



Lenovo ThinkSystem SD530 Server Product Guide

The Lenovo ThinkSystem SD530 is an ultradense and economical two-socket server in a 0.5U rack form factor. With four SD530 servers installed in the ThinkSystem D2 Enclosure, you have an ideal high-density 2U four-node (2U4N) platform for enterprise and cloud workloads.

2U4N systems have gained popularity in a variety of data centers, from large enterprises to service providers, because their small footprint and inherent density make them ideal for building solution-based appliances at a low cost. The combination of the Lenovo ThinkSystem SD530 and D2 Enclosure is engineered to deliver these types of solutions.

Suggested use: Cloud, MSP, CSP, HPC, hyperconverged solutions, branch office or remote office needs

The following figure shows four ThinkSystem SD530 servers installed in a D2 Enclosure.



Figure 1. Four ThinkSystem SD530 servers installed in a D2 Enclosure

Did you know?

The SD530 combines the efficiency and density of blades with the value and simplicity of rack-based servers. It is designed to run the highest-core-count Xeon Platinum processors, to power through your most demanding HPC/technical computing/AI workloads.

Key features

The ThinkSystem SD530 dense offering fits four hot-pluggable SD530 servers into a ThinkSystem D2 Enclosure that takes up only 2U (0.5U per server) and includes room for plenty of internal storage. The overall design makes the solution extremely affordable, with a low total cost of ownership (TCO).

Scalability and performance

The SD530 server and D2 enclosure offer numerous features to boost performance, improve scalability, and reduce costs:

- Up to four nodes in a single 2U enclosure, each with two processors from the Intel Xeon processor Scalable family, up to 16 DIMMs, 6 drive bays, and two PCIe slots. It is a highly dense, scalable, and price-optimized offering.
- Supports a wide selection of processors from the Intel Xeon processor Scalable family - designed to operate with the cost-effective Bronze processors up to the highest-core-count Xeon Platinum processors.
- Supports processors with up to 28 cores, core speeds up to 3.6 GHz, and TDP ratings up to 165W.
- Two processors in each server, up to 56 cores total, and 112 threads maximize the concurrent execution of multithreaded applications. With four nodes in the D2 enclosure, a total of 224 cores are available in only 2U of rack space.
- Intelligent and adaptive system performance with Intel Turbo Boost Technology 2.0 allows CPU 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.
- Intel Advanced Vector Extensions 512 (AVX-512) enable acceleration of enterprise-class workloads, including databases, and enterprise resource planning.
- Each processor has six memory channels with memory speeds of up to 2666 MHz to maximize system performance.
- Supports up to 16 DIMMs to maximize memory capacity, supporting up to 1 TB with 16x 64 GB LRDIMMs and two processors.
- The 12 Gbps SAS internal storage connectivity doubles the data transfer rate of 6 Gb SAS solutions, to maximize performance of storage-intensive applications.
- Each SD530 server supports up to six 2.5-inch hot-swap drives. Two drive bays can be configured to support NVMe drives to maximize I/O performance in terms of throughput, bandwidth, and latency.
- With 7.68 TB 2.5-inch SAS hot-swap SSDs, each SD530 supports up to 46 TB of internal storage.
- Supports a new Lenovo patented-design M.2 adapter for convenient operating system boot functions. Available M.2 adapters support either one M.2 drive or two M.2 drives in a RAID 1 configuration for boot drive performance and reliability.
- The use of solid-state drives (SSDs) instead of, or along with, traditional hard disk drives (HDDs) can improve I/O performance. An SSD can support up to 100 times more I/O read operations per second (IOPS) than a typical HDD.
- The server has two optional 10 Gb Ethernet ports, either 10GBASE-T or SFP+, routed from the embedded X722 controller to the optional 8-port EIOM module at the rear of the D2 Enclosure
- One PCIe 3.0 x16 or two PCIe 3.0 x8 slots for added I/O flexibility.

- PCI Express 3.0 I/O expansion capabilities improve the theoretical maximum bandwidth by 60% compared with the previous generation of PCI Express 2.0.
- With Intel Integrated I/O Technology, the PCI Express 3.0 controller is integrated into the Intel Xeon processor E5 family, which reduces I/O latency and increases overall system performance.
- Planned support for up to two Intel or NVIDIA graphics processing units (GPUs) to maximize computing power.

Manageability and security

Powerful systems management features simplify local and remote management of the SD530:

- 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.
- Supports Secure Boot to ensure only a digitally signed operating system can be used. Supported with HDDs and SSDs as well as M.2 drives in the M.2 Adapter.
- 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.

Energy efficiency

The SD530 and D2 enclosure offer the following energy efficiency features to save energy, reduce operational costs, increase energy availability, and contribute to a green environment:

- ASHRAE A4 compliance for certain configurations to enable operation in 45°C datacenters
- Energy-efficient planar components help lower operational costs.
- High-efficiency power supplies with 80 PLUS Platinum 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 than 1.35 V DDR3 DIMMs.
- SSDs use as much as 80% less power than 2.5-inch HDDs.
- Optional Lenovo XClarity Energy Manager provide advanced data center power notification, analysis, and policy-based management to help achieve lower heat output and reduced cooling needs.
- The server uses hexagonal ventilation holes, which can be grouped more densely than round holes, providing more efficient airflow through the system.

Availability and serviceability

The SD530 server and D2 enclosure provide many features to simplify serviceability and increase system uptime:

- The server offers Single Device Data Correction (SDDC, also known as Chipkill), Adaptive Double-Device Data Correction (ADDDC, also known as Redundant Bit Steering or RBS), memory mirroring, and memory rank sparing for redundancy in the event of a non-correctable memory failure.
- The server offers hot-swap drives, supporting RAID redundancy for data protection and greater system uptime.
- The Dual M.2 Boot Adapter supports RAID-1 which enables two installed M.2 drives to be configured as a redundant pair.
- The D2 Enclosure supports two hot-swap power supplies, which form a redundant pair to provide availability for business-critical applications.
- Toolless access to upgrades and serviceable parts, such as fans, adapters, CPUs, and memory.
- Proactive Platform Alerts (including PFA and SMART alerts): Processors, voltage regulators, memory, internal storage (SAS/SATA HDDs and SSDs), fans, power supplies, RAID controllers, and server ambient and sub-component temperatures. Alerts can be surfaced through the XClarity Controller (XCC) to managers such as Lenovo XClarity Administrator, VMware vCenter, and Microsoft System Center. These proactive alerts let you take appropriate actions in advance of possible failure, thereby increasing server uptime and application availability.
- SSDs offer significantly better reliability than traditional mechanical 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.
- Auto restart in the event of a momentary loss of AC power (based on power policy setting in the XClarity Controller service processor)
- 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 (requires the optional KVM Breakout Module).
- Three-year customer-replaceable unit and onsite limited warranty, 9 x 5 next business day. Optional service upgrades are available.

Components and connectors

The following figure shows the front of the D2 Enclosure. The front view shows the four SD530 nodes, each with 6 drive bays.

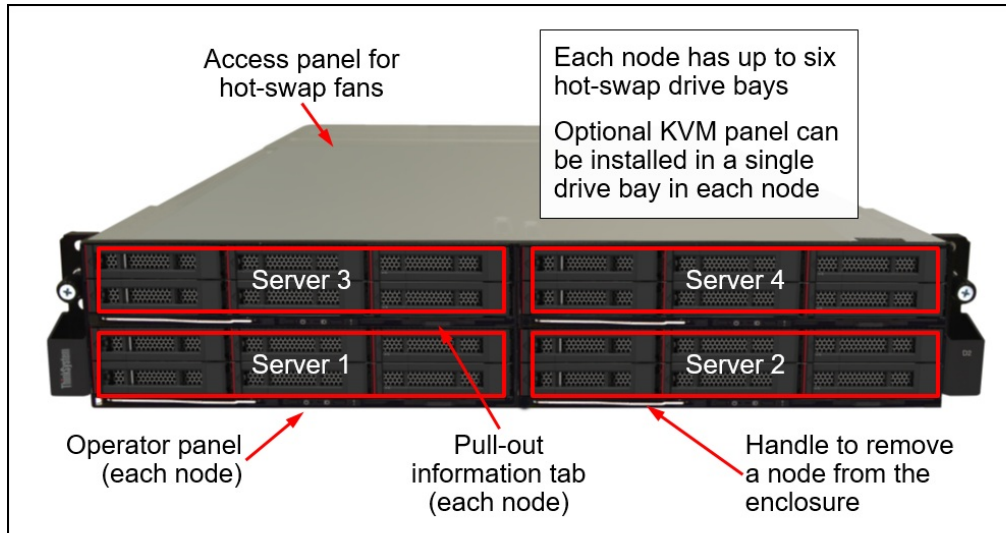


Figure 2. Front view of the ThinkSystem D2 Enclosure

The following figure shows the rear of the D2 Enclosure.

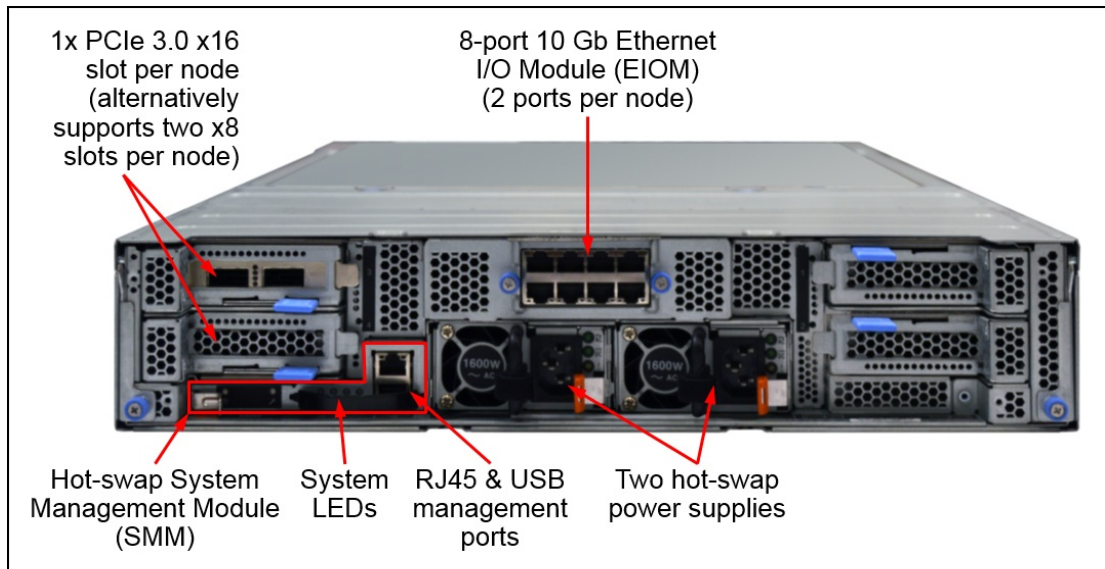


Figure 3. Rear view of the ThinkSystem D2 Enclosure

The following figure shows the I/O shuttle removed from the rear of the D2 Enclosure. The fans are hot-swap and are accessible from a removable cover on the top of the enclosure.

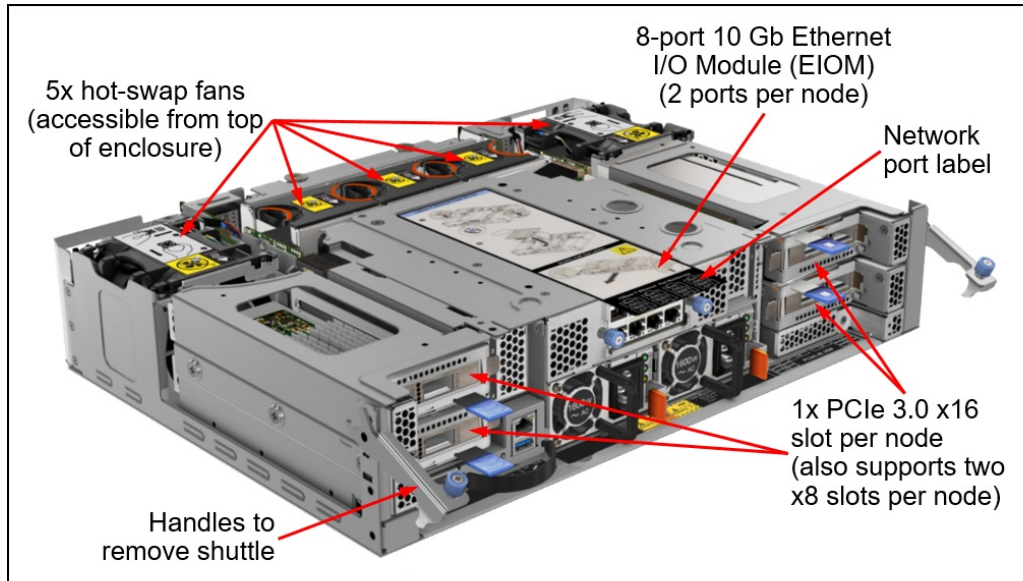


Figure 4. I/O Shuttle in the ThinkSystem D2 Enclosure

The following figure shows the front of the SD530 server.

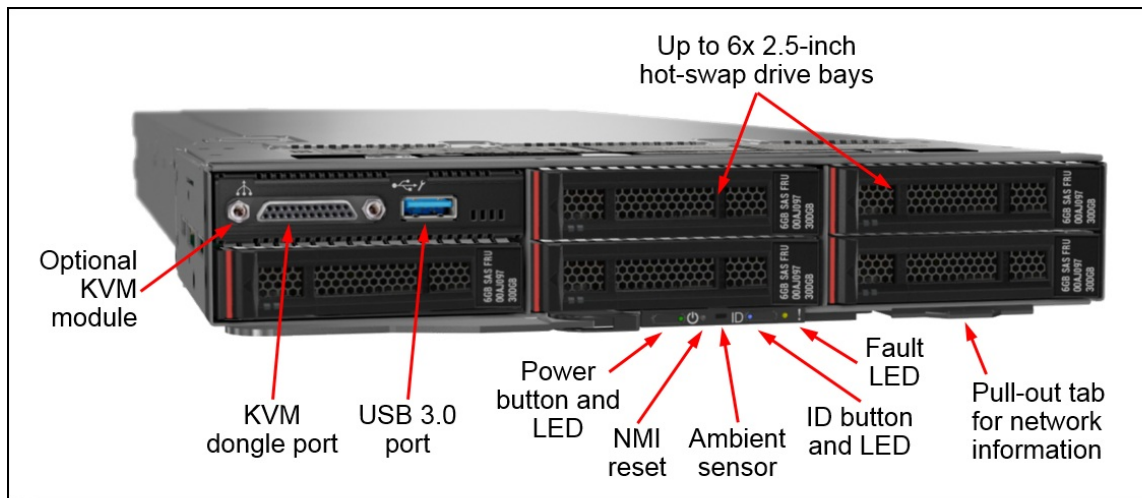


Figure 5. Front view of the SD530 compute node

The following figure shows the internals of the SD530 server identifying key components.

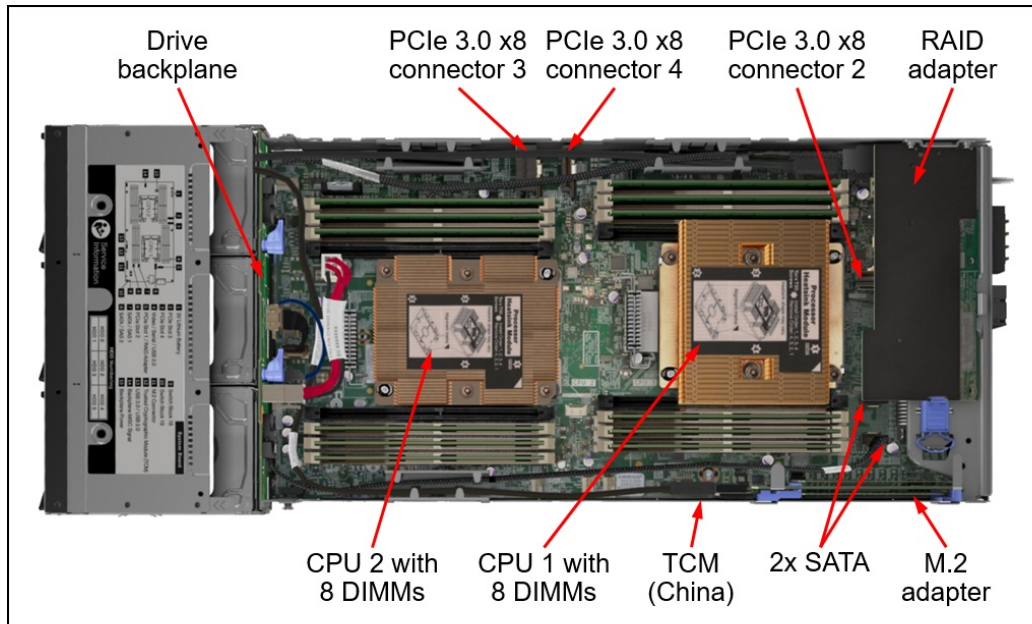


Figure 6. Internal view of the SD530 compute node

Standard specifications - SD530 server

The following table lists the standard specifications of the ThinkSystem SD530.

Table 1. Standard specifications - ThinkSystem SD530

Components	Specification
Machine type	7X21
Form factor	Half-wide, 1U compute node.
Supported chassis	ThinkSystem D2 Enclosure, 2U high; up to 4 servers per chassis.
Processor	One or two Intel Xeon Processor Scalable Family processors, either Bronze, Silver, Gold or Platinum level processors (formerly codename "Skylake"). Supports processors with core counts up to 28 cores, core speeds up to 3.6 GHz, and TDP ratings up to 165W. Two Intel Ultra Path Interconnect (UPI) links at up to 10.4 GTps each.
Chipset	Intel C624 "Lewisburg" chipset
Memory	Configurations with some processors: Up to 16 DIMM sockets (8 DIMMs per processor) Other configurations: Up to 12 DIMM sockets (6 DIMMs per processor) Support Lenovo TruDDR4 DIMMs at up to 2666 MHz. RDIMMs and LRDIMMs (Load Reduced DIMMs) are supported, but memory types cannot be mixed.

