



Lenovo ThinkSystem ST250 Server Product Guide

The Lenovo ThinkSystem ST250 is a mainstream 1-socket tower server that also be rack mounted as a 4U rack server. It is ideal for small-to-medium businesses, remote offices, branch offices, banking and public sector. The server supports one Intel Xeon E-2100 Series processor (formerly codenamed "Coffee Lake") and up to 64 GB of 2666 MHz TruDDR4 ECC memory.

Figure 1 shows the Lenovo ThinkSystem ST250.



Figure 1. Lenovo ThinkSystem ST250

Did you know?

The ThinkSystem ST250 is an enterprise-grade server with enterprise-level management features and support for hot-swap power supplies and drives. It offers full support of Lenovo XClarity Administrator for comprehensive systems management and includes the next generation UEFI-based Lenovo XClarity Provisioning Manager for system setup and diagnosis, and the Lenovo XClarity Controller management processor for ongoing systems management and alerting. These tools make the ST250 easy to deploy, integrate, service, and manage.

Key features

The ThinkSystem ST250 is a office-friendly tower server that has been optimized to provide enterprise-class features to small businesses, retail, educational institutions and branch offices.

Scalability and performance

The ST250 offers the following features to boost performance, improve scalability, and reduce costs:

- The Intel Xeon E-2100 Series processors improves productivity by offering affordable single-socket system performance with 6-core processors with up to 3.8 GHz core speeds.
- Intelligent and adaptive system performance with Intel Turbo Boost Technology 2.0 allows processor cores to run at maximum speeds during peak workloads by temporarily going beyond processor thermal design power (TDP).
- Intel Hyper-Threading Technology boosts performance for multithreaded applications by enabling simultaneous multithreading within each processor core, up to two threads per core.
- Intel Virtualization Technology integrates hardware-level virtualization hooks that allow operating system vendors to better use the hardware for virtualization workloads.
- Up to four 2666 MHz DDR4 ECC or non-ECC UDIMMs provide speed and capacity of up to 64 GB.
- The server offers PCI Express 3.0 I/O expansion capabilities that increase the theoretical maximum bandwidth by almost 100% (8 GTps per link using 128b/130b encoding) compared to the PCI Express 2.0 (5 GTps per link using 8b/10b encoding).
- With Intel Integrated I/O Technology, the PCI Express 3.0 controller is integrated into the Intel Xeon E-2100 Series processors. Such integration reduces I/O latency and increases overall system performance.
- The 12 Gbps SAS internal storage connectivity doubles the data transfer rate compared to 6 Gb SAS solutions to maximize performance of storage I/O-intensive applications.
- Flexible storage configurations support either 2.5-inch or 3.5-inch hot-swap drive bays or a combination of the two (hybrid configuration). Drive bays support SAS and SATA HDDs and SSDs.
 - Up to 16x 2.5-inch hot-swap drive bays
 - Up to 8x 3.5-inch hot-swap drive bays
 - Up to 4x 3.5-inch + 8x 2.5-inch drive bays
 - Up to 8x 3.5-inch simple-swap drive bays
- The use of solid-state drives (SSDs) instead of, or along with, traditional hard disk drives (HDDs) can significantly improve I/O performance. An SSD can support up to 100 times more I/O operations per second (IOPS) than a typical HDD.
- New high-speed RAID controllers from Broadcom provide 12 Gb SAS connectivity to the drive backplanes. A variety of RAID adapters are available, with cache up to 4 GB and support for 20 drives on a single controller.
- Offers two 5.25-inch media bays with support for optical drives or backup drives.
- Supports a single M.2 drive as an additional storage/boot device.
- The server has two integrated Gigabit Ethernet ports.
- The server offers PCI Express 3.0 I/O expansion capabilities that improve the theoretical maximum bandwidth by almost 100% (8 GT/ps per link using 128b/130b encoding) compared to the previous generation of PCI Express 2.0 (5 GT/s per link using 8b/10b encoding).
- The server offers up to four PCIe 3.0 I/O expansion slots
- Support for a NVIDIA graphics processing unit (GPU) to enhanced graphics.

Availability and serviceability

The ST250 provides the following features to simplify serviceability and increase system uptime:

- The ST250 supports UDIMM memory with ECC protection which provides error correction not available in PC-class "servers" that use parity memory. Avoiding system crashes (and data loss) due to soft memory errors means greater system uptime.
- The server offers hot-swap (HS) SSDs and HDDs, and supports RAID redundancy for data protection and greater system uptime.
- Much like hot-swap drives, simple-swap drives are mounted on an easy-to-remove tray and work with the same RAID options. Simple-swap require a system power-down before adding or replacing, however simple-swap drives are less expensive than hot-swap drives.
- The server supports hot-swap power supplies; with two installed, they form a redundant pair to provide availability for business-critical applications.
- Tool-less cover removal provides easy access to upgrades and serviceable parts, such as memory and adapter cards.
- A choice of affordable onboard SATA RAID or advanced hardware RAID redundancy offers data protection and greater system uptime.
- The use of SSDs can provide better reliability than the use of traditional HDDs, for greater uptime.
- The built-in XClarity Controller continuously monitors system parameters, triggers alerts, and performs recovery actions in case of failures to minimize downtime.
- Built-in diagnostics in UEFI, using Lenovo XClarity Provisioning Manager, speed up troubleshooting tasks to reduce service time.
- Lenovo XClarity Provisioning Manager supports diagnostics and can save service data to a USB key drive or remote CIFS share folder for troubleshooting and reduce service time.
- Support for the XClarity Administrator Mobile app running on a supported smartphone and connected to the server through the service-enabled USB port, enables additional local systems management functions.
- Auto restart in the event of a momentary loss of AC power (based on power policy setting in the XClarity Controller service processor)
- One-year or three-year customer-replaceable unit (CRU) and onsite limited warranty with next business day response. Optional service upgrades are available.

Manageability and security

The following powerful systems management features simplify local and remote management of the ST250:

- The server includes an XClarity Controller (XCC) to monitor server availability. Optional upgrade to XCC Advanced to provide remote control (keyboard video mouse) functions. Optional upgrade to XCC Enterprise enables the additional support for the mounting of remote media files (ISO and IMG image files), boot capture, and power capping.
- Lenovo XClarity Administrator offers comprehensive hardware management tools that help to increase uptime, reduce costs and improve productivity through advanced server management capabilities.
- New UEFI-based Lenovo XClarity Provisioning Manager, accessible from F1 during boot, provides system inventory information, graphical UEFI Setup, platform update function, RAID Setup wizard, operating system installation function, and diagnostic functions.
- Support for Lenovo XClarity Energy Manager which captures real-time power and temperature data from the server and provides automated controls to lower energy costs.
- Integrated Trusted Platform Module (TPM) 2.0 support enables advanced cryptographic functionality, such as digital signatures and remote attestation.
- Industry-standard Advanced Encryption Standard (AES) NI support for faster, stronger encryption.
- Intel Execute Disable Bit functionality can prevent certain classes of malicious buffer overflow attacks when combined with a supported operating system.

- Intel Trusted Execution Technology provides enhanced security through hardware-based resistance to malicious software attacks, allowing an application to run in its own isolated space, protected from all other software running on a system.
- Physical security measures to prevent unauthorized access: Loop for a padlock to prevent the side panel from being opened and a slot at the rear of the server for a Kensington Cable Lock. Optional additional physical security features are a lockable front security door and a chassis intrusion switch (included in some models).

Energy efficiency

The ST250 offers the following energy-efficiency features to save energy, reduce operational costs, increase energy availability, and contribute to the green environment:

- Energy-efficient planar components help lower operational costs.
- High-efficiency power supplies with 80 PLUS Platinum and Titanium certifications. Energy Star 2.1 certified.
- Intel Intelligent Power Capability powers individual processor elements on and off as needed to reduce power draw.
- Low-voltage 1.2 V DDR4 memory DIMMs use up to 20% less energy compared to 1.35 V DDR3 DIMMs.
- SSDs use as much as 80% less power than traditional spinning 2.5-inch HDDs.
- The server uses hexagonal ventilation holes, which can be grouped more densely than round holes, providing more efficient airflow through the system.
- Optional Lenovo XClarity Energy Manager provides advanced data center power notification, analysis, and policy-based management to help achieve lower heat output and reduced cooling needs.

Components and connectors

The following figure shows the front of the server.

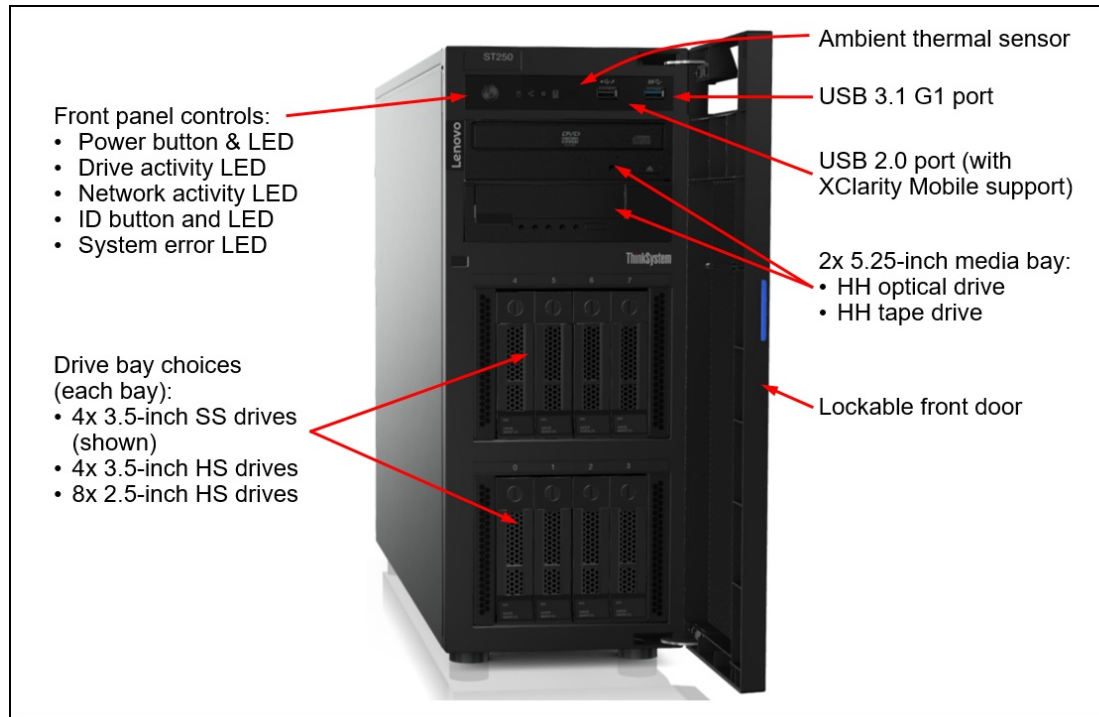


Figure 2. Front view of the ThinkSystem ST250 server

The following figure shows the rear of the server.

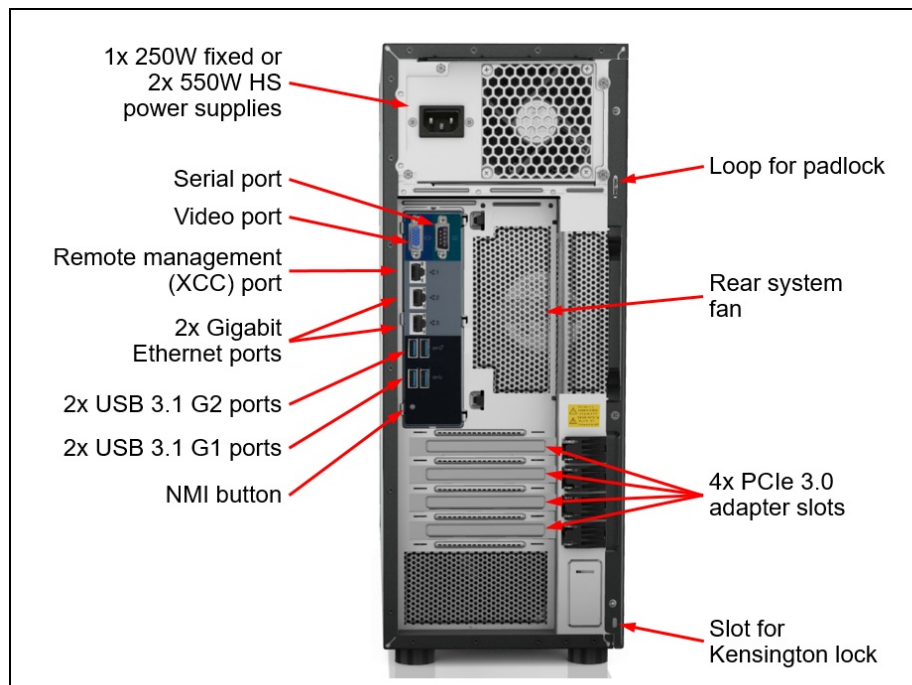


Figure 3. Rear view of the ThinkSystem ST250 server

The following figure shows the locations of key components inside the server.

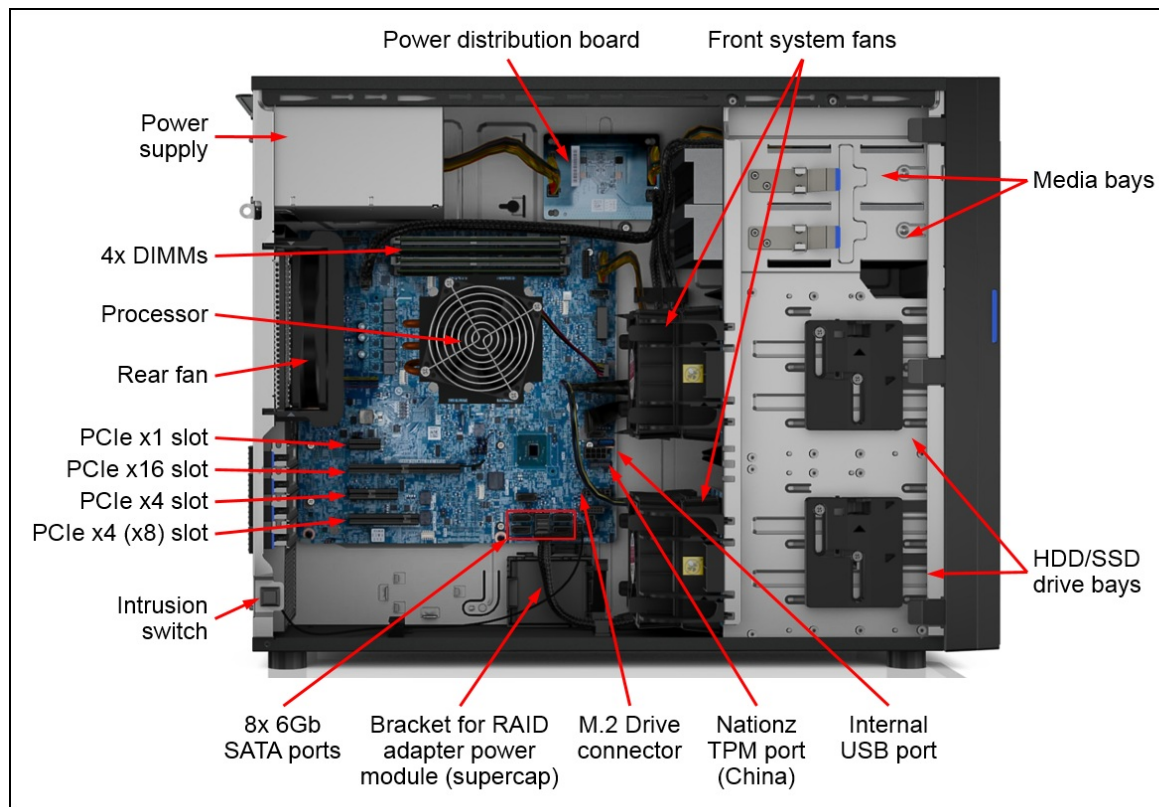


Figure 4. Internal view of the ThinkSystem ST250 server

System architecture

The following figure shows the architectural block diagram of the ST250, showing the major components and their connections.

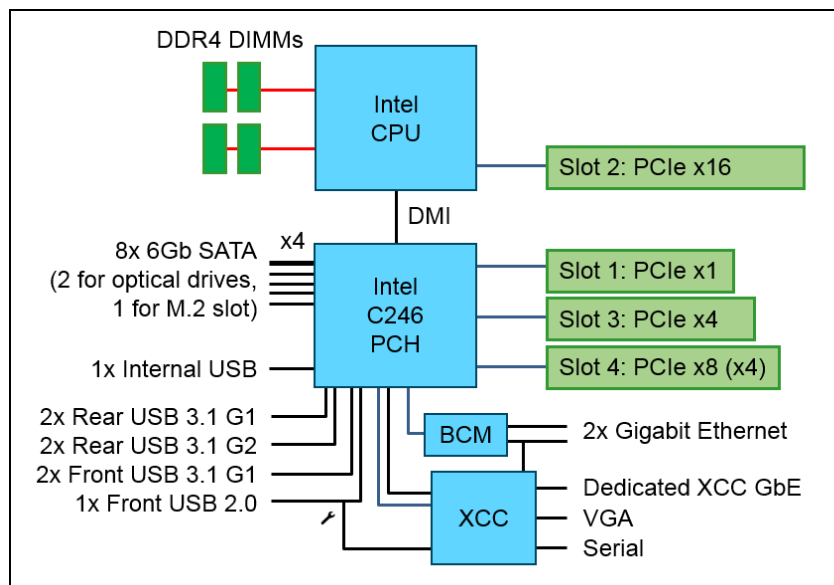


Figure 5. ST250 system architectural block diagram

A closer look at the SATA ports for use with SATA drives, optical drives and an M.2 drive, see the [Internal storage](#) section.

Standard specifications

The following table lists the standard specifications.

