, Win 10 Pro for Workstations, 3yrs Onsite	£1,738.00



P920 Fixed Workstation Upgrade Options (for devices prefixed with 30BDS0FU00)

Upgrade options	Product Code	Price
Upgrade to Intel Xeon GOLD 5115,10C,2.4GHz,13.75MB,DDR4 2400,Turbo,HT,85W,768GB	SBB0N08377	£501.90
Upgrade to Intel Xeon GOLD 5118,12C,2.3GHz,16.5MB,DDR4 2400,Turbo,HT,105W,768GB	SBB0N08376	£465.15
Upgrade to Intel Xeon GOLD 5120,14C,2.2GHz,19.25MB,DDR4 2400,Turbo,HT,105W,768GB	SBB0N08375	£720.30
Upgrade to Intel Xeon GOLD 6138,20C,2.0GHz,27.5MB,DDR4 2666,Turbo,HT,125W,768GB	SBB0N08271	£1,785.00
Upgrade to Intel Xeon GOLD 6142,16C,2.6GHz,22MB,DDR4 2666,Turbo,HT,150W ,768GB	SBB0N08267	£2,093.70
Upgrade to Intel Xeon GOLD 6148,20C,2.4GHz,27.5MB,DDR4 2666,Turbo,HT,150W,768GB	SBB0N08272	£2,202.90
Upgrade to Intel Xeon PLATINUM 8160T 24C,2.1GHz,33MB,DDR4 2666,Turbo,HT, 150W,768GB	SBB0N08263	£3,660.30
Upgrade to 2 x Intel Xeon SILVER 4114,10C,2.2GHz,13.75MB,DDR4 2400,Turbo,HT,85W,768GB	SBB0N08380	£638.40
Upgrade to 2 x Intel Xeon GOLD 5115,10C,2.4GHz,13.75MB,DDR4 2400,Turbo,HT,85W,768GB	SBB0N08377	£1,642.20
Upgrade to 2 x Intel Xeon GOLD 5118,12C,2.3GHz,16.5MB,DDR4 2400,Turbo,HT,105W,768GB	SBB0N08376	£1,567.65
Upgrade to 2 x Intel Xeon GOLD 5120,14C,2.2GHz,19.25MB,DDR4 2400,Turbo,HT,105W,768GB	SBB0N08375	£2,079.00
Upgrade to 2 x Intel Xeon GOLD 6138,20C,2.0GHz,27.5MB,DDR4 2666,Turbo,HT,125W,768GB	SBB0N08271	£4,209.45
Upgrade to 2 x Intel Xeon GOLD 6142,16C,2.6GHz,22MB,DDR4 2666,Turbo,HT,150W ,768GB	SBB0N08267	£4,825.80
Upgrade to 2 x Intel Xeon GOLD 6148,20C,2.4GHz,27.5MB,DDR4 2666,Turbo,HT,150W,768GB	SBB0N08272	£5,045.25
Upgrade to 2 x Intel Xeon PLATINUM 8160T 24C,2.1GHz,33MB,DDR4 2666,Turbo,HT, 150W,768GB	SBB0N08263	£7,960.05
16GB DDR4-2666 Memory	SBB0K65532	£226.42
32GB DDR4-2666 Memory	SBB0K65533	£389.00
NVIDIA Quadro P2000	SBB0K65766	£310.55
NVIDIA Quadro P4000	SBB0K65767	£560.47
NVIDIA Quadro P5000	SBB0K65768	£1,274.63
NVIDIA Quadro P6000	SBB0K65769	£3,283.49
2x NVIDIA Quadro P5000 (SLI)	SBB0K65775	£2,549.26
2x NVIDIA Quadro P6000 (SLI)	SBB0K65776	£6,566.98
NVIDIA GeForce GTX1060	SBB0N08117	£311.30
NVIDIA GeForce GTX1070	SBB0N08118	£473.00
NVIDIA GeForce GTX1080	SBB0N08119	£583.00
Intel 10GbE Ethernet Adaptor	4XC0F28732	£27.43
Intel Thunderbolt Port (Front)	SBB0K66157	£107.69
USB 3.1 Type C Adaptor (Rear)	SBB0N08335	£18.81
Mini DP to DP	SBB0K65511	£5.00

Power of a Workstation, mobile like a laptop

ThinkPad P52 Mobile Workstation fuses the portability of ThinkPad with the power of a workstation.

This laptop features ISV-certified applications, lightning-fast graphics and processing, and more cutting-edge technology to handle your compute-intensive needs, in a surprisingly thin and light package. Get next-level performance with portability in this 15.6" mobile workstation, perfect for running resource-intensive applications.