Components	Specification
Memory maximums	<p>With 16 DIMMs:</p> <ul style="list-style-type: none"> RDIMMs: Up to 512 GB with 16x 32 GB RDIMMs and two processors LRDIMMs: Up to 1024 GB with 16x 64 GB LRDIMMs and two processors <p>12 DIMMs:</p> <ul style="list-style-type: none"> RDIMMs: Up to 384 GB with 12x 32 GB RDIMMs and two processors LRDIMMs: Up to 768 GB with 12x 64 GB LRDIMMs and two processors
Memory protection	ECC, Chipkill protection (for x4-based memory DIMMs), memory mirroring, and memory sparing.
Storage bays	Up to six 2.5-inch hot-swap SAS/SATA drive bays per node. Optionally, two of those bays can be configured as AnyBay drive bays, supporting NVMe drives as well as SAS and SATA drives. Also supports one or two M.2 drives installed internally to each node. Other configurations exist including the substitution of a KVM Module in one drive bay for keyboard, video and mouse support. See the Internal storage section for details.
Maximum internal storage	<ul style="list-style-type: none"> 46 TB with 6x 7.68 TB 2.5-inch SAS hot-swap SSDs 12 TB with 6x 2 TB 2.5-inch SATA hot-swap HDDs Intermix of SAS and SATA is supported.
Storage controller	Onboard 6 Gb SATA using embedded Intel RSTe software RAID, supporting RAID 0, 1, 10, 5, 50. 12 Gb SAS/SATA RAID using SAS3408-based cacheless RAID controller, supporting RAID 0, 1, 10, 5.
Optical drive bays	No internal bays; use an external USB drive.
Tape drive bays	No internal bays. Use an external USB drive.
Network interfaces	Two 10 Gb interfaces, either 10GBASE-T ports (RJ-45) or SFP+ ports, routed through the Ethernet I/O Module at the rear of the D2 Enclosure. Networking ports are based on the Intel Ethernet Connection X722 in the chipset of the SD530 node.
PCI Expansion slots	<p>One or two PCIe 3.0 slots</p> <ul style="list-style-type: none"> One PCIe 3.0 x16 low-profile slot, or Two PCIe 3.0 x8 low-profile slots
Ports	<p>Front: Optional KVM Breakout Module, providing one USB 3.0 port plus a connector for a breakout cable that provides one VGA port, two USB 2.0 ports and one DB9 serial port for local connectivity.</p> <p>Additional ports provided by the D2 Enclosure as described in the D2 Enclosure specifications section.</p>
Cooling	Supplied by the D2 Enclosure.
Power supply	Supplied by the D2 Enclosure.
Hot-swap parts	HDDs and SSDs
Systems management	<p>Operator panel with system error LED and ID and power controls. XClarity Controller embedded management, XClarity Administrator centralized infrastructure delivery, XClarity Integrator plugins, and XClarity Energy Manager centralized server power management. Optional XClarity Controller Advanced to enable remote control functions.</p> <p>System Management Module (SMM) in the D2 Enclosure provides additional systems management functions.</p>

Components	Specification
Video	G200 graphics with 16 MB memory with 2D hardware accelerator, integrated into the XClarity Controller. Maximum resolution is 1920x1200 32bpp at 60Hz.
Security	Power-on password, administrator's password, Trusted Platform Module (TPM), supporting TPM 1.2 or TPM 2.0. In China only, optional Trusted Cryptographic Module (TCM).
Operating systems supported	Microsoft Windows Server 2012 R2, 2016; RHEL 6 & 7 x64; SLES 11 & 12 x64; VMware ESXi 6.0, 6.5
Limited warranty	Three-year 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.
Temperature	Up to ASHRAE Class A4: 5°C to 45°C (41°F to 113°F)
Dimensions	Height: 41 mm (1.7 inches), depth: 562 mm (22.2 inches), width: 222 mm (8.8 inches)
Weight	Minimum weight: 3.5 kg (7.8 lb), maximum weight: 7.5 kg (16.6 lb)

Standard specifications - D2 Enclosure

The following table lists the standard specifications of the ThinkSystem D2 Enclosure.

Table 2. Standard specifications: ThinkSystem D2 Enclosure

Components	Specification
Machine type	7X20
Form factor	2U rack-mounted chassis.
Server support	Up to 4 servers per chassis.
Servers per 42U rack	Up to 84 servers in 21 enclosures
System Management Module	The hot-swappable System Management Module (SMM) is the management device for the enclosure. Provides integrated systems management functions and controls the power and cooling features of the enclosure. Provides remote browser and CLI-based user interfaces for remote access via the dedicated Gigabit Ethernet port. Remote access is to both the management functions of the enclosure as well as the XClarity Controller (XCC) in each server.
Ethernet I/O Module	8-port Ethernet I/O Module (EIOM) routes two 10 GbE connections to each of the four servers.
Controls and LEDs	SMM has four LEDs: system error, identification, status, and system power. Each power supply has AC, DC and error LEDs
Power supplies	Two hot-swap power supplies either 1100 W, 1600 W, or 2000 W functioning as a redundant pair. Power supplies must be identical. Power supplies require a 200-240 V ac, 50 or 60 Hz supply, although the 1100 W also supports 100-127V ac 50 or 60 Hz. Power supplies are installed at the rear of the chassis. 80 PLUS Platinum certified. Built-in overload and surge protection.
Cooling	Five hot-swap system fans, accessible via removable panel in the top cover of the enclosure.
Hot-swap parts	Power supplies, fans, System Management Module
Power consumption	Input kilovolt-amperes (kVA): minimum: 0.153 kVA, maximum: 2.61 kVA
Limited warranty	Three-year customer-replaceable unit and onsite limited warranty with 9x5/NBD coverage.
Dimensions	2U chassis. Height: 87 mm (3.5 inches), depth: 892 mm (35.1 inches), width: 488 mm (19.3 inches)
Weight	Minimum configuration (with one minimally configured node): 22.4 kg (49.4 lbs) Maximum configuration (with four fully configured nodes): 55.0 kg (121.2 lbs)

SD530 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 Argentina](#)
- [Models for Brazil](#)
- [Models for EMEA countries](#)
- [Models for Hong Kong, Taiwan, Korea \(HTK\)](#)
- [Models for India](#)
- [Models for Japan](#)
- [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 3. Models for Australia and New Zealand

Model	Intel Xeon processors†	Memory	RAID	Drive bays	Drives	KVM Breakout	M.2 drives	XCC Level
7X21A01VAU	1x Bronze 3104 6C 85W 1.7GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A02DAU	2x Silver 4108 8C 85W 1.8GHz	2x 16GB 2Rx8	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard
7X21A025AU	1x Silver 4108 8C 85W 1.8GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A02PAU	2x Silver 4110 8C 85W 2.1GHz	2x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A02LAU	2x Silver 4110 8C 85W 2.1GHz	2x 16GB 2Rx8	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard
7X21A02JAU	2x Silver 4112 4C 85W 2.6GHz	2x 16GB 2Rx8	RSTe RAID	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A020AU	2x Silver 4114 10C 85W 2.2GHz	2x 16GB 2Rx8	RAID 530-8i	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A02NAU	2x Silver 4114 10C 85W 2.2GHz	2x 16GB 2Rx8	RSTe RAID	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A022AU	2x Silver 4116 12C 85W 2.1GHz	2x 32GB	RAID 530-8i	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A024AU	2x Silver 4116 12C 85W 2.1GHz	2x 16GB 2Rx8	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A02KAU	2x Gold 5118 12C 105W 2.3GHz	2x 32GB	RAID 530-8i	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A02FAU	2x Gold 5118 12C 105W 2.3GHz	2x 16GB 2Rx8	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A026AU	2x Gold 6126 12C 125W 2.6GHz	2x 32GB	RAID 530-8i	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A02HAU	2x Gold 6126 12C 125W 2.6GHz	2x 16GB 2Rx8	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A01ZAU	2x Gold 6130 16C 125W 2.1GHz	2x 32GB	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A02BAU	2x Gold 6134 8C 130W 3.2GHz	2x 32GB	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A023AU	2x Gold 6138 20C 125W 2.0GHz	2x 32GB	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard

Model	Intel Xeon processors†	Memory	RAID	Drive bays	Drives	KVM Breakout	M.2 drives	XCC Level
7X21A02AAU	2x Gold 6140 18C 140W 2.3GHz	2x 32GB	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A021AU	2x Gold 6148 20C 150W 2.4GHz	2x 32GB	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard

† Processor detail: Quantity, model, core count, TDP, core frequency

Models for South East Asian countries (ASEAN)

Table 4. Models for South East Asian countries (ASEAN)

Model	Intel Xeon processors†	Memory	RAID	Drive bays	Drives	KVM Breakout	M.2 drives	XCC Level
7X21A00HSG	1x Bronze 3104 6C 85W 1.7GHz	1x 8GB	RAID 530-8i	4x SAS/SATA	Open	Optional	Open	Standard
7X21A004SG	1x Bronze 3106 8C 85W 1.7GHz	1x 8GB	RAID 530-8i	4x SAS/SATA	Open	Optional	Open	Standard
7X21A016SG	1x Silver 4110 8C 85W 2.1GHz	1x 8GB	RAID 530-8i	4x SAS/SATA	Open	Optional	Open	Standard
7X21A011SG	1x Silver 4114 10C 85W 2.2GHz	1x 8GB	RAID 530-8i	4x SAS/SATA	Open	Optional	Open	Standard
7X21A008SG	1x Silver 4116 12C 85W 2.1GHz	1x 8GB	RAID 530-8i	4x SAS/SATA	Open	Optional	Open	Standard
7X21A006SG	1x Gold 5120 14C 105W 2.2GHz	1x 8GB	RAID 530-8i	4x SAS/SATA	Open	Optional	Open	Standard
7X21A00DSG	1x Gold 6130 16C 125W 2.1GHz	1x 8GB	RAID 530-8i	4x SAS/SATA	Open	Optional	Open	Standard
7X21A00NSG	1x Gold 6138 20C 125W 2.0GHz	1x 8GB	RAID 530-8i	4x SAS/SATA	Open	Optional	Open	Standard

† Processor detail: Quantity, model, core count, TDP, core frequency

Models for Argentina

Table 5. Models for Argentina

Model	Intel Xeon processors†	Memory	RAID	Drive bays	Drives	KVM Breakout	M.2 drives	XCC Level
7X21A038LA	1x Bronze 3104 6C 85W 1.7GHz	1x 8GB 1Rx8	RSTe RAID	4x SAS/SATA	Open	Included + cable	Open	Standard

Models for Brazil

Table 6. Models for Brazil

Model	Intel Xeon processor†	Memory	RAID	Drive bays	Drives	KVM Breakout	M.2 drives	XCC Level
7X21A02TBR	1x Bronze 3104 6C 85W 1.7GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A02UBR	1x Bronze 3104 6C 85W 1.7GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A02VBR	2x Silver 4108 8C 85W 1.8GHz	2x 16GB 2Rx8	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard
7X21A02QBR	1x Silver 4108 8C 85W 1.8GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A033BR	1x Silver 4108 8C 85W 1.8GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A02XBR	2x Silver 4108 8C 85W 1.8GHz	2x 16GB 2Rx8	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard
7X21A030BR	2x Silver 4110 8C 85W 2.1GHz	2x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A032BR	2x Silver 4110 8C 85W 2.1GHz	2x 16GB 2Rx8	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard
7X21A02YBR	2x Silver 4110 8C 85W 2.1GHz	2x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A031BR	2x Silver 4110 8C 85W 2.1GHz	2x 16GB 2Rx8	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard
7X21A02RBR	2x Silver 4112 4C 85W 2.6GHz	2x 16GB 2Rx8	RSTe RAID	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A02SBR	2x Silver 4112 4C 85W 2.6GHz	2x 16GB 2Rx8	RSTe RAID	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A035BR	2x Silver 4114 10C 85W 2.2GHz	2x 16GB 2Rx8	RAID 530-8i	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A02WBR	2x Silver 4114 10C 85W 2.2GHz	2x 16GB 2Rx8	RSTe RAID	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A034BR	2x Silver 4114 10C 85W 2.2GHz	2x 16GB 2Rx8	RSTe RAID	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A02ZBR	2x Silver 4114 10C 85W 2.2GHz	2x 16GB 2Rx8	RAID 530-8i	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard

† Processor detail: Quantity, model, core count, TDP, core frequency

Models for EMEA countries

Table 7. Models for EMEA countries

Model	Intel Xeon processors†	Memory	RAID	Drive bays	Drives	KVM Breakout	M.2 drives	XCC Level
7X21A003EA	1x Bronze 3104 6C 85W 1.7GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A007EA	1x Silver 4108 8C 85W 1.8GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A00YEA	2x Silver 4108 8C 85W 1.8GHz	2x 16GB 2Rx8	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard
7X21A018EA	2x Silver 4110 8C 85W 2.1GHz	2x 16GB 2Rx8	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard
7X21A01CEA	2x Silver 4110 8C 85W 2.1GHz	2x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A00TEA	2x Silver 4112 4C 85W 2.6GHz	2x 16GB 2Rx8	RSTe RAID	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A00GEA	2x Silver 4114 10C 85W 2.2GHz	2x 16GB 2Rx8	RSTe RAID	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A00SEA	2x Silver 4114 10C 85W 2.2GHz	2x 16GB 2Rx8	RAID 530-8i	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A01EEA	2x Silver 4116 12C 85W 2.1GHz	2x 16GB 2Rx8	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A014EA	2x Silver 4116 12C 85W 2.1GHz	2x 32GB	RAID 530-8i	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A00REA	2x Gold 5118 12C 105W 2.3GHz	2x 16GB 2Rx8	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A01DEA	2x Gold 5118 12C 105W 2.3GHz	2x 32GB	RAID 530-8i	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A00WEA	2x Gold 6126 12C 125W 2.6GHz	2x 16GB 2Rx8	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A010EA	2x Gold 6126 12C 125W 2.6GHz	2x 32GB	RAID 530-8i	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A01BEA	2x Gold 6130 16C 125W 2.1GHz	2x 32GB	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A019EA	2x Gold 6134 8C 130W 3.2GHz	2x 32GB	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A00JEA	2x Gold 6138 20C 125W 2.0GHz	2x 32GB	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A005EA	2x Gold 6140 18C 140W 2.3GHz	2x 32GB	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A013EA	2x Gold 6148 20C 150W 2.4GHz	2x 32GB	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard

† Processor detail: Quantity, model, core count, TDP, core frequency

Models for Hong Kong, Taiwan, Korea (HTK)

Table 8. Models for Hong Kong, Taiwan, Korea (HTK)

Model	Intel Xeon processors†	Memory	RAID	Drive bays	Drives	KVM Breakout	M.2 drives	XCC Level
7X21A01HCN	1x Gold 5118 12C 105W 2.3GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A01SCN	1x Gold 5120 14C 105W 2.2GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A01QCN	1x Gold 5122 4C 105W 3.6GHz	1x 16GB 2Rx8	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A01PCN	1x Gold 6126 12C 125W 2.6GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A01LCN	1x Gold 6130 16C 125W 2.1GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A01RCN	1x Gold 6134 8C 130W 3.2GHz	1x 16GB 2Rx8	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A01TCN	1x Gold 6136 12C 150W 3.0GHz	1x 16GB 2Rx8	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A01FCN	1x Gold 6138 20C 125W 2.0GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A01JCN	1x Gold 6140 18C 140W 2.3GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard
7X21A01NCN	1x Gold 6142 16C 150W 2.6GHz	1x 16GB 2Rx8	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A01GCN	1x Gold 6148 20C 150W 2.4GHz	1x 16GB 2Rx8	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A01KCN	1x Gold 6150 18C 165W 2.7GHz	1x 16GB 2Rx8	RSTe RAID	4x SAS/SATA	Open	Optional	Open	Standard
7X21A01MCN	1x Gold 6152 22C 140W 2.1GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA	Open	Optional	Open	Standard

† Processor detail: Quantity, model, core count, TDP, core frequency

Models for India

Table 9. Models for India

Model	Intel Xeon processor†	Memory	RAID	Drive bays	Drives	KVM Breakout	M.2 drives	XCC Level
7X21A00PSG	1x Bronze 3104 6C 85W 1.7GHz	1x 16GB 1Rx4	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard
7X21A01ASG	1x Silver 4108 8C 85W 1.8GHz	1x 16GB 1Rx4	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard
7X21A009SG	1x Silver 4110 8C 85W 2.1GHz	1x 16GB 1Rx4	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard
7X21A00QSG	1x Silver 4114 10C 85W 2.2GHz	1x 16GB 1Rx4	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard
7X21A015SG	1x Gold 5118 12C 105W 2.3GHz	1x 16GB 1Rx4	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard
7X21A00MSG	1x Gold 5120 14C 105W 2.2GHz	1x 16GB 1Rx4	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard
7X21A00LSG	1x Gold 6138 20C 125W 2.0GHz	1x 16GB 1Rx4	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard
7X21A00KSG	1x Gold 6152 22C 140W 2.1GHz	1x 16GB 1Rx4	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard

† Processor detail: Quantity, model, core count, TDP, core frequency

Models for Japan

Table 10. Models for Japan

Model	Intel Xeon processor†	Memory	RAID	Drive bays	Drives	KVM Breakout	M.2 drives	XCC Level
7X21A036JP	1x Bronze 3104 6C 85W 1.7GHz	1x 16GB 1Rx4	RSTe RAID	4x SAS/SATA	Open	Included + cable	Open	Standard
7X21A00AJP	1x Bronze 3104 6C 85W 1.7GHz	1x 16GB 1Rx4	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard
7X21A00UJP	1x Bronze 3104 6C 85W 1.7GHz	1x 16GB 1Rx4	RSTe RAID	6x SAS/SATA	Open	Included + cable	Open	Standard
7X21A00CJP	1x Silver 4110 8C 85W 2.1GHz	1x 16GB 1Rx4	RAID 530-8i	6x SAS/SATA	Open	Optional	Open	Standard

† Processor detail: Quantity, model, core count, TDP, core frequency

Models for USA and Canada

Table 11. Models for USA and Canada

Model	Intel Xeon processors†	Memory	RAID	Drive bays	Drives	KVM Breakout	M.2 drives	XCC Level
7X21A00VNA	1x Silver 4110 8C 85W 2.1GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A00ZNA	1x Silver 4114 10C 85W 2.2GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A00XNA	1x Gold 5118 12C 105W 2.3GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A017NA	1x Gold 6130 16C 125W 2.1GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard
7X21A012NA	1x Gold 6140 18C 140W 2.3GHz	1x 16GB 2Rx8	RSTe RAID	6x SAS/SATA (2 AnyBay)	Open	Optional	Open	Standard

† Processor detail: Quantity, model, core count, TDP, core frequency

D2 Enclosure models

Up to four SD530 servers are supported in the D2 Enclosure. The D2 Enclosure models are listed in the following table.