Table 1. Standard specifications

Components	Specification
Machine type	7Y46 - 1 year warranty 7Y45 - 3 year warranty
Form factor	Tower or 4U Rack.
Processor	One Intel processor (formerly codenamed "Coffee Lake"). Choose from: <ul style="list-style-type: none"> • Intel Xeon E-2100 Series processor up to 3.8 GHz • Intel Core i3-8100/8300 Series processor up to 4 GHz • Intel Pentium G5400/G5500/G5600 Series processor up to 3.9 GHz
Chipset	Intel C246 chipset
Memory	Four DIMM sockets supporting Lenovo TruDDR4 DIMMs at 2666 MHz. Support ECC UDIMMs.
Memory maximums	Up to 64 GB with 4x 16 GB UDIMMs
Memory protection	Error-correcting code (ECC)

Components	Specification
Disk drive bays	<p>Available configurations:</p> <ul style="list-style-type: none"> ● 8x or 16x 2.5-inch SAS/SATA hot-swap drive bays ● 4x or 8x 3.5-inch SAS/SATA hot-swap drive bays ● Both 4x 3.5-inch + 8x 2.5-inch SAS/SATA hot-swap drive bays ● 8x 3.5-inch simple-swap drive bays <p>In addition, the ST250 supports one M.2 Drive via an onboard connector. Note: If the onboard SATA controller is used to connect the drive bays, then only 6 drives can be installed if an M.2 drive is installed.</p>
Maximum internal storage	<ul style="list-style-type: none"> ● 38.4 TB with 16x 2.4TB 2.5-inch SAS hot-swap HDDs ● 15.4 TB with 16x 960GB 2.5-inch SATA hot-swap SSDs ● 64 TB with 8x 8TB 3.5-inch SATA or SAS hot-swap HDDs ● 64 TB with 8x 8TB 3.5-inch SATA simple-swap HDDs ● Intermix of SAS and SATA is supported.
Storage controller	<ul style="list-style-type: none"> ● Onboard 6 Gb SATA for simple-swap drive configurations, using embedded Intel RSTe software RAID, supporting RAID 0, 1, 10, 5, 50 ● 12 Gb SAS/SATA RAID for hot-swap drive configurations: <ul style="list-style-type: none"> ○ RAID 530i (cacheless) supports RAID 0, 1, 10, 5, 50 ○ RAID 730-8i with 1GB cache supports RAID 0, 1, 10, 5, 50 ○ RAID 930-8i with 2GB flash-backed cache supports RAID 0, 1, 10, 5, 50, 6, 60 ○ RAID 930-16i and 24i with 4GB flash-backed cache supports RAID 0, 1, 10, 5, 50, 6, 60 ● 12 Gb SAS/SATA non-RAID: 430-8i and 430-16i HBAs
Optical drive bays	<p>Two half-height 5.25-inch bays for optical or tape drives. Supports SATA DVD-ROM or DVD-RW (multiburner). Note: If the onboard SATA controller is used to connect the drive bays, then only 6 drives can be installed if an optical drive is installed.</p>
Tape drive bays	<p>Two half-height 5.25-inch bays for optical or tape drives. Support for one RDX drive or one LTO tape drive.</p>
Network interfaces	<p>Two integrated Gigabit Ethernet 1000BASE-T ports (RJ-45) based on Broadcom BCM5720 embedded controller, one can be shared with XCC for systems management. Third dedicated Gigabit Ethernet port for XCC systems management.</p>
PCI Expansion slots	<p>Four PCIe slots as follows:</p> <ul style="list-style-type: none"> ● Slot 1: PCIe 3.0 x1 full-height, half-length ● Slot 2: PCIe 3.0 x16 full-height, half-length ● Slot 3: PCIe 3.0 x4 full-height, half-length ● Slot 4: PCIe 3.0 x4 full-height, half-length (x8 physical slot)
Ports	<ul style="list-style-type: none"> ● Front: <ul style="list-style-type: none"> ○ One USB 3.1 G1 (5 Gb/s) port ○ One USB 2.0 port (supports XClarity Mobile connectivity for local systems management) ● Rear: <ul style="list-style-type: none"> ○ Two USB 3.1 G1 (5Gb/s) ports ○ Two USB 3.1 G2 (10Gb/s) ports ○ One VGA video ○ One RJ-45 systems management ○ Two RJ-45 GbE network ports ○ One serial port ● Internal: <ul style="list-style-type: none"> ○ One internal USB 3.0 port for RDX drive

Components	Specification
Cooling	Supports ASHRAE A2 environments. Certain configurations support ASHRAE A3. Two or three fixed system fans depending on the drive bay configuration. Additional fans attached to the processor heat sink and in the power supplies.
Power supply	Two choices, model dependent: <ul style="list-style-type: none"> • One fixed power supply, 250W. 80 PLUS Platinum certified. • Two redundant hot-swap power supplies, each 550W. For China customers, the 550W power supplies support 240V DC input. 80 PLUS Platinum certified. Energy Star 2.1 compliant.
Hot-swap parts	Hard drives and 550W power supplies
Systems management	Operator panel with status LEDs. XClarity Controller embedded management, XClarity Administrator centralized infrastructure delivery, XClarity Integrator plugins, and XClarity Energy Manager centralized server power management. Optional XClarity Controller Advanced to enable remote control functions.
Security features	Power-on password, administrator's password, Trusted Platform Module, supporting TPM 1.2 or TPM 2.0. In China only, optional Nationz TPM 2.0 module. Optional chassis intrusion switch. Padlock loop and Kensington cable slot and optional lockable front door for physical security.
Video	G200 graphics with 16 MB memory with 2D hardware accelerator, integrated into the XClarity Controller. Maximum resolution is 1920x1200 32bpp at 60Hz.
Operating systems supported	Microsoft Windows Server, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, VMware ESXi. See the Operating system support section for specifics.
Limited warranty	Three-year or one-year (model dependent) customer-replaceable unit and onsite limited warranty with 9x5 next business day (NBD).
Service and support	Optional service upgrades are available through Lenovo Services: 4-hour or 2-hour response time, 6-hour fix time, 1-year or 2-year warranty extension, software support for Lenovo hardware and some third-party applications.
Dimensions	Height: 430 mm (16.9 inches), width: 175 mm (6.9 inches), depth: 566 mm (22.3 inches)
Weight	Fully configured: 23.56 kg (51.94 lb)

The ST250 server is shipped with the following items:

- Documentation flyer
- Power cords (model and region dependent)
- Mouse & keyboard (model dependent)

Models

The following tables list the available models, grouped by region.

- [Models for Australia and New Zealand](#)
- [Models for South East Asian countries \(ASEAN\)](#)
- [Models for Brazil](#)
- [Models for EMEA countries](#)
- [Models for Hong Kong, Taiwan, Korea \(HTK\)](#)
- [Models for Japan](#)
- [Models for Latin American countries \(except Brazil\)](#)
- [Models for USA and Canada](#)

Refer to the Specifications section for information about standard features of the server.

Models for Australia and New Zealand

Table 2. Models for Australia and New Zealand

Model	Intel processors†	Memory	Drive Controller	Drive bays Drives	Optical	Power supply	Pwr cord	XCC	Sec. door	Intru. switch
Standard models with a 3-year model (machine type 7Y45)										
7Y45A01LAU	Xeon E-2104G 4+2C 65W 3.2GHz	1x 8GB	Onboard AHCI	8x 2.5-in HS* Open bay	Open	1x 550W HS / 2	Yes	Ent	Option	Option
7Y45A01QAU	Xeon E-2104G 4+2C 65W 3.2GHz	1x 8GB	Onboard AHCI	4x 3.5-in HS Open bay	Open	1x 550W HS / 2	Yes	Ent	Option	Option
7Y45A01RAU	Xeon E-2124G 4+2C 71W 3.4GHz	1x 8GB	Onboard AHCI	4x 3.5-in HS Open bay	Open	1x 550W HS / 2	Yes	Ent	Option	Option
7Y45A01WAU	Xeon E-2126G 6+2C 80W 3.3GHz	1x 8GB	Onboard AHCI	4x 3.5-in HS Open bay	Open	1x 550W HS / 2	Yes	Ent	Option	Option
7Y45A01TAU	Xeon E-2126G 6+2C 80W 3.3GHz	1x 8GB	Onboard AHCI	8x 2.5-in HS* Open bay	Open	1x 550W HS / 2	Yes	Ent	Option	Option
7Y45A01NAU	Xeon E-2144G 4+2C 71W 3.6GHz	1x 16GB	Onboard AHCI	8x 2.5-in HS* Open bay	Open	1x 550W HS / 2	Yes	Ent	Option	Option
7Y45A01PAU	Xeon E-2144G 4+2C 71W 3.6GHz	1x 16GB	Onboard AHCI	4x 3.5-in HS Open bay	Open	1x 550W HS / 2	Yes	Ent	Option	Option
7Y45A01UAU	Xeon E-2176G 6+2C 80W 3.7GHz	1x 16GB	Onboard AHCI	8x 2.5-in HS* Open bay	Open	1x 550W HS / 2	Yes	Ent	Option	Option
7Y45A01MAU	Xeon E-2186G 6+2C 95W 3.8GHz	1x 16GB	Onboard AHCI	8x 2.5-in HS* Open bay	Open	1x 550W HS / 2	Yes	Ent	Option	Option
7Y45A01SAU	Pentium G5600 2C+2 54W 3.9GHz	1x 8GB	Onboard AHCI	4x 3.5-in HS Open bay	Open	250W fixed	Yes	Ent	Option	Option
7Y45A01VAU	Core i3-8300 4C+2 62W 3.7GHz	1x 8GB	Onboard AHCI	4x 3.5-in HS Open bay	Open	250W fixed	Yes	Ent	Option	Option

† Processor detail: Model, compute core count + graphics core count, TDP, core frequency

* A maximum of 6 drives can be installed in configurations that have the onboard SATA controller and have an internal optical drive installed.

Models for South East Asian countries (ASEAN)

Table 3. Models for South East Asian countries (ASEAN)

Model	Intel processor†	Memory	Drive Controller	Drive bays Drives	Optical	Power supply	Pwr cord	XCC	Sec. door	Intru. switch
TopSeller models										
7Y45A018SG	Xeon E-2104G 4+2C 65W 3.2GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A00SSG	Xeon E-2104G 4+2C 65W 3.2GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	No	Std	Option	Option
7Y45A014SG	Xeon E-2104G 4+2C 65W 3.2GHz	1x 8GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A01CSG	Xeon E-2124G 4+2C 71W 3.4GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A01HSG	Xeon E-2124G 4+2C 71W 3.4GHz	1x 8GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A00YSG	Xeon E-2124G 4+2C 71W 3.4GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	No	Std	Option	Option
7Y45A01JSG	Xeon E-2126G 6+2C 80W 3.3GHz	1x 8GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A015SG	Xeon E-2126G 6+2C 80W 3.3GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	No	Std	Option	Option
7Y45A01FSG	Xeon E-2126G 6+2C 80W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A01ZSG	Xeon E-2134 4C 71W 3.5GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	No	Std	Option	Option
7Y45A020SG	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	No	Std	Option	Option
7Y45A00ZSG	Xeon E-2144G 4+2C 71W 3.6GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A00USG	Xeon E-2144G 4+2C 71W 3.6GHz	1x 8GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A01KSG	Xeon E-2146G 6+2C 80W 3.5GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A013SG	Xeon E-2146G 6+2C 80W 3.5GHz	1x 8GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A017SG	Xeon E-2174G 4+2C 71W 3.8GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A00PSG	Xeon E-2174G 4+2C 71W 3.8GHz	1x 8GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option

† Processor detail: Model, compute core count + graphics core count, TDP, core frequency

* A maximum of 6 drives can be installed in configurations that have the onboard SATA controller and have an internal optical drive installed.

Models for Brazil

Table 4. Models for Brazil

Model	Intel processors†	Memory	Drive Controller	Drive bays Drives	Optical	Power supply	Pwr cord	XCC	Sec. door	Intru. switch
TopSeller models with 1 year warranty (7Y46)										
7Y46A01WBR	Xeon E-2124 4C 71W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A021BR	Xeon E-2124 4C 71W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS 1x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00SBR	Xeon E-2124 4C 71W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00YBR	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00NBR	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS 1x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00KBR	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00UBR	Xeon E-2136 6C 80W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A01RBR	Xeon E-2136 6C 80W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS 1x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A015BR	Xeon E-2136 6C 80W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00CBR	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A018BR	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A01MBR	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS 1x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes

† Processor detail: Model, compute core count + graphics core count, TDP, core frequency

* A maximum of 6 drives can be installed in configurations that have the onboard SATA controller and have an internal optical drive installed.

Models for EMEA countries

Table 5. Models for EMEA countries

Model	Intel processors†	Memory	Drive Controller	Drive bays Drives	Optical	Power supply	Pwr cord	XCC	Sec. door	Intru. switch
Standard models with 3 year warranty (machine type 7Y45)										
7Y45A010EA	Xeon E-2124 4C 71W 3.3GHz	1x 16GB	Onboard RSTe	8x 2.5-in HS* Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Yes
7Y45A019EA	Xeon E-2124 4C 71W 3.3GHz	1x 16GB	RAID 530-8i	8x 3.5-in HS 2x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Yes
7Y45A01DEA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	Onboard RSTe	8x 2.5-in HS* Open bay	1x DVD-RW	250W fixed	No	Std	Option	Yes
7Y45A01BEA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	Onboard RSTe	8x 2.5-in HS* Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Yes
7Y45A00NEA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Yes
7Y45A00REA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-RW	250W fixed	No	Std	Option	Yes
7Y45A00XEA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS 2x 1TB SATA HDD	1x DVD-RW	250W fixed	No	Std	Option	Yes

Model	Intel processors†	Memory	Drive Controller	Drive bays Drives	Optical	Power supply	Pwr cord	XCC	Sec. door	Intru. switch
7Y45A01GEA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	Onboard RSTe	4x 3.5-in SS 2x 1TB SATA HDD	1x DVD-RW	250W fixed	No	Std	Option	Yes
7Y45A00QEA	Xeon E-2144G 4+2C 71W 3.6GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Yes	Yes
7Y45A00VEA	Xeon E-2144G 4+2C 71W 3.6GHz	1x 16GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Yes	Yes
7Y45A01AEA	Xeon E-2144G 4+2C 71W 3.6GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Yes
7Y45A011EA	Xeon E-2146G 6+2C 80W 3.5GHz	1x 16GB	Onboard RSTe	8x 2.5-in HS* Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Yes
7Y45A00WEA	Xeon E-2146G 6+2C 80W 3.5GHz	1x 16GB	Onboard RSTe	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	250W fixed	No	Std	Option	Yes
7Y45A012EA	Xeon E-2176G 6+2C 80W 3.7GHz	1x 16GB	Onboard RSTe	8x 2.5-in HS* Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Yes
7Y45A00TEA	Xeon E-2176G 6+2C 80W 3.7GHz	1x 16GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Yes	Yes
7Y45A01EEA	Xeon E-2176G 6+2C 80W 3.7GHz	1x 16GB	RAID 530-8i	8x 3.5-in HS 2x 2TB SAS HDD	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Yes
7Y45A016EA	Xeon E-2186G 6+2C 95W 3.8GHz	1x 16GB	Onboard RSTe	8x 2.5-in HS* Open bay	1x DVD-RW	2x 550W HS / 2	No	Std	Option	Yes
TopSeller models with 1 year warranty (machine type 7Y46)										
7Y46A01EEA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-RW	250W fixed	No	Std	Option	Yes
7Y46A01JEA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	250W fixed	No	Std	Option	Yes

† Processor detail: Model, compute core count + graphics core count, TDP, core frequency

* A maximum of 6 drives can be installed in configurations that have the onboard SATA controller and have an internal optical drive installed.

Models for Hong Kong, Taiwan, Korea (HTK)

Table 6. Models for Hong Kong, Taiwan, Korea (HTK)

Model	Intel processor†	Memory	Drive Controller	Drive bays Drives	Optical	Power supply	Pwr cord	XCC	Sec. door	Intru. switch
TopSeller models with 3 year warranty (machine type 7Y45)										
7Y45A018CN	Xeon E-2104G 4+2C 65W 3.2GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A00SCN	Xeon E-2104G 4+2C 65W 3.2GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	No	Std	Option	Option
7Y45A014CN	Xeon E-2104G 4+2C 65W 3.2GHz	1x 8GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A00YCN	Xeon E-2124G 4+2C 71W 3.4GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	No	Std	Option	Option
7Y45A01CCN	Xeon E-2124G 4+2C 71W 3.4GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A01HCN	Xeon E-2124G 4+2C 71W 3.4GHz	1x 8GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A01JCN	Xeon E-2126G 6+2C 80W 3.3GHz	1x 8GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A015CN	Xeon E-2126G 6+2C 80W 3.3GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	No	Std	Option	Option
7Y45A01FCN	Xeon E-2126G 6+2C 80W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A01YCN	Xeon E-2134 4C 71W 3.5GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	No	Std	Option	Option
7Y45A01XCN	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	No	Std	Option	Option
7Y45A00ZCN	Xeon E-2144G 4+2C 71W 3.6GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A00UCN	Xeon E-2144G 4+2C 71W 3.6GHz	1x 8GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A01KCN	Xeon E-2146G 6+2C 80W 3.5GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A013CN	Xeon E-2146G 6+2C 80W 3.5GHz	1x 8GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A017CN	Xeon E-2174G 4+2C 71W 3.8GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option
7Y45A00PCN	Xeon E-2174G 4+2C 71W 3.8GHz	1x 8GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	No	Std	Option	Option

† Processor detail: Model, compute core count + graphics core count, TDP, core frequency

* A maximum of 6 drives can be installed in configurations that have the onboard SATA controller and have an internal optical drive installed.

Models for Japan

Included with all Japan models:

- ThinkSystem Optical Wheel Mouse - USB
- ThinkSystem Preferred Pro II USB Keyboard - Japanese

Table 7. Models for Japan

Model	Intel processor†	Memory	Drive Controller	Drive bays Drives	Optical	Power supply	Pwr cord	XCC	Sec. door	Intru. switch
Standard models with 1 year warranty (machine type 7Y46)										

Model	Intel processor†	Memory	Drive Controller	Drive bays Drives	Optical	Power supply	Pwr cord	XCC	Sec. door	Intru. switch
7Y46A037JP	Xeon E-2124 4C 71W 3.3GHz	1x 16GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02TJP	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A036JP	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A030JP	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02DJP	Xeon E-2124G 4+2C 71W 3.4GHz	1x 8GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02LJP	Xeon E-2124G 4+2C 71W 3.4GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A026JP	Xeon E-2126G 6+2C 80W 3.3GHz	1x 8GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02GJP	Xeon E-2126G 6+2C 80W 3.3GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A039JP	Xeon E-2134 4C 71W 3.5GHz	1x 16GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A029JP	Xeon E-2134 4C 71W 3.5GHz	1x 8GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A038JP	Xeon E-2134 4C 71W 3.5GHz	1x 8GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02EJP	Xeon E-2134 4C 71W 3.5GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02JJP	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02FJP	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A03AJP	Xeon E-2144G 4+2C 71W 3.6GHz	1x 16GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02QJP	Xeon E-2144G 4+2C 71W 3.6GHz	1x 8GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A03BJP	Xeon E-2144G 4+2C 71W 3.6GHz	1x 8GB	RAID 530-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02PJP	Xeon E-2144G 4+2C 71W 3.6GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02NJP	Xeon E-2146G 6+2C 80W 3.5GHz	1x 8GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02KJP	Xeon E-2146G 6+2C 80W 3.5GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02WJP	Xeon E-2174G 4+2C 71W 3.8GHz	1x 8GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02MJP	Xeon E-2174G 4+2C 71W 3.8GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02SJP	Xeon E-2176G 6+2C 80W 3.7GHz	1x 8GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A031JP	Xeon E-2176G 6+2C 80W 3.7GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02ZJP	Xeon E-2186G 6+2C 95W 3.8GHz	1x 8GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02UJP	Xeon E-2186G 6+2C 95W 3.8GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02RJP	Pentium G5500T 2C+2 35W 3.2GHz	1x 8GB	Onboard RSTe	4x 3.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option

Model	Intel processor†	Memory	Drive Controller	Drive bays Drives	Optical	Power supply	Pwr cord	XCC	Sec. door	Intru. switch
TopSeller models with 1 year warranty (machine type 7Y46)										
7Y46A025JP	Xeon E-2124 4C 71W 3.3GHz	1x 16GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02BJP	Xeon E-2124G 4+2C 71W 3.4GHz	1x 16GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02VJP	Xeon E-2126G 6+2C 80W 3.3GHz	1x 16GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02YJP	Xeon E-2134 4C 71W 3.5GHz	1x 16GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02XJP	Xeon E-2136 6C 80W 3.3GHz	1x 16GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A027JP	Xeon E-2144G 4+2C 71W 3.6GHz	1x 16GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02CJP	Xeon E-2146G 6+2C 80W 3.5GHz	1x 16GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02AJP	Xeon E-2174G 4+2C 71W 3.8GHz	1x 16GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A02HJP	Xeon E-2176G 6+2C 80W 3.7GHz	1x 16GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A024JP	Xeon E-2186G 6+2C 95W 3.8GHz	1x 16GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option
7Y46A028JP	Pentium G5500T 2C+2 35W 3.2GHz	1x 16GB	RAID 930-8i	8x 2.5-in HS Open bay	1x DVD-ROM	1x 550W HS / 2	Yes	Adv	Option	Option

† Processor detail: Model, compute core count + graphics core count, TDP, core frequency

* A maximum of 6 drives can be installed in configurations that have the onboard SATA controller and have an internal optical drive installed.