ThinkPad P52 Mobile Workstation

- Windows 10 Pro 64 Bit for Workstations
- Intel Xeon E3-2176M core, 12MB, up to 4.4GHz Processor
- 8GB PC3-12800 DDR4 2666MHz ECC RAM (Running at 2400MHz)
- 1TB 5400RPM SATA Drive
- 15.6" FHD (1920x1080) IPS Non-Touch Display
- 720p HD Camera
- Intel Dual Band Wireless-AC(2x2) 8260, Bluetooth 5.0
- NVIDIA P2000 4GB Graphics
- 4 Cell Li-Ion 90Wh Battery
- 3 Year NBD On-Site Warranty

Code	Description	Price
20MAS0AH00	Lenovo ThinkPad P52 Windows 10 Pro 64 Bit for Workstations	£748.00



P52 Mobile Workstation Upgrade Options and Accessories

Upgrade options	Product Code	Price
Upgrade to 16GB	SBB0R12908	£118.00
Upgrade to 32G	SBB0R12911	£286.00
Upgrade to 64GB	SBB0R12911	£661.00
256GB Solid State Drive (Upgrade from 1TB HDD)	SBB0R12925	£41.00
512GB Solid State Drive (Upgrade from 1TB HDD)	SBB0R12927	£105.00
1TB PCI TLC Solid State Drive (Upgrade from 1TB HDD)	SBB0R12931	£252.00
Additional 256GB Solid State Drive (2nd drive with 1TB HDD)	SBB0R12925	£87.00
Additional 512GB Solid State Drive (2nd drive with 1TB HDD)	SBB0R12927	£168.00
Additional 1TB Solid State Drive (2nd drive with 1TB HDD)	SBB0R12931	£604.80
Lenovo P52 (3-4YR, NBD, On-Site Warranty)	5WS0E97215	£53.10
Lenovo P52 (3-5YR, NBD, On-Site Warranty)	5WS0E97383	£112.10
Lenovo P52 DMR (3YR)	5WS0F15922	£15.34
Lenovo P52 DMR + (3-4YR, NBD, On-Site Warranty)	5PS0E97410	£68.44
Lenovo P52 DMR + (3-5YR, NBD, On-Site Warranty)	5PS0K18170 & 5WS0E97383	£135.70
Upgrade to Intel i7-8850H with NVIDIA P3200 6GB Graphics	SBB0R12888	£151.00
Upgrade to 15.6" 4K Touchscreen	SBB0R12894	£279.00
ThinkPad Fibocom L850-GL 4G LTE Mobile Broadband	L850GLUG	£85.00

Accessories	Product Code	Price
ThinkPad Thunderbolt 3 Workstation Dock	40AN0230UK	£205.00
Complementary Monitor Stand	4XF0H70606	£70.80
Standard USB Keyboard	4X30M86917	£15.34
2-Button USB Optical Mouse	4Y50R20863	£5.90
Wireless Keyboard & Mouse	4X30H56828	£31.86
ThinkPad 170W AC Adapter (slim tip) (all country Power cord)	4X20E50582	£33.04
ThinkPad 230W AC Adapter (slim tip) - (all country power cords)	4X20E75119	£51.00
Carry Case	4X40E77328	£16.52
BackPack	4X40E77329	£21.24
Additional Long Life Battery	4X50R44368	£70.00
Security Lock	4XE0G97138	£18.00
DisplayPort to DVI-D Adapter	45J7915	£9.44
DisplayPort to HDMI Adapter	0B47395	£10.62
DisplayPort to VGA Adapter	57Y4393	£15.34
USB DVDRW	4XA0E97775	£33.04

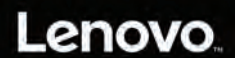


P52s, P72 and P1 Mobile Workstation Complementary Devices

The Lenovo ThinkPad P52s is the thinnest and lightest professional mobile workstation. Featuring Lenovo exclusive Power Bridge technology this light-weight, portable 15.6" laptop workstation can deliver over 17hrs of battery life.

The Lenovo ThinkPad P72 redefines the concept of power with an Intel® Xeon™ processor and NVIDIA Quadro graphics. Feature-packed with optional X-Rite® PANTONE® color calibration, Mil-Spec durability, blazing-fast connection speeds, and the highest capacity of storage and memory make this workstation your go-to PC for getting the job done.

ThinkPad P1 maximizes performance in a sleek 1.76KG notebook. Designed For Architecture Principals, C-staff, Designers and Engineers who need workstation performance in an Ultrabook™ format and with weights starting at just 1.76KG, this latest gen device is supplied with 8th Gen Intel Core and Xeon CPU's, Up to 4TB of M.2 Storage, 64GB RAM and NVIDIA Quadro P2000 GPU's, making this Lenovo's most powerful ThinkPad Notebook ever.