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 EMEA countries](#)
- [Models for Hong Kong, Taiwan, Korea \(HTK\)](#)
- [Models for India](#)
- [Models for Japan](#)
- [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 12. Models for Australia and New Zealand

Model	I/O Shuttle	External IO Module	Power supplies	Power cords	Rail kit	CMA
7X20A00SAU	4-slot x16 shuttle	Open	2x 1100W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A012AU	4-slot x16 shuttle	Open	2x 1600W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A00TAU	4-slot x16 shuttle	Open	2x 2000W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A00VAU	4-slot x16 shuttle	Open	2x 1600W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A011AU	4-slot x16 shuttle	Open	2x 1100W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A013AU	4-slot x16 shuttle	Open	2x 2000W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A010AU	8-slot x8 shuttle	Open	2x 2000W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A00XAU	8-slot x8 shuttle	Open	2x 2000W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A00ZAU	8-slot x8 shuttle	Open	2x 1100W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A00UAU	8-slot x8 shuttle	Open	2x 1600W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A00WAU	8-slot x8 shuttle	Open	2x 1100W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A00YAU	8-slot x8 shuttle	Open	2x 1600W	2x 2.8m C13-C14	D2 Slide Rail	Included

Models for South East Asian countries (ASEAN)

Table 13. Models for South East Asian countries (ASEAN)

Model	I/O Shuttle	External IO Module	Power supplies	Power cords	Rail kit	CMA
7X20A00GSG	4-slot x16 shuttle	Open	2x 2000W	2x 2.8m C13-C14	D2 Slide Rail	Optional
7X20A00FSG	8-slot x8 shuttle	Open	2x 2000W	2x 2.8m C13-C14	D2 Slide Rail	Optional

Models for EMEA countries

Table 14. Models for EMEA countries

Model	I/O Shuttle	External IO Module	Power supplies	Power cords	Rail kit	CMA
7X20A00HEA	4-slot x16 shuttle	Open	2x 1600W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A00AEA	4-slot x16 shuttle	Open	2x 2000W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A006EA	4-slot x16 shuttle	Open	2x 1100W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A00CEA	8-slot x8 shuttle	Open	2x 1100W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A004EA	8-slot x8 shuttle	Open	2x 1600W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A005EA	8-slot x8 shuttle	Open	2x 2000W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X20A00EEA	8-slot x8 shuttle	Open	2x 1600W	2x 2.0m C13-C14	D2 Slide Rail	Included

Models for Hong Kong, Taiwan, Korea (HTK)

Table 15. Models for Hong Kong, Taiwan, Korea (HTK)

Model	I/O Shuttle	External IO Module	Power supplies	Power cords	Rail kit	CMA
7X20A00BCN	8-slot x8 shuttle	10Gb SFP+ EIOM	2x 1600W	2x 2.8m C13-C14	D2 Slide Rail	Optional

Models for India

Table 16. Models for India

Model	I/O Shuttle	External IO Module	Power supplies	Power cords	Rail kit	CMA
7X20A00KSG	4-slot x16 shuttle	Open	2x 1100W	2x 2.8m C13-C14 2x 2.8m IS 6538	D2 Slide Rail	Included
7X20A00QSG	4-slot x16 shuttle	Open	2x 1600W	2x 2.8m C13-C14 2x 2.8m IS 6538	D2 Slide Rail	Included
7X20A00PSG	4-slot x16 shuttle	Open	2x 2000W	2x 2.8m C13-C14 2x 2.8m IS 6538	D2 Slide Rail	Included
7X20A00NSG	8-slot x8 shuttle	Open	2x 1100W	2x 2.8m C13-C14 2x 2.8m IS 6538	D2 Slide Rail	Included
7X20A00LSG	8-slot x8 shuttle	Open	2x 2000W	2x 2.8m C13-C14 2x 2.8m IS 6538	D2 Slide Rail	Included
7X20A00MSG	8-slot x8 shuttle	Open	2x 1600W	2x 2.8m C13-C14 2x 2.8m IS 6538	D2 Slide Rail	Included

Models for Japan

Table 17. Models for Japan

Model	I/O Shuttle	External IO Module	Power supplies	Power cords	Rail kit	CMA
7X20A00DJP	4-slot x16 shuttle	10Gb RJ45 EIOM	2x 2000W	2x 1.0m C13-C14	D2 Slide Rail	Included
7X20A009JP	4-slot x16 shuttle	10Gb SFP+ EIOM	2x 2000W	2x 1.0m C13-C14	D2 Slide Rail	Included
7X20A007JP	8-slot x8 shuttle	10Gb RJ45 EIOM	2x 2000W	2x 1.0m C13-C14	D2 Slide Rail	Included
7X20A008JP	8-slot x8 shuttle	10Gb SFP+ EIOM	2x 2000W	2x 1.0m C13-C14	D2 Slide Rail	Included

Models for USA and Canada

Table 18. Models for USA and Canada

Model	I/O Shuttle	External IO Module	Power supplies	Power cords	Rail kit	CMA
7X20A00JNA	4-slot x16 shuttle	10Gb RJ45 EIOM	2x 2000W	2x 1.0m C13-C14	D2 Slide Rail	Optional
7X20A003NA	4-slot x16 shuttle	10Gb SFP+ EIOM	2x 2000W	2x 1.0m C13-C14	D2 Slide Rail	Optional
7X20A00RNA	4-slot x16 shuttle	10Gb SFP+ EIOM	2x 2000W	2x 2.0m C13-C14	D2 Slide Rail	Optional
7X20A002NA	8-slot x8 shuttle	10Gb RJ45 EIOM	2x 2000W	2x 1.0m C13-C14	D2 Slide Rail	Optional

Enclosure support

The SD530 is supported in all models of the D2 Enclosure. The number of servers that are supported in each chassis depends on the TDP value of the processors that are used in the servers, the number and capacity of power supplies installed (1100W, 1600W or 2000W), and the AC input voltage (100 - 127V or 200 - 240V). The following tables use the following conventions:

- A green cell means that the enclosure can be populated with four servers.
- A yellow cell means that the maximum number of servers that the enclosure can hold is fewer than four servers.

Notes on the tables:

- OVS (Oversubscription) of the power system allows for more efficient use of the available system power. By using oversubscription, users can make the most of the extra power from the redundant power supplies when the power supplies are in healthy condition.
- Oversubscription and Power supply redundancy options are set through one of the available user interfaces to the SMM in the enclosure.
- Use the Power Configurator to determine an accurate power model for your configuration:
<https://support.lenovo.com/us/en/documents/LNVO-PWRCONF>

The tables are as follows:

- Table 18: [2000W power supplies with 200-240V power](#)
- Table 19: [1600W power supplies with 200-240V power](#)
- Table 20: [1100W power supplies with 200-240V power](#)
- Table 21: [1100W power supplies with 100-127V power](#)

Table 19. Number of compute nodes that are supported (200 - 240 V AC Input, with 2 x 2000 W PSUs)

CPU TDP (W)	Number of CPUs	Non-Redundant	N+1 Redundant	N+1 Redundant with OVS
75 W	1	4	4	4
	2	4	4	4
85 W	1	4	4	4
	2	4	4	4
105 W	1	4	4	4
	2	4	4	4
115 W	1	4	4	4
	2	4	3	4
125 W	1	4	4	4
	2	4	3	4
130 W	1	4	4	4
	2	4	3	4
135 W	1	4	4	4
	2	4	3	4
140 W	1	4	4	4
	2	4	3	4
145 W	1	4	4	4
	2	4	3	4
150 W	1	4	4	4
	2	4	3	4
165 W	1	4	4	4
	2	4	3	3

Table 20. Number of compute nodes that are supported (200 - 240 V AC Input, with 2 x 1600 W PSUs)

CPU TDP (W)	Number of CPUs	Non-Redundant	N+1 Redundant	N+1 Redundant with OVS
75 W	1	4	4	4
	2	4	3	4
85 W	1	4	4	4
	2	4	3	4
105 W	1	4	4	4
	2	4	3	4
115 W	1	4	4	4
	2	4	2	3
125 W	1	4	4	4
	2	4	2	3
130 W	1	4	4	4
	2	4	2	3
135 W	1	4	4	4
	2	4	2	3
140 W	1	4	3	4
	2	4	2	3
145 W	1	4	3	4
	2	4	2	3
150 W	1	4	3	4
	2	4	2	3
165 W	1	4	3	4
	2	4	2	3

Table 21. Number of compute nodes that are supported (200 - 240 V AC Input, with 2 x 1100 W PSUs)

CPU TDP (W)	Number of CPUs	Non-Redundant	N+1 Redundant	N+1 Redundant with OVS
75 W	1	4	3	4
	2	4	2	3
85 W	1	4	3	3
	2	4	2	2
105 W	1	4	2	3
	2	4	1	2
115 W	1	4	2	3
	2	4	1	2
125 W	1	4	2	3
	2	4	1	2
130 W	1	4	2	3
	2	4	1	2
135 W	1	4	2	3
	2	4	1	2
140 W	1	4	2	2
	2	3	1	2
145 W	1	4	2	2
	2	3	1	2
150 W	1	4	2	3
	2	3	1	1
165 W	1	4	2	3
	2	3	1	1

Table 22. Number of compute nodes that are supported (100 - 127 V AC Input, with 2 x 1100 W PSUs)

CPU TDP (W)	Number of CPUs	Non-Redundant	N+1 Redundant	N+1 Redundant with OVS
75 W	1	4	2	3
	2	4	1	2
85 W	1	4	2	3
	2	4	1	2
105 W	1	4	2	3
	2	4	1	2
115 W	1	4	2	3
	2	4	1	2
125 W	1	4	2	3
	2	3	1	1
130 W	1	4	2	3
	2	3	1	1
135 W	1	4	2	3
	2	3	1	1
140 W	1	4	2	3
	2	3	1	1
145 W	1	4	2	2
	2	3	1	1
150 W	1	4	2	2
	2	3	1	1
165 W	1	4	2	2
	2	3	1	1

Processor options

The SD530 supports the processor options listed in the following table.

Table 23. Processor options

Part number	Feature code	Description
4XG7A07683	AXQX	Intel Xeon Bronze 3104 6C 85W 1.7GHz Processor
4XG7A07682	AXQW	Intel Xeon Bronze 3106 8C 85W 1.7GHz Processor
4XG7A08337	AXQZ	Intel Xeon Silver 4108 8C 85W 1.8GHz Processor
4XG7A07681	AXQV	Intel Xeon Silver 4109T 8C 70W 2.0GHz Processor
4XG7A07685	AXQY	Intel Xeon Silver 4110 8C 85W 2.1GHz Processor
4XG7A07680	AXQU	Intel Xeon Silver 4112 4C 85W 2.6GHz Processor
4XG7A07679	AXQT	Intel Xeon Silver 4114 10C 85W 2.2GHz Processor
4XG7A07677	AXNZ	Intel Xeon Silver 4116 12C 85W 2.1GHz Processor
4XG7A07678	AXP0	Intel Xeon Gold 5115 10C 85W 2.4GHz Processor
7XG7A06248	AX7D	Intel Xeon Gold 5118 12C 105W 2.3GHz Processor
7XG7A06247	AX7C	Intel Xeon Gold 5120 14C 105W 2.2GHz Processor
7XG7A06249	AX7E	Intel Xeon Gold 5120T 14C 105W 2.2GHz Processor
7XG7A06237	AX70	Intel Xeon Gold 5122 4C 105W 3.6GHz Processor
7XG7A06234	AWEX	Intel Xeon Gold 6126 12C 125W 2.6GHz Processor
7XG7A06229	AX6D	Intel Xeon Gold 6130 16C 125W 2.1GHz Processor
7XG7A06239	AX72	Intel Xeon Gold 6130T 16C 125W 2.1GHz Processor
7XG7A06235	AX6Y	Intel Xeon Gold 6134 8C 130W 3.2GHz Processor
7XG7A06233	AX6W	Intel Xeon Gold 6136 12C 150W 3.0GHz Processor
7XG7A06227	AX6Q	Intel Xeon Gold 6138 20C 125W 2.0GHz Processor
7XG7A06238	AX71	Intel Xeon Gold 6138T 20C 125W 2.0GHz Processor
7XG7A06228	AX6R	Intel Xeon Gold 6140 18C 140W 2.3GHz Processor
7XG7A06231	AX6E	Intel Xeon Gold 6142 16C 150W 2.6GHz Processor
7XG7A06226	AWEW	Intel Xeon Gold 6148 20C 150W 2.4GHz Processor
7XG7A06230	AX6T	Intel Xeon Gold 6150 18C 165W 2.7GHz Processor
7XG7A06225	AX6P	Intel Xeon Gold 6152 22C 140W 2.1GHz Processor
7XG7A06223	AX6L	Intel Xeon Platinum 8153 16C 125W 2.0GHz Processor
7XG7A06224	AWEV	Intel Xeon Platinum 8156 4C 105W 3.6GHz Processor
7XG7A06246	AX7B	Intel Xeon Platinum 8158 12C 150W 3.0GHz Processor
7XG7A06222	AWGJ	Intel Xeon Platinum 8160 24C 150W 2.1GHz Processor
7XG7A06221	AX6K	Intel Xeon Platinum 8164 26C 150W 2.0GHz Processor
7XG7A06220	AX6J	Intel Xeon Platinum 8170 26C 165W 2.1GHz Processor
7XG7A06219	AX6H	Intel Xeon Platinum 8176 28C 165W 2.1GHz Processor

The supported processors have the specifications listed in the following table.

16 DIMM support: The use of 16 DIMMs requires that smaller heatsinks be used. As a result, only a subset of processors support 16 DIMMs (8 DIMMs per processor), as noted in the table below. All others are limited to 12 DIMMs (6 DIMMs processors).

Drive bay support: Only a subset of processors support 6 drive bays. See the [Internal storage](#) section for details.

Table 24. Processor specifications

Intel Xeon Processor	Memory speed	Supports 16 DIMMs†	L3 cache	UPI speed	AVX-512 FMA units	HT	TB
Bronze 3104 6C 85W 1.7GHz	2133 MHz	Yes	8.25 MB	9.6 GT/s	1	No	No
Bronze 3106 8C 85W 1.7GHz	2133 MHz	Yes	11 MB	9.6 GT/s	1	No	No
Silver 4108 8C 85W 1.8GHz	2400 MHz	Yes	11 MB	9.6 GT/s	1	Yes	Yes
Silver 4109T 8C 70W 2.0GHz	2400 MHz	No	11 MB	9.6 GT/s	1	Yes	Yes
Silver 4110 8C 85W 2.1GHz	2400 MHz	Yes	11 MB	9.6 GT/s	1	Yes	Yes
Silver 4112 4C 85W 2.6GHz	2400 MHz	Yes	8.5 MB**	9.6 GT/s	1	Yes	Yes
Silver 4114 10C 85W 2.2GHz	2400 MHz	Yes	13.75 MB	9.6 GT/s	1	Yes	Yes
Silver 4116 12C 85W 2.1GHz	2400 MHz	Yes	16.5 MB	9.6 GT/s	1	Yes	Yes
Gold 5115 10C 85W 2.4GHz	2400 MHz	Yes	13.75 MB	10.4 GT/s	1	Yes	Yes
Gold 5118 12C 105W 2.3GHz	2400 MHz	Yes	16.5 MB	10.4 GT/s	1	Yes	Yes
Gold 5120 14C 105W 2.2GHz	2400 MHz	Yes	19.25 MB	10.4 GT/s	1	Yes	Yes
Gold 5120T 14C 105W 2.2GHz	2400 MHz	No	19.25 MB	10.4 GT/s	1	Yes	Yes
Gold 5122 4C 105W 3.6GHz	2666 MHz*	No	16.5 MB**	10.4 GT/s	2*	Yes	Yes
Gold 6126 12C 125W 2.6GHz	2666 MHz	No	19.25 MB**	10.4 GT/s	2	Yes	Yes
Gold 6130 16C 125W 2.1GHz	2666 MHz	Yes	22 MB	10.4 GT/s	2	Yes	Yes
Gold 6130T 16C 125W 2.1GHz	2666 MHz	No	22 MB	10.4 GT/s	2	Yes	Yes
Gold 6134 8C 130W 3.2GHz	2666 MHz	No	24.75 MB**	10.4 GT/s	2	Yes	Yes
Gold 6136 12C 150W 3.0GHz	2666 MHz	No	24.75 MB**	10.4 GT/s	2	Yes	Yes
Gold 6138 20C 125W 2.0GHz	2666 MHz	No	27.5 MB	10.4 GT/s	2	Yes	Yes
Gold 6138T 20C 125W 2.0GHz	2666 MHz	No	27.5 MB	10.4 GT/s	2	Yes	Yes
Gold 6140 18C 140W 2.3GHz	2666 MHz	No	24.75 MB	10.4 GT/s	2	Yes	Yes
Gold 6142 16C 150W 2.6GHz	2666 MHz	No	22 MB	10.4 GT/s	2	Yes	Yes
Gold 6148 20C 150W 2.4GHz	2666 MHz	No	27.5 MB	10.4 GT/s	2	Yes	Yes
Gold 6150 18C 165W 2.7GHz	2666 MHz	No	24.75 MB	10.4 GT/s	2	Yes	Yes
Gold 6152 22C 140W 2.1GHz	2666 MHz	No	30.25 MB	10.4 GT/s	2	Yes	Yes
Platinum 8153 16C 125W 2.0GHz	2666 MHz	Yes	22 MB	10.4 GT/s	2	Yes	Yes
Platinum 8156 4C 105W 3.6GHz	2666 MHz	No	16.5 MB**	10.4 GT/s	2	Yes	Yes
Platinum 8158 12C 150W 3.0GHz	2666 MHz	No	24.75 MB**	10.4 GT/s	2	Yes	Yes
Platinum 8160 24C 150W 2.1GHz	2666 MHz	No	33 MB	10.4 GT/s	2	Yes	Yes
Platinum 8164 26C 150W 2.0GHz	2666 MHz	No	35.75 MB	10.4 GT/s	2	Yes	Yes
Platinum 8170 26C 165W 2.1GHz	2666 MHz	No	35.75 MB	10.4 GT/s	2	Yes	Yes
Platinum 8176 28C 165W 2.1GHz	2666 MHz	No	38.5 MB	10.4 GT/s	2	Yes	Yes

† 16 DIMM support limited to 4x 2.5-inch SAS/SATA drives (no NVMe support)

* All Gold 5000-level processors, except the 5122, support 2400 MHz memory speeds and have one AVX-

512 512-bit FMA units. The 5122 processor supports 2666 MHz and has two FMA units

** L3 cache is 1.375 MB per core except with the processor indicated with **

Memory options

The SD530 server supports 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.