Models for Latin American countries (except Brazil)

Table 8. Models with a 1-year warranty for Latin American countries (except Brazil)

Model	Intel processor†	Memory	Drive Controller	Drive bays Drives	Optical	Power supply	Pwr cord	XCC	Sec. door	Intru. switch
TopSeller models with 1 year warranty (machine type 7Y46)										
7Y46A01BLA	Xeon E-2124 4C 71W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00GLA	Xeon E-2124 4C 71W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A01YLA	Xeon E-2124 4C 71W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS 1x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A011LA	Xeon E-2124 4C 71W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00BLA	Xeon E-2124 4C 71W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS 1x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A01VLA	Xeon E-2124 4C 71W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A01QLA	Xeon E-2124 4C 71W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A01HLA	Xeon E-2124 4C 71W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00MLA	Xeon E-2124 4C 71W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS 1x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00PLA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes

Model	Intel processor†	Memory	Drive Controller	Drive bays Drives	Optical	Power supply	Pwr cord	XCC	Sec. door	Intru. switch
7Y46A00LLA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS 1x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00FLA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00HLA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS 1x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00DLA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A003LA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS 1x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00VLA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00QLA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A009LA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A01CLA	Xeon E-2136 6C 80W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A01DLA	Xeon E-2136 6C 80W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A016LA	Xeon E-2136 6C 80W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A01ZLA	Xeon E-2136 6C 80W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS 1x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00ALA	Xeon E-2136 6C 80W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A023LA	Xeon E-2136 6C 80W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS 1x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A017LA	Xeon E-2136 6C 80W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A012LA	Xeon E-2136 6C 80W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A01GLA	Xeon E-2136 6C 80W 3.3GHz	1x 16GB	RAID 530-8i	4x 3.5-in HS 1x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A006LA	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A00WLA	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A01XLA	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A022LA	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A01NLA	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS 1x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A01KLA	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS 1x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A010LA	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A01FLA	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS 1x 1TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes
7Y46A014LA	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	RAID 530-8i	4x 3.5-in HS 2x 2TB SATA HDD	1x DVD-RW	1x 550W HS / 2	Yes	Std	Option	Yes

† Processor detail: Model, compute core count + graphics core count, TDP, core frequency

Models for USA and Canada

Table 9. Models for USA and Canada

Model	Intel processor†	Memory	Drive Controller	Drive bays Drives	Optical	Power supply	Pwr cord	XCC	Sec. door	Intru. switch
Standard models with 1 year warranty (machine type 7Y46)										
7Y46A00JNA	Xeon E-2104G 4+2C 65W 3.2GHz	1x 8GB	Onboard AHCI	4x 3.5-in HS Open bay	1x DVD-RW	250W fixed	Yes	Ent	Option	Option
7Y46A01PNA	Xeon E-2104G 4+2C 65W 3.2GHz	1x 8GB	Onboard AHCI	8x 2.5-in HS* Open bay	1x DVD-RW	250W fixed	Yes	Ent	Option	Option
7Y46A00XNA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	Onboard AHCI	8x 2.5-in HS* Open bay	1x DVD-RW	250W fixed	Yes	Ent	Option	Option
7Y46A007NA	Xeon E-2124G 4+2C 71W 3.4GHz	1x 8GB	Onboard AHCI	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
7Y46A01TNA	Xeon E-2124G 4+2C 71W 3.4GHz	1x 8GB	Onboard AHCI	8x 2.5-in HS* Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
7Y46A01UNA	Xeon E-2126G 6+2C 80W 3.3GHz	1x 8GB	Onboard AHCI	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
7Y46A00ENA	Xeon E-2126G 6+2C 80W 3.3GHz	1x 8GB	Onboard AHCI	8x 2.5-in HS* Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
7Y46A000NA	Xeon E-2134 4C 71W 3.5GHz	1x 8GB	Onboard AHCI	8x 2.5-in HS* Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
7Y46A001NA	Xeon E-2134 4C 71W 3.5GHz	1x 8GB	Onboard AHCI	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
7Y46A008NA	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	Onboard AHCI	8x 2.5-in HS* Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
7Y46A00ZNA	Xeon E-2144G 4+2C 71W 3.6GHz	1x 8GB	Onboard AHCI	8x 2.5-in HS* Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
7Y46A00RNA	Xeon E-2144G 4+2C 71W 3.6GHz	1x 8GB	Onboard AHCI	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
7Y46A01SNA	Xeon E-2146G 6+2C 80W 3.5GHz	1x 8GB	Onboard AHCI	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
7Y46A020NA	Xeon E-2146G 6+2C 80W 3.5GHz	1x 8GB	Onboard AHCI	8x 2.5-in HS* Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
7Y46A004NA	Xeon E-2174G 4+2C 71W 3.8GHz	1x 8GB	Onboard AHCI	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
7Y46A013NA	Xeon E-2176G 6+2C 80W 3.7GHz	1x 16GB	Onboard AHCI	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
7Y46A005NA	Xeon E-2176G 6+2C 80W 3.7GHz	1x 16GB	Onboard AHCI	8x 2.5-in HS* Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
7Y46A01ANA	Xeon E-2186G 6+2C 95W 3.8GHz	1x 16GB	Onboard AHCI	8x 2.5-in HS* Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
7Y46A01LNA	Xeon E-2186G 6+2C 95W 3.8GHz	1x 16GB	Onboard AHCI	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
TopSeller models with 1 year warranty (machine type 7Y46)										
7Y46A00TNA	Xeon E-2124 4C 71W 3.3GHz	1x 8GB	Onboard AHCI	4x 3.5-in HS Open bay	1x DVD-RW	250W fixed	Yes	Ent	Option	Option
7Y46A019NA	Xeon E-2136 6C 80W 3.3GHz	1x 8GB	Onboard AHCI	4x 3.5-in HS Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option
7Y46A002NA	Xeon E-2174G 4+2C 71W 3.8GHz	1x 8GB	Onboard AHCI	8x 2.5-in HS* Open bay	1x DVD-RW	1x 550W HS / 2	Yes	Ent	Option	Option

† Processor detail: Model, compute core count + graphics core count, TDP, core frequency

* A maximum of 6 drives can be installed in configurations that have the onboard SATA controller and have an internal optical drive installed.

Processor options

The ST250 supports one processor from the Intel product family formerly known by the codename "Coffee Lake". This includes processors from the Intel Xeon E, Core i3 and Pentium families.

The server supports the processor options that are listed in the following table.

All supported processors have the following characteristics:

- 14 nm semiconductor process technology
- 8 GT/s DMI3 bus speed
- Two DDR4 memory channels
- 16 PCIe 3.0 I/O lanes

Integrated graphics: Many of the processors supported by the ST250 include integrated graphics, however, this functionality is not used by the server. Instead, graphics support is provided by the XClarity Controller, or by an GPU add-in card.

Table 10. Processor options

Feature code	Intel processor	TDP	Cores / Threads	Base core speed	Cache	Memory bus speed	ECC	HT	Turbo Boost / Max speed	VT	AMT
B357	Core i3-8100	65W	4 / 4	3.6 GHz	6 MB	2400 MHz	Yes	No	No	Yes	No
B359	Core i3-8100T	35W	4 / 4	3.1 GHz	6 MB	2400 MHz	Yes	No	No	Yes	No
B356	Core i3-8300	62W	4 / 4	3.7 GHz	8 MB	2400 MHz	Yes	No	No	Yes	No
B358	Core i3-8300T	35W	4 / 4	3.2 GHz	8 MB	2400 MHz	Yes	No	No	Yes	No
B355	Core i3-8350K	91W	4 / 4	4.0 GHz	8 MB	2400 MHz	Yes	No	No	Yes	No
B35C	Pentium G5400	54W	2 / 4	3.7 GHz	4 MB	2400 MHz	Yes	Yes	No	Yes	No
B35G	Pentium G5400T	35W	2 / 4	3.1 GHz	4 MB	2400 MHz	Yes	Yes	No	Yes	No
B35B	Pentium G5500	54W	2 / 4	3.8 GHz	4 MB	2400 MHz	Yes	Yes	No	Yes	No
B35F	Pentium G5500T	35W	2 / 4	3.2 GHz	4 MB	2400 MHz	Yes	Yes	No	Yes	No
B35A	Pentium G5600	54W	2 / 4	3.9 GHz	4 MB	2400 MHz	Yes	Yes	No	Yes	No
B354	Xeon E-2104G	65W	4 / 4	3.2 GHz	8 MB	2666 MHz	Yes	No	No	Yes	Yes
B353	Xeon E-2124	71W	4 / 4	3.3 GHz	8 MB	2666 MHz	Yes	No	Yes / 4.30 GHz	Yes	Yes*
B352	Xeon E-2124G	71W	4 / 4	3.4 GHz	8 MB	2666 MHz	Yes	No	Yes / 4.50 GHz	Yes	Yes
B351	Xeon E-2126G	80W	6 / 6	3.3 GHz	12 MB	2666 MHz	Yes	No	Yes / 4.50 GHz	Yes	Yes
B350	Xeon E-2134	71W	4 / 8	3.5 GHz	8 MB	2666 MHz	Yes	Yes	Yes / 4.50 GHz	Yes	Yes*
B34Z	Xeon E-2136	80W	6 / 12	3.3 GHz	12 MB	2666 MHz	Yes	Yes	Yes / 4.50 GHz	Yes	Yes*
B34Y	Xeon E-2144G	71W	4 / 8	3.6 GHz	8 MB	2666 MHz	Yes	Yes	Yes / 4.50 GHz	Yes	Yes
B34X	Xeon E-2146G	80W	6 / 12	3.5 GHz	12 MB	2666 MHz	Yes	Yes	Yes / 4.50 GHz	Yes	Yes
B34W	Xeon E-2174G	71W	4 / 8	3.8 GHz	8 MB	2666 MHz	Yes	Yes	Yes / 4.70 GHz	Yes	Yes
B34V	Xeon E-2176G	80W	6 / 12	3.7 GHz	12 MB	2666 MHz	Yes	Yes	Yes / 4.70 GHz	Yes	Yes
B34U	Xeon E-2186G	95W	6 / 12	3.8 GHz	12 MB	2666 MHz	Yes	Yes	Yes / 4.70 GHz	Yes	Yes

* Xeon E processors without integrated graphics do not support the KVM redirection functions of AMT.

Memory options

The ST250 server supports Lenovo TruDDR4 memory. TruDDR4 memory uses the highest-quality components sourced from Tier 1 DRAM suppliers and only memory that meets strict requirements is selected. It is compatibility-tested and tuned to maximize performance and reliability.

TruDDR4 memory has a unique signature programmed into the DIMM, which enables ThinkSystem servers to verify whether the memory installed is qualified and supported. From a service and support standpoint, TruDDR4 memory automatically assumes the system's warranty, and service and support provided worldwide.

The ST250 supports up to 4 DIMMs. The processors have 2 memory channels and support 2 DIMMs per channel.

All DIMMs operate at a speed of 2666 MHz. However, if the processor selected has a lower memory bus speed (eg 2400 MHz - see the [Processor](#) table), then all DIMMs will operate at that lower speed.

The following table lists the memory options that are available for the ST250 server.

Table 11. Memory options

Part number	Feature code	Description	Maximum supported
ECC UDIMMs			
4ZC7A08696	B35J	ThinkSystem 8GB TruDDR4 2666MHz (1Rx8, 1.2V) UDIMM	4
4ZC7A08699	B35K	ThinkSystem 16GB TruDDR4 2666MHz (2Rx8, 1.2V) UDIMM	4

The following rules and recommendations apply when selecting the memory configuration:

- The server supports UDIMMs
- For best performance, all DIMMs should be identical
- For best performance when installing two DIMMs, install one in each memory channel

Internal storage

The ST250 supports 2.5-inch hot-swap, 3.5-inch hot-swap, and 3.5-inch simple-swap drives in a variety of drive bay configurations.

In this section:

- [Backplanes and drive bays](#)
- [Adapters and cabling](#)
- [Field upgrades](#)
- [M.2 drives](#)
- [SED encryption key management with ISKLM](#)

Drive bays and backplanes

The server supports up to 16 drive bays:

- Up to 16x 2.5-inch hot-swap drives
- Up to 8x 3.5-inch hot-swap drives
- Up to 8x 3.5-inch simple-swap drives
- A combination of 8x 2.5" hot-swap and 4x 3.5" hot-swap drives.

Hot-swap configurations SAS and SATA drives depending on the controller used (the onboard SATA controller supports SATA drives only). Simple-swap drive configurations support SATA drives only. NVMe PCIe drives are not supported with any configuration.

The different drive bay configurations supported are shown in the following figure. The server also supports one M.2 drive, installed in a slot on the system board as shown in the [internal view](#) of the server.

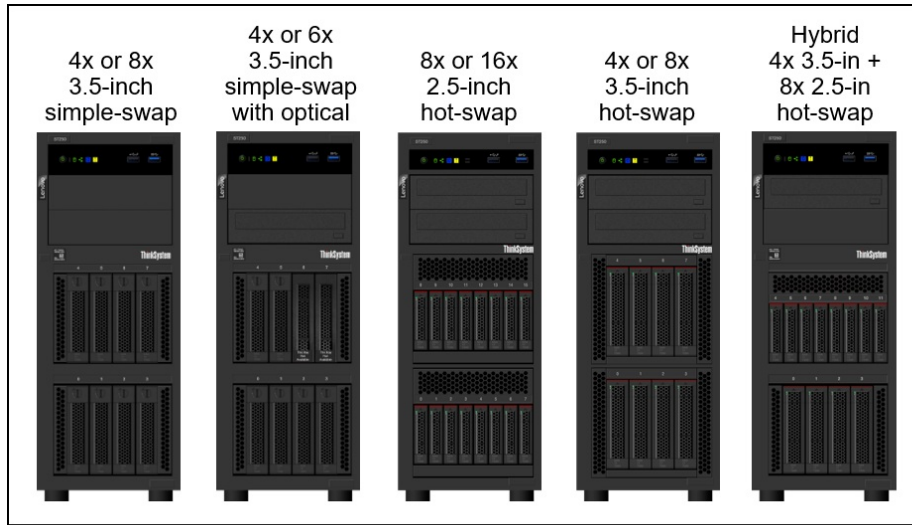


Figure 6. Internal drive bay configurations

The following table lists the available hot-swap backplanes and simple-swap backplates. The feature codes are used for configure-to-order and the option part numbers are for field installations & upgrades. See the [Field upgrades](#) section for details

Table 12. Backplanes

Option part number	Feature code	Description
4M17A12790	B41E	ThinkSystem ST250 2.5" SATA/SAS 8-Bay Backplane Kit
4M17A12788	B41D	ThinkSystem ST250 3.5" SATA/SAS 4-Bay Backplane Kit
4M17A12789	B4LP	ThinkSystem ST250 3.5" SATA 4-Bay Simple Swap Bracket Plate Kit

Configuration note regarding drive bays with the use of the onboard SATA controller:

- If the onboard SATA controller is used, then up to 8 drives can be connected (hot-swap or simple-swap) provided no optical drive or M.2 drive is installed.
- If the onboard SATA controller is used and an optical drive or an M.2 drive is installed, then at most 6 drives can be installed. Drive bays 6 and 7 will not be connected and should remain empty (and in the case of simple-swap drives, the SATA connections to the bays 6 & 7 should be disconnected)
- If the onboard SATA controller is used in RAID mode and an M.2 drive is installed, the M.2 cannot be used as a boot device to boot Windows.

Adapters and cabling

This section describes the adapter and cabling requirements for each drive bay configuration.

The ST250 has an onboard SATA controller for drive, optical drive and M.2 connectivity. For the drives, connections are via 5 connectors on the system board: four single-lane SATA connectors and one mini-SAS HD connector with 4 lanes.

When using the onboard SATA controller, SATA ports 6 and 7 are shared between drive bays 6 & 7, the two optical drive bays, and the M.2 connector. The connections are as follows, shown in the figure below:

- SATA ports 0, 1, 2 and 3 are connected to the first 4 drive bays (bays 0-3). These are routed to a single mini-SAS HD connector on the system board.

- SATA ports 5 and 6 are connected to bays 4 and 5
- SATA port 6 is either connected to drive bay 6 or optical drive bay 0 (lower bay).
- SATA port 7 is either connected to drive bay 7 or optical drive bay 1 (upper bay) or to the onboard M.2 connector. When an M.2 drive is inserted into the M.2 connector, it automatically connects to the SATA port and any connected drives (drive bay 7 or ODD1) are automatically disconnected.

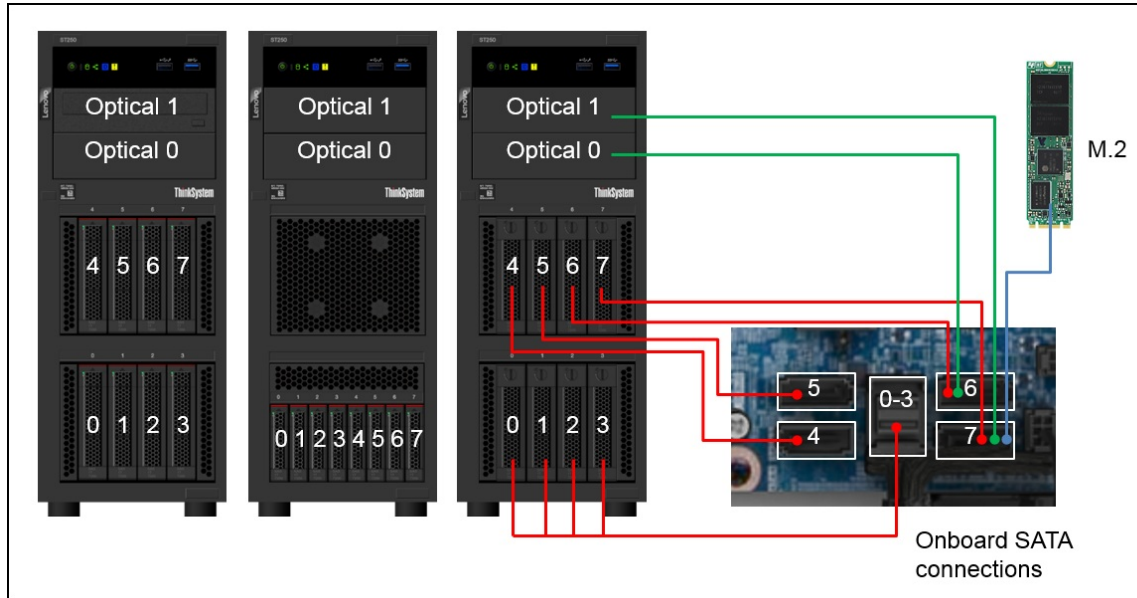


Figure 7. Onboard SATA connections

In summary, the following combinations are supported with the onboard SATA controller:

- 8x SATA drives
- 6x SATA drives + M.2
- 6x SATA drives + M.2 + 1x optical drive
- 6x SATA drives + 2x optical drives

The ST250 also supports the use of a RAID adapter or SAS host bus adapter to support the use of SAS drives plus offering higher performance features and RAID functionality.

Configurations guidance is as follows:

- For 8-bay configurations, use one of the supported 8-port RAID adapters or HBA
- For 12-bay or 16-bay configurations, use the RAID 930-16i adapter
- It is supported to add any one of the following combinations to a RAID adapter/HBA configuration:
 - 1x SATA optical drive
 - 1x SATA optical drive + M.2 drive
 - 2x SATA optical drive

It is not supported to add 2x SATA optical drives + M.2 drive to a RAID adapter or HBA configuration.

Field upgrades

The following table shows the upgrades you can perform to the ST250 after initial purchase to add additional drive bays or to change the controller.