Code	Description	Price
20LCS00J00	Lenovo ThinkPad P52s (Intel i7-8550U (1.80GHz, 8Mb), 8Gb, 256GB SSD, 15.6" FHD, NVIDIA P500, Win 10 Pro for Workstations, 3 yrs Onsite)	£935.00
20LCS02Q00	Lenovo ThinkPad P52s (Intel i7-8650U (1.80GHz, 8Mb), 8Gb, 512GB SSD, 15.6" FHD, NVIDIA P500, Win 10 Pro for Workstations, 3 yrs Onsite)	£1,312.30

Code	Description	Price
20MES1FR00	Lenovo ThinkPad P1 (Intel i7-8400H (2.5GHz), 8Gb, 256GB SSD, 15.6" FHD, NVIDIA P1000 4GB, Win 10 Pro for Workstations, 3 yrs Onsite)	£1,302.00

Code	Description	Price
Good 20MCS08900	Lenovo ThinkPad P72 (Xeon E3-2176M, 17.3" 64GB, 512GB SSD, NVIDIA P4000, Windows 10 Pro 64 Bit for Workstations, 3 yrs on-site)	£3,222.45
Better 20MCS08A00	Lenovo ThinkPad P72 (Xeon E3-2186M, 17.3" 64GB, 2 x 512GB SSD, NVIDIA P5000, Windows 10 Pro 64 Bit for Workstations, 3 yrs on-site)	£4,2732.50
Best 20MCS08B00	Lenovo ThinkPad P72 (Xeon E3-2186M, 17.3" 64GB, 2 x 1TB SSD, NVIDIA P5000, Windows 10 Pro 64 Bit for Workstations, 3 yrs on-site)	£4,536.00



P52s, P72 and P1 Mobile Workstation Upgrade Options and Accessories

P52s Mobile Workstation

Accessories	Product Code	Price
Upgrade to 16GB - 2 x 8GB	SBB0N18373	£80.30
Upgrade to 32GB - 2 x 16GB	SBB0N18374	£239.80
Upgrade to 64GB - 4 x 16GB	SBB0N18375	£558.80
512GB Solid State Drive (Upgrade from 256Gb SSD)	SBB0N18381	£67.10
1TB PCI TLC Solid State Drive (Upgrade from 256Gb SSD)	SBB0N18382	£248.60
1TB PCI TLC Solid State Drive (additional)	SBB0N18382	£397.25
Fibocom L830-EB 4G LTE	SBB0N10359	£58.30

P72 Mobile Workstation

Upgrade options	Product Code	Price
Upgrade to 16GB - 2 x 8GB	SBB0N18373	£167.51
Upgrade to 32GB - 2 x 16GB	SBB0N18374	£335.05
Upgrade to 64GB - 4 x 16GB	SBB0N18375	£670.10
256GB PCI TLC Solid State Drive (additional)	SBB0N18380	£106.96
512GB PCI TLC Solid State Drive (additional)	SBB0N18381	£194.78
1TB PCI TLC Solid State Drive (additional)	SBB0N18382	£397.25
NVIDIA Quadro M2200M 4GB	SBB0L69346	£310.50
NVIDIA Quadro P3000M 6GB	SBB0L69227	£421.72
NVIDIA Quadro P4000M 8GB	SBB0L69228	£755.52
Qualcomm Snapdragon X7 LTE-A (Sierra Wireless EM7455)	SBB0L63949	£59.75

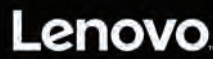
P1 Mobile Workstation

Upgrade options	Product Code	Price
Upgrade to 16GB - 2 x 8GB	SBB0N19027	£80.30
Upgrade to 32GB - 2 x 16GB	SBB0N19028	£239.80
Upgrade to 64GB - 2 x 32GB	SBB0N19029	£558.80
512GB Solid State Drive (Upgrade from 256Gb SSD)	SBB0N19040	£67.10
1TB PCI TLC Solid State Drive (Upgrade from 256Gb SSD)	SBB0N19043	£248.60
Upgrade to I7-8750 with P1000	SBB0N19009	£45.00
Upgrade to I7-8850 with P1000	SBB0N19010	£179.00
Upgrade to I7-8850 with P2000	SBB0N19011	£289.00

All Processors below (moving from Core-i to 4 Core Xeon) require upgrade to Win 10 OS to be ordered

Win 10 Pro WS up to 4C DPK	SBB0Q40115	£40.00
Upgrade to Xeon E-2176M with P2000	SBB0N19012	£354.00