Each processor has six memory channels. All DIMMs operate at a speed of 2666 MHz. However, if the processor selected has a lower memory bus speed (eg 2400 MHz or 2133 MHz - see the [Processor options](#) table), then all DIMMs will operate at that lower speed.

The SD530 supports up to 6 or 8 DIMMs per processor, for a total of 12 or 16 DIMMs when two processors are installed. The total DIMMs supported depends on the processor selected, as described in the [Processor options](#) section.

The following table lists the memory options that are available for the SD530 server.

Table 25. Memory options

Part number	Feature code	Description	Maximum supported*
RDIMMs			
7X77A01301	AUU1	ThinkSystem 8GB TruDDR4 2666 MHz (1Rx8 1.2V) RDIMM	16 (8 per processor)
7X77A01302	AUNB	ThinkSystem 16GB TruDDR4 2666 MHz (1Rx4 1.2V) RDIMM	16 (8 per processor)
7X77A01303	AUNC	ThinkSystem 16GB TruDDR4 2666 MHz (2Rx8 1.2V) RDIMM	16 (8 per processor)
7X77A01304	AUND	ThinkSystem 32GB TruDDR4 2666 MHz (2Rx4 1.2V) RDIMM	16 (8 per processor)
LRDIMMs			
7X77A01305	AUNE	ThinkSystem 64GB TruDDR4 2666 MHz (4Rx4 1.2V) LRDIMM	16 (8 per processor)

* Some SD530 configurations only support 6 DIMMs per processor (12 total) depending on the processor selected, as described in the [Processor options](#) section.

The following rules apply when selecting the memory configuration:

- The server supports RDIMMs and LRDIMMs.
- Mixing RDIMMs and LRDIMMs is not supported.
- It is supported to mix x4 and x8 DIMMs.
- The following rules apply to support 16 DIMMs:
 - Only a subset of the supported processors can be used, as indicated in [Table 23](#) in the Processor section.
 - Smaller processor heatsinks will be automatically selected by the configurator so that the four additional DIMM slots are accessible.
 - Only the 2x2 SAS/SATA backplane can be selected as described in the [Drive bays and backplanes](#) section. The 2x3 backplanes are not supported and no NVMe drives are supported.

- Each processor has 6 memory channels. As a result, for best performance, populate memory DIMMs in quantities of 6 or 12 per processor, so that all memory channels are used, however, to maximize capacity, select a processor that in the SD530 supports 8 DIMMs per processor and install 16 DIMMs.

Tip: To learn more about the performance implications of using 16 DIMMs in the SD530, read the Lenovo Press paper *Lenovo ThinkSystem SD530 Performance Considerations with 12 DIMMs and 16 DIMMs* available from: <http://lenovopress.com/LP0659>

The following memory protection technologies are supported:

- ECC
- Chipkill (for x4-based memory DIMMs; look for "x4" in the DIMM description)
- Memory channel mirroring
- Memory rank sparing

If memory channel mirroring is used, then DIMMs must be installed in pairs (minimum of one pair per processor), and both DIMMs in a pair must be identical in type and size. 50% of the installed capacity is available to the operating system.

If memory rank sparing is used, then a minimum of one quad-rank DIMM or two single-rank or dual-rank DIMMs must be installed per populated channel (the DIMMs do not need being identical). In rank sparing mode, one rank of a DIMM in each populated channel is reserved as spare memory. The largest rank in the channel will be automatically selected as the spare rank. The amount of memory available to the operating system depends on the number, capacity and rank counts of the DIMMs installed.

Internal storage

The SD530 supports up to six 2.5-inch hot-swap drive bays, all of which are accessible from the front of the server.

In this section:

- [Drive bays and backplanes](#)
- [Adapters and cabling](#)
- [M.2 drives](#)

Drive bays and backplanes

The server supports three different drive bay configurations, all comprised of 2.5-inch hot-swap drive bays:

- Six drive bays, four bays supporting SAS or SATA drives and two Lenovo AnyBay bays, supporting NVMe, SAS or SATA drives
- Five drive bays, three of which are SAS/SATA and two are AnyBay bays. This configuration also includes a KVM breakout module to provide front-accessible VGA, Serial and USB ports.
- Four drive bays, all of which are SAS/SATA drive bays. This configuration also includes the KVM breakout module.

The three configurations are shown in the following figure. When the AnyBay backplane is selected the rightmost two drives are the AnyBay drive bays.

Tip: AnyBay is the term for a bay with a U.2 connector that has both SAS/SATA and NVMe connections. It is designed to support either a SAS, SATA or NVMe drive.

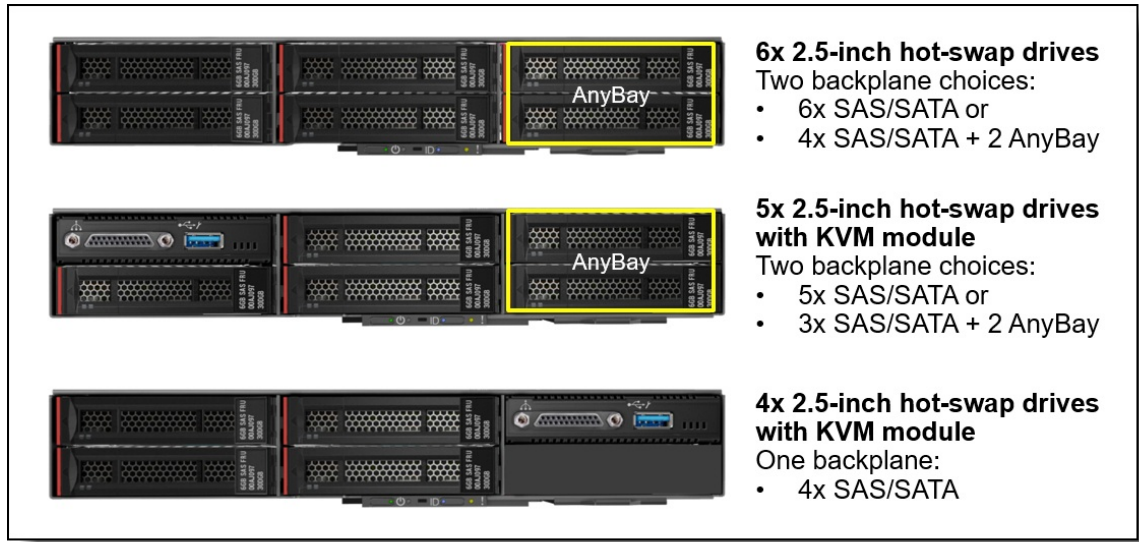


Figure 7. Drive bay configurations of the SD530

The drive bay configurations are made available through the use of either a 2x3 SAS/SATA backplane, 2x3 AnyBay backplane or a 2x2 SAS/SATA backplane. Ordering details are listed in the following table.

Processor 2 needed for AnyBay: The use of AnyBay requires that processor 2 be installed. Processor 2 provides the necessary PCIe connectivity.

Table 26. Backplane ordering information

Part number	Feature code	Description	Drive bay configuration
None*	AUYG	ThinkSystem SD530 3x2 SAS/SATA BP	6x SAS/SATA 5x SAS/SATA
None*	AUYH	ThinkSystem SD530 3x2 SAS/SATA/NVMe BP	4x SAS/SATA + 2 AnyBay 3x SAS/SATA + 2 AnyBay
None*	AUYJ	ThinkSystem SD530 2x2 SAS/SATA BP	4x SAS/SATA

* Available in predefined models or configure-to-order only

Not all processor selections support the 3x2 backplanes, and some only support 3x2 backplanes when 12 DIMMs are installed. The following table shows the supported combinations.

Tip: Support is based on the cooling needs of the processor, not the TDP or core frequency.

Table 27. Backplane support by processor

Description	12 DIMMs		16 DIMMs	
	2x2 backplane	2x3 backplane	2x2 backplane	2x3 backplane
Intel Xeon Bronze 3104 6C 85W 1.7GHz	Yes	Yes	Yes	No
Intel Xeon Bronze 3106 8C 85W 1.7GHz	Yes	Yes	Yes	No
Intel Xeon Silver 4108 8C 85W 1.8GHz	Yes	Yes	Yes	No
Intel Xeon Silver 4109T 8C 70W 2.0GHz	Yes	No	No	No
Intel Xeon Silver 4110 8C 85W 2.1GHz	Yes	Yes	Yes	No
Intel Xeon Silver 4112 4C 85W 2.6GHz	Yes	Yes	Yes	No

Description	12 DIMMs		16 DIMMs	
	2x2 backplane	2x3 backplane	2x2 backplane	2x3 backplane
Intel Xeon Silver 4114 10C 85W 2.2GHz	Yes	Yes	Yes	No
Intel Xeon Silver 4116 12C 85W 2.1GHz	Yes	Yes	Yes	No
Intel Xeon Gold 5115 10C 85W 2.4GHz	Yes	Yes	Yes	No
Intel Xeon Gold 5118 12C 105W 2.3GHz	Yes	Yes	Yes	No
Intel Xeon Gold 5120 14C 105W 2.2GHz	Yes	Yes	Yes	No
Intel Xeon Gold 5120T 14C 105W 2.2GHz	Yes	No	No	No
Intel Xeon Gold 5122 4C 105W 3.6GHz	Yes	No	No	No
Intel Xeon Gold 6126 12C 125W 2.6GHz	Yes	Yes	No	No
Intel Xeon Gold 6130 16C 125W 2.1GHz	Yes	Yes	Yes	No
Intel Xeon Gold 6130T 16C 125W 2.1GHz	Yes	No	No	No
Intel Xeon Gold 6134 8C 130W 3.2GHz	Yes	No	No	No
Intel Xeon Gold 6136 12C 150W 3.0GHz	Yes	No	No	No
Intel Xeon Gold 6138 20C 125W 2.0GHz	Yes	Yes	No	No
Intel Xeon Gold 6138T 20C 125W 2.0GHz	Yes	No	No	No
Intel Xeon Gold 6140 18C 140W 2.3GHz	Yes	Yes	No	No
Intel Xeon Gold 6142 16C 150W 2.6GHz	Yes	No	No	No
Intel Xeon Gold 6148 20C 150W 2.4GHz	Yes	No	No	No
Intel Xeon Gold 6150 18C 165W 2.7GHz	Yes	No	No	No
Intel Xeon Gold 6152 22C 140W 2.1GHz	Yes	Yes	No	No
Intel Xeon Platinum 8153 16C 125W 2.0GHz	Yes	Yes	Yes	No
Intel Xeon Platinum 8156 4C 105W 3.6GHz	Yes	No	No	No
Intel Xeon Platinum 8158 12C 150W 3.0GHz	Yes	No	No	No
Intel Xeon Platinum 8160 24C 150W 2.1GHz	Yes	No	No	No
Intel Xeon Platinum 8164 26C 150W 2.0GHz	Yes	No	No	No
Intel Xeon Platinum 8170 26C 165W 2.1GHz	Yes	No	No	No
Intel Xeon Platinum 8176 28C 165W 2.1GHz	Yes	No	No	No

Adapters and cabling

The SD530 supports the following backplane connectivity:

- Hardware RAID adapter installed in a dedicated slot at the back of the server - supporting SAS or SATA drives
- Software RAID from the embedded Intel RSTe controller - supporting only SATA drives
- PCIe NVMe connectivity for the AnyBay backplane from the PCIe connector #3 on the system board which is routed from Processor 2.

These connectors are shown in the Internal view of the server in the [Components and connectors](#) section.

Tip: The controllers are described in detail in the [Controllers for internal storage](#) section.

M.2 drives

The server supports one or two M.2 form-factor SATA drives for use as an operating system boot solution. With two M.2 drives configured, the drives are configured by default as a RAID-1 mirrored pair for redundancy.

The M.2 drives install into an M.2 adapter which in turn is installed in a dedicated slot on the system board. See the internal view of the server in the [Components and connectors](#) section for the location of the M.2 slot.

There are two M.2 adapters supported:

- Single M.2 Boot Adapter, which supports one M.2 drive; available as ThinkSystem M.2 Enablement Kit, 7Y37A01092
- Dual M.2 Boot Adapter, which supports one or two M.2 drives; available as ThinkSystem M.2 with Mirroring Enablement Kit, 7Y37A01093

A Dual M.2 Boot Adapter with one 128GB M.2 drive partially inserted is shown in the following figure. The second M.2 drive is installed on the other side of the adapter.



Figure 8. Dual M.2 Boot Adapter and a 128 GB M.2 drive

Features of the Dual M.2 Boot Adapter:

- PCIe 2.0 x2 host interface (connects to the PCH)
- Based on the Marvell 88SE9230 6 Gbps SATA controller
- Supports two 6 Gbps SATA M.2 drives (it is not supported to have only one drive installed)
- Supports 3 different physical sizes of M.2 drives: 42mm (2242), 60mm (2260) and 80mm (2280)*
- RAID functionality provided by the M.2 adapter
- RAID 1 by default; also supports RAID 0 and JBOD
- UEFI-based settings to enable/disable RAID mode and to review inventory
- Adapter and drive firmware update using Lenovo firmware tools
- Management via I2C interface

* 2242, 2260 and 2280 are the industry terms for the M.2 drive dimensions. For example, 2280 corresponds to a drive that is 22mm wide and 80mm long.

Features of the Single M.2 Boot Adapter:

- 6 Gbps SATA host interface (connects to the PCH)
- Supports one 6 Gbps SATA M.2 drive
- Supports 3 different physical sizes of M.2 drives: 42mm (2242), 60mm (2260) and 80mm (2280)
- Drive firmware update using Lenovo firmware tools
- Management via I2C interface
- VPD reporting of adapter inventory

The Single M.2 Boot Adapter is shown in the following photo, with the 32GB M.2 drive installed.



Figure 9. Single M.2 Boot Adapter and a 32 GB M.2 drive

The M.2 components are listed in the following table.

Table 28. M.2 components

Part number	Feature code	Description	Maximum Supported
7Y37A01092	AUMU	ThinkSystem M.2 Enablement Kit (contains the Single M.2 Boot Adapter; supports 1 drive)	1
7Y37A01093	AUMV	ThinkSystem M.2 with Mirroring Enablement Kit (contains the Dual M.2 Boot Adapter, supports 1 or 2 drives)	1
7N47A00129	AUUL	ThinkSystem M.2 CV1 32GB SATA 6Gbps Non-Hot-Swap SSD	1 / 2*
7N47A00130	AUUV	ThinkSystem M.2 CV3 128GB SATA 6Gbps Non-Hot-Swap SSD	1 / 2*

* 7Y37A01092 supports a maximum of one M.2 drive; 7Y37A01093 supports a maximum of two M.2 drives; drives must be identical.

The following table lists the specifications of the M.2 drives.

Table 29. M.2 drive specifications

Specification	32 GB M.2	128 GB M.2
Part number	7N47A00129	7N47A00130
Recommended use	Boot drive*	Boot drive*
Interface	6Gb SATA	6Gb SATA
Flash Type	MLC NAND	TLC NAND
4KB Random Read/Write Performance	25,000 IOPS	72,000 IOPS
4KB Random Write Performance	10,500 IOPS	32,000 IOPS
Sequential Read Performance	260 MB/s	530 MB/s
Sequential Write Performance	40 MB/s	470 MB/s
Endurance (total bytes written / drive writes per day)	37.92TB / 0.66 DWPD	63.9 TB / 0.28 DWPD
Vendor model	LiteOn CV1	LiteOn CV3
Dimensions	42 x 22 mm	80 x 22 mm

* These drive options do not have power-loss capacitors, which means they do not have protection against a potential loss of data when a write operation is underway just as a power outage occurs. As a result, these drives are not recommended for general purpose storage functions.

Controllers for internal storage

The SD530 supports the following RAID controllers for internal storage:

- 12 Gb SAS/SATA RAID adapter installed in a dedicated slot
- Intel RSTe 6 Gb SATA software RAID controller integrated in the the Intel chipset

Virtualization support: The 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.

The following table lists the ordering information.

Table 30. RAID controllers

Part number	Feature code	Description
None	AUYL	ThinkSystem SD530 SW RAID Kit
None*	AUYK	ThinkSystem SD530 HW RAID Kit

* Available only in preconfigured models or configure-to-order; not available as a field upgrade

The controllers have the specifications listed in the following table.

Table 31. Controller specifications

Feature	Intel RSTe	RAID adapter
Adapter type	Software RAID	RAID controller
Part number	None	Feature AUYK
Form factor	Onboard	Custom adapter
Controller chip	Intel PCH (RSTe)	LSI SAS3408
Host interface	Not applicable	PCIe 3.0 x8
Port interface	6 Gb SATA	12 Gb SAS
Number of ports	6	6
Port connectors	2 onboard SATA	2x SlimSAS x4
Drive interface	SATA	SAS, SATA, SED
Drive type	HDD, SSD	HDD, SSD
Hot-swap drives	Yes	Yes
Max devices	Varies	6
RAID levels	0, 1, 10, 5	0, 1, 10, 5, 50
JBOD mode	Yes	Yes
Cache	None	None
CacheVault cache protection	No	No
Performance Accelerator (FastPath)	No	Yes
SSD Caching (CacheCade Pro 2.0)	No	No
SED support	No	Yes (Safestore)

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 31: [2.5-inch hot-swap 12 Gb SAS HDDs](#)
- Table 32: [2.5-inch hot-swap 6 Gb SAS/SATA HDDs](#)
- Table 33: [2.5-inch hot-swap 12 Gb SAS SSDs](#)
- Table 34: [2.5-inch hot-swap 6 Gb SAS/SATA SSDs](#)
- Table 35: [2.5-inch U.2 NVMe SSDs](#)

Tip: The server also supports M.2 drives as described in the [M.2 drives](#) subsection.