Table 13. Upgrading the internal drive bays in the field

Starting configuration	Required configuration	Controller to add	Cable Kit	Backplane & Cage Kit
Upgrading Onboard SATA to RAID Adapter/HBA (1 Drive Cage)				
4x3.5" HS SW RAID	4x3.5" HS HW RAID	Add 8-port RAID adapter	4Z57A14087	Not needed
8x3.5" HS SW RAID	8x3.5" HS HW RAID	Add 8-port RAID adapter	4Z57A14087	Not needed
8x2.5" HS SW RAID	8x2.5" HS HW RAID	Add 8-port RAID adapter	4Z57A14087	Not needed
Upgrading Onboard SATA to RAID Adapter/HBA + Adding Upper Drive Cage				
4x3.5" HS SW RAID	8x3.5" HS HW RAID	Add 8-port RAID adapter	4Z57A14087	4M17A12788
4x3.5" HS SW RAID	4x3.5" HS + 8x2.5" HW RAID	Add 16-port RAID adapter or 2x 8-port RAID adapters	4Z57A14087	4M17A12790
8x2.5" HS SW RAID	16x2.5" HS HW RAID	Add 16-port RAID adapter or 2x 8-port RAID adapters	4Z57A14087	4M17A12790
Adding Upper Drive Cage (No change to controller)				
4x3.5" SS SW RAID	8x3.5" SS SW RAID*	No change (onboard SATA)	None	4M17A12789
4x3.5" HS SW RAID	8x3.5" HS SW RAID*	No change (onboard SATA)	None	4M17A12788
4x3.5" HS HW RAID	8x3.5" HS HW RAID	No change (RAID adapter)	None	4M17A12788
4x3.5" HS HW RAID	4x3.5" HS + 8x2.5" HW RAID	Add second 8-port RAID adapter or replace existing 8-port with 16-port RAID	None	4M17A12790
8x 2.5" HS HW RAID	16x 2.5" HS HW RAID	Add second 8-port RAID adapter or replace existing 8-port with 16-port RAID	None	4M17A12790

* If you have an optical drive or M.2 drive installed, you are limited to 6 drives

The following table lists the contents of the cable and backplane kits needed for the upgrades.

Table 14. Cable and backplane kits

Part number	Description and list of included components
4Z57A14087	ThinkSystem ST250 Hardware RAID Cable Kit <ul style="list-style-type: none"> • 2x ST250 RAID HS HDD Signal Cable • 1x ST250 8x2.5 BP Power Cable • 1x ST250 4x3.5 BP Power Cable • 1x ST250 4x3.5 2nd BP Power Cable
4M17A12790	ThinkSystem ST250 2.5" SATA/SAS 8-Bay Backplane Kit <ul style="list-style-type: none"> • 1x 8x2.5" SATA/SAS backplane • 1x cage assembly • 2x SAS cables • 1x power cable • 8x 2.5" drive bay fillers • 1x front fan and cable
4M17A12788	ThinkSystem ST250 3.5" SATA/SAS 4-Bay Backplane Kit <ul style="list-style-type: none"> • 1x 4x3.5" SATA/SAS backplane • 1x cage assembly • 1x MiniSAS HD cable with 4 connectors to system board • 1x MiniSAS HD cable with 2 connectors to system board (use with optical drive) • 1x power cable • 4x 3.5" drive bay fillers • 1x front fan and cable
4M17A12789	ThinkSystem ST250 3.5" SATA 4-Bay Simple Swap Bracket Plate Kit <ul style="list-style-type: none"> • 1x 4x3.5" SATA backplate + cable with 4 SATA connections • 1x 4x3.5" SATA backplate + cable with 2 SATA connections (use with optical drive) • 1x cage assembly • 4x 3.5" drive bay fillers • 1x front fan and cable

M.2 drive

The ST250 server supports one M.2 form-factor SATA drive. The M.2 drive is installed in a slot directly on the system board as shown in the following figure.

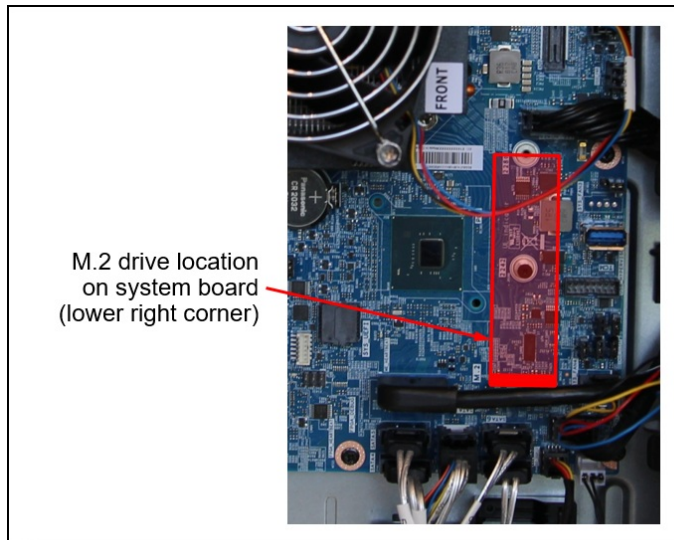


Figure 8. Location of the M.2 Drive on the ST250 system board

Supported drives are listed in the [Internal drive options](#) section.

Configuration notes:

- With an M.2 drive installed, if the onboard SATA controller is used to connect 2.5" or 3.5" drives, then only six drives can be installed. The other two drive bays must remain empty or disconnected.
- Only one optical drive can be installed if an M.2 drive is used. The use of two optical drives + M.2 is not supported.
- With an M.2 drive installed, if the onboard SATA controller is used to connect 2.5" or 3.5" drives and the controller is in RAID mode, then the M.2 cannot be used as a boot device to boot Windows.
- Configurations with an M.2 drive + optical drive + backup drive (either RDX or tape) is only supported as a field upgrade. Such configurations are not supported configure-to-order (CTO).

For details about M.2 components, see the *ThinkSystem M.2 Drives and M.2 Adapters* product guide: <https://lenovopress.com/lp0769-thinksystem-m2-drives-adapters>

Tip: The ThinkSystem M.2 Enablement Kit and ThinkSystem M.2 with Mirroring Enablement Kit that are supported in other ThinkSystem servers are not supported with the ST250.

Controllers for internal storage

The ST250 uses two onboard 6Gb SATA ports to connect the four or eight drives. Hot-swap and simple-swap SATA drives are supported. These onboard SATA ports support RSTe mode for RAID functionality or AHCI mode for JBOD support.

Virtualization support: The onboard SATA ports can be used with virtualization hypervisors, including VMware ESXi, Linux KVM, Xen, and Microsoft Hyper-V, however support is limited to AHCI (non-RAID) mode. RSTe mode is not supported with virtualization hypervisors.

Windows support: Windows only supports a RSTe-based RAID array of no more than 6 drives.

In addition to the onboard SATA controller, the ST250 with hot-swap drives supports the use of an internal RAID adapter or HBA. The following table lists the supported adapters.

Table 15. Controllers for internal storage - hot-swap drive support

Part number	Feature code	Description	Number of ports	Maximum supported	Slots supported
SAS/SATA HBA					
7Y37A01088	AUNL	ThinkSystem 430-8i SAS/SATA 12Gb HBA	8	3	2,3,4
7Y37A01089	AUNM	ThinkSystem 430-16i SAS/SATA 12Gb HBA	16	1	2,3,4
RAID adapters					
7Y37A01082	AUNG	ThinkSystem RAID 530-8i PCIe 12Gb Adapter	8	2	2,3,4
7Y37A01083*	AUNH*	ThinkSystem RAID 730-8i 1GB Cache PCIe 12Gb Adapter	8	2	2,3,4
7Y37A01084	AUNJ	ThinkSystem RAID 930-8i 2GB Flash PCIe 12Gb Adapter	8	1	2,3,4
7Y37A01085	AUNK	ThinkSystem RAID 930-16i 4GB Flash PCIe 12Gb Adapter	16	1	2,3,4

* The RAID 730-8i adapter is not available in USA and Canada

The following two tables compare the functions of the storage adapters and the onboard SATA.

Table 16. Comparison of internal storage controllers - RAID controllers

Feature	RAID 530-8i	RAID 730-8i*	RAID 930-8i	RAID 930-16i
Adapter type	RAID controller	RAID controller	RAID controller	RAID controller
Part number	7Y37A01082	7Y37A01083	7Y37A01084	7Y37A01085
Form factor	PCIe HHHL	PCIe low profile	PCIe HHHL	PCIe HHHL
Controller chip	LSI SAS3408	LSI SAS3108	LSI SAS3508	LSI SAS3516
Broadcom equivalent	MegaRAID 9440-8i	MegaRAID 9361-8i	MegaRAID 9460-8i	MegaRAID 9460-16i
Host interface	PCIe 3.0x8	PCIe 3.0x8	PCIe 3.0x8	PCIe 3.0x8
Port interface	12 Gb SAS	12 Gb SAS	12 Gb SAS	12 Gb SAS
Number of ports	8	8	8	16
Port connectors	2x Mini-SAS HD x4 (SFF-8643)	2x Mini-SAS HD x4 (SFF-8643)	2x Mini-SAS HD x4 (SFF-8643)	4x Mini-SAS HD x4 (SFF-8643)
Drive interface	SAS, SATA	SAS, SATA	SAS, SATA	SAS, SATA
Drive type	HDD, SED, SSD	HDD, SSD	HDD, SED, SSD	HDD, SED, SSD
Hot-swap drives	Yes	Yes	Yes	Yes
Max devices	8	8	8	16
RAID levels	0, 1, 10, 5, 50	0, 1, 10, 5, 50	0, 1, 10, 5, 50, 6, 60	0, 1, 10, 5, 50, 6, 60
JBOD mode	Yes	Yes	Yes	Yes
Cache	None	1GB (Standard)	2GB (Standard)	4GB or 8GB (Standard)
CacheVault cache protection	No	No	Yes (Flash)	Yes (Flash)
Performance Accelerator (FastPath)	Yes	No	Yes	Yes
SSD Caching (CacheCade Pro 2.0)	No	No	No	No
SED support†	Yes	No	Yes	Yes

* The RAID 730-8i adapter is not available in USA and Canada

† SED support by RAID controllers is provided using the built-in MegaRAID SafeStore functionality of the adapter.

Table 17. Comparison of internal storage controllers - HBAs and NVMe Switch Adapter

Feature	Intel RSTe	430-8i	430-16i
Adapter type	Software RAID	HBA	HBA
Part number	None	7Y37A01088	7Y37A01089
Form factor	Onboard	PCIe low profile	PCIe low profile
Controller chip	Intel PCH (RSTe)	LSI SAS3408	LSI SAS3416
Broadcom equivalent	Not applicable	HBA 9400-8i	HBA 9400-16i
Host interface	Not applicable	PCIe 3.0 x8	PCIe 3.0 x8
Port interface	6 Gb SATA	12 Gb SAS	12 Gb SAS
Number of ports	Varies	8	16
Port connectors	Onboard	2x Mini-SAS HD x4 (SFF-8643)	4x Mini-SAS HD x4 (SFF-8643)
Drive interface	SATA	SAS, SATA	SAS, SATA
Drive type	HDD, SSD	HDD, SSD, SED**	HDD, SSD, SED**
Hot-swap drives	Yes	Yes	Yes
Max devices	8	8	16
RAID levels	0, 1, 10, 5	No RAID	No RAID
JBOD mode	Yes	Yes	Yes
Cache	None	No	No
CacheVault cache protection	No	No	No
Performance Accelerator (FastPath)	No	No	No
SSD Caching (CacheCade Pro 2.0)	No	No	No
SED support	No	Yes**	Yes**

** SED support of the SAS HBAs is by using software on the server (SED commands are passed through the HBA to the drives).

Internal drive options

The following tables list the hard disk drive and solid-state drive options for the internal disk storage of the server.

- Table 20: [2.5-inch hot-swap 12 Gb SAS HDDs](#)
- Table 21: [2.5-inch hot-swap 6 Gb SAS/SATA HDDs](#)
- Table 22: [2.5-inch hot-swap 6 Gb SAS/SATA SSDs](#)
- Table 23: [3.5-inch hot-swap 12 Gb SAS HDDs](#)
- Table 24: [3.5-inch hot-swap 6 Gb SAS/SATA HDDs](#)
- Table 25: [3.5-inch hot-swap 6 Gb SAS/SATA SSDs](#)
- Table 26: [3.5-inch simple-swap 6 Gb SAS/SATA HDDs](#)
- Table 27: [3.5-inch simple-swap 6 Gb SAS/SATA SSDs](#)
- Table 28: [M.2 drives](#)

Tip: The use of M.2 drives requires an additional adapter as described in the [M.2 drives](#) subsection.

Table 18. 2.5-inch hot-swap 12 Gb SAS HDDs

Part number	Feature	Description	Maximum supported
2.5-inch hot-swap HDDs - 12 Gb SAS 10K			
7XB7A00024	AULY	ThinkSystem 2.5" 300GB 10K SAS 12Gb Hot Swap 512n HDD	16
7XB7A00025	AULZ	ThinkSystem 2.5" 600GB 10K SAS 12Gb Hot Swap 512n HDD	16
7XB7A00026	AUM0	ThinkSystem 2.5" 900GB 10K SAS 12Gb Hot Swap 512n HDD	16
7XB7A00027	AUM1	ThinkSystem 2.5" 1.2TB 10K SAS 12Gb Hot Swap 512n HDD	16
7XB7A00028	AUM2	ThinkSystem 2.5" 1.8TB 10K SAS 12Gb Hot Swap 512e HDD	16
7XB7A00069	B0YS	ThinkSystem 2.5" 2.4TB 10K SAS 12Gb Hot Swap 512e HDD	16
2.5-inch hot-swap HDDs - 12 Gb SAS 15K			
7XB7A00021	AULV	ThinkSystem 2.5" 300GB 15K SAS 12Gb Hot Swap 512n HDD	16
7XB7A00022	AULW	ThinkSystem 2.5" 600GB 15K SAS 12Gb Hot Swap 512n HDD	16
7XB7A00023	AULX	ThinkSystem 2.5" 900GB 15K SAS 12Gb Hot Swap 512e HDD	16
2.5-inch hot-swap HDDs - 12 Gb NL SAS			
7XB7A00034	AUM6	ThinkSystem 2.5" 1TB 7.2K SAS 12Gb Hot Swap 512n HDD	16
7XB7A00035	AUM7	ThinkSystem 2.5" 2TB 7.2K SAS 12Gb Hot Swap 512n HDD	16
2.5-inch hot-swap SED HDDs - 12 Gb SAS 10K			
7XB7A00030	AUM4	ThinkSystem 2.5" 300GB 10K SAS 12Gb Hot Swap 512n HDD SED	16

Table 19. 2.5-inch hot-swap 6 Gb SAS/SATA HDDs

Part number	Feature	Description	Maximum supported
2.5-inch hot-swap HDDs - 6 Gb NL SATA			
7XB7A00036	AUUE	ThinkSystem 2.5" 1TB 7.2K SATA 6Gb Hot Swap 512n HDD	16
7XB7A00037	AUJJ	ThinkSystem 2.5" 2TB 7.2K SATA 6Gb Hot Swap 512e HDD	16

Table 20. 2.5-inch hot-swap 6 Gb SAS/SATA SSDs

Part number	Feature	Description	Maximum supported
2.5-inch hot-swap SSDs - 6 Gb SATA - Enterprise Mainstream (3-5 DWPD)			
7SD7A05723	B0ZP	ThinkSystem 2.5" Intel S4600 240GB Mainstream SATA 6Gb Hot Swap SSD	16
7SD7A05722	B0ZQ	ThinkSystem 2.5" Intel S4600 480GB Mainstream SATA 6Gb Hot Swap SSD	16
7SD7A05721	B0ZR	ThinkSystem 2.5" Intel S4600 960GB Mainstream SATA 6Gb Hot Swap SSD	16
2.5-inch hot-swap SSDs - 6 Gb SATA - Enterprise Entry (<3 DWPD)			
4XB7A10247	B498	ThinkSystem 2.5" Intel S4510 240GB Entry SATA 6Gb Hot Swap SSD	16
4XB7A10248	B499	ThinkSystem 2.5" Intel S4510 480GB Entry SATA 6Gb Hot Swap SSD	16
4XB7A10249	B49A	ThinkSystem 2.5" Intel S4510 960GB Entry SATA 6Gb Hot Swap SSD	16

Table 21. 3.5-inch hot-swap 12 Gb SAS HDDs

Part number	Feature	Description	Maximum supported
3.5-inch hot-swap HDDs - 12 Gb SAS 15K			
7XB7A00038	AUU2	ThinkSystem 3.5" 300GB 15K SAS 12Gb Hot Swap 512n HDD	8
7XB7A00039	AUU3	ThinkSystem 3.5" 600GB 15K SAS 12Gb Hot Swap 512n HDD	8
7XB7A00040	AUUC	ThinkSystem 3.5" 900GB 15K SAS 12Gb Hot Swap 512e HDD	8
3.5-inch hot-swap HDDs - 12 Gb NL SAS			
7XB7A00041	AUU4	ThinkSystem 3.5" 1TB 7.2K SAS 12Gb Hot Swap 512n HDD	8
7XB7A00042	AUU5	ThinkSystem 3.5" 2TB 7.2K SAS 12Gb Hot Swap 512n HDD	8
7XB7A00043	AUU6	ThinkSystem 3.5" 4TB 7.2K SAS 12Gb Hot Swap 512n HDD	8
7XB7A00044	AUU7	ThinkSystem 3.5" 6TB 7.2K SAS 12Gb Hot Swap 512e HDD	8
7XB7A00045	B0YR	ThinkSystem 3.5" 8TB 7.2K SAS 12Gb Hot Swap 512e HDD	8

Table 22. 3.5-inch hot-swap 6 Gb SAS/SATA HDDs

Part number	Feature	Description	Maximum supported
3.5-inch hot-swap HDDs - 6 Gb NL SATA			
7XB7A00049	AUUF	ThinkSystem 3.5" 1TB 7.2K SATA 6Gb Hot Swap 512n HDD	8
7XB7A00050	AUUD	ThinkSystem 3.5" 2TB 7.2K SATA 6Gb Hot Swap 512n HDD	8
7XB7A00051	AUU8	ThinkSystem 3.5" 4TB 7.2K SATA 6Gb Hot Swap 512n HDD	8
7XB7A00052	AUUA	ThinkSystem 3.5" 6TB 7.2K SATA 6Gb Hot Swap 512e HDD	8
7XB7A00053	AUU9	ThinkSystem 3.5" 8TB 7.2K SATA 6Gb Hot Swap 512e HDD	8

Table 23. 3.5-inch hot-swap 6 Gb SAS/SATA SSDs

Part number	Feature	Description	Maximum supported
3.5-inch hot-swap SSDs - 6 Gb SATA - Enterprise Mainstream (3-5 DWPD)			
7SD7A05718	B0ZT	ThinkSystem 3.5" Intel S4600 240GB Mainstream SATA 6Gb Hot Swap SSD	8
7SD7A05717	B0ZU	ThinkSystem 3.5" Intel S4600 480GB Mainstream SATA 6Gb Hot Swap SSD	8
7SD7A05716	B0ZV	ThinkSystem 3.5" Intel S4600 960GB Mainstream SATA 6Gb Hot Swap SSD	8
3.5-inch hot-swap SSDs - 6 Gb SATA - Enterprise Entry (<3 DWPD)			
4XB7A13625	B49D	ThinkSystem 3.5" Intel S4510 240GB Entry SATA 6Gb Hot Swap SSD	8
4XB7A13626	B49E	ThinkSystem 3.5" Intel S4510 480GB Entry SATA 6Gb Hot Swap SSD	8
4XB7A13627	B49F	ThinkSystem 3.5" Intel S4510 960GB Entry SATA 6Gb Hot Swap SSD	8

Table 24. 3.5-inch simple-swap 6 Gb SAS/SATA HDDs

Part number	Feature	Description	Maximum supported
3.5-inch simple-swap HDDs - 6 Gb NL SATA			
7XB7A00055	AUZS	ThinkSystem 1TB 7.2K 6Gbps SATA 3.5" Simple Swap 512n HDD	8
7XB7A00056	AUZT	ThinkSystem 2TB 7.2K 6Gbps SATA 3.5" Simple Swap 512n HDD	8
7XB7A00057	AUZU	ThinkSystem 4TB 7.2K 6Gbps SATA 3.5" Simple Swap 512n HDD	8
7XB7A00058	AXC7	ThinkSystem 6TB 7.2K 6Gbps SATA 3.5" Simple Swap 512e HDD	8
7XB7A00059	AXC6	ThinkSystem 8TB 7.2K 6Gbps SATA 3.5" Simple Swap 512e HDD	8

Table 25. 3.5-inch simple-swap 6 Gb SAS/SATA SSDs

Part number	Feature	Description	Maximum supported
3.5-inch simple-swap SSDs - 6 Gb SATA - Enterprise Entry (<3 DWPD)			
4XB7A13952	B4KC	ThinkSystem 3.5" Intel S4510 480GB Entry SATA 6Gb Simple Swap SSD	8
4XB7A13953	B4KD	ThinkSystem 3.5" Intel S4510 960GB Entry SATA 6Gb Simple Swap SSD	8
4XB7A13951	B4KE	ThinkSystem 3.5" Intel S4510 240GB Entry SATA 6Gb Simple Swap SSD	8

Table 26. M.2 drives

Part number	Feature	Description	Maximum supported
M.2 SSDs - 6 Gb SATA - Enterprise Entry (<3 DWPD)			
7N47A00129	AUUL	ThinkSystem M.2 CV1 32GB SATA 6Gbps Non-Hot-Swap SSD	1
7N47A00130	AUUV	ThinkSystem M.2 CV3 128GB SATA 6Gbps Non-Hot-Swap SSD	1
7SD7A05703	B11V	ThinkSystem M.2 5100 480GB SATA 6Gbps Non-Hot-Swap SSD	1

Internal backup units

The ST250 supports the internal backup unit options that are listed in the following table.