Helpful Information for Lenovo Workstation Devices



Home page (microsite)

www.thinkworkstations.com



Product Specifications

<http://thinkstation-specs.com>

Product Datasheets

<http://psref.lenovo.com>



Lenovo Quick Pick Look-Up

www.lenovoquickpick.com/usa/home/thinkstation/workstation#

Product Comparisons

<http://thinkstation-specs.com/compatibility-matrix>



ISV Certifications

<https://www.thinkworkstations.com/isv-certifications>

www.lenovo.com/support/ISV





Services and Insurance

Services

XMA can offer a number of services to assist in the deployment of workstation devices into your institution including but not limited to:

Description	Product Code	Price
Imaging	SGWSIMAGE01	£3.00
Asset Tagging	SGWSAT01	£3.00
BIOS Configuration	SGWSBIOS01	£3.00
Installation to Desk	SGWSINSTAL01	£10.00
Bonded Storage (Free of charge for a period of up to 6 months)		£FREE



Enhanced Warranty Cover

Technical Support and Dead on Arrival (DOA)

Every device offered on the framework includes an enhanced 3 years on-site warranty.

That means if something goes wrong that can't be resolved over the phone, Lenovo will arrange an engineer to come to you to resolve the problem.

If a problem develops with a device purchased through the framework, call 01483 407857, ensuring you have the device in front of you and the serial number to hand. You may be asked to perform some 1st level troubleshooting that could get you back up and running immediately, but Lenovo's enhanced warranty includes:

- Bespoke and Direct Line for Scottish Procurement Customers
- Operating Hours – Monday to Friday 08:00 to 18:00
- Average Answer Time of 1 minute
- To be answered by a Lenovo/IBM trained member of staff, with product knowledge of:
 - o Lenovo ThinkStation P310
 - o Lenovo ThinkPad P50
- Call handler (Technician) will work with customer to diagnose fault
- Call handler (Technician) will attempt a 1st fix (if possible) e.g. BIOS Update
- If 1st Fix unable, Call handler will collect all pertinent data and raise service call
- Lenovo/IBM engineer will then attend customer site and perform necessary reworks
- Call will then be closed.

Alternatively, the warranty can be logged online or call at:

Visit <https://www.managedtechnicalsupportaccess.com/mtsarva/lenovo.html>

Call **01483 407857** **Monday to Friday, 08.00 - 18.00**

The following details should be used to report any devices that are Dead On Arrival (DOA) i.e. they do not function as expected out of the box, within 30 days of delivery.

Call **0115 918 3540** **Monday to Friday, 08.00 - 18.00**

If you prefer to e-mail us with details of the problem, use the address below.

Email customer.services@xma.co.uk

Get Advice and Order

XMA's team in Glasgow can advise you on the devices available under this framework as well as associated accessories and services.

Contact the team by phone or e-mail using the details below.

Call **0115 8464100** **Monday to Friday, 09.00 - 17.30**

Visit www.xma.co.uk/scotland

Our dedicated ordering portal is now available at <https://shop.xma.co.uk>, offering access to pricing, online ordering, order tracking and more. Contact your XMA account manager for log in details and advanced connections.

Delivery and Returns

Standard items will be delivered within 10 working days. Non standard (upgraded or downgraded) items with configuration may take up to 20 working days. XMA's customer service team can advise you on the status of your order and manage returns.

Contact the team by phone or e-mail using the details below.

Call **0115 846 4656** **Monday to Friday, 09.00 - 17.30**

Email customer.services@xma.co.uk

Framework Team

Framework Account Managers

For advice on which of the framework devices is best for your institution, speak to our Framework Account Managers. This team can also provide help on any accessories and services that you require to go alongside them.

Scott Langan

scott.langan@xma.co.uk
0115 846 4352

David Warren

david.warren@xma.co.uk
0115 846 4217

Robert Stewart

robert.stewart@xma.co.uk
0115 846 4219

Mark Walker

mark.walker@xma.co.uk
0115 846 4218

John Coyle

john.coyle@xma.co.uk
0115 846 4339

Order Management Specialists

If you have already placed an order and want an update or to make a change, contact our Glasgow based Order Management Specialist.

Helen Ross

helen.ross@xma.co.uk
0115 846 4100

Judith Savinykh

Judith.Savinykh@xma.co.uk
0115 846 4118

Framework Managers

If you have any issues that you need to escalate, and the Framework Account Managers can't help, then contact the Framework Managers who have overall responsibility for the framework.

Kenny Macniven

kenny.macniven@xma.co.uk
0115 846 4221



We are XMA.

Ensure you have the most up-to-date framework buyer's guide by visiting the framework portal at www.xma.co.uk/scotland

If you have any questions relating to the framework contact us with these details.

0115 846 4100

scotlandsales@xma.co.uk
www.xma.co.uk

 Follow us @WeareXMA

 Follow us on LinkedIn

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