Table 32. 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	6
7XB7A00025	AULZ	ThinkSystem 2.5" 600GB 10K SAS 12Gb Hot Swap 512n HDD	6
7XB7A00026	AUM0	ThinkSystem 2.5" 900GB 10K SAS 12Gb Hot Swap 512n HDD	6
7XB7A00027	AUM1	ThinkSystem 2.5" 1.2TB 10K SAS 12Gb Hot Swap 512n HDD	6
7XB7A00028	AUM2	ThinkSystem 2.5" 1.8TB 10K SAS 12Gb Hot Swap 512e HDD	6
2.5-inch hot-swap HDDs - 12 Gb SAS 15K			
7XB7A00021	AULV	ThinkSystem 2.5" 300GB 15K SAS 12Gb Hot Swap 512n HDD	6
7XB7A00022	AULW	ThinkSystem 2.5" 600GB 15K SAS 12Gb Hot Swap 512n HDD	6
7XB7A00023	AULX	ThinkSystem 2.5" 900GB 15K SAS 12Gb Hot Swap 512e HDD	6
2.5-inch hot-swap HDDs - 12 Gb NL SAS			
7XB7A00034	AUM6	ThinkSystem 2.5" 1TB 7.2K SAS 12Gb Hot Swap 512n HDD	6
7XB7A00035	AUM7	ThinkSystem 2.5" 2TB 7.2K SAS 12Gb Hot Swap 512n HDD	6

Table 33. 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	6
7XB7A00037	AUUJ	ThinkSystem 2.5" 2TB 7.2K SATA 6Gb Hot Swap 512e HDD	6

Table 34. 2.5-inch hot-swap 12 Gb SAS SSDs

Part number	Feature	Description	Maximum supported
2.5-inch hot-swap SSDs - 12 Gb SAS - Enterprise Capacity			
7N47A00121	AUMK	ThinkSystem 2.5" PM1633a 3.84TB Capacity SAS 12Gb Hot Swap SSD	6
7N47A00122	AUML	ThinkSystem 2.5" PM1633a 7.68TB Capacity SAS 12Gb Hot Swap SSD	6
2.5-inch hot-swap SSDs - 12 Gb SAS - Enterprise Performance (10+ DWPD)			
7N47A00124	AUMG	ThinkSystem 2.5" HUSMM32 400GB Performance SAS 12Gb Hot Swap SSD	6
7N47A00125	AUMH	ThinkSystem 2.5" HUSMM32 800GB Performance SAS 12Gb Hot Swap SSD	6
2.5-inch hot-swap SSDs - 12 Gb SAS - Enterprise Mainstream (3-5 DWPD)			
7N47A00117	AUMC	ThinkSystem 2.5" PM1635a 400GB Mainstream SAS 12Gb Hot Swap SSD	6
7N47A00118	AUMD	ThinkSystem 2.5" PM1635a 800GB Mainstream SAS 12Gb Hot Swap SSD	6

Table 35. 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 Entry (<3 DWPD)			
7N47A00099	AUM8	ThinkSystem 2.5" Intel S3520 240GB Entry SATA 6Gb Hot Swap SSD	6
7N47A00100	AUUZ	ThinkSystem 2.5" Intel S3520 480GB Entry SATA 6Gb Hot Swap SSD	6
7N47A00111	AUUQ	ThinkSystem 2.5" PM863a 240GB Entry SATA 6Gb Hot Swap SSD	6
7N47A00112	AUM9	ThinkSystem 2.5" PM863a 480GB Entry SATA 6Gb Hot Swap SSD	6

Table 36. 2.5-inch U.2 NVMe SSDs

Part number	Feature	Description	Maximum supported
2.5-inch SSDs - NVMe - Enterprise Performance (10+ DWPD)			
7XB7A05923	AWG6	ThinkSystem U.2 PX04PMB 800GB Performance NVMe PCIe 3.0 x4 Hot Swap SSD	2
7XB7A05922	AWG7	ThinkSystem U.2 PX04PMB 1.6TB Performance NVMe PCIe 3.0 x4 Hot Swap SSD	2
2.5-inch SSDs - NVMe - Enterprise Mainstream (3-5 DWPD)			
7N47A00095	AUUY	ThinkSystem U.2 PX04PMB 960GB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD	2
7N47A00096	AUMF	ThinkSystem U.2 PX04PMB 1.92TB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD	2

Note: NVMe PCIe SSDs support informed hot removal and hot insertion, provided the operating system supports PCIe SSD hot-swap.

Internal tape drive

The server does not support internal tape drive options.

Optical drive

The server does not support an internal optical drive.

An external USB optical drive is available, listed in the following table.

Table 37. External optical drive

Part number	Feature code	Description
7XA7A05926	AVV8	ThinkSystem External USB DVD RW Optical Disk Drive

I/O expansion options

The I/O slots for the SD530 nodes are housed in the I/O shuttle in the rear of the D2 Enclosure. See the [Components and connectors](#) section for the location.

Each SD530 supports either:

- One PCIe 3.0 x16 low-profile adapter slot, or
- Two PCIe 3.0 x8 low-profile adapter slot

Ordering information is as follows:

Table 38. I/O shuttle ordering information

Part number	Feature code	Description
CTO only	AUY7	ThinkSystem D2 8-slot x8 Shuttle ASM
CTO only	AUY8	ThinkSystem D2 4-slot x16 Shuttle

The following figure shows the locations of the slots.

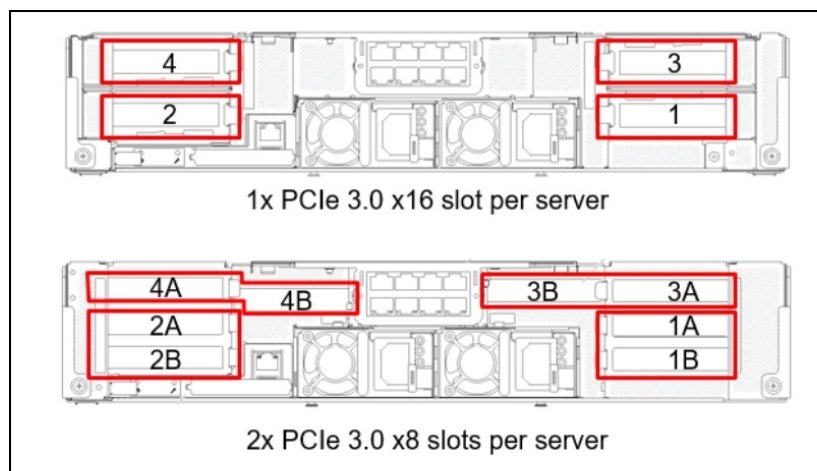


Figure 10. Location of the PCIe slots at the rear of the Enclosure

A key difference between the two choices, other than the difference in PCIe lane width is which servers must be powered off to perform service on the I/O adapter slots:

- Adding or replacing an adapter in the x16 slot only requires the one SD530 node to be powered off. The other three servers can remain fully operational.
- Adding or replacing an adapter in any x8 slot requires that *all four* SD530 nodes be powered off.

Network adapters

Each SD530 has two dedicated 10Gb ports routed to the 8-port Ethernet I/O Module (EIOM) at the rear of the enclosure as shown in below. The ports are connected to the integrated Intel Ethernet Connection X722 controller.

Note: The EIOM is optional and can be deselected in the configurator. If the EIOM is not used, then the two 10 GbE ports are not accessible. The EIOM can be added later as a field upgrade.

The ports are assigned as shown in the following figure.

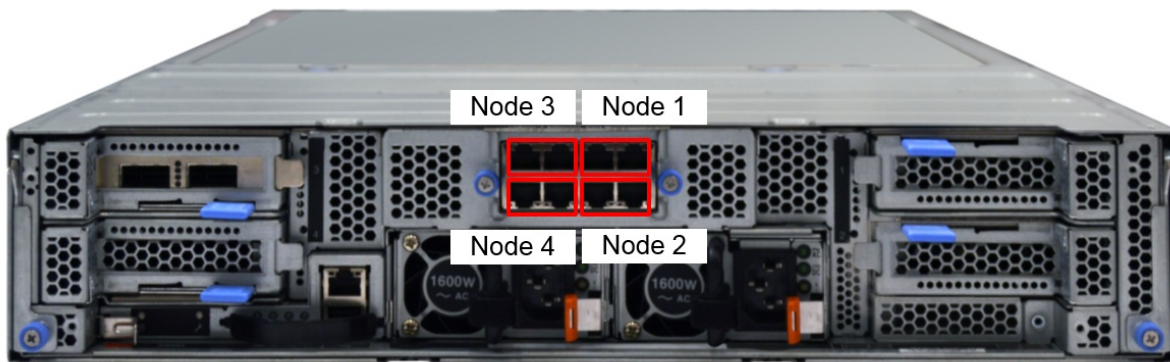


Figure 11. Network port numbering

The X722 has the following features:

- Integrated into the Intel PCH chipset
- Offers VXLAN/NVGRE Hardware Offloads
- Supports VMDq and SR-IOV for advanced virtualization
- Supports iWarp RDMA

For more information about the X722 controller, see the Lenovo Press product guide:

<http://lenovopress.com/lp0654-intel-x722-integrated-controller>

Tip: This port numbering is also located on a label affixed to the enclosure. See [Figure 4](#) for the location.

The 10Gb ports have either RJ45 connections or SFP+ cages depending on the EIOM selected. Ordering information is in the following table.

Table 39. EIOM ordering information

Part number	Feature code	Description
7M17A04001	AUYA	ThinkSystem D2 10Gb 8-port Base-T (RJ45)
7M17A04000	AUY9	ThinkSystem D2 10Gb 8-port SFP+

The following table lists other supported network adapters. PCIe x16 adapters require the x16 slot so only 1 adapter is supported per node.

Table 40. Network adapters

Part number	Feature code	Description	Slots supported	Maximum supported
10 Gb Ethernet				
00AG580	AT7T	Emulex VFA5.2 2x10 GbE SFP+ Adapter and FCoE/iSCSI SW	Both slots	2
00AG570	AT7S	Emulex VFA5.2 2x10 GbE SFP+ PCIe Adapter	Both slots	2
00MM860	ATPX	Intel X550-T2 Dual Port 10GBase-T Adapter	Both slots	2
7ZT7A00537	AUKX	ThinkSystem X710-DA2 PCIe 10Gb 2-Port SFP+ Ethernet Adapter	Both slots	2
7ZT7A00496	AUKP	ThinkSystem Broadcom NX-E PCIe 10Gb 2-Port Base-T Ethernet Adapter	Both slots	2
25 Gb Ethernet				
01GR250	AUAJ	Mellanox ConnectX-4 Lx 2x25GbE SFP28 Adapter	Both slots	2
7ZT7A00505	AUKS	ThinkSystem Broadcom NX-E PCIe 25Gb 1-Port SFP28 Ethernet Adapter	Both slots	2
40 Gb Ethernet				
00MM950	ATRN	Mellanox ConnectX-4 Lx 1x40GbE QSFP+ Adapter	Both slots	2
100 Gb Ethernet				
00MM960	ATRP	Mellanox ConnectX-4 2x100GbE/EDR IB QSFP28 VPI Adapter	PCIe x16 slot	1
InfiniBand				
00KH924	ASWQ	Mellanox ConnectX-4 1x100GbE/EDR IB QSFP28 VPI Adapter	PCIe x16 slot	1
7ZT7A00500	AUVG	ThinkSystem Mellanox ConnectX-4 PCIe FDR 2-Port QSFP VPI Adapter	Both slots	2
Omni-Path Architecture (OPA)				
00WE027	AU0B	Intel OPA 100 Series Single-port PCIe 3.0 x16 HFA	PCIe x16 slot	1
00WE023	AU0A	Intel OPA 100 Series Single-port PCIe 3.0 x8 HFA	Both slots	2

The following table lists the supported 10 Gb Ethernet SFP+ optical transceivers and DAC cables. For multi-port adapters, all adapter ports must have the same type of transceiver or DAC cable selected.

Table 41. Supported optical transceivers and DAC cables - 10 Gb Ethernet

Part number	Feature code	Description
10 GbE SFP+ transceivers (for 10 GbE SFP+ adapters)		
46C3447	5053	Lenovo 10GBASE-SR SFP+ Transceiver
49Y4216	0069	Brocade 10Gb SFP+ SR Optical Transceiver
49Y4218	0064	QLogic 10Gb SFP+ SR Optical Transceiver
10 GbE SFP+ DAC cables (for 10 GbE SFP+ adapters)		
00D6288	A3RG	Lenovo 0.5m Passive SFP+ DAC Cable
90Y9427	A1PH	Lenovo 1m Passive SFP+ DAC Cable
00AY764	A51N	Lenovo 1.5m Passive SFP+ DAC Cable
00AY765	A51P	Lenovo 2m Passive SFP+ DAC Cable
90Y9430	A1PJ	Lenovo 3m Passive SFP+ DAC Cable
90Y9433	A1PK	Lenovo 5m Passive SFP+ DAC Cable
00D6151	A3RH	Lenovo 7m Passive SFP+ DAC Cable

The following table lists the supported 25 GbE transceiver and DAC cables. For multi-port adapters, all adapter ports must have the same type of transceiver or DAC cable selected.

Table 42. Supported optical transceivers and DAC cables - 25 Gb Ethernet

Part number	Feature code	Description
25 GbE SFP28 transceiver		
7G17A03537	AV1B	Lenovo 25GBase-SR SFP28 Transceiver
25 GbE SFP28 DAC cables		
7Z57A03557	AV1W	Lenovo 1m Passive 25G SFP28 DAC Cable
7Z57A03558	AV1X	Lenovo 3m Passive 25G SFP28 DAC Cable
7Z57A03559	AV1Y	Lenovo 5m Passive 25G SFP28 DAC Cable

The following table lists the optical transceivers and DAC cables that can be used with the supported 40Gb Ethernet adapters listed. For multi-port adapters, all adapter ports must have the same type of transceiver or DAC cable selected.

Table 43. Supported optical transceivers and DAC cables - 40 Gb Ethernet

Part number	Feature code	Description
40 GbE QSFP+ transceivers (for 40 GbE QSFP+ adapters)		
49Y7884	A1DR	Lenovo 40GBASE-SR4 QSFP+ Transceiver
40 GbE QSFP+ DAC cables (for 40 GbE QSFP+ adapters)		
49Y7890	A1DP	Lenovo 1m Passive QSFP+ DAC Cable
49Y7891	A1DQ	Lenovo 3m Passive QSFP+ DAC Cable

The following table lists the supported 100 Gb Ethernet SFP+ optical transceivers and DAC cables. For multi-port adapters, all adapter ports must have the same type of transceiver or DAC cable selected.

Table 44. Supported optical transceivers and DAC cables - 100 Gb Ethernet

Part number	Feature code	Description
100 GbE QSFP28 transceivers		
7G17A03539	AV1D	Lenovo 100GBase-SR4 QSFP28 Transceiver
100 GbE QSFP28 Active Optical Cables		
7Z57A03546	AV1L	Lenovo 3m 100G QSFP28 Active Optical Cable
7Z57A03547	AV1M	Lenovo 5m 100G QSFP28 Active Optical Cable
7Z57A03548	AV1N	Lenovo 10m 100G QSFP28 Active Optical Cable
7Z57A03549	AV1P	Lenovo 15m 100G QSFP28 Active Optical Cable
7Z57A03550	AV1Q	Lenovo 20m 100G QSFP28 Active Optical Cable
100 GbE SFP28 DAC cables		
7Z57A03561	AV1Z	Lenovo 1m Passive 100G QSFP28 DAC Cable
7Z57A03562	AV20	Lenovo 3m Passive 100G QSFP28 DAC Cable
7Z57A03563	AV21	Lenovo 5m Passive 100G QSFP28 DAC Cable
100G-to-4x25G Breakout cables		
7Z57A03564	AV22	Lenovo 1m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable
7Z57A03565	AV23	Lenovo 3m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable
7Z57A03566	AV24	Lenovo 5m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable

SAS adapters for external storage

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

Table 45. External SAS HBAs

Part number	Feature code	Description	Slots supported	Maximum supported
7Y37A01090	AUNR	ThinkSystem 430-8e SAS/SATA 12Gb HBA	Both slots	2
7Y37A01091	AUNN	ThinkSystem 430-16e SAS/SATA 12Gb HBA	Both slots	2

The following table summarizes features of supported adapters.

Table 46. SAS HBA specifications

Feature	430-8e	430-16e
Adapter type	HBA	HBA
Part number	7Y37A01090	7Y37A01091
Controller chip	LSI SAS3408	LSI SAS3416
Host interface	PCIe 3.0x8	PCIe 3.0x8
Port interface	12 Gb SAS	12 Gb SAS
Number of ports	8	16
Port connectors	2x Mini-SAS HD SFF8644	4x Mini-SAS HD SFF8644
Drive interface	SAS/SATA	SAS/SATA
Drive type	HDD/SSD/SED*	HDD/SSD/SED*
Hot-swap drives	Yes	Yes
Maximum devices	512 (planned: 1024)	512 (planned: 1024)
RAID levels	None	None
JBOD mode	Yes	Yes
Cache	None	None
CacheVault cache protection	None	None
Performance Accelerator (FastPath)	No	No
SSD Caching (CacheCade Pro 2.0)	No	No
SED support	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).

Fibre Channel host bus adapters

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

Table 47. Fibre Channel HBAs

Part number	Feature code	Description	Slots supported	Maximum supported
7ZT7A00517	AUNT	ThinkSystem Emulex LPe32000-M2-L PCIe 32Gb 1-Port SFP+ Fibre Channel Adapter	Both slots	2
7ZT7A00519	AUNV	ThinkSystem Emulex LPe32002-M2-L PCIe 32Gb 2-Port SFP+ Fibre Channel Adapter	Both slots	2
7ZT7A00516	AUNS	ThinkSystem QLogic QLE2740 PCIe 32Gb 1-Port SFP+ Fibre Channel Adapter	Both slots	2
7ZT7A00518	AUNU	ThinkSystem QLogic QLE2742 PCIe 32Gb 2-Port SFP+ Fibre Channel Adapter	Both slots	2

Flash Storage adapters

The following table lists the Flash Storage Adapters supported by the server.

Table 48. Flash Storage Adapters

Part number	Feature code	Description	Slots supported	Maximum supported
7N47A00097	AUUP	ThinkSystem HHHL PX04PMC 1.92TB Mainstream NVMe PCIe 3.0 x4 Flash Adapter	Both slots	2
7N47A00098	AUVY	ThinkSystem HHHL PX04PMC 3.84TB Mainstream NVMe PCIe 3.0 x4 Flash Adapter	Both slots	2
7XB7A05924	AWG9	ThinkSystem HHHL PX04PMC 3.2TB Performance NVMe PCIe 3.0 x4 Flash Adapter	Both slots	2
7XB7A05925	AWG8	ThinkSystem HHHL PX04PMC 1.6TB Performance NVMe PCIe 3.0 x4 Flash Adapter	Both slots	2

GPU and coprocessor adapters

GPU support is planned for a future update, with the addition of SD530 GPU tray.