Table 27. Internal backup units

Part number	Feature code	Description	Maximum supported
Drives			
7T27A01503	AVF5	ThinkSystem Internal Half High LTO Gen7 SAS Tape Drive	1
7T27A01501	AVF6	ThinkSystem Internal RDX USB 3.0 Dock	1
LTO Media			
7TP7A01606	AVF7	ThinkSystem LTO Gen7 6TB Tape	Not applicable
RDX Media			
7TP7A01601	AVF8	ThinkSystem RDX 500GB Cartridge	Not applicable
7TP7A01602	AVF1	ThinkSystem RDX 1TB Cartridge	Not applicable
7TP7A01603	AVF0	ThinkSystem RDX 2TB Cartridge	Not applicable
7TP7A04318	AXD1	ThinkSystem RDX 4TB Cartridge	Not applicable

Configuration notes:

- The RDX drive is attached via the internal USB 3.0 port on the system board. The USB cable ships with the drive.
- The use of an LTO tape drive requires a SAS HBA, either the 430-8i or 430-16i SAS/SATA 12Gb HBA. Details about the adapters in the [SAS adapters for external storage](#) section. The SAS cable ships with the tape drive.
- Configurations with an M.2 drive + optical drive + backup drive (either RDX or tape) is only supported as a field upgrade. Such configurations are not supported configure-to-order (CTO). For field upgrades, the drives are installed as follows:
 - Optical drive goes in Bay 1 (upper bay) connected to SATA port 6
 - Tape/RDX drive goes in Bay 0 (lower bay) connected to a SAS HBA or internal USB port

For more information about RDX drive and LTO tape drives, see the Backup Units page on the Lenovo Press site: <https://lenovopress.com/servers/options/backup>

Optical drives

The ST250 supports the optical drive options listed in the following table. The internal optical are installed in the 5.25-inch media drive bays.

Table 28. Optical drives

Part number	Feature code	Description	Maximum supported
Internal optical drives			
7XA7A01204	AVEZ	ThinkSystem Half High SATA DVD-ROM Optical Disk Drive	2
7XA7A01202	AVEY	ThinkSystem Half High SATA DVD-RW Optical Disk Drive	2
External optical drives			
7XA7A05926	AVV8	ThinkSystem External USB DVD RW Optical Disk Drive	1

Configuration rules:

- Only one optical drive can be installed if an M.2 drive is used. The use of two optical drives + M.2 is not supported.
- For configurations using the onboard SATA controller, if 1 or 2 optical drives are installed, only 6 HDDs or SSDs can be installed.
- Configurations with an M.2 drive + optical drive + backup drive (either RDX or tape) is only supported as a field upgrade. Such configurations are not supported configure-to-order (CTO). For field upgrades, the drives are installed as follows:
 - Optical drive goes in Bay 1 (upper bay) connected to SATA port 6
 - Tape/RDX drive goes in Bay 0 (lower bay) connected to a SAS HBA or internal USB port

The Half High SATA DVD-ROM drive supports the following media and speeds for reading:

- CD-ROM 48X
- CD-DA (DAE) 48X
- CD-R 48X
- CD-RW 40X
- DVD-ROM (single layer) 16X
- DVD-ROM (dual layer) 12X
- DVD-R (4.7 GB) 16X
- DVD-R DL 8X
- DVD+R 16X
- DVD+R DL 8X
- DVD-RW (4.7 GB) 8X
- DVD+RW 8X

The Half High SATA DVD-RW drive supports the same media and speeds for reading as HH DVD-ROM. In addition, this drive supports the following media and speeds for writing:

- CD-R 24X
- CD-RW 4X
- High Speed CD-RW 10X
- Ultra Speed CD-RW 16X
- DVD-R 8X
- DVD-R DL 8X
- DVD+R 8X
- DVD+R DL 8X
- DVD-RW 6X
- DVD+RW 8X

The ThinkSystem External USB DVD RW Optical Disk Drive is based on the Lenovo Slim DVD Burner DB65 drive and has the following specifications:

- Read:
 - CD-ROM 24X
 - CD-DA (DAE) 24X
 - CD-R 24X
 - CD-RW 24X
 - DVD-ROM (single layer) 8X
 - DVD-ROM (dual layer) 8X
 - DVD-R (4.7 GB) 8X
 - DVD-R DL 8X
 - DVD+R 8X
 - DVD+R DL 8X
 - DVD-RW (4.7 GB) 8X
 - DVD+RW 8X
- Write:
 - CD-R 10X (CLV), 24X (PCAV)

- CD-RW 4X
- High Speed CD-RW 10X
- Ultra Speed CD-RW 24X
- DVD-R 8X
- DVD-R DL 6X
- DVD+R 8X
- DVD+R DL 6X
- DVD-RW 6X
- DVD+RW 8X

I/O expansion options

The ST250 server has four PCIe 3.0 slots, as follows:

- Slot 1: PCIe 3.0 x1 full-height, half-length
- Slot 2: PCIe 3.0 x16 full-height, half-length
- Slot 3: PCIe 3.0 x4 full-height, half-length
- Slot 4: PCIe 3.0 x4 full-height, half-length (x8 physical slot)

The following figure shows the locations of the PCIe slots.

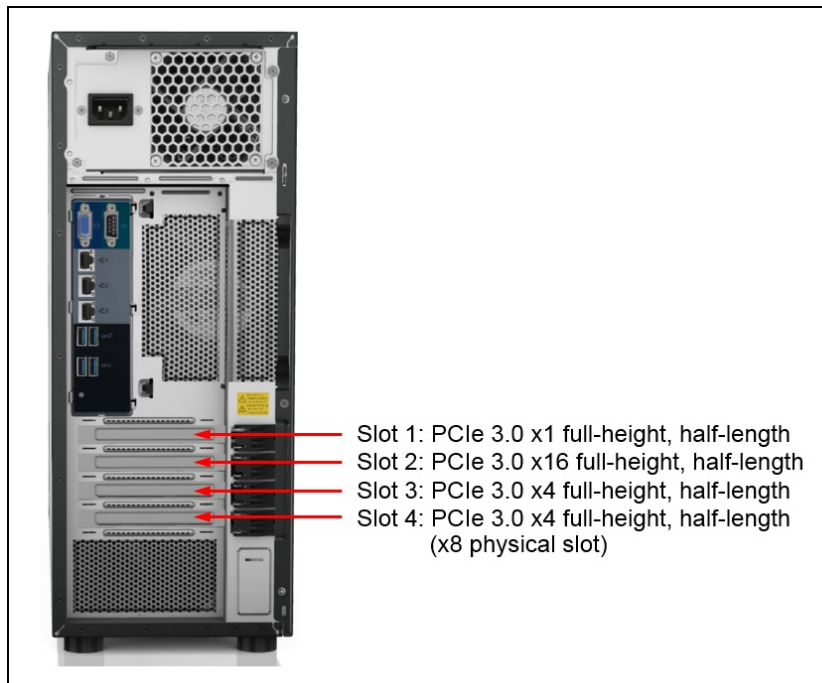


Figure 9. ThinkSystem ST250 PCIe slots

Network adapters

The ST250 has two onboard Gigabit Ethernet ports, connected to a Broadcom BCM5720 embedded controller.

The following table lists other supported network adapters. The maximum supported column indicates which slots each adapter is supported in. For slot locations see the [I/O expansion options](#) section.

Table 29. Network adapters

Part number	Feature code	Description	Slots supported	Maximum supported
Gigabit Ethernet				
7ZT7A00484	AUZV	ThinkSystem Broadcom 5719 1GbE RJ45 4-Port PCIe Ethernet Adapter	2,3,4	2
7ZT7A00482	AUZX	ThinkSystem Broadcom 5720 1GbE RJ45 2-Port PCIe Ethernet Adapter	1,2,3,4	2
7ZT7A00533	AUZZ	ThinkSystem I350-F1 PCIe 1Gb 1-Port SFP Ethernet Adapter	2,3,4	2
7ZT7A00534	AUZY	ThinkSystem I350-T2 PCIe 1Gb 2-Port RJ45 Ethernet Adapter	2,3,4	2
7ZT7A00535	AUZW	ThinkSystem I350-T4 PCIe 1Gb 4-Port RJ45 Ethernet Adapter	2,3,4	2
10 Gb Ethernet SFP+				
00AG580	AT7T	Emulex VFA5.2 2x10 GbE SFP+ Adapter and FCoE/iSCSI SW	2,3,4	2*
00AG570	AT7S	Emulex VFA5.2 2x10 GbE SFP+ PCIe Adapter	2,3,4	2*
7XC7A05525	B0YL	Intel X710-DA4 4x10Gb SFP+ Adapter	2,3,4	2*
7ZT7A00537	AUKX	ThinkSystem Intel X710-DA2 PCIe 10Gb 2-Port SFP+ Ethernet Adapter	2,3,4	2*
10 Gb Ethernet 10GBASE-T				
00MM850	ATRY	Intel X550-T1 Single Port 10GBase-T Adapter	2,3,4	2
00MM860	ATPX	Intel X550-T2 Dual Port 10GBase-T Adapter	2,3,4	2
7XC7A05927	B0X1	Intel X710-T4 4x10Gb Base-T Adapter	2,3,4	2
25 Gb Ethernet				
7ZT7A00505	AUKS	ThinkSystem Broadcom 57412 25GbE SFP28 1-Port PCIe Ethernet Adapter	2,3,4	2*
7XC7A05523	B0WY	ThinkSystem Intel XXV710-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	2,3,4	2*

* Requires transceivers or DAC cables that must be ordered separately.

For more information, including the transceivers and cables that each adapter supports, see the list of Lenovo Press Product Guides in the Ethernet adapters category:

<https://lenovopress.com/servers/options/ethernet>

SAS adapters for external storage

The following table lists the SAS HBAs and RAID adapters suitable for connectivity to external storage.

Table 30. Supported SAS HBAs and RAID adapters

Part number	Feature code	Description	Slots supported	Maximum supported
12 Gb SAS HBA				
7Y37A01090	AUNR	ThinkSystem 430-8e SAS/SATA 12Gb HBA	2,3,4	2
12 Gb RAID Adapter				
7Y37A01087	AUNQ	ThinkSystem RAID 930-8e 4GB Flash PCIe 12Gb Adapter	2,3,4	1*

* Limited by the number of supercap mounts in the server

The following table summarizes the features of supported adapters.

Table 31. Comparison of features

Feature	430-8e	RAID 930-8e
Adapter type	HBA	External RAID
Part number	7Y37A01090	7Y37A01087
Controller chip	LSI SAS3408	LSI SAS3516
Broadcom equivalent	HBA 9400-8e	MegaRAID 9480-8e
Host interface	PCIe 3.0x8	PCIe 3.0x8
Port interface	12 Gb SAS	12 Gb SAS
Number of ports	8	8
Port connectors	2x Mini-SAS HD SFF8644	2x Mini-SAS HD SFF8644
Drive interface	SAS/SATA	SAS,SATA
Drive type	HDD/SSD/SED*	HDD,SED,SSD
Hot-swap drives	Yes	Yes
Maximum devices	512 (planned: 1024)	64 (planned: 216)
RAID levels	None	0/1/10/5/50/6/60
JBOD mode	Yes	Yes
Cache	None	4GB (Standard)
CacheVault cache protection	None	Yes (Flash)
Performance Accelerator (FastPath)	No	Yes
SSD Caching (CacheCade Pro 2.0)	No	No
SED support*	Yes*	Yes

* SED (self-encrypting drive) support of the SAS HBA is by using software on the server (SED commands are passed through the HBA to the drives).

Fibre Channel host bus adapters

The following table lists the Fibre Channel HBAs supported by the server.

Table 32. Fibre Channel adapters

Part number	Feature code	Description	Slots supported	Maximum supported
16 Gb Fibre Channel				
01CV840	ATZV	Emulex 16Gb Gen6 FC Dual-port HBA	2,3,4	2
01CV830	ATZU	Emulex 16Gb Gen6 FC Single-port HBA	2,3,4	2

For more information, see the list of Lenovo Press Product Guides in the Host bus adapters category:
<https://lenovopress.com/servers/options/hba>

Flash Storage adapters

The server currently does not support Flash Storage adapters.

GPU adapters

The ST250 server supports the graphics processing units (GPUs) listed in the following table.

Table 33. GPU adapters

Part number	Feature code	Description	Slots supported	Maximum supported
7C57A02877	AUW6	ThinkSystem NVIDIA Quadro P2000	2	1
4X67A11584	B31D	ThinkSystem NVIDIA Quadro P620 2GB PCIe Active GPU	2	1

The following rule applies:

- The use of a GPU requires 550W hot-swap power supplies

For information about GPUs, see the ThinkSystem GPU Summary:
<https://lenovopress.com/lp0768-thinksystem-gpu-summary>

Fans and cooling

The ST250 has the following fans. All fans are fixed (non-hot-swap).

- One or two system fans at the front of the server, mounted on the drive cages. If the server has one drive cage, only one front fan is included
- One system fan at the rear of the server
- Fan mounted on the heatsink of the processor
- One fan in each power supply

See the Inside view in the [Components and connectors](#) section for locations.

Power supplies

The server supports either a single fixed power supply or one or two hot-swap power supplies. When two hot-swap power supplies are installed, they form a redundant pair. The following table lists the supported power supplies.

Table 34. Power supply options

Part number	Feature code	Description	Maximum supported	110V AC	220V AC	240V DC China only
None*	B41Q	ThinkSystem ST250 250W Fixed PSU	1	Yes	Yes	No
7N67A00882	B41P	550W (230V/115V) Platinum Hot-Swap Power Supply	2	Yes	Yes	Yes

* Configure-to-order only

The power supplies are auto-sensing and support both 110V AC (100-127V 50/60 Hz) and 220V AC (200-240V 50/60 Hz) power. In China only, the 550W power supply also support 240V DC. Both 250W and 550W power supplies are 80 PLUS Platinum certified. The 550W hot-swap power supply is Energy Star 2.1 compliant.

Power supply options do not include a line cord.

For server configurations, the inclusion of a power supply is model dependent. Configure-to-order models can be configured without a power cord if desired.

The following table lists the maximum configuration for the 250W power supply.

Table 35. Maximum configuration for the 250W power supply

Subsystem	250W fixed power supply
Processor	Up to 80W TDP
Memory	No restriction
Drives	Up to 4x 3.5-inch drives or 8x 2.5-inch drives (HDD or SSD)
Media bays	1x optical drive or 1x LTO tape drive or 1x RDX drive
M.2	No restriction
Adapters (except GPU)	1 or 2 adapters up to PCIe x8
GPU	Not supported

For further power configuration of the server, use the Lenovo Capacity Planner, available at: <https://datacentersupport.lenovo.com/us/en/products/solutions-and-software/software/lenovo-capacity-planner/solutions/ht504651>

Power cords

Country-specific line cords can be ordered as listed in the following table.

Table 36. Power cords

Region	Part number	Feature	Description
Argentina	39Y7930	6222	2.8m, 10A/250V, C13 to IRAM 2073 (Argentina) Line Cord
Argentina	81Y2384	6492	4.3m, 10A/220V, C13 to IRAM 2073 (Argentina) Line Cord
Australia/NZ	39Y7924	6211	2.8m, 10A/250V, C13 to AS/NZ 3112 (Australia/NZ) Line Cord
Australia/NZ	81Y2383	6574	4.3m, 10A/230V, C13 to AS/NZS 3112 (Aus/NZ) Line Cord
Brazil	69Y1988	6532	2.8m, 10A/250V, C13 to NBR 14136 (Brazil) Line Cord
Brazil	81Y2387	6404	4.3m, 10A/250V, C13 - 2P+Gnd (Brazil) Line Cord
China	39Y7928	6210	2.8m, 220-240V, C13 to GB 2099.1 (China) Line Cord
China	81Y2378	6580	4.3m, 10A/220V, C13 to GB 2099.1 (China) Line Cord
Denmark	39Y7918	6213	2.8m, 10A/250V, C13 to DK2-5a (Denmark) Line Cord

Region	Part number	Feature	Description
Denmark	81Y2382	6575	4.3m, 10A/230V, C13 to DK2-5a (Denmark) Line Cord
Europe	39Y7917	6212	2.8m, 10A/230V, C13 to CEE7-VII (Europe) Line Cord
Europe	81Y2376	6572	4.3m, 10A/230V, C13 to CEE7-VII (Europe) Line Cord
India	39Y7927	6269	2.8m, 10A/250V, C13(2P+Gnd) (India) Line Cord
India	81Y2386	6567	4.3m, 10A/240V, C13 to IS 6538 (India) Line Cord
Israel	39Y7920	6218	2.8m, 10A/250V, C13 to SI 32 (Israel) Line Cord
Israel	81Y2381	6579	4.3m, 10A/230V, C13 to SI 32 (Israel) Line Cord
Italy/Chile	39Y7921	6217	2.8m, 220-240V, C13 to CEI 23-16 (Italy/Chile) Line Cord
Italy/Chile	81Y2380	6493	4.3m, 10A/230V, C13 to CEI 23-16 (Italy/Chile) Line Cord
Japan	46M2593	A1RE	2.8m, 12A/125V, C13 to JIS C-8303 (Japan) Line Cord
Japan	4L67A08357	6533	2.8m, 200V, C13 to JIS C-8303 (Japan) Line Cord
Japan	39Y7926	6335	4.3m, 12A/100V, C13 to JIS C-8303 (Japan) Line Cord
Japan	4L67A08362	6495	4.3m, 12A/200V, C13 to JIS C-8303 (Japan) Line Cord
South Africa	39Y7922	6214	2.8m, 10A/250V, C13 to SABS 164 (S Africa) Line Cord
South Africa	81Y2379	6576	4.3m, 10A/230V, C13 to SABS 164 (South Africa) Line Cord
South Korea	39Y7925	6219	2.8m, 220-240V, C13 to KETI (S Korea) Line Cord
South Korea	81Y2385	6494	4.3m, 12A/220V, C13 to KSC 8305 (S. Korea) Line Cord
Switzerland	39Y7919	6216	2.8m, 10A/250V, C13 to SEV 1011-S24507 (Swiss) Line Cord
Switzerland	81Y2390	6578	4.3m, 10A/230V, C13 to SEV 1011-S24507 (Sws) Line Cord
Taiwan	23R7158	6386	2.8m, 10A/125V, C13 to CNS 10917-3 (Taiwan) Line Cord
Taiwan	81Y2375	6317	2.8m, 10A/240V, C13 to CNS 10917-3 (Taiwan) Line Cord
Taiwan	4L67A08363	AX8B	4.3m, 10A/125V, C13 to CNS 10917 (Taiwan) Line Cord
Taiwan	81Y2389	6531	4.3m, 10A/250V, C13 to 76 CNS 10917-3 (Taiwan) Line Cord
UK	39Y7923	6215	2.8m, 10A/250V, C13 to BS 1363/A (UK) Line Cord
UK	81Y2377	6577	4.3m, 10A/230V, C13 to BS 1363/A (UK) Line Cord
US/Canada	90Y3016	6313	2.8m, 10A/120V, C13 to NEMA 5-15P (US) Line Cord
US/Canada	46M2592	A1RF	2.8m, 10A/250V, C13 to NEMA 6-15P Line Cord
US/Canada	4L67A08359	6370	4.3m, 10A/125V, C13 to NEMA 5-15P (US) Line Cord
US/Canada	4L67A08361	6373	4.3m, 10A/250V, C13 to NEMA 6-15P (US) Line Cord

Integrated virtualization

The server supports booting from an operating system or hypervisor installed on an M.2 solid-state drive. See the [M.2 drives section](#) for details and the list of available options.