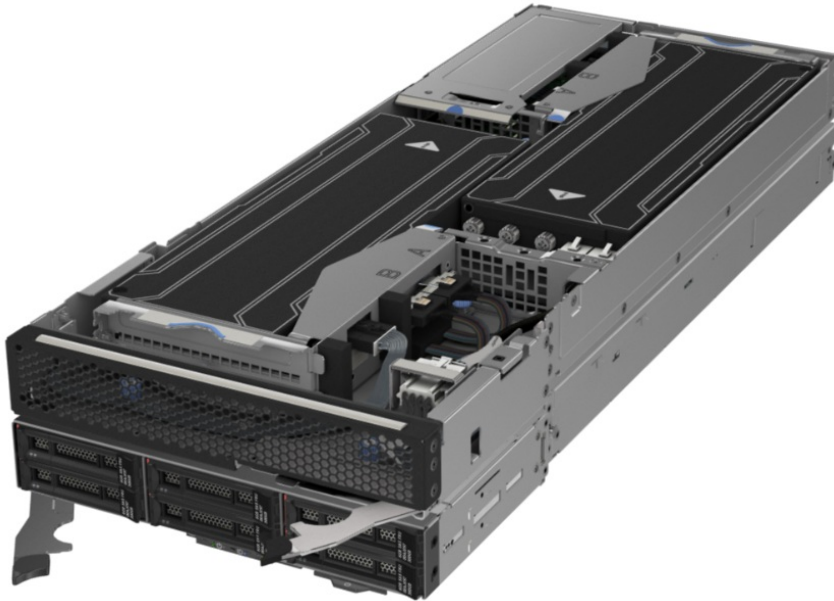


Figure 12. SD530 with GPU Tray attached

Power supplies

The D2 Enclosure comes standard with two hot-plug power supplies and they act as a redundant pair ensuring that the enclosure remains powered even if one power supply fails or is disconnected. These AC power supplies are 80 PLUS Platinum certified for energy efficiency.

The following table lists the supported power supply options.

Table 49. Power supply options for the D2 Enclosure

Part number	Feature code	Description	110V AC	220V AC	240V DC China only
None*	AUZ0	ThinkSystem D2 1100W Platinum PSU	Yes	Yes	Yes
None*	AUZ1	ThinkSystem D2 1600W Platinum PSU	No	Yes	Yes
None*	AUZ2	ThinkSystem D2 2000W Platinum PSU	No	Yes	Yes

* CTO only

Two power supplies are standard and maximum. You cannot mix power supplies.

The 1100W power supply is auto-sensing and supports both 110V AC (100-127V 50/60 Hz) and 220V AC (200-240V 50/60 Hz) power. The 1600 W and 2000 W power supplies only supports 220V AC power. In China only, all power supplies also support 240V DC.

Note: See the [Enclosure support](#) section to see how many nodes are supported in the D2 Enclosure based on the power supplies installed.

Power supply options do not include a power cord. For models of the D2 Enclosure, the inclusion of a power cords is model dependent. Configure-to-order models can be configured without a power cord if desired.

Use the Power Configurator to determine exactly what power your server needs:

<https://datacentersupport.lenovo.com/us/en/solutions/invo-pwrconf>

Power cords

Country-specific line cords and rack power cables can be ordered as listed in the following table.

Table 50. Power cords

Part number	Feature code	Description
Rack cables		
00Y3043	A4VP	1.0m, 10A/100-250V, C13 to C14 Jumper Cord
39Y7937	6201	1.5m, 10A/100-250V, C13 to C14 Jumper Cord
4L67A08369	6570	2.0m, 13A/100-250V, C13 to C14 Jumper Cord
4L67A08366	6311	2.8m, 10A/100-250V, C13 to C14 Jumper Cord
4L67A08370	6400	2.8m, 13A/100-250V, C13 to C14 Jumper Cord
39Y7932	6263	4.3m, 10A/100-250V, C13 to C14 Jumper Cord
4L67A08371	6583	4.3m, 13A/100-250V, C13 to C14 Jumper Cord
Country-specific cables		
39Y7930	6222	2.8m, 10A/250V, C13 to IRAM 2073 (Argentina) Line Cord
81Y2384	6492	4.3m, 10A/250V, C13 to IRAM 2073 (Argentina) Line Cord
39Y7924	6211	2.8m, 10A/250V, C13 to AS/NZS 3112 (Australia/NZ) Line Cord
81Y2383	6574	4.3m, 10A/250V, C13 to AS/NZS 3112 (Australia/NZ) Line Cord
69Y1988	6532	2.8m, 10A/250V, C13 to NBR 14136 (Brazil) Line Cord
81Y2387	6404	4.3m, 10A/250V, C13 to NBR 14136 (Brazil) Line Cord
39Y7928	6210	2.8m, 10A/220V, C13 to GB 2099.1 (China) Line Cord
81Y2378	6580	4.3m, 10A/250V, C13 to GB 2099.1 (China) Line Cord
39Y7918	6213	2.8m, 10A/250V, C13 to DK2-5a (Denmark) Line Cord
81Y2382	6575	4.3m, 10A/250V, C13 to DK2-5a (Denmark) Line Cord
39Y7917	6212	2.8m, 10A/250V, C13 to CEE 7/7 (Europe) Line Cord
81Y2376	6572	4.3m, 10A/250V, C13 to CEE 7/7 (Europe) Line Cord
39Y7927	6269	2.8m, 10A/250V, C13 to IS 6538 (India) Line Cord
81Y2386	6567	4.3m, 10A/250V, C13 to IS 6538 (India) Line Cord
39Y7920	6218	2.8m, 10A/250V, C13 to SI 32 (Israel) Line Cord
81Y2381	6579	4.3m, 10A/250V, C13 to SI 32 (Israel) Line Cord
39Y7921	6217	2.8m, 10A/250V, C13 to CEI 23-16 (Italy) Line Cord
81Y2380	6493	4.3m, 10A/250V, C13 to CEI 23-16 (Italy) Line Cord
4L67A08362	6495	4.3m, 12A/200V, C13 to JIS C-8303 (Japan) Line Cord
39Y7922	6214	2.8m, 10A/250V, C13 to SABS 164-1 (South Africa) Line Cord
81Y2379	6576	4.3m, 10A/250V, C13 to SANS 164-1 (South Africa) Line Cord
39Y7926	6335	4.3m, 12A/100V, C13 to JIS C-8303 (Japan) Line Cord
39Y7925	6219	2.8m, 12A/220V, C13 to KSC 8305 (S. Korea) Line Cord
81Y2385	6494	4.3m, 12A/250V, C13 to KSC 8305 (S. Korea) Line Cord
39Y7919	6216	2.8m, 10A/250V, C13 to SEV 1011-S24507 (Swiss) Line Cord
81Y2390	6578	4.3m, 10A/250V, C13 to SEV 1011-S24507 (Swiss) Line Cord

Part number	Feature code	Description
23R7158	6386	2.8m, 10A/125V, C13 to CNS 10917 (Taiwan) Line Cord
81Y2375	6317	2.8m, 10A/250V, C13 to CNS 10917 (Taiwan) Line Cord
81Y2374	6402	2.8m, 13A/125V, C13 to CNS 10917 (Taiwan) Line Cord
4L67A08363	AX8B	4.3m, 10A/125V, C13 to CNS 10917 (Taiwan) Line Cord
81Y2389	6531	4.3m, 10A/250V, C13 to CNS 10917 (Taiwan) Line Cord
81Y2388	6530	4.3m, 13A/125V, C13 to CNS 10917 (Taiwan) Line Cord
39Y7923	6215	2.8m, 10A/250V, C13 to BS 1363/A (UK) Line Cord
81Y2377	6577	4.3m, 10A/250V, C13 to BS 1363/A (UK) Line Cord
90Y3016	6313	2.8M, 10A/125V, C13 to NEMA 5-15P (US) Line Cord
46M2592	A1RF	2.8m, 10A/250V, C13 to NEMA 6-15P (US) Line Cord
00WH545	6401	2.8M, 13A/125V, C13 to NEMA 5-15P (US) Line Cord
4L67A08359	6370	4.3m, 10A/125V, C13 to NEMA 5-15P (US) Line Cord
4L67A08361	6373	4.3m, 10A/250V, C13 to NEMA 6-15P (US) Line Cord
4L67A08360	AX8A	4.3m, 13A/125V, C13 to NEMA 5-15P (US) Line Cord

110V customers: If you plan to use the ThinkSystem 1100W power supply with a 110V power source, select a power cable that is rated above 10A. Power cables that are rated at 10A or below are not supported with 110V power.

Cooling

The D2 Enclosure has 5 hot-swap fans which are used to cool all components. In addition, each power supply has its own integrated fan.

The five system fans have the following specifications:

- Three 60mm hot-swap fans
- Two 80mm hot-swap fans

The fans are accessible by simply removing the panel on the top of the enclosure.

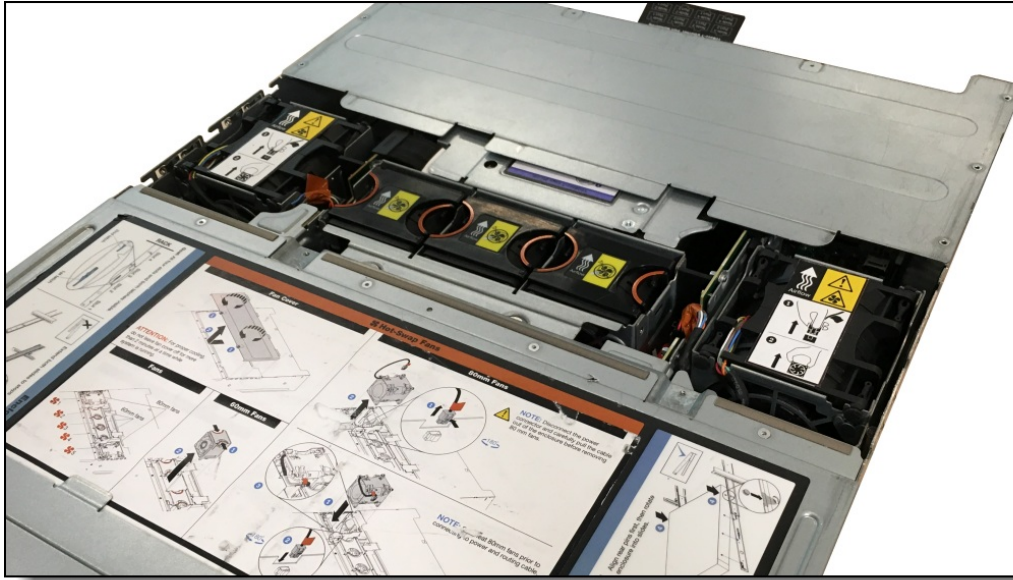


Figure 13. Location of hot-swap fans

Tip: The 80mm fans are hot-swap but you must first disconnect the cable before removing the fan.

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:

http://shop.lenovo.com/us/en/systems/solutions/alliances/vmware/#tab-vmware_vsphere_esxi

Systems management

The server 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 SD530 server optionally supports local console support with the addition of the KVM breakout module. The KVM module is installed in one of the drive bays at the front of the server.

The KVM module is shown in the following figure.

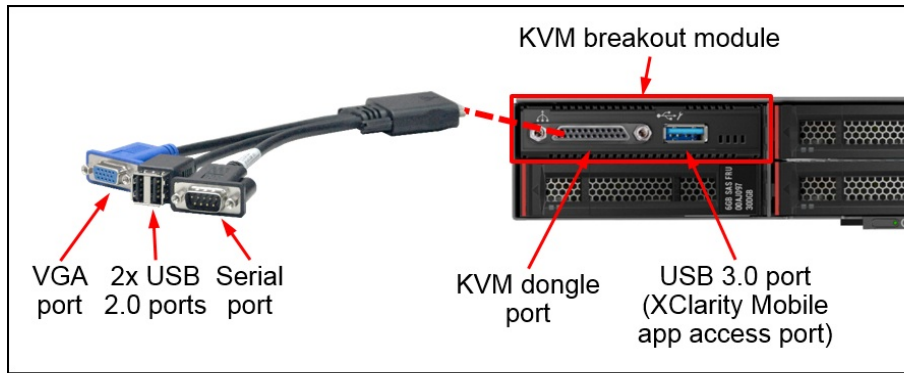


Figure 14. KVM breakout module and console breakout cable

The KVM module provides the following:

- USB 3.0 port
- Port for optional console breakout cable, which provides VGA port, DB9 serial port, and two USB 2.0 ports

The USB 3.0 port also provides local tethered connectivity to a mobile device running the XClarity Mobile app. This app provides additional status information about the server. See the [XClarity Mobile](#) section below for information.

Ordering information for module and cable are as follows.

Table 51. KVM breakout module and cable ordering information

Part number	Feature code	Description
7M17A04002	AUYM	ThinkSystem SD530 Front VGA/USB KVM Breakout Module
81Y5286	A1NF	Console Breakout Cable

The KVM module can be installed in the field:

- For servers with the 2x2 SAS/SATA backplane, the KVM module is installed in the upper-right drive bay
- For servers with either 2x3 backplane, the KVM module is installed in the upper-left drive bay

The D2 Enclosure includes a System Management Module (SMM), installed in the rear of the enclosure. See [Figure 3](#) for the location of the SMM.

The following figure shows the components of the SMM.

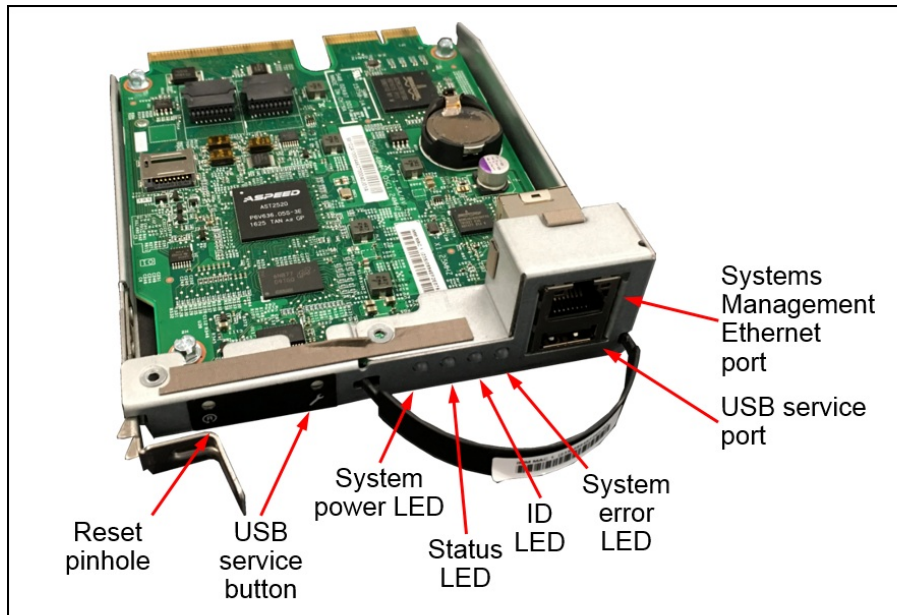


Figure 15. System management module

The SMM has the following ports and LEDs:

- RJ45 for remote management access
- USB port for service
- System error LED (yellow)
- Identification LED (blue)
- Status LED (green)
- System power LED (green)

The SMM provides the following functions:

- IPMI and Web interface for remote management of the enclosure. See the [Remote Management](#) section.
- Remote connectivity to XCC controllers in each node in the enclosure
- Node-level reporting and control (for example, node virtual reset/reset)
- Enclosure power management
- Enclosure thermal management
- Enclosure inventory

The USB service button and USB service port are used to gather service data in the event of an error. Pressing the service button copies Fast Failure Data Collection (FFDC) data to a USB key installed in the USB service port.


The reset button is used to perform an SMM reset (short press) or to restore the SMM back to factory defaults (press for 4+ seconds).

System status with XClarity Mobile

The XClarity Mobile app now 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

The System Management Module (SMM) in the D2 Enclosure supports remote management provided through industry-standard interfaces. Access is provided to both the enclosure management functions and the individual node management functions via the RJ45 Gigabit Ethernet port in the SMM.

The SMM provides the following functions

- Node status report
- Enclosure power and fan status report
- Enclosure power and fan configuration management
- Enclosure Vital Product Data (VPD) information report
- Enclosure event log display, save, and clear
- SMM management and settings backup/restore

The SMM can be accessed through a web browser interface and via Intelligent Platform Management Interface (IPMI) 2.0 commands.

The XClarity Controller (XCC) in each node also supports remote management, provided through the following interfaces:

- Intelligent Platform Management Interface (IPMI) Version 2.0
- Simple Network Management Protocol (SNMP) Version 3 (no SET commands; no SMNP 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

In addition, a virtual presence (remote control & remote media) capability is also optionally available by upgrading each node's XClarity Controller. The available upgrades are XClarity Controller Advanced Upgrade and XClarity Controller Enterprise Upgrade.

Lenovo XClarity Controller Advanced Upgrade 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
- Optionally, with the XCC Enterprise license upgrade, mapping ISO and diskette IMG image files as virtual drives that are available for use by the server

Lenovo XClarity Controller Enterprise Upgrade enables the following additional features:

- Boot Capture
- Remote mounting of ISO and IMG files
- Virtual console collaboration
- Power capping
- License for XClarity Energy Manager

Preconfigured models come with either XClarity Controller Standard, Advanced or Enterprise, depending on the model. See the [SD530](#) models section for details. The following table shows the field upgrades available for preconfigured models.

Table 52. 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 53. 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 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 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 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 54. 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 server offers the following security features:

- Administrator and power-on password
- Trusted Platform Module (TPM) supporting both TPM 1.2 and TPM 2.0
- Optional Trusted Cryptographic Module (TCM), available only in China

The TCM module, available only for China customers, is installed in a dedicated socket on the system board, as shown in [Figure 6](#). Ordering information is shown in the following table.

Table 55. Security features

Part number	Feature code	Description
None*	AVKE	ThinkSystem Trusted Cryptographic Module (China customers only)

* The Trusted Cryptographic Module (TCM) for China customers is not available as a field upgrade. The component is available configure-to-order or pre-configured models only.