You can download supported VMware vSphere hypervisor images from the following web page and load it on the M.2 drive using the instructions provided:

https://vmware.lenovo.com/content/custom_iso/

Systems management

The ST250 contains an integrated service processor, XClarity Controller (XCC), which provides advanced service-processor control, monitoring, and alerting functions. The XCC is based on the Pilot4 XE401 baseboard management controller (BMC) using a dual-core ARM Cortex A9 service processor.

Local management

The ST250 offers a front operator panel showing key LED status indicators, as shown in the following figure.

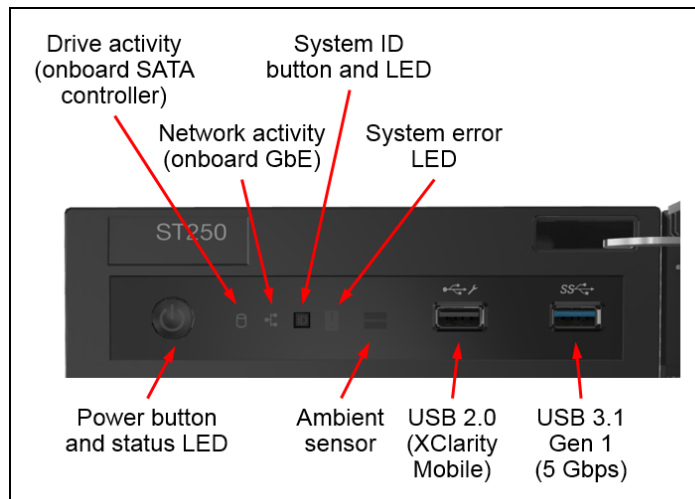



Figure 10. Front operator panel

System status with XClarity Mobile

The XClarity Mobile app includes a tethering function where you can connect your Android or iOS device to the server via USB to see the status of the server.

The steps to connect the mobile device are as follows:

1. Enable USB Management on the server, by holding down the ID button for 3 seconds (or pressing the dedicated USB management button if one is present)
2. Connect the mobile device via a USB cable to the server's USB port with the management symbol 
3. In iOS or Android settings, enable Personal Hotspot or USB Tethering
4. Launch the Lenovo XClarity Mobile app

Once connected you can see the following information:

- Server status including error logs (read only, no login required)
- Server management functions (XClarity login credentials required)

Remote management

Remote server management is provided through industry-standard interfaces:

- Intelligent Platform Management Interface (IPMI) Version 2.0
- Simple Network Management Protocol (SNMP) Version 3 (no SET commands; no SNMP v1)
- Common Information Model (CIM-XML)
- Representational State Transfer (REST) support
- Redfish support (DMTF compliant)
- Web browser - HTML 5-based browser interface (Java and ActiveX not required) using a responsive design (content optimized for device being used - laptop, tablet, phone) with NLS support

There are two XClarity Controller upgrades available for the server, Advanced and Enterprise.

Lenovo XClarity Controller Advanced adds the following remote control functions:

- Remotely viewing video with graphics resolutions up to 1600x1200 at 75 Hz with up to 23 bits per pixel, regardless of the system state
- Remotely accessing the server using the keyboard and mouse from a remote client
- Capturing blue-screen errors
- International keyboard mapping support
- LDAP-based authentication

Lenovo XClarity Controller Enterprise enables the following additional features:

- Boot Capture
- Remote mounting of CD-ROM (ISO) and diskette (IMG) files as virtual drives
- Virtual console collaboration - Ability for up to 6 remote users to be log into the remote session simultaneously
- Power capping
- License for XClarity Energy Manager

Preconfigured models come with either XClarity Controller Standard, Advanced or Enterprise, depending on the model. See the [Models](#) section for details. The following table shows the field upgrades available for preconfigured models.

Table 37. XClarity Controller field upgrades

Part number	Feature code	Description
4L47A09132	AVUT	ThinkSystem XClarity Controller Standard to Advanced Upgrade (for servers that have XCC Standard)
4L47A09133	AVUU	ThinkSystem XClarity Controller Advanced to Enterprise Upgrade (for servers that have XCC Advanced)

For configure-to-order (CTO) models, you can elect to have one of the following XCC functionality by selecting the appropriate XCC feature codes as listed in the following table:

- XCC Standard - select neither feature listed in the table
- XCC Advanced - select feature AVUT
- XCC Enterprise - select feature AUPW

Table 38. XClarity Controller Upgrades for configure-to-order

Feature code	Description
AVUT	ThinkSystem XClarity Controller Standard to Advanced Upgrade
AUPW	ThinkSystem XClarity Controller Standard to Enterprise Upgrade

Lenovo XClarity Provisioning Manager

Lenovo XClarity Provisioning Manager is a UEFI-based application embedded in ThinkSystem servers and accessible via the F1 key during system boot.

Lenovo XClarity Provisioning Manager provides the following functions:

- Graphical UEFI Setup
- System inventory information and VPD update
- System firmware updates (UEFI and XCC)
- RAID setup wizard
- OS installation wizard (including unattended OS installation)
- Diagnostics functions

Lenovo XClarity Administrator

Lenovo XClarity Administrator is a centralized resource management solution designed to reduce complexity, speed response, and enhance the availability of Lenovo systems and solutions.

Lenovo XClarity Administrator provides agent-free hardware management for ThinkSystem servers, in addition to ThinkServer, System x, and Flex System servers. The administration dashboard is based on HTML 5 and allows fast location of resources so tasks can be run quickly.

Because Lenovo XClarity Administrator does not require any agent software to be installed on the managed endpoints, there are no CPU cycles spent on agent execution, and no memory is used, which means that up to 1GB of RAM and 1 - 2% CPU usage is saved, compared to a typical managed system where an agent is required.

Lenovo XClarity Administrator provides full management function to ThinkSystem servers, including the following:

- Discovery
- Inventory
- Monitoring and alerting
- Call home
- Centralized user management
- Cryptography modes, server certificates, and encapsulation
- Configuration patterns
- Operating system deployment
- Firmware updates

For more information about Lenovo XClarity Administrator, including ordering part numbers, see the Lenovo XClarity Administrator Product Guide: <https://lenovopress.com/tips1200-lenovo-xclarity-administrator>

Lenovo XClarity Integrators

Lenovo also offers software plug-in modules, Lenovo XClarity Integrators, to manage physical infrastructure from leading external virtualization management software tools including those from Microsoft and VMware.

These integrators are offered at no charge, however if software support is required, a Lenovo XClarity Pro software subscription license should be ordered.

Lenovo XClarity Integrators offer the following additional features:

- Ability to discover, manage, and monitor Lenovo server hardware from VMware vCenter or Microsoft System Center
- Deployment of firmware updates and configuration patterns to Lenovo x86 rack servers and Flex System from the virtualization management tool
- Non-disruptive server maintenance in clustered environments that reduces workload downtime by dynamically migrating workloads from affected hosts during rolling server updates or reboots
- Greater service level uptime and assurance in clustered environments during unplanned hardware events by dynamically triggering workload migration from impacted hosts when impending hardware failures are predicted

For more information about all the available Lenovo XClarity Integrators, see the Lenovo XClarity Administrator Product Guide: <https://lenovopress.com/tips1200-lenovo-xclarity-administrator>

Lenovo XClarity Essentials

Lenovo offers the following XClarity Essentials software tools that can help you set up, use, and maintain the server at no additional cost:

- **Lenovo Essentials OneCLI**
OneCLI is a collection of server management tools that uses a command line interface program to manage firmware, hardware, and operating systems. It provides functions to collect full system health information (including health status), configure system setting, and update system firmware and drivers.
- **Lenovo Essentials UpdateXpress**
The UpdateXpress tool is a standalone GUI application for firmware and device driver updates that enables you to maintain your server firmware and device drivers up-to-date and help you avoid unnecessary server outages. The tool acquires and deploys individual updates and UpdateXpress System Packs (UXSPs) which are integration-tested bundles.
- **Lenovo Essentials Bootable Media Creator**
The Bootable Media Creator (BOMC) tool is used to create bootable media for offline firmware update.

For more information and downloads, visit the Lenovo XClarity Essentials web page:
<http://support.lenovo.com/us/en/documents/LNVO-center>

Lenovo XClarity Energy Manager

Lenovo XClarity Energy Manager is an agent-free, web-based console that provides power management for ThinkSystem servers as well as System x and ThinkServer systems. It enables server density and data center capacity to be increased through the use of power capping.

Lenovo XClarity Energy Manager is a licensed product. A single-node XClarity Energy Manager license is included with the XClarity Controller Enterprise (XCC Enterprise) upgrade as described in the [Remote Management](#) section. If your server does not have the XCC Enterprise upgrade, Energy Manager licenses can be ordered as shown in the following table.

Table 39. Lenovo XClarity Energy Manager

Description	Part number	Maximum supported
4L40E51621	Lenovo XClarity Energy Manager Node License	1 node
4L40E51622	Lenovo XClarity Energy Manager Node License Pack	5 nodes
4L40E51623	Lenovo XClarity Energy Manager Node License Pack	50 nodes

Security

The ST250 offers the following security features:

- Electronic security measures:
 - Administrator and power-on passwords
 - Trusted Platform Module (TPM) supporting both TPM 1.2 and TPM 2.0
 - For China customers, the Nationz TPM plug-in module
 - Self-encrypting drives with support for IBM Security Key Lifecycle Manager
- Mechanical security measures
 - Loop for a padlock to prevent the side panel from being opened
 - Slot at the rear of the server for a Kensington Cable Lock
 - Optional lockable front door
 - Optional chassis intrusion switch

The Nationz TPM module is installed in a dedicated socket on the system board. See the [Components and connectors](#) section for locations of physical components.

The following table lists the security options for the server.

Table 40. Security features

Part number	Feature code	Description
4M17A12791	B4M9	ThinkSystem ST250 4U Security Door
4M17A12792	B4MA	ThinkSystem ST258 4U Security Door (China customers only)
4Z57A14086	B4LS	ThinkSystem ST250 Intrusion Cable Kit
CTO only*	B22N	ThinkSystem Nationz Trusted Platform Module v2.0 (China customers only)

* Available via configure-to-order or in preconfigured models only

For SED drives and IBM Security Key Lifecycle Manager support see the [SED encryption key management with ISKLM](#) section.

Keyboards and Mice

The following table lists the supported full-sized USB keyboards and mice available for Lenovo ThinkSystem servers.

The keyboards have the following features:

- Full-sized 104-key keyboard with 3 special Windows keys
- 3 LEDs for caps lock, scroll lock and num lock
- Wired USB connection with 1.8m cable
- Adjustable feet at the rear of the keyboard

Tip: For keyboards that fit in the rack-mounted console kit, see the [KVM console options](#) section, or the [1U 18.5-inch Standard Media Console](#) product guide.

Table 41. Lenovo Preferred Pro USB Full-sized keyboards - ThinkSystem

Part number	Feature code	Description
Mice		
7M57A04698	B0LN	ThinkSystem Optical Wheel Mouse - USB
Keyboards		
7ZB7A05521	AXTM	ThinkSystem Pref. Pro Keyboard USB - Arabic 253 RoHS v2
7ZB7A05520	AXTN	ThinkSystem Pref. Pro Keyboard USB - Arabic French 462 RoHS v2
7ZB7A05519	AXTP	ThinkSystem Pref. Pro Keyboard USB - Belgium/French 120 RoHS v2
7ZB7A05518	AXTQ	ThinkSystem Pref. Pro Keyboard USB - Belgium/UK 120 RoHS v2
7ZB7A05517	AXTR	ThinkSystem Pref. Pro Keyboard USB - Brazil/Portuguese 275 RoHS v2
7ZB7A05515	AXTS	ThinkSystem Pref. Pro Keyboard USB - Bulgarian 442 RoHS v2
7ZB7A05511	AXTU	ThinkSystem Pref. Pro Keyboard USB - Czech RoHS v2
7ZB7A05509	AXTV	ThinkSystem Pref. Pro Keyboard USB - Danish 159 RoHS v2
7ZB7A05508	AXTW	ThinkSystem Pref. Pro Keyboard USB - Dutch 143 RoHS v2
7ZB7A05506	AXTX	ThinkSystem Pref. Pro Keyboard USB - French 189 RoHS v2
7ZB7A05496	AXTZ	ThinkSystem Pref. Pro Keyboard USB - French Canadian 058 French RoHS v2
7ZB7A05504	AXTY	ThinkSystem Pref. Pro Keyboard USB - French Canadian 445 Multilingual RoHS v2
7ZB7A05495	AXU0	ThinkSystem Pref. Pro Keyboard USB - German 129 RoHS v2
7ZB7A05494	AXU1	ThinkSystem Pref. Pro Keyboard USB - Greek 319 RoHS v2
7ZB7A05493	AXU2	ThinkSystem Pref. Pro Keyboard USB - Hebrew RoHS v2
7ZB7A05492	AXU3	ThinkSystem Pref. Pro Keyboard USB - Hungarian 208 RoHS v2
7ZB7A05491	AXU4	ThinkSystem Pref. Pro Keyboard USB - Iceland 197 RoHS v2
7ZB7A05490	AXU5	ThinkSystem Pref. Pro Keyboard USB - Italy 141 RoHS v2
7ZB7A05489	AXU6	ThinkSystem Pref. Pro Keyboard USB - Japanese 194 RoHS
7ZB7A05488	AXU7	ThinkSystem Pref. Pro Keyboard USB - Korean 413 RoHS v2
7ZB7A05487	AXU8	ThinkSystem Pref. Pro Keyboard USB - LA Spanish 171 RoHS v2
7ZB7A05486	AXU9	ThinkSystem Pref. Pro Keyboard USB - Norwegian 155 RoHS v2
7ZB7A05485	AXUA	ThinkSystem Pref. Pro Keyboard USB - Polish RoHS v2
7ZB7A05484	AXUB	ThinkSystem Pref. Pro Keyboard USB - Portuguese 163 RoHS v2
7ZB7A05483	AXUC	ThinkSystem Pref. Pro Keyboard USB - Romanian RoHS v2
7ZB7A05482	AXUD	ThinkSystem Pref. Pro Keyboard USB - Russian/Cyrillic 441 RoHS v2
7ZB7A05481	AXUE	ThinkSystem Pref. Pro Keyboard USB - Serbian/Cyrillic RoHS v2

Part number	Feature code	Description
7ZB7A05480	AXUF	ThinkSystem Pref. Pro Keyboard USB - Slovak 245 RoHS v2
7ZB7A05471	AXUQ	ThinkSystem Pref. Pro Keyboard USB - Slovenian 234 RoHS v2
7ZB7A05479	AXUG	ThinkSystem Pref. Pro Keyboard USB - Spanish 172 RoHS v2
7ZB7A05478	AXUH	ThinkSystem Pref. Pro Keyboard USB - Swedish/Finn 153 RoHS v2
7ZB7A05477	AXUJ	ThinkSystem Pref. Pro Keyboard USB - Swiss F/G 150 RoHS v2
7ZB7A05476	AXUK	ThinkSystem Pref. Pro Keyboard USB - Thailand 191 RoHS v2
7ZB7A05513	AXTT	ThinkSystem Pref. Pro Keyboard USB - Trad Chinese/US 467 RoHS v2
7ZB7A05474	AXUM	ThinkSystem Pref. Pro Keyboard USB - Turkish 179 RoHS v2
7ZB7A05475	AXUL	ThinkSystem Pref. Pro Keyboard USB - Turkish 440 RoHS v2
7ZB7A05473	AXUN	ThinkSystem Pref. Pro Keyboard USB - UK English 166 RoHS v2
7ZB7A05522	AXTL	ThinkSystem Pref. Pro Keyboard USB - US English 103P RoHS v2
7ZB7A05472	AXUP	ThinkSystem Pref. Pro Keyboard USB - US Euro 103P RoHS v2

Rack installation

The server can be installed in the rack with the Tower to Rack Conversion Kit, which converts the server to a 4U rack-mountable server.

Part number information is listed in the following table.

Table 42. Rack installation options

Part number	Feature code	Description
4M17A12785	B4RP	ThinkSystem ST50/ST250 4U Rack Mount Kit

The rack mount kit includes the following items:

- Tray to hold the server horizontally
- Left and right slide rails
- Cable management arm
- Brackets and other hardware
- Installation instructions

Operating system support

The server supports the following operating systems:

- Microsoft Windows Server 2012 R2
- Microsoft Windows Server 2016
- Red Hat Enterprise Linux 7.5
- SUSE Linux Enterprise Server 12 SP3
- SUSE Linux Enterprise Server 12 Xen SP3
- SUSE Linux Enterprise Server 15
- SUSE Linux Enterprise Server 15 Xen
- VMware ESXi 6.5 U2
- VMware ESXi 6.7

For a complete list of supported, certified and tested operating systems, plus additional details and links to relevant web sites, see the Operating System Interoperability Guide:

<https://lenovopress.com/osig#servers=st250-7y45-7y46>

Virtualization support: The onboard SATA ports of the server can be used with virtualization hypervisors, including VMware ESXi, Linux KVM, Xen, and Microsoft Hyper-V, however support is limited to AHCI (non-RAID) mode. RSTe mode is not supported with virtualization hypervisors.

For configure-to-order configurations, the server can be preloaded with VMware ESXi installed on an M.2 card. Ordering information is listed in the following table.

Table 43. VMware ESXi preload

Part number	Feature code	Description
CTO only	B3VW	VMware ESXi 6.5 U2 (Factory Installed)
CTO only	B3VX	VMware ESXi 6.7 (Factory Installed)

Physical and electrical specifications

The server features the following dimensions and weight:

- Height: 430 mm (16.9 inches)
- Width: 175 mm (6.9 inches)
- Depth: 566 mm (22.3 inches)
- Weight, fully configured: 23.56 kg (51.94 lb)

Electrical requirements are as follows:

- Models with a 250 W AC fixed power supply:
 - 100-127 (nominal) V ac; 50 Hz or 60 Hz
 - 200 - 240 (nominal) V ac; 50 Hz or 60 Hz
- Models with 550 W AC hot-swap power supplies:
 - 100-127 (nominal) V ac; 50 Hz or 60 Hz; 6.2 A
 - 200 - 240 (nominal) V ac; 50 Hz or 60 Hz; 3.0 A
 - Input kilovolt-amperes (kVA) (approximately):
 - Minimum configuration: 0.16 kVA
 - Maximum configuration: 0.722 kVA
- Models with 550 W 240V DC power supplies (China customers running 240V DC input)
 - 200 - 240 (nominal) V dc; 2.5 A
 - Input kilovolt-amperes (kVA) (approximately):
 - Minimum configuration: 0.16 kVA
 - Maximum configuration: 0.70 kVA

Operating environment

The server can operate in ASHRAE A2 environments (10-35°C).

The server can be configured to operate in ASHRAE A3 environments (5-40°C), provided the following restrictions are met:

- Processor with a maximum TDP of 80W
- Maximum of 8x 2.5" drives
- PCIe adapters up to 10W power consumption

The server is supported operating in the following environments:

- ASHRAE A2:
 - Temperature: 10°C to 35°C
 - Humidity: 20% to 80%
 - Altitude 0-3000 m (10,000 ft), derated 1°C per 300 m above 950 m
- ASHRAE A3:

- Temperature: 5°C to 40°C
- Humidity: 8% to 85%
- Altitude 0-3000 m (10,000 ft), derated 1°C per 175 m above 950 m

Non-operating environment support:

- Without packaging:
 - Temperature: -10 °C to 60 °C
 - Humidity: 8 to 90%
- Storage with packaging:
 - Temperature: -40 °C to 70 °C
 - Humidity: 8 to 90%

Thermal (heat) output:

- Minimum configuration: 238.6 BTU/hr, 69.8 W
- Maximum configuration: 1010.33 BTU/hr, 296.10 W

Acoustical noise emissions: See the following table.

Table 44. Acoustical noise emissions

	Minimum	Typical	Maximum
Sound power level			
Idle	3.7 bels	3.8 bels	4.3 bels
Operating	3.7 bels	4.0 bels	4.4 bels
Sound pressure level (tabletop)			
Idle	26.5 dBA	26.8 dBA	39.4 dBA
Operating	26.7 dBA	27.0 dBA	40.1 dBA
Sound pressure level (floor)			
Idle	19.3 dBA	19.5 dBA	29.5 dBA
Operating	19.4 dBA	21.0 dBA	32.3 dBA

Notes:

- These sound levels were measured in controlled acoustical environments according to procedures specified by ISO 7779 and are reported in accordance with ISO 9296.
- The declared acoustic noise levels are based on specified configurations, which may change slightly depending on configuration/conditions.

Warranty options

The ST250 has a 1-year or 3-year warranty, based on the machine type of the system:

- 7Y46 - 1 year warranty
- 7Y45 - 3 year warranty

The standard warranty terms are customer-replaceable unit (CRU) and onsite (for field-replaceable units, FRUs, only) with standard call center support during normal business hours and 9x5 Next Business Day Parts Delivered.

Also available are Lenovo Services warranty maintenance upgrades and post-warranty maintenance agreements, with a predefined scope of services, including service hours, response time, term of service, and service agreement terms and conditions.

Lenovo warranty service upgrade offerings are country-specific. Not all warranty service upgrades are available in every country. For more information about Lenovo warranty service upgrade offerings that are available in your country, go to the Data Center Advisor and Configurator (formerly known as LESC) website <http://lesc.lenovo.com>, then do the following:

1. In the Customize a Model box in the middle of the page, select the **Services** option in the Customization Option dropdown menu
2. Enter the machine type & model of the system
3. From the search results, you can click either **Deployment Services** or **Support Services** to view the offerings

The following table explains warranty service definitions in more detail.

Table 45. Warranty service definitions

Term	Description
Onsite Service	If a problem with your product cannot be resolved via telephone, a Service Technician will be dispatched to arrive at your location.
Parts Delivered	If a problem with your product cannot be resolved via telephone and a CRU part is required, Lenovo will send a replacement CRU to arrive at your location. If a problem with your product cannot be resolved via telephone and a FRU part is required, a Service Technician will be dispatched to arrive at your location.
Technician Installed Parts	If a problem with your product cannot be resolved via telephone, a Service Technician will be dispatched to arrive at your location.
Hours of coverage	<ul style="list-style-type: none"> • 9x5: 9 hours/day, 5 days/week, during normal business hours, excluding local public & national holidays • 24x7: 24 hours per day, 7 days per week, 365 days per year.
Response time target	2 hours, 4 hours, or Next Business Day: The time period from when the telephone based troubleshooting is completed and logged, to the delivery of the CRU or arrival of a Service Technician and part at the Customer's location for repair.
Committed Repair	6 hours: The time period between the service request registration in Lenovo's call management system and the restoration of the product to conformance with its specification by a Service Technician.

The following Lenovo warranty service upgrades are available:

- Warranty and maintenance service upgrades:
 - Three, four, or five years of 9x5 or 24x7 service coverage
 - Parts delivered or technician installed parts from next business day to 4 or 2 hours
 - Committed repair service
 - Warranty extension of up to 5 years
 - Post warranty extensions
- Committed Repair Service

Committed Repair Services enhances the level of Warranty Service Upgrade or Post Warranty/Maintenance Service offering associated with the selected systems. Offerings vary and are available in select countries.

 - Priority handling to meet defined time frames to restore the failing machine to good working condition
 - 24x7x6 committed repair: Service performed 24 hours per day, 7 days per week, within 6 hours

- **YourDrive YourData**

Lenovo's YourDrive YourData service is a multi-drive retention offering that ensures your data is always under your control, regardless of the number of drives that are installed in your Lenovo server. In the unlikely event of a drive failure, you retain possession of your drive while Lenovo replaces the failed drive part. Your data stays safely on your premises, in your hands. The YourDrive YourData service can be purchased in convenient bundles with Lenovo warranty upgrades and extensions.

- **Microcode Support**

Keeping microcode current helps prevent hardware failures and security exposure. There are two levels of service: analysis of the installed base and analysis and update where required. Offerings vary by country and can be bundled with other warranty upgrades and extensions.

- **Enterprise Software Support**

Lenovo Enterprise Server Software Support can help you troubleshoot your entire server software stack. Choose support for server operating systems from Microsoft, Red Hat, SUSE, and VMware; Microsoft server applications; or both operating systems and applications. Support staff can help answer troubleshooting and diagnostic questions, address product compatibility and interoperability issues, isolate causes of problems, report defects to software vendors, and more.

In addition, you can access hardware "how to" support for ThinkSystem servers. Staff can help resolve hardware problems not covered under warranty, refer you to the right documentation and publications, provide corrective service information for known defects, and transfer you to a hardware support call center if needed.

- **Hardware Installation Services**

Lenovo experts can seamlessly manage the physical installation of your server, storage, or networking hardware. Working at a time convenient for you (business hours or off shift), the technician will unpack and inspect the systems on your site, install options, mount in a rack cabinet, connect to power and network, check and update firmware to the latest levels, verify operation, and dispose of the packaging, allowing your team to focus on other priorities. Your new systems will be configured and ready for your software installation.

Regulatory compliance

The ST250 server conforms to the following standards:

- Energy Star 2.1
- USA FCC Title 47 CFR Part 15 Subpart B
- Canada ICES-003, issue 6, Class A
- UL62368-1
- CSA C22.2, No. 62368-1-14
- NOM-019
- Argentina IEC60950-1
- Australia/New Zealand AS/NZS CISPR 32, Class A
- Japan VCCI 32-1
- IEC 60950-1 (CB Certificate and CB Test Report), IEC 62368-1 (CB Certificate and CB Test Report)
- China CCC (GB4943.1), GB9254 Class A, GB17625.1, CECP, CELP
- Taiwan BSMI CNS13438, Class A; CNS14336-1
- Korea KN32, Class A; KN35
- Russia, Belorussia and Kazakhstan, TR CU 020/2011 and TR CU 004/2011
- CE Mark (EN55032 Class A, EN60950-1, EN55024, EN61000-3-2, and EN61000-3-3, EN 62368-1)
- CISPR 32, Class A
- TUV-GS (EN62368-1, EK1-ITB2000)
- India BIS certification

External drive enclosures

The server supports attachment to external drive enclosures using a RAID controller with external ports or a SAS host bus adapter. Adapters supported by the server are listed in the [SAS adapters for external storage](#) section.

Note: Information provided in this section is for ordering reference purposes only. For the operating system and adapter support details, refer to the interoperability matrix for a particular storage enclosure that can be found on the Lenovo Data Center Support web site:

<http://datacentersupport.lenovo.com>

Table 46. External drive enclosures

Description	Part number		
	Worldwide	Japan	PRC
Lenovo Storage D1212 LFF Disk Expansion with Dual SAS IO Modules	4587A11	4587A1J	4587A1C
Lenovo Storage D1224 SFF Disk Expansion with Dual SAS IO Modules	4587A31	4587A3J	4587A3C
Lenovo Storage D3284 4TB x 84 HD Expansion Enclosure	641311F		
Lenovo Storage D3284 6TB x 84 HD Expansion Enclosure	641312F		
Lenovo Storage D3284 8TB x 84 HD Expansion Enclosure	641313F		
Lenovo Storage D3284 10TB x 84 HD Expansion Enclosure	641314F		

For details about supported drives, adapters, and cables, see the following Lenovo Press Product Guides:

- Lenovo Storage D1212 and D1224
<http://lenovopress.com/lp0512>
- Lenovo Storage D3284
<http://lenovopress.com/lp0513>

External storage systems

The following table lists the external storage systems that are currently offered by Lenovo.

Note: Information provided in this section is for ordering reference purposes only. End-to-end storage configuration support *must* be verified through the interoperability matrix for a particular storage system that can be found on the Lenovo Data Center Support web site:

<http://datacentersupport.lenovo.com>

Table 47. External storage systems: DE Series

Description	Part number	
	Worldwide	Japan
Lenovo ThinkSystem DE Series Storage (SAS connectivity)		
Lenovo ThinkSystem DE2000H SAS Hybrid Flash Array LFF	7Y70A000WW	7Y701003JP
Lenovo ThinkSystem DE2000H SAS Hybrid Flash Array SFF	7Y71A000WW	7Y711003JP
Lenovo ThinkSystem DE4000H SAS Hybrid Flash Array 4U60	7Y77A002WW	7Y771000JP
Lenovo ThinkSystem DE4000H SAS Hybrid Flash Array LFF	7Y74A000WW	7Y74A000JP
Lenovo ThinkSystem DE4000H SAS Hybrid Flash Array SFF	7Y75A000WW	7Y75A000JP
Lenovo ThinkSystem DE4000F SAS All Flash Array SFF	7Y76A000WW	7Y76A000JP
Lenovo ThinkSystem DE6000H SAS Hybrid Flash Array 4U60	7Y80A000WW	7Y801002JP
Lenovo ThinkSystem DE6000H SAS Hybrid Flash Array SFF	7Y78A000WW	7Y781002JP
Lenovo ThinkSystem DE6000F SAS All Flash Array SFF	7Y79A000WW	7Y79A000JP
Lenovo ThinkSystem DE Series Storage (iSCSI connectivity)		
Lenovo ThinkSystem DE2000H 10GBASE-T Hybrid Flash Array LFF	7Y70A003WW	7Y701001JP
Lenovo ThinkSystem DE2000H 10GBASE-T Hybrid Flash Array SFF	7Y71A002WW	7Y711005JP
Lenovo ThinkSystem DE2000H iSCSI Hybrid Flash Array LFF	7Y70A004WW	7Y701000JP
Lenovo ThinkSystem DE2000H iSCSI Hybrid Flash Array SFF	7Y71A003WW	7Y711006JP
Lenovo ThinkSystem DE4000H iSCSI Hybrid Flash Array 4U60	7Y77A000WW	7Y771002JP
Lenovo ThinkSystem DE4000H iSCSI Hybrid Flash Array LFF	7Y74A002WW	7Y74A002JP
Lenovo ThinkSystem DE4000H iSCSI Hybrid Flash Array SFF	7Y75A001WW	7Y75A001JP
Lenovo ThinkSystem DE4000F iSCSI All Flash Array SFF	7Y76A002WW	7Y76A002JP
Lenovo ThinkSystem DE6000H iSCSI Hybrid Flash Array 4U60	7Y80A002WW	7Y801000JP
Lenovo ThinkSystem DE6000H iSCSI Hybrid Flash Array SFF	7Y78A002WW	7Y781000JP
Lenovo ThinkSystem DE6000F iSCSI All Flash Array SFF	7Y79A002WW	7Y79A002JP
Lenovo ThinkSystem DE Series Storage (FC connectivity)		
Lenovo ThinkSystem DE2000H FC Hybrid Flash Array LFF	7Y70A002WW	7Y701002JP
Lenovo ThinkSystem DE2000H FC Hybrid Flash Array SFF	7Y71A001WW	7Y711004JP
Lenovo ThinkSystem DE4000H FC Hybrid Flash Array 4U60	7Y77A001WW	7Y771001JP
Lenovo ThinkSystem DE4000H FC Hybrid Flash Array LFF	7Y74A001WW	7Y74A001JP
Lenovo ThinkSystem DE4000H FC Hybrid Flash Array SFF	7Y75A002WW	7Y75A002JP
Lenovo ThinkSystem DE4000F FC All Flash Array SFF	7Y76A001WW	7Y76A001JP
Lenovo ThinkSystem DE6000H FC Hybrid Flash Array 4U60	7Y80A001WW	7Y801001JP
Lenovo ThinkSystem DE6000H FC Hybrid Flash Array SFF	7Y78A001WW	7Y781001JP
Lenovo ThinkSystem DE6000F FC All Flash Array SFF	7Y79A001WW	7Y79A001JP

Table 48. External storage systems: DM Series

Description	Part number		
	Worldwide	Japan	PRC
Lenovo ThinkSystem DM Series Storage (iSCSI or FC connectivity)			
Lenovo ThinkSystem DM3000H Hybrid Storage Array (2U12 LFF, CTO only)	7Y42CTO1WW		
Lenovo ThinkSystem DM3000H 48TB (12x 4TB HDDs) (Universal SFP+)	7Y420001EA*		
Lenovo ThinkSystem DM3000H 48TB (12x 4TB HDDs) (10GBASE-T)	7Y420002EA*		
Lenovo ThinkSystem DM5000H Hybrid Storage Array (2U24 SFF, CTO only)	7Y57CTO1WW		
Lenovo ThinkSystem DM5000H 11.5TB (12x 960GB SSDs) (Universal SFP+)	7Y570001EA*		
Lenovo ThinkSystem DM5000H 11.5TB (12x 960GB SSDs) (10GBASE-T)	7Y570002EA*		
Lenovo ThinkSystem DM5000H 29TB (24x 1.2TB 10K HDDs) (Universal SFP+)	7Y570003EA*		
Lenovo ThinkSystem DM5000H 29TB (24x 1.2TB 10K HDDs) (10GBASE-T)	7Y570004EA*		
Lenovo ThinkSystem DM5000F Flash Storage Array (2U24 SFF, CTO only)	7Y41CTO1WW		
Lenovo ThinkSystem DM7000H Hybrid Storage Array (3U, CTO only)	7Y56CTO1WW		
Lenovo ThinkSystem DM7000F Flash Storage Array (3U, CTO only)	7Y40CTO1WW		

* Available only in EMEA.

Table 49. External storage systems: DS Series

Description	Part number		
	Worldwide	Japan	PRC
Lenovo ThinkSystem DS Series Storage (SAS connectivity)			
Lenovo ThinkSystem DS2200 LFF SAS Dual Controller Unit	4599A41	4599A4J	4599A4C
Lenovo ThinkSystem DS2200 SFF SAS Dual Controller Unit	4599A21	4599A2J	4599A2C
Lenovo ThinkSystem DS4200 LFF SAS Dual Controller Unit	4617A41	4617A4J	4617A4C
Lenovo ThinkSystem DS4200 SFF SAS Dual Controller Unit	4617A21	4617A2J	4617A2C
Lenovo ThinkSystem DS6200 SFF SAS Dual Controller Unit	4619A21	4619A2J	4619A2C
Lenovo ThinkSystem DS Series Storage (iSCSI or FC connectivity)			
Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit	4599A31	4599A3J	4599A3C
Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit	4599A11	4599A1J	4599A1C
Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit	4617A31	4617A3J	4617A3C
Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit	4617A11	4617A1J	4617A1C
Lenovo ThinkSystem DS6200 SFF FC/iSCSI Dual Controller Unit	4619A11	4619A1J	4619A1C
DS6200F 12x 400GB 10DWD SSDs, 1x 8Gb FC SFP, 512 Snapshots, Replication	4619A1F	4619J1F	4619C1F
DS6200F 12x 800GB 3DWD SSDs, 1x 8Gb FC SFP, 512 Snapshots, Replication	4619A2F	4619J2F	4619C2F
DS6200F 12x 1.6TB 3DWD SSDs, 1x 8Gb FC SFP, 512 Snapshots, Replication	4619A3F	4619J3F	4619C3F
DS6200F 12x 3.84TB 1DWD SSDs, 1x 8Gb FC SFP, 512 Snapshots, Replication	4619A4F	4619J4F	4619C4F

Table 50. External storage systems: V Series and Storwize for Lenovo

Description	Part number
Lenovo Storage V Series (SAS [except V7000/V7000F], iSCSI, or FC connectivity)	
Lenovo Storage V3700 V2 LFF Control Enclosure	6535C1D
Lenovo Storage V3700 V2 SFF Control Enclosure	6535C2D
Lenovo Storage V3700 V2 XP LFF Control Enclosure	6535C3D
Lenovo Storage V3700 V2 XP SFF Control Enclosure	6535C4D
Lenovo Storage V5030 LFF Control Enclosure 3Yr S&S	6536C12
Lenovo Storage V5030 LFF Control Enclosure 5Yr S&S	6536C32
Lenovo Storage V5030 SFF Control Enclosure 3Yr S&S	6536C22
Lenovo Storage V5030 SFF Control Enclosure 5Yr S&S	6536C42
Lenovo Storage V5030F SFF Control Enclosure 3Yr S&S	6536B1F
Lenovo Storage V5030F SFF Control Enclosure 5Yr S&S	6536B2F
Lenovo Storage V7000 SFF Control Enclosure 3Yr S&S PRC	6538R11^
Lenovo Storage V7000 SFF Control Enclosure 5Yr S&S PRC	6538R21^
Lenovo Storage V7000F SFF Control Enclosure 3Yr S&S PRC	6538R1G^
Lenovo Storage V7000F SFF Control Enclosure 5Yr S&S PRC	6538R2G^
IBM Storwize for Lenovo (iSCSI or FC connectivity)	
IBM Storwize V7000 SFF Control Enclosure, 3YR SWMA	6195C32†
IBM Storwize V7000 SFF Control Enclosure, 3YR SWMA, LA	6195C3L‡
IBM Storwize V7000 SFF Control Enclosure, 5YR SWMA	6195C52†
IBM Storwize V7000 SFF Control Enclosure, 5YR SWMA, LA	6195C5L‡

^ Available only in PRC.

† Available worldwide except Latin America.

‡ Available only in Latin America.

For more information, see the list of Product Guides in the following categories:

- Lenovo DE Series, DM Series, DS Series, and V Series storage:
<http://lenovopress.com/storage/san/lenovo#rt=product-guide>
- IBM Storwize for Lenovo storage:
<http://lenovopress.com/storage/san/ibm#rt=product-guide>

External backup units

The following table lists the supported external SAS tape backup options.