Operating systems

The server supports the following operating systems

- Microsoft Windows Server 2012 R2
- Microsoft Windows Server 2016
- SUSE Linux Enterprise Server 11 for AMD64/EM64T
- SUSE Linux Enterprise Server 11 with Xen for AMD64/EM64T
- Red Hat Enterprise Linux 6 Server x64 Edition
- Red Hat Enterprise Linux 7
- SUSE Linux Enterprise Server 12
- SUSE Linux Enterprise Server 12 with XEN
- VMware vSphere ESXi 6.0
- VMware vSphere ESXi 6.5

For the latest information on operating system support, see the Lenovo Operating System Interoperability Guide, available from <http://lenovopress.com/osig>

Virtualization support: The onboard SATA ports in 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 M.2 cards. Ordering information is listed in the following table.

Table 56. VMware ESXi preload

Part number	Feature code	Description
CTO only	AXFT	VMware ESXi 6.5 (factory installed)
CTO only	AXFS	VMware ESXi 6.0 U3 (factory installed)

Rack installation

The ThinkSystem D2 Enclosure can be installed in a 19-inch rack cabinet. A rail kit is included in all models and can be included in configure-to-order models. Also available to order as an option is a cable management arm. Ordering information is in the following table.

Table 57. Rail installation components

Part number	Feature code	Description
CTO only	AUYC	ThinkSystem D2 Slide Rail
7XF7A03997	AUYD	ThinkSystem D2 CMA (Cable Management Arm)

Supported Lenovo racks are listed in the [Rack cabinets](#) section.

Physical and electrical specifications

The SD530 server and D2 Enclosure have the following physical specifications.

D2 Enclosure dimensions and weight:

- Height: 2U enclosure - 87 mm (3.5 inches)
- Depth: 892 mm (35.1 inches)
- Width: 488 mm (19.3 inches)

- Weight:
 - Minimum configuration (with one minimally configured node): 22.4 kg (49.4 lbs)
 - Maximum configuration (with four fully configured nodes): 55.0 kg (121.2 lbs)

SD530 dimensions and weight:

- Height: 41 mm (1.7 inches)
- Depth: 562 mm (22.2 inches)
- Width: 222 mm (8.8 inches)
- Weight:
 - Minimum weight: 3.5 kg (7.8 lb)
 - Maximum weight: 7.5 kg (16.6 lb)

Electrical input for the D2 Enclosure:

- Models with 2000 W AC power supplies:
 - 200 - 240 (nominal) V AC; 50 Hz or 60 Hz; 9.9 A
 - Input kilovolt-amperes (kVA) (approximately):
 - Minimum configuration: 0.17 kVA
 - Maximum configuration: 2.1 kVA
- Models with 1600 W AC power supplies:
 - 200 - 240 (nominal) V AC; 50 Hz or 60 Hz; 7.8 A
 - Input kilovolt-amperes (kVA) (approximately):
 - Minimum configuration: 0.16 kVA
 - Maximum configuration: 1.7 kVA
- Models with 1100 W AC power supplies:
 - 100 - 127 (nominal) V AC; 50 Hz or 60 Hz; 11.9 A
 - 200 - 240 (nominal) V AC; 50 Hz or 60 Hz; 5.4 A
 - Input kilovolt-amperes (kVA) (approximately):
 - Minimum configuration: 0.12 kVA
 - Maximum configuration: 1.2 kVA

240V DC support for China customers only:

- Models with 2000 W 240V DC power supplies:
 - 200 - 240 (nominal) V dc; 9.1 A
 - Input kilovolt-amperes (kVA) (approximately):
 - Minimum configuration: 0.16 kVA
 - Maximum configuration: 2.2 kVA
- Models with 1600 W 240V DC power supplies:
 - 200 - 240 (nominal) V dc; 8.6 A
 - Input kilovolt-amperes (kVA) (approximately):
 - Minimum configuration: 0.15 kVA
 - Maximum configuration: 1.7 kVA
- Models with 1100 W 240V DC power supplies:
 - 200 - 240 (nominal) V dc; 4.9 A
 - Input kilovolt-amperes (kVA) (approximately):
 - Minimum configuration: 0.15 kVA
 - Maximum configuration: 1.1 kVA

Operating environment

The SD530 complies with ASHRAE class A2 specifications, and depending on the hardware configuration, the SD530 also supports ASHRAE Class A3 or Class A4 specifications.

To comply with ASHRAE Class A3 and Class A4 specifications, the SD530 needs to meet the following hardware configuration requirements:

- Processor: See the table below for ASHRAE support by processor
- PCIe adapters: The following PCIe adapters are not supported with ASHRAE A3 and A4 specifications:
 - Mellanox Ethernet adapters with active optical cables
 - Flash Storage Adapters
 - GPU adapters
- Power supplies: Two power supplies, either 1600W or 2000W. 1100W power supplies are not supported with ASHRAE A3 and A4

Environmental information:

The ThinkSystem SD530 and D2 Enclosure are supported in the following environment:

- Air temperature:
 - Power on:
 - ASHRAE Class A2: 10°C to 35°C (50°F to 95°F);
Above 900 m (2,953 ft), de-rated maximum air temperature 1°C / 300m (984 ft)
 - ASHRAE Class A3: 5°C to 40°C (41°F to 104°F)
Above 900 m (2,953 ft), de-rated maximum air temperature 1°C / 175m (574 ft)
 - ASHRAE Class A4: 5°C to 45°C (41°F to 113°F)
Above 900 m (2,953 ft), de-rated maximum air temperature 1°C / 125m (410 ft)
 - Power off (removed from shipping container): 5°C to 45°C (41°F to 113°F)
- Maximum altitude: 3,050 m (10,000 ft)
- Relative Humidity (non-condensing):
 - Power on:
 - ASHRAE Class A2: 8% to 80%, maximum dew point 21°C (70°F)
 - ASHRAE Class A3: 8% to 85%, maximum dew point 24°C (75°F)
 - ASHRAE Class A4: 8% to 90%, maximum dew point 24°C (75°F)
 - Shipment/storage: 8% to 90%

Table 58. Processor support of ASHRAE standards

Description	Supports ASHRAE A2	Supports ASHRAE A3 and A4
Intel Xeon Bronze 3104 6C 85W 1.7GHz Processor	Yes	Yes
Intel Xeon Bronze 3106 8C 85W 1.7GHz Processor	Yes	Yes
Intel Xeon Silver 4108 8C 85W 1.8GHz Processor	Yes	Yes
Intel Xeon Silver 4109T 8C 70W 2.0GHz Processor	Yes	No
Intel Xeon Silver 4110 8C 85W 2.1GHz Processor	Yes	Yes
Intel Xeon Silver 4112 4C 85W 2.6GHz Processor	Yes	Yes
Intel Xeon Silver 4114 10C 85W 2.2GHz Processor	Yes	Yes
Intel Xeon Silver 4116 12C 85W 2.1GHz Processor	Yes	Yes
Intel Xeon Gold 5115 10C 85W 2.4GHz Processor	Yes	Yes
Intel Xeon Gold 5118 12C 105W 2.3GHz Processor	Yes	Yes
Intel Xeon Gold 5120 14C 105W 2.2GHz Processor	Yes	Yes
Intel Xeon Gold 5120T 14C 105W 2.2GHz Processor	Yes	No
Intel Xeon Gold 5122 4C 105W 3.6GHz Processor	Yes	No
Intel Xeon Gold 6126 12C 125W 2.6GHz Processor	Yes	No

Description	Supports ASHRAE A2	Supports ASHRAE A3 and A4
Intel Xeon Gold 6130 16C 125W 2.1GHz Processor	Yes	No
Intel Xeon Gold 6130T 16C 125W 2.1GHz Processor	Yes	No
Intel Xeon Gold 6134 8C 130W 3.2GHz Processor	Yes	No
Intel Xeon Gold 6136 12C 150W 3.0GHz Processor	Yes	No
Intel Xeon Gold 6138 20C 125W 2.0GHz Processor	Yes	No
Intel Xeon Gold 6138T 20C 125W 2.0GHz Processor	Yes	No
Intel Xeon Gold 6140 18C 140W 2.3GHz Processor	Yes	No
Intel Xeon Gold 6142 16C 150W 2.6GHz Processor	Yes	No
Intel Xeon Gold 6148 20C 150W 2.4GHz Processor	Yes	No
Intel Xeon Gold 6150 18C 165W 2.7GHz Processor	Yes	No
Intel Xeon Gold 6152 22C 140W 2.1GHz Processor	Yes	No
Intel Xeon Platinum 8153 16C 125W 2.0GHz Processor	Yes	No
Intel Xeon Platinum 8156 4C 105W 3.6GHz Processor	Yes	No
Intel Xeon Platinum 8158 12C 150W 3.0GHz Processor	Yes	No
Intel Xeon Platinum 8160 24C 150W 2.1GHz Processor	Yes	No
Intel Xeon Platinum 8164 26C 150W 2.0GHz Processor	Yes	No
Intel Xeon Platinum 8170 26C 165W 2.1GHz Processor	Yes	No
Intel Xeon Platinum 8176 28C 165W 2.1GHz Processor	Yes	No

Acoustical noise emissions:

With the maximum configuration of four nodes with two processors installed, full memory installed, full hard disk drives installed, and two 2000W power supplies installed:

- Operation: 6.8 bels
- Idle: 6.2 bels

Heat output:

Approximate, based on two 2000W power supplies:

- Minimum configuration (with one minimally configured node): 604.1 BTU per hour (177 watts)
- Maximum configuration (with four fully configured nodes): 7564.4 BTU per hour (2610 watts)

Warranty options

The SD530 and D2 Enclosure both have a 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 59. 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 ThinkSystem SD530 server conforms or there are plans for the server to conform to the following international standards:

- UL/IEC 60950-1
- IEC 60950-1 (CB Certificate and CB Test Report)
- FCC - Verified to comply with Part 15 of the FCC Rules, Class A
- Canada ICES-003, issue 6, Class A
- CSA C22.2 No. 60950-1
- CISPR 22, Class A
- Japan VCCI, Class A
- Taiwan BSMI CNS13438, Class A; CNS14336-1
- CE Mark (EN55022 Class A, EN60950-1, EN55024, and EN61000-3-2, EN61000-3-3)
- Korea KN32, Class A, KN35
- Australia/New Zealand AS/NZS CISPR 32, Class A; AS/NZS 60950.1
- China CELP certificate, HJ 2507-2011
- UL Green Guard, UL2819
- Energy Star 2.1

The ThinkSystem D2 Enclosure conforms or there are plans for the enclosure to conform to the following international standards:

- UL/IEC 60950-1
- Canada ICES-003, issue 6, Class A
- CSA C22.2 No. 60950-1
- FCC - Verified to comply with Part 15 of the FCC Rules, Class A
- Argentina IEC60950-1
- Japan VCCI, Class A
- IEC 60950-1 (CB Certificate and CB Test Report)
- China CCC GB4943.1, GB9254, Class A, and GB17625.1
- Australia/New Zealand AS/NZS CISPR 32, Class A; AS/NZS 60950.1
- Korea KN32, Class A, KN35
- Russia, Belorussia and Kazakhstan, EAC: TP TC 004/2011(for Safety); TP TC 020/2011(for EMC).
- Mexico NOM-019
- CE Mark (EN55022 Class A, EN60950-1, EN55024, and EN61000-3-2, EN61000-3-3)
- CISPR 22, Class A
- TUV-GS (EN60950-1/IEC 60950-1, and EK1-ITB2000)
- UL Green Guard, UL2819
- China CELP certificate, HJ 2507-2011

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.

The following table lists the 6 Gbps SAS external drive enclosures that are offered by Lenovo that can be used with the server for storage expansion.

Table 60. E1012 and E1024 external drive enclosure models

Part number	Description
64111B1	Lenovo Storage E1012 LFF Disk Expansion Single SAS IO Module, Rail Kit, 9x5 NBD
64111B2	Lenovo Storage E1012 LFF Disk Expansion Dual SAS IO Module, Rail Kit, 9x5 NBD
64111B3	Lenovo Storage E1024 SFF Disk Expansion Single SAS IO Module, Rail Kit, 9x5 NBD
64111B4	Lenovo Storage E1024 SFF Disk Expansion Dual SAS IO Module, Rail Kit, 9x5 NBD

For details about supported drives and cables for the Lenovo Storage E1012 and E1024, see the Lenovo Press Product Guide:
<http://lenovopress.com/lp0043>

The following table lists the standard models of the 12 Gbps SAS external drive enclosures offered by Lenovo that can be used with the server for storage expansion.

Table 61. D1212 and D1224 standard models

Part number	Description
LFF models	
4587A11*	D1212 LFF Chassis, Dual 3-port ESMs (US English documentation)
4587A1C^	D1212 LFF Chassis, Dual 3-port ESMs (Simplified Chinese documentation)
4587A1J**	D1212 LFF Chassis, Dual 3-port ESMs (Japanese documentation)
SFF models	
4587A31*	D1224 SFF Chassis, Dual 3-port ESMs (US English documentation)
4587A3C^	D1224 SFF Chassis, Dual 3-port ESMs (Simplified Chinese documentation)
4587A3J**	D1224 SFF Chassis, Dual 3-port ESMs (Japanese documentation)

* Available worldwide (except China and Japan)

^ Available only in China

** Available only in Japan

The following table lists the TopSeller models of the 12 Gbps SAS external drive enclosures offered by Lenovo that can be used with the server for storage expansion.

Table 62. D1212 and D1224 TopSeller models

Part number	Description
Brazil and Latin America - LFF models	
4587EAU	D1212 LFF Chassis, Dual 3-port ESMs, 4x 2TB 3.5" HDDs, 4x 0.5m SAS cables
4587EBU	D1212 LFF Chassis, Dual 3-port ESMs, 4x 4TB 3.5" HDDs, 4x 0.5m SAS cables
4587ECU	D1212 LFF Chassis, Dual 3-port ESMs, 4x 6TB 3.5" HDDs, 4x 0.5m SAS cables
4587EDU	D1212 LFF Chassis, Dual 3-port ESMs, 4x 8TB 3.5" HDDs, 4x 0.5m SAS cables
4587EEU	D1212 LFF Chassis, Dual 3-port ESMs, 8x 2TB 3.5" HDDs, 4x 0.5m SAS cables
4587EFU	D1212 LFF Chassis, Dual 3-port ESMs, 8x 4TB 3.5" HDDs, 4x 0.5m SAS cables
4587EGU	D1212 LFF Chassis, Dual 3-port ESMs, 8x 6TB 3.5" HDDs, 4x 0.5m SAS cables
4587EHU	D1212 LFF Chassis, Dual 3-port ESMs, 8x 8TB 3.5" HDDs, 4x 0.5m SAS cables
4587EIU	D1212 LFF Chassis, Dual 3-port ESMs, 12x 2TB 3.5" HDDs, 4x 0.5m SAS cables
4587EJU	D1212 LFF Chassis, Dual 3-port ESMs, 12x 4TB 3.5" HDDs, 4x 0.5m SAS cables
4587EKU	D1212 LFF Chassis, Dual 3-port ESMs, 12x 6TB 3.5" HDDs, 4x 0.5m SAS cables
4587ELU	D1212 LFF Chassis, Dual 3-port ESMs, 12x 8TB 3.5" HDDs, 4x 0.5m SAS cables
Brazil and Latin America - SFF models	
4587E6U	D1224 SFF Chassis, Dual 3-port ESMs, 9x 1.2TB 10K HDDs, 4x 0.5m SAS cables
4587E2U	D1224 SFF Chassis, Dual 3-port ESMs, 9x 1.2TB 10K HDDs, 2x 400GB SSDs, 4x 0.5m SAS cables
4587E4U	D1224 SFF Chassis, Dual 3-port ESMs, 9x 1.2TB 10K HDDs, 4x 400GB SSDs, 4x 0.5m SAS cables
4587E5U	D1224 SFF Chassis, Dual 3-port ESMs, 18x 1.2TB 10K HDDs, 1x 0.5m SAS cable
4587E1U	D1224 SFF Chassis, Dual 3-port ESMs, 18x 1.2TB 10K HDDs, 2x 400GB SSDs, 4x 0.5m SAS cables
4587E3U	D1224 SFF Chassis, Dual 3-port ESMs, 18x 1.2TB 10K HDDs, 4x 400GB SSDs, 4x 0.5m SAS cables

For details about supported drives and cables for the Lenovo Storage D1212 and D1224, see the Lenovo Press Product Guide:

<http://lenovopress.com/lp0512>

The following table lists the standard models of the 12 Gbps SAS external high density drive enclosures offered by Lenovo.

Table 63. D3284 standard models

Description	Part number
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

The following table lists the TopSeller models of the 12 Gbps SAS external high density drive enclosures offered by Lenovo.

Table 64. D3284 TopSeller models

Description	Part number
Lenovo Storage D3284 High Density Expansion Enclosure	6413E5F
Lenovo Storage D3284 4TB x 42 HD Expansion Enclosure	6413E1H
Lenovo Storage D3284 4TB x 84 HD Expansion Enclosure	6413E1F
Lenovo Storage D3284 6TB x 42 HD Expansion Enclosure	6413E2H
Lenovo Storage D3284 6TB x 84 HD Expansion Enclosure	6413E2F
Lenovo Storage D3284 8TB x 42 HD Expansion Enclosure	6413E3H
Lenovo Storage D3284 8TB x 84 HD Expansion Enclosure	6413E3F
Lenovo Storage D3284 10TB x 42 HD Expansion Enclosure	6413E4H
Lenovo Storage D3284 10TB x 84 HD Expansion Enclosure	6413E4F

For details about supported drives, adapters, and cables for the Lenovo Storage D3284, see the Lenovo Press Product Guide:

<http://lenovopress.com/lp0513>

External storage systems

The following table lists the NAS and SAN external storage systems that are offered by Lenovo.

Table 65. External storage systems

Part number	Description
Lenovo ThinkSystem DS Series Storage (SAS host connectivity)	
4599A41*	Lenovo ThinkSystem DS2200 LFF SAS Dual Controller Unit (US English documentation)
4599A4C^	Lenovo ThinkSystem DS2200 LFF SAS Dual Controller Unit (Simplified Chinese documentation)
4599A4J**	Lenovo ThinkSystem DS2200 LFF SAS Dual Controller Unit (Japanese documentation)
4599A21*	Lenovo ThinkSystem DS2200 SFF SAS Dual Controller Unit (US English documentation)
4599A2C^	Lenovo ThinkSystem DS2200 SFF SAS Dual Controller Unit (Simplified Chinese documentation)
4599A2J**	Lenovo ThinkSystem DS2200 SFF SAS Dual Controller Unit (Japanese documentation)

Part number	Description
4617A41*	Lenovo ThinkSystem DS4200 LFF SAS Dual Controller Unit (US English documentation)
4617A4C^	Lenovo ThinkSystem DS4200 LFF SAS Dual Controller Unit (Simplified Chinese documentation)
4617A4J**	Lenovo ThinkSystem DS4200 LFF SAS Dual Controller Unit (Japanese documentation)
4617A21*	Lenovo ThinkSystem DS4200 SFF SAS Dual Controller Unit (US English documentation)
4617A2C^	Lenovo ThinkSystem DS4200 SFF SAS Dual Controller Unit (Simplified Chinese documentation)
4617A2J**	Lenovo ThinkSystem DS4200 SFF SAS Dual Controller Unit (Japanese documentation)
4619A21*	Lenovo ThinkSystem DS6200 SFF SAS Dual Controller Unit (US English documentation)
4619A2C^	Lenovo ThinkSystem DS6200 SFF SAS Dual Controller Unit (Simplified Chinese documentation)
4619A2J**	Lenovo ThinkSystem DS6200 SFF SAS Dual Controller Unit (Japanese documentation)
Lenovo ThinkSystem DS Series Storage (iSCSI or FC host connectivity)	
4599A31*	Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit (US English documentation)
4599A3C^	Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)
4599A3J**	Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit (Japanese documentation)
4599A11*	Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit (US English documentation)
4599A1C^	Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)
4599A1J**	Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit (Japanese documentation)
4617A31*	Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit (US English documentation)
4617A3C^	Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)
4617A3J**	Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit (Japanese documentation)
4617A11*	Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit (US English documentation)
4617A1C^	Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)
4617A1J**	Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit (Japanese documentation)
4619A11*	Lenovo ThinkSystem DS6200 SFF FC/iSCSI Dual Controller Unit (US English documentation)
4619A1C^	Lenovo ThinkSystem DS6200 SFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)
Lenovo Storage S Series (SAS host connectivity)	
64112B1	Lenovo Storage S2200 LFF Chassis SAS Single Controller, Rack Kit, 9x5NBD
64112B2	Lenovo Storage S2200 LFF Chassis SAS Dual Controller, Rack Kit, 9x5NBD
64112B3	Lenovo Storage S2200 SFF Chassis SAS Single Controller, Rack Kit, 9x5NBD
64112B4	Lenovo Storage S2200 SFF Chassis SAS Dual Controller, Rack Kit, 9x5NBD
64113B1	Lenovo Storage S3200 LFF Chassis SAS Single Controller, Rack Kit, 9x5NBD
64113B2	Lenovo Storage S3200 LFF Chassis SAS Dual Controller, Rack Kit, 9x5NBD
64113B3	Lenovo Storage S3200 SFF Chassis SAS Single Controller, Rack Kit, 9x5NBD
64113B4	Lenovo Storage S3200 SFF Chassis SAS Dual Controller, Rack Kit, 9x5NBD
Lenovo Storage S Series (iSCSI or FC host connectivity)	
64114B1	Lenovo Storage S2200 LFF Chassis FC/iSCSI Single Controller, Rack Kit, 9x5NBD
64114B2	Lenovo Storage S2200 LFF Chassis FC/iSCSI Dual Controller, Rack Kit, 9x5NBD
64114B3	Lenovo Storage S2200 SFF Chassis FC/iSCSI Single Controller, Rack Kit, 9x5NBD
64114B4	Lenovo Storage S2200 SFF Chassis FC/iSCSI Dual Controller, Rack Kit, 9x5NBD

Part number	Description
64116B1	Lenovo Storage S3200 LFF Chassis FC/iSCSI Single Controller, Rack Kit, 9x5NBD
64116B2	Lenovo Storage S3200 LFF Chassis FC/iSCSI Dual Controller, Rack Kit, 9x5NBD
64116B3	Lenovo Storage S3200 SFF Chassis FC/iSCSI Single Controller, Rack Kit, 9x5NBD
64116B4	Lenovo Storage S3200 SFF Chassis FC/iSCSI Dual Controller, Rack Kit, 9x5NBD
Lenovo Storage V Series (iSCSI, FC, or FCoE host connectivity)	
6535C1D	Lenovo Storage V3700 V2 LFF Control Enclosure
6535EC1	Lenovo Storage V3700 V2 LFF Control Enclosure (TopSeller)
6535C2D	Lenovo Storage V3700 V2 SFF Control Enclosure
6535EC2	Lenovo Storage V3700 V2 SFF Control Enclosure (TopSeller)
6535C3D	Lenovo Storage V3700 V2 XP LFF Control Enclosure
6535EC3	Lenovo Storage V3700 V2 XP LFF Control Enclosure (TopSeller)
6535C4D	Lenovo Storage V3700 V2 XP SFF Control Enclosure
6535EC4	Lenovo Storage V3700 V2 XP SFF Control Enclosure (TopSeller)
6536C12	Lenovo Storage V5030 LFF Control Enclosure 3Yr S&S
6536C32	Lenovo Storage V5030 LFF Control Enclosure 5Yr S&S
6536C22	Lenovo Storage V5030 SFF Control Enclosure 3Yr S&S
6536C42	Lenovo Storage V5030 SFF Control Enclosure 5Yr S&S
6536B1F	Lenovo Storage V5030F SFF Control Enclosure 3Yr S&S
6536B2F	Lenovo Storage V5030F SFF Control Enclosure 5Yr S&S
IBM Storwize for Lenovo (iSCSI, FC, or FCoE host connectivity)	
6096CU2^	IBM Storwize V3500 3.5-inch Dual Control Storage Controller Unit
6096CU3^	IBM Storwize V3500 2.5-inch Dual Control Storage Controller Unit
6099L2C	IBM Storwize V3700 3.5-inch Storage Controller Unit
6099S2C	IBM Storwize V3700 2.5-inch Storage Controller Unit
6195SC5†	IBM Storwize V7000 2.5-inch Storage Controller Unit, w/3 Yr S&S (Model 524)
6195SCL‡	IBM Storwize V7000 2.5-inch Storage Controller Unit, w/3 Yr S&S (LA) (Model 524)
61951F1†	IBM Storwize V7000 2.5-inch Storage Controller Unit, w/5 Yr S&S (Model 524)
61951FL‡	IBM Storwize V7000 2.5-inch Storage Controller Unit, w/5 Yr S&S (LA) (Model 524)
6195C32†	IBM Storwize V7000 SFF Control Enclosure, 3YR SWMA (Model HC1 [Gen2+])
6195C3L‡	IBM Storwize V7000 SFF Control Enclosure, 3YR SWMA, LA (Model HC1 [Gen2+])
6195C52†	IBM Storwize V7000 SFF Control Enclosure, 5YR SWMA (Model HC1 [Gen2+])
6195C5L‡	IBM Storwize V7000 SFF Control Enclosure, 5YR SWMA, LA (Model HC1 [Gen2+])
Lenovo Storage DX8200 Series (S3 cloud storage)	
5120C1x	Lenovo Storage DX8200C with 14x 4TB 3.5" HDDs and 2x 240GB SSDs
5120C3x	Lenovo Storage DX8200C with 14x 6TB 3.5" HDDs and 2x 480GB SSDs
5120C2x	Lenovo Storage DX8200C with 14x 8TB 3.5" HDDs and 2x 480GB SSDs
Lenovo Storage DX8200 Series (NAS, iSCSI connectivity; optional FC connectivity)	
5135A2x	Lenovo Storage DX8200D Storage Virtualization Entry, 4TB, 3yr SW S&S
5135J2x	Lenovo Storage DX8200D Storage Virtualization Entry, 4TB, 4yr SW S&S
51351Vx	Lenovo Storage DX8200D Storage Virtualization Entry, 4TB, 5yr SW S&S
5135B2x	Lenovo Storage DX8200D Storage Virtualization Mid, 16TB, 3yr SW S&S

Part number	Description
5135L2x	Lenovo Storage DX8200D Storage Virtualization Mid, 16TB, 4yr SW S&S
51352Vx	Lenovo Storage DX8200D Storage Virtualization Mid, 16TB, 5yr SW S&S
5135C2x	Lenovo Storage DX8200D Storage Virtualization High, 64TB, 3yr SW S&S
5135M2x	Lenovo Storage DX8200D Storage Virtualization High, 64TB, 4yr SW S&S
51353Vx	Lenovo Storage DX8200D Storage Virtualization High, 64TB, 5yr SW S&S
5135D2x	Lenovo Storage DX8200D ServerSAN Entry, 8TB, 3yr SW S&S
5135N2x	Lenovo Storage DX8200D ServerSAN Entry, 8TB, 4yr SW S&S
51354Vx	Lenovo Storage DX8200D ServerSAN Entry, 8TB, 5yr SW S&S
5135F2x	Lenovo Storage DX8200D ServerSAN Mid, 16TB, 3yr SW S&S
5135P2x	Lenovo Storage DX8200D ServerSAN Mid, 16TB, 4yr SW S&S
51355Vx	Lenovo Storage DX8200D ServerSAN Mid, 16TB, 5yr SW S&S
5135G2x	Lenovo Storage DX8200D ServerSAN High, 32TB, 3yr SW S&S
5135Q2x	Lenovo Storage DX8200D ServerSAN High, 32TB, 4yr SW S&S
51356Vx	Lenovo Storage DX8200D ServerSAN High, 32TB, 5yr SW S&S
5128C1x	Lenovo Storage DX8200N with 1x N2226 HBA
5128C2x	Lenovo Storage DX8200N with 2x N2226 HBAs

* Available worldwide (except China and Japan).

^ Available only in China.

** Available only in Japan.

† Available worldwide except Latin America.

‡ Available only in Latin America.

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

- Lenovo DS Series, S 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>
- Lenovo Cloud storage:
<http://lenovopress.com/storage/cloud>
- Lenovo NAS storage:
<http://lenovopress.com/storage/nas>

Top-of-rack Ethernet switches

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

Table 66. Ethernet LAN switches

Part number	Description
1 Gb Ethernet switches	
7165H1X	Juniper EX2300-C PoE Switch
7165H2X	Juniper EX2300-24p PoE Switch
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)
7159G64	Lenovo RackSwitch G8264 (Rear to Front)
7159DRX	Lenovo RackSwitch G8264CS (Rear to Front)
7159CRW	Lenovo RackSwitch G8272 (Rear to Front)
7159GR6	Lenovo RackSwitch G8296 (Rear to Front)
40 Gb Ethernet switches	
7159BRX	Lenovo RackSwitch G8332 (Rear to Front)
100 Gb Ethernet switches	
7159D1X	Lenovo ThinkSystem NE10032 RackSwitch (Rear to Front)

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>
- 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 67. Fibre Channel SAN switches

Part number	Description
8 Gb FC	
3873AR3	Lenovo B300, 8 ports activated, 8x 8Gb SWL SFPs, 1 PS, Rail Kit
3873AR4	Lenovo B6505, 12 ports activated, 12x 8Gb SWL SFPs, 1 PS, Rail Kit
3873BR2	Lenovo B6510, 24 ports activated, 24x 8Gb SWL SFPs, 2 PS, Rail Kit
16 Gb FC	
6559D2Y	Lenovo ThinkSystem DB610S, 8 ports activated, 8x 16Gb SWL SFPs, 1 PS, Rail Kit
6559D1Y	Lenovo ThinkSystem DB610S, 24 ports activated, 24x 16Gb SWL SFP, Enterprise SW, 1 PS, Rail Kit
3873AR5	Lenovo B6505, 12 ports activated w/ 16Gb SWL SFPs, 1 PS, Rail Kit
3873BR3	Lenovo B6510, 24 ports activated w/ 16Gb SWL SFPs, 2 PS, Rail Kit
32 Gb FC	
6559D3Y	Lenovo ThinkSystem DB610S, 8 ports activated, 1 PS, Rail Kit
6415G11	Lenovo ThinkSystem DB620S, 24 Ports Activated, 24x 32Gb SWL SFPs, 2 PS, Rail Kit
6415G2A	Lenovo ThinkSystem DB620S, 48 Ports Activated, 48x 32Gb SWL SFPs, 2 PS, Rail Kit
6684B2A	Lenovo ThinkSystem DB400D 32Gb FC Director, up to 192 ports, 8U, Enterprise SW
6682B1A	Lenovo ThinkSystem DB800D 32Gb FC Director, up to 384 ports, 14U, Enterprise SW

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 following table lists the uninterruptible power supply (UPS) units that are offered by Lenovo.

Table 68. Uninterruptible power supply units

Part number	Description
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)

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 69. 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
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)

Part number	Description
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

The following table lists the supported rack cabinets.

Table 70. Supported rack cabinets

Part number	Description	Supports D2 Enclosure	Maximum supported	Supports D2 CMA	Supports 0U PDUs
93072PX	25U Static S2 Standard Rack	Yes	11	No	No
93072RX	25U Standard Rack	Yes	11	No	No
93074RX	42U Standard Rack	Yes	20	No	No
93084EX	42U Enterprise Expansion Rack	Yes	17	No	Yes
93084PX	42U Enterprise Rack	Yes	17	No	Yes
93604PX	42U 1200mm Deep Dynamic Rack	Yes	17	Yes	No
93614PX	42U 1200mm Deep Static Rack	Yes	17	Yes	No
93634EX	42U 1100mm Dynamic Expansion Rack	Yes	18	Yes	Yes
93634PX	42U 1100mm Dynamic Rack	Yes	18	Yes	Yes
Withdrawn rack cabinets					
201886X*	11U Office Enablement Kit	No	-	-	-
93074XX*	42U Standard Rack Extension	Yes	20	No	No
93604EX*	42U 1200mm Deep Dynamic Expansion Rack	Yes	17	Yes	No
93614EX*	42U 1200mm Deep Static Expansion Rack	Yes	17	Yes	No
93624EX*	47U 1200mm Deep Static Expansion Rack	No	-	-	-
93624PX*	47U 1200mm Deep Static Rack	No	-	-	-
93634AX*	PureFlex System 42U Rack	No	-	-	-
93634BX*	PureFlex System 42U Expansion Rack	No	-	-	-
93634CX*	PureFlex System 42U Rack	No	-	-	-

* 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 switches and consoles

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

Table 71. Console keyboards

Part number	Description
Consoles	
17238BX	1U 18.5" Standard Console (without keyboard)
Console keyboards	
00MW310	Lenovo UltraNav Keyboard USB - US Eng
46W6713	Keyboard w/ Int. Pointing Device USB - Arabic 253 RoHS v2
46W6714	Keyboard w/ Int. Pointing Device USB - Belg/UK 120 RoHS v2

Part number	Description
46W6715	Keyboard w/ Int. Pointing Device USB - Chinese/US 467 RoHS v2
46W6716	Keyboard w/ Int. Pointing Device USB - Czech 489 RoHS v2
46W6717	Keyboard w/ Int. Pointing Device USB - Danish 159 RoHS v2
46W6718	Keyboard w/ Int. Pointing Device USB - Dutch 143 RoHS v2
46W6719	Keyboard w/ Int. Pointing Device USB - French 189 RoHS v2
46W6720	Keyboard w/ Int. Pointing Device USB - Fr/Canada 445 RoHS v2
46W6721	Keyboard w/ Int. Pointing Device USB - German 129 RoHS v2
46W6722	Keyboard w/ Int. Pointing Device USB - Greek 219 RoHS v2
46W6723	Keyboard w/ Int. Pointing Device USB - Hebrew 212 RoHS v2
46W6724	Keyboard w/ Int. Pointing Device USB - Hungarian 208 RoHS v2
46W6725	Keyboard w/ Int. Pointing Device USB - Italian 141 RoHS v2
46W6726	Keyboard w/ Int. Pointing Device USB - Japanese 194 RoHS v2
46W6727	Keyboard w/ Int. Pointing Device USB - Korean 413 RoHS v2
46W6728	Keyboard w/ Int. Pointing Device USB - LA Span 171 RoHS v2
46W6729	Keyboard w/ Int. Pointing Device USB - Norwegian 155 RoHS v2
46W6730	Keyboard w/ Int. Pointing Device USB - Polish 214 RoHS v2
46W6731	Keyboard w/ Int. Pointing Device USB - Portugese 163 RoHS v2
46W6732	Keyboard w/ Int. Pointing Device USB - Russian 441 RoHS v2
46W6733	Keyboard w/ Int. Pointing Device USB - Slovak 245 RoHS v2
46W6734	Keyboard w/ Int. Pointing Device USB - Spanish 172 RoHS v2
46W6735	Keyboard w/ Int. Pointing Device USB - Swed/Finn 153 RoHS v2
46W6736	Keyboard w/ Int. Pointing Device USB - Swiss F/G 150 RoHS v2
46W6737	Keyboard w/ Int. Pointing Device USB - Thai 191 RoHS v2
46W6738	Keyboard w/ Int. Pointing Device USB - Turkish 179 RoHS v2
46W6739	Keyboard w/ Int. Pointing Device USB - UK Eng 166 RoHS v2
46W6740	Keyboard w/ Int. Pointing Device USB - US Euro 103P RoHS v2
46W6741	Keyboard w/ Int. Pointing Device USB - Slovenian 234 RoHS v2
Console switches	
1754D2X	Global 4x2x32 Console Manager (GCM32)
1754D1X	Global 2x2x16 Console Manager (GCM16)
1754A2X	Local 2x16 Console Manager (LCM16)
1754A1X	Local 1x8 Console Manager (LCM8)
Console switch cables	
43V6147	Single Cable USB Conversion Option (UCO)
39M2895	USB Conversion Option (4 Pack UCO)
46M5383	Virtual Media Conversion Option Gen2 (VCO2)
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>

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<http://www.lenovofs.com>

Related publications and links

For more information, see these resources:

- ThinkSystem SD530 product page
<http://www3.lenovo.com/us/en/p/77XX7DSSD53>
- Interactive 3D Tour of the ThinkSystem SD530:
<http://lenovopress.com/LP0667>
- Lenovo Press walk-through video of the ThinkSystem SD530:
<http://lenovopress.com/LP0704>
- Lenovo ThinkSystem SD530 product publications:
<http://thinksystem.lenovofiles.com/help/index.jsp>
 - Quick Start
 - Rack Installation Guide
 - Setup Guide
 - Hardware Maintenance Manual
 - Messages and Codes Reference
 - Memory Population Reference
- ServerProven hardware compatibility:
<http://www.lenovo.com/us/en/serverproven>
- Lenovo Press paper, *Lenovo ThinkSystem SD530 Performance Considerations with 12 DIMMs and 16 DIMMs*
<http://lenovopress.com/LP0659>

Related product families

Product families related to this document are the following:

- [High Density Servers](#)

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