Tip: Verify the end-to-end support of an IBM tape backup solution through the IBM System Storage Interoperation Center (SSIC): <http://www.ibm.com/systems/support/storage/ssic>

Table 51. External SAS backup options

Part number	Description
External SAS tape backup drives	
6160S5E	IBM TS2250 Tape Drive Model H5S
6160S6E	IBM TS2260 Tape Drive Model H6S
6160S7E	IBM TS2270 Tape Drive Model H7S
External SAS tape backup autoloaders	
6171S5R	IBM TS2900 Tape Autoloader w/LTO5 HH SAS
6171S6R	IBM TS2900 Tape Autoloader w/LTO6 HH SAS
6171S7R	IBM TS2900 Tape Autoloader w/LTO7 HH SAS
External tape backup libraries	
61732UL	IBM TS3100 Tape Library Model L2U
61734UL	IBM TS3200 Tape Library Model L4U
SAS backup drives for TS3100 and TS3200 Tape Libraries	
00NA109	6173 LTO Ultrium 5 SAS Drive Sled
00NA111	6173 LTO Ultrium 5 Half High SAS Drive Sled
00NA117	6173 LTO Ultrium 6 Half High SAS Drive Sled
00WF767	6173 LTO Ultrium 7 Half High SAS Drive Sled

For more information, see the list of Product Guides in the Backup units category: <https://lenovopress.com/servers/options/backup>

Top-of-rack Ethernet switches

The following table lists the Ethernet LAN switches that are offered by Lenovo.

Table 52. Ethernet LAN switches

Part number	Description
1 Gb Ethernet switches	
7165H1X	Juniper EX2300-C PoE Switch
7165H2X	Juniper EX2300-24p PoE Switch
7Y810011WW	Lenovo ThinkSystem NE0152T RackSwitch (Rear to Front)
7Z320011WW	Lenovo ThinkSystem NE0152TO RackSwitch (Rear to Front, ONIE)
7159BAX	Lenovo RackSwitch G7028 (Rear to Front)
7159CAX	Lenovo RackSwitch G7052 (Rear to Front)
7159G52	Lenovo RackSwitch G8052 (Rear to Front)
10 Gb Ethernet switches	
7159A1X	Lenovo ThinkSystem NE1032 RackSwitch (Rear to Front)
7159B1X	Lenovo ThinkSystem NE1032T RackSwitch (Rear to Front)
7159C1X	Lenovo ThinkSystem NE1072T RackSwitch (Rear to Front)
7159BR6	Lenovo RackSwitch G8124E (Rear to Front)
7159CRW	Lenovo RackSwitch G8272 (Rear to Front)
7159GR6	Lenovo RackSwitch G8296 (Rear to Front)
25 Gb Ethernet switches	
7159E1X	Lenovo ThinkSystem NE2572 RackSwitch (Rear to Front)
7Z210021WW	Lenovo ThinkSystem NE2572O RackSwitch (Rear to Front, ONIE)
100 Gb Ethernet switches	
7159D1X	Lenovo ThinkSystem NE10032 RackSwitch (Rear to Front)
7Z210011WW	Lenovo ThinkSystem NE10032O RackSwitch (Rear to Front, ONIE)

For more information, see the list of Product Guides in the following switch categories:

- 1 Gb Ethernet switches: <http://lenovopress.com/networking/tor/1gb?rt=product-guide>
- 10 Gb Ethernet switches: <http://lenovopress.com/networking/tor/10gb?rt=product-guide>
- 25 Gb Ethernet switches: <http://lenovopress.com/networking/tor/25gb?rt=product-guide>
- 40 Gb Ethernet switches: <http://lenovopress.com/networking/tor/40gb?rt=product-guide>
- 100 Gb Ethernet switches: <https://lenovopress.com/networking/tor/100Gb?rt=product-guide>

Fibre Channel SAN switches

The following table lists the Fibre Channel SAN switches that are offered by Lenovo and can be used with this system.

Table 53. Fibre Channel SAN switches

Part number	Description
8 Gb FC	
3873AR3	Lenovo B300, 8 ports licensed, 8x 8Gb SWL SFPs, 1 PS, Rail Kit, 3Yr FW
3873AR6	Lenovo B300, E_Port License, 8 ports licensed, 8x 8Gb SWL SFPs, 1 PS, Rail Kit, 1Yr FW
16 Gb FC	
6559F2A	Lenovo ThinkSystem DB610S, 8 ports licensed, 8x 16Gb SWL SFPs, 1 PS, Rail Kit, 1Yr FW
6559F1A	Lenovo ThinkSystem DB610S, ENT Bundle, 24 ports licensed, 24x 16Gb SWL SFPs, 1 PS, Rail Kit, 1Yr FW
6559D1Y	Lenovo ThinkSystem DB610S, ENT Bundle, 24 ports licensed, 24x 16Gb SWL SFPs, 1 PS, Rail Kit, 3Yr FW
3873ER1	Lenovo B6505, 12 ports licensed, 12x 16Gb SWL SFPs, 1 PS, Rail Kit, 1Yr FW
3873AR5	Lenovo B6505, 12 ports licensed, 12x 16Gb SWL SFPs, 1 PS, Rail Kit, 3Yr FW
3873IR1	Lenovo B6510, 24 ports licensed, 24x 16Gb SWL SFPs, 2 PS, Rail Kit, 1Yr FW
3873BR3	Lenovo B6510, 24 ports licensed, 24x 16Gb SWL SFPs, 2 PS, Rail Kit, 3Yr FW
32 Gb FC	
6559F3A	Lenovo ThinkSystem DB610S, 8 ports licensed, No SFPs, 1 PS, Rail Kit, 1Yr FW
6559D3Y	Lenovo ThinkSystem DB610S, 8 ports licensed, No SFPs, 1 PS, Rail Kit, 3Yr FW
6415G3A	Lenovo ThinkSystem DB620S, 24 ports licensed, No SFPs, 2 PS, Rail Kit, 1Yr FW
6415H11	Lenovo ThinkSystem DB620S, 24 ports licensed, 24x 32Gb SWL SFPs, 2 PS, Rail Kit, 1Yr FW
6415G11	Lenovo ThinkSystem DB620S, 24 ports licensed, 24x 32Gb SWL SFPs, 2 PS, Rail Kit, 3Yr FW
6415H2A	Lenovo ThinkSystem DB620S, ENT Bundle, 48 ports licensed, 48x 32Gb SWL SFPs, 2 PS, Rail Kit, 1Yr FW
6684D2A	Lenovo ThinkSystem DB400D 32Gb FC Director, ENT. Feature set, 4 Blade slots, 8U, 1Yr FW
6684B2A	Lenovo ThinkSystem DB400D 32Gb FC Director, ENT. Feature set, 4 Blade slots, 8U, 3Yr FW
6682D1A	Lenovo ThinkSystem DB800D 32Gb FC Director, ENT. Feature set, 8 Blade slots, 14U, 1Yr FW

For more information, see the list of Product Guides in the Rack SAN Switches category:
<http://lenovopress.com/storage/switches/rack#rt=product-guide>

Uninterruptible power supply units

The server supports attachments to the uninterruptible power supply (UPS) units that are listed in the following table.

Table 54. Uninterruptible power supply units

Part number	Description
Tower UPS units	
55951AX	T1kVA Tower UPS (100-125VAC)
55951KX	T1kVA Tower UPS (200-240VAC)
55952AX	T1.5kVA Tower UPS (100-125VAC)
55952KX	T1.5kVA Tower UPS (200-240VAC)
Rack-mounted or tower UPS units	
55941AX	RT1.5kVA 2U Rack or Tower UPS (100-125VAC)
55941KX	RT1.5kVA 2U Rack or Tower UPS (200-240VAC)
55942AX	RT2.2kVA 2U Rack or Tower UPS (100-125VAC)
55942KX	RT2.2kVA 2U Rack or Tower UPS (200-240VAC)
55943AX	RT3kVA 2U Rack or Tower UPS (100-125VAC)
55943KX	RT3kVA 2U Rack or Tower UPS (200-240VAC)
55945KX	RT5kVA 3U Rack or Tower UPS (200-240VAC)
55946KX	RT6kVA 3U Rack or Tower UPS (200-240VAC)
55948KX	RT8kVA 6U Rack or Tower UPS (200-240VAC)
55949KX	RT11kVA 6U Rack or Tower UPS (200-240VAC)
55948PX	RT8kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC)
55949PX	RT11kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC)
Rack-mounted UPS units	
55943KT†	ThinkSystem RT3kVA 2U Standard UPS (200-230VAC) (2x C13 10A, 2x GB 10A, 1x C19 16A outlets)
55943LT†	ThinkSystem RT3kVA 2U Long Backup UPS (200-230VAC) (2x C13 10A, 2x GB 10A, 1x C19 16A outlets)
55946KT†	ThinkSystem RT6kVA 5U UPS (200-230VAC) (2x C13 10A outlets, 1x Terminal Block output)
5594XKT†	ThinkSystem RT10kVA 5U UPS (200-230VAC) (2x C13 10A outlets, 1x Terminal Block output)

† Only available in China and countries in the Asia Pacific region.

For more information, see the list of Product Guides in the UPS category:

<https://lenovopress.com/servers/options/ups>

Power distribution units

The following table lists the power distribution units (PDUs) that are offered by Lenovo.

Table 55. Power distribution units

Part number	Description
0U Basic PDUs	
00YJ776	0U 36 C13/6 C19 24A/200-240V 1 Phase PDU with NEMA L6-30P line cord
00YJ777	0U 36 C13/6 C19 32A/200-240V 1 Phase PDU with IEC60309 332P6 line cord
00YJ778	0U 21 C13/12 C19 32A/200-240V/346-415V 3 Phase PDU with IEC60309 532P6 line cord

Part number	Description
00YJ779	0U 21 C13/12 C19 48A/200-240V 3 Phase PDU with IEC60309 460P9 line cord
Switched and Monitored PDUs	
00YJ780	0U 20 C13/4 C19 Switched and Monitored 32A/200-240V/1Ph PDU w/ IEC60309 332P6 line cord
00YJ781	0U 20 C13/4 C19 Switched and Monitored 24A/200-240V/1Ph PDU w/ NEMA L6-30P line cord
00YJ782	0U 18 C13/6 C19 Switched / Monitored 32A/200-240V/346-415V/3Ph PDU w/ IEC60309 532P6 cord
00YJ783	0U 12 C13/12 C19 Switched and Monitored 48A/200-240V/3Ph PDU w/ IEC60309 460P9 line cord
46M4002	1U 9 C19/3 C13 Switched and Monitored DPI PDU (without line cord)
46M4003	1U 9 C19/3 C13 Switched and Monitored 60A 3 Phase PDU with IEC 309 3P+Gnd line cord
46M4004	1U 12 C13 Switched and Monitored DPI PDU (without line cord)
46M4005	1U 12 C13 Switched and Monitored 60A 3 Phase PDU with IEC 309 3P+Gnd line cord
Ultra Density Enterprise PDUs (9x IEC 320 C13 + 3x IEC 320 C19 outlets)	
71762NX	Ultra Density Enterprise C19/C13 PDU Module (without line cord)
71763NU	Ultra Density Enterprise C19/C13 PDU 60A/208V/3ph with IEC 309 3P+Gnd line cord
C13 Enterprise PDUs (12x IEC 320 C13 outlets)	
39M2816	DPI C13 Enterprise PDU+ (without line cord)
39Y8941	DPI Single Phase C13 Enterprise PDU (without line cord)
C19 Enterprise PDUs (6x IEC 320 C19 outlets)	
39Y8948	DPI Single Phase C19 Enterprise PDU (without line cord)
39Y8923	DPI 60A 3 Phase C19 Enterprise PDU with IEC 309 3P+G (208 V) fixed line cord
Front-end PDUs (3x IEC 320 C19 outlets)	
39Y8938	DPI 30amp/125V Front-end PDU with NEMA L5-30P line cord
39Y8939	DPI 30amp/250V Front-end PDU with NEMA L6-30P line cord
39Y8934	DPI 32amp/250V Front-end PDU with IEC 309 2P+Gnd line cord
39Y8940	DPI 60amp/250V Front-end PDU with IEC 309 2P+Gnd line cord
39Y8935	DPI 63amp/250V Front-end PDU with IEC 309 2P+Gnd line cord
NEMA PDUs (6x NEMA 5-15R outlets)	
39Y8905	DPI 100-127V PDU with Fixed NEMA L5-15P line cord
Line cords for PDUs that ship without a line cord	
40K9611	DPI 32a Line Cord (IEC 309 3P+N+G)
40K9612	DPI 32a Line Cord (IEC 309 P+N+G)
40K9613	DPI 63a Cord (IEC 309 P+N+G)
40K9614	DPI 30a Line Cord (NEMA L6-30P)
40K9615	DPI 60a Cord (IEC 309 2P+G)
40K9617	DPI Australian/NZ 3112 Line Cord
40K9618	DPI Korean 8305 Line Cord

For more information, see the Lenovo Press documents in the PDU category:
<https://lenovopress.com/servers/options/pdu>

Rack cabinets

Rack installation kits are described in the [Rack installation](#) section.

The following table lists the supported rack cabinets.

Table 56. Rack cabinets

Part number	Description
93072RX	25U Standard Rack
93072PX	25U Static S2 Standard Rack
93634PX	42U 1100mm Dynamic Rack
93634EX	42U 1100mm Dynamic Expansion Rack
93604PX	42U 1200mm Deep Dynamic Rack
93614PX	42U 1200mm Deep Static Rack
93084EX	42U Enterprise Expansion Rack
93084PX	42U Enterprise Rack
93074RX	42U Standard Rack
Withdrawn rack cabinets	
201886X*	11U Office Enablement Kit
93604EX*	42U 1200mm Deep Dynamic Expansion Rack
93614EX*	42U 1200mm Deep Static Expansion Rack
93074XX*	42U Standard Rack Extension
93624PX*	47U 1200mm Deep Static Rack
93624EX*	47U 1200mm Deep Static Expansion Rack
93634BX*	PureFlex System 42U Expansion Rack
93634DX*	PureFlex System 42U Expansion Rack
93634AX*	PureFlex System 42U Rack
93634CX*	PureFlex System 42U Rack

* Withdrawn from marketing

For specifications about these racks, see the Lenovo Rack Cabinet Reference, available from: <https://lenovopress.com/lp0658-lenovo-rack-cabinet-reference>

For more information, see the list of Product Guides in the Rack cabinets category: <https://lenovopress.com/servers/options/racks>

KVM console options

The following table lists the supported KVM consoles, keyboards, and KVM switches.

Table 57. Console keyboards

Part number	Description
Consoles	
17238BX	1U 18.5" Standard Console (without keyboard)
Console keyboards	
7ZB7A05469	ThinkSystem Keyboard w/ Int. Pointing Device USB - Arabic 253 RoHS v2
7ZB7A05468	ThinkSystem Keyboard w/ Int. Pointing Device USB - Belg/UK 120 RoHS v2
7ZB7A05206	ThinkSystem Keyboard w/ Int. Pointing Device USB - Czech 489 RoHS v2

Part number	Description
7ZB7A05207	ThinkSystem Keyboard w/ Int. Pointing Device USB - Danish 159 RoHS v2
7ZB7A05208	ThinkSystem Keyboard w/ Int. Pointing Device USB - Dutch 143 RoHS v2
7ZB7A05210	ThinkSystem Keyboard w/ Int. Pointing Device USB - Fr/Canada 445 RoHS v2
7ZB7A05209	ThinkSystem Keyboard w/ Int. Pointing Device USB - French 189 RoHS v2
7ZB7A05211	ThinkSystem Keyboard w/ Int. Pointing Device USB - German 129 RoHS v2
7ZB7A05212	ThinkSystem Keyboard w/ Int. Pointing Device USB - Greek 219 RoHS v2
7ZB7A05213	ThinkSystem Keyboard w/ Int. Pointing Device USB - Hebrew 212 RoHS v2
7ZB7A05214	ThinkSystem Keyboard w/ Int. Pointing Device USB - Hungarian 208 RoHS v2
7ZB7A05215	ThinkSystem Keyboard w/ Int. Pointing Device USB - Italian 141 RoHS v2
7ZB7A05216	ThinkSystem Keyboard w/ Int. Pointing Device USB - Japanese 194 RoHS v2
7ZB7A05217	ThinkSystem Keyboard w/ Int. Pointing Device USB - Korean 413 RoHS v2
7ZB7A05218	ThinkSystem Keyboard w/ Int. Pointing Device USB - LA Span 171 RoHS v2
7ZB7A05219	ThinkSystem Keyboard w/ Int. Pointing Device USB - Norwegian 155 RoHS v2
7ZB7A05220	ThinkSystem Keyboard w/ Int. Pointing Device USB - Polish 214 RoHS v2
7ZB7A05221	ThinkSystem Keyboard w/ Int. Pointing Device USB - Portuguese 163 RoHS v2
7ZB7A05222	ThinkSystem Keyboard w/ Int. Pointing Device USB - Russian 441 RoHS v2
7ZB7A05223	ThinkSystem Keyboard w/ Int. Pointing Device USB - Slovak 245 RoHS v2
7ZB7A05231	ThinkSystem Keyboard w/ Int. Pointing Device USB - Slovenian 234 RoHS v2
7ZB7A05224	ThinkSystem Keyboard w/ Int. Pointing Device USB - Spanish 172 RoHS v2
7ZB7A05225	ThinkSystem Keyboard w/ Int. Pointing Device USB - Swed/Finn 153 RoHS v2
7ZB7A05226	ThinkSystem Keyboard w/ Int. Pointing Device USB - Swiss F/G 150 RoHS v2
7ZB7A05227	ThinkSystem Keyboard w/ Int. Pointing Device USB - Thai 191 RoHS v2
7ZB7A05467	ThinkSystem Keyboard w/ Int. Pointing Device USB - Trad Chinese/US 467 RoHS v2
7ZB7A05228	ThinkSystem Keyboard w/ Int. Pointing Device USB - Turkish 179 RoHS v2
7ZB7A05229	ThinkSystem Keyboard w/ Int. Pointing Device USB - UK Eng 166 RoHS v2
7ZB7A05470	ThinkSystem Keyboard w/ Int. Pointing Device USB - US Eng 103P RoHS v2
7ZB7A05230	ThinkSystem Keyboard w/ Int. Pointing Device USB - US Euro 103P RoHS v2
ThinkSystem Digital and Analog KVM Console switches and cables	
1754D1T	ThinkSystem Digital 2x1x16 KVM Switch (DVI video output port)
1754A1T	ThinkSystem Analog 1x8 KVM Switch (DVI video output port)
4X97A11108	ThinkSystem VGA to DVI Conversion Cable
4X97A11109	ThinkSystem Single-USB Conversion Cable for Digital KVM
4X97A11107	ThinkSystem Dual-USB Conversion Cable for Digital KVM
4X97A11106	ThinkSystem USB Conversion Cable for Analog KVM
GCM and LCM Console switches and cables	
1754D2X	Global 4x2x32 Console Manager (GCM32)
1754D1X	Global 2x2x16 Console Manager (GCM16)
1754A2X	Local 2x16 Console Manager (LCM16)
1754A1X	Local 1x8 Console Manager (LCM8)
43V6147	Single Cable USB Conversion Option (UCO)
39M2895	USB Conversion Option (4 Pack UCO)
46M5383	Virtual Media Conversion Option Gen2 (VCO2)

Part number	Description
46M5382	Serial Conversion Option (SCO)

For more information, see the list of Product Guides in the KVM Switches and Consoles category:
<http://lenovopress.com/servers/options/kvm>

Lenovo Financial Services

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Related publications and links

For more information, see these resources:

- ThinkSystem ST250 product page
<https://www.lenovo.com/us/en/data-center/servers/towers/ThinkSystem-ST250/p/77XX7TRST25>
- ThinkSystem ST250 drivers and support
<http://datacentersupport.lenovo.com/products/servers/thinksystem/st250/7y45/downloads>
- Lenovo ThinkSystem ST250 product publications:
<http://thinksystem.lenovofiles.com/help/index.jsp>
 - Quick Start
 - Tower-to-Rack Conversion Kit Installation Instructions
 - Setup Guide
 - Maintenance Manual
 - Lenovo XClarity Provisioning Manager User Guide
- ServerProven hardware compatibility:
<http://www.lenovo.com/us/en/serverproven>

Related product families

Product families related to this document are the following:

- [1-Socket Tower Servers](#)
- [ThinkSystem ST250 Server](#)

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