Lenovo ThinkSystem SD530 Server (Xeon SP Gen 1)
Product Guide (withdrawn product)

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 either the ThinkSystem D2 Enclosure or ThinkSystem Modular 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.

The SD530 also supports two high-performance GPUs with the addition of the GPU Tray. The server supports a wide variety of NVIDIA GPUs.

Key features

The ThinkSystem SD530 dense offering fits four hot-pluggable SD530 servers into a ThinkSystem D2 Enclosure or ThinkSystem Modular Enclosure. The enclosures each take up only 2U (0.5U per server) and include 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 the enclosures 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 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 1 TB using 16x 64 GB LRDIMMs or 1.5 TB using 12x 128 GB 3DS RDIMMs.
- Supports up to two GPUs with the addition of a 1U GPU Tray, providing increased processing power.
- 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 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.

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.
- With the SMM management module installed in the enclosure, only one Ethernet connection is needed to provide remote systems management functions for all four SD530 servers and the enclosure.
- The enclosure also supports the Dual Ethernet Port SMM management module with allows a single Ethernet connection to be daisy chained across 7 enclosures and 28 servers, thereby significantly reducing the number of Ethernet switch ports needed to manage an entire rack of SD530 servers and enclosures.

Energy efficiency

The SD530 and the enclosures 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 the enclosures 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 and Modular Enclosure both support 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.
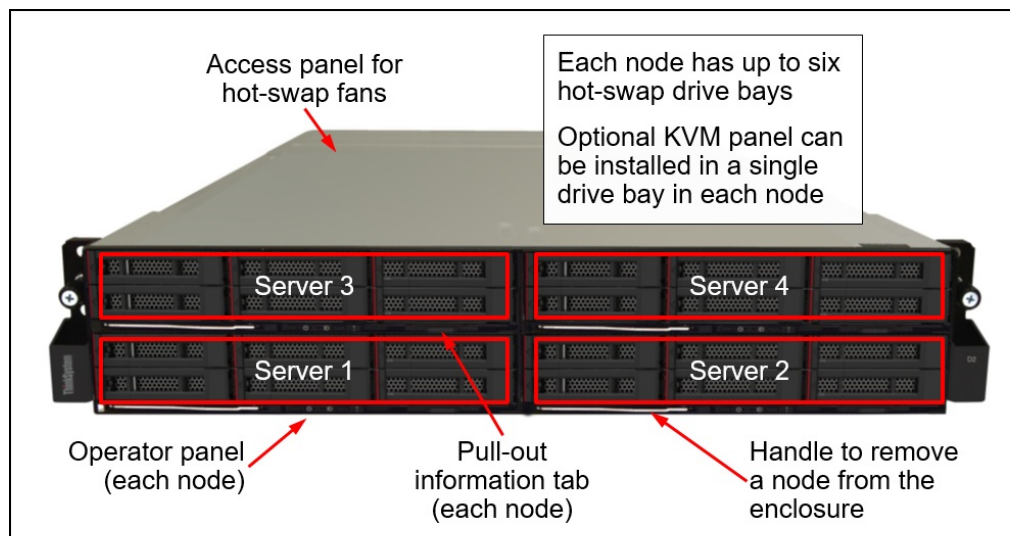
Figure 2. Front view of the ThinkSystem D2 Enclosure

The following figure shows the rear of the D2 Enclosure.
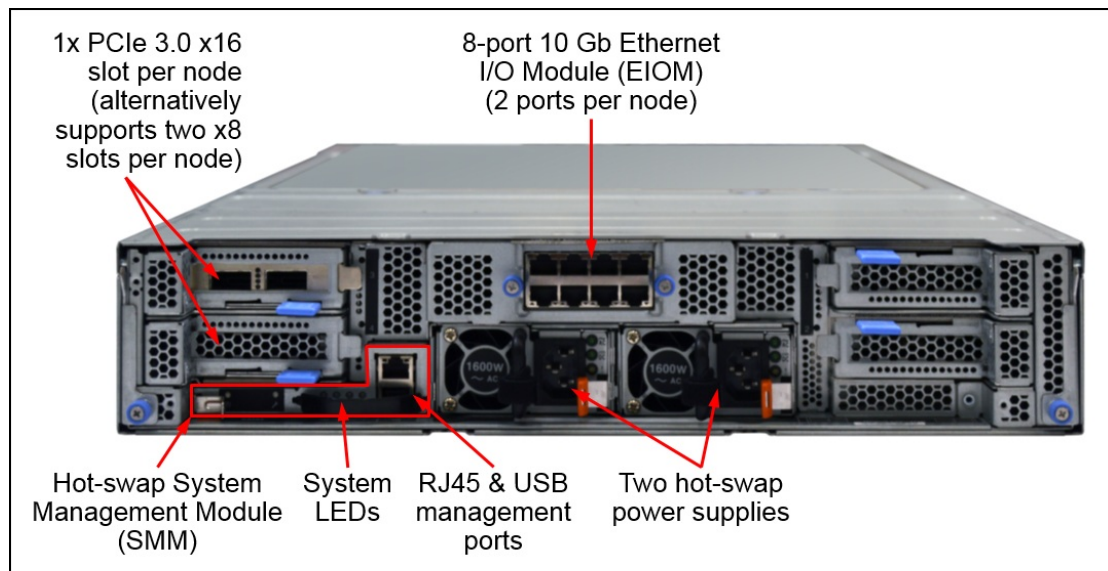
Figure 3. Rear view of the ThinkSystem D2 Enclosure

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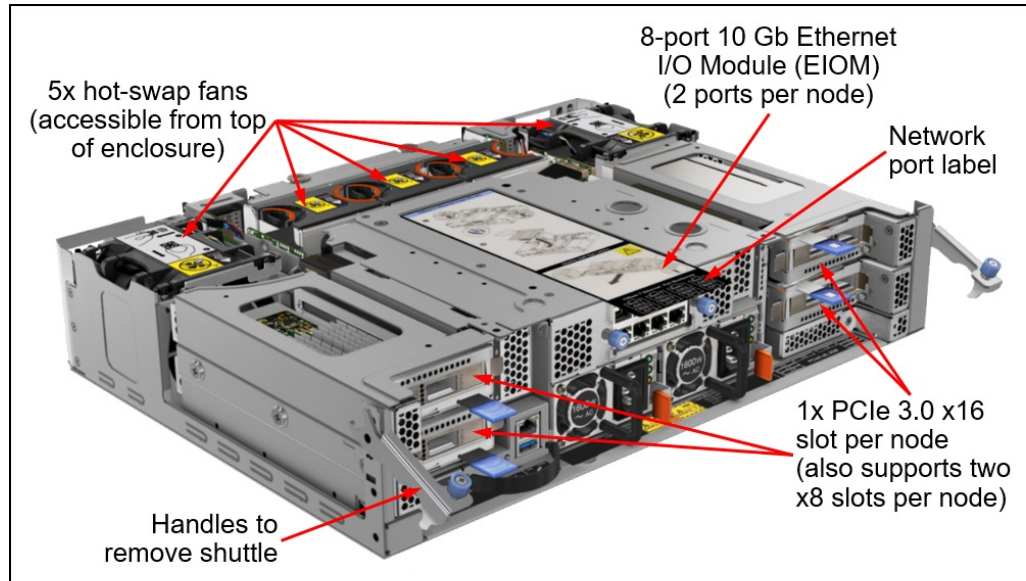
Figure 4. I/O Shuttle in the ThinkSystem D2 Enclosure

The following figure shows the front of the SD530 server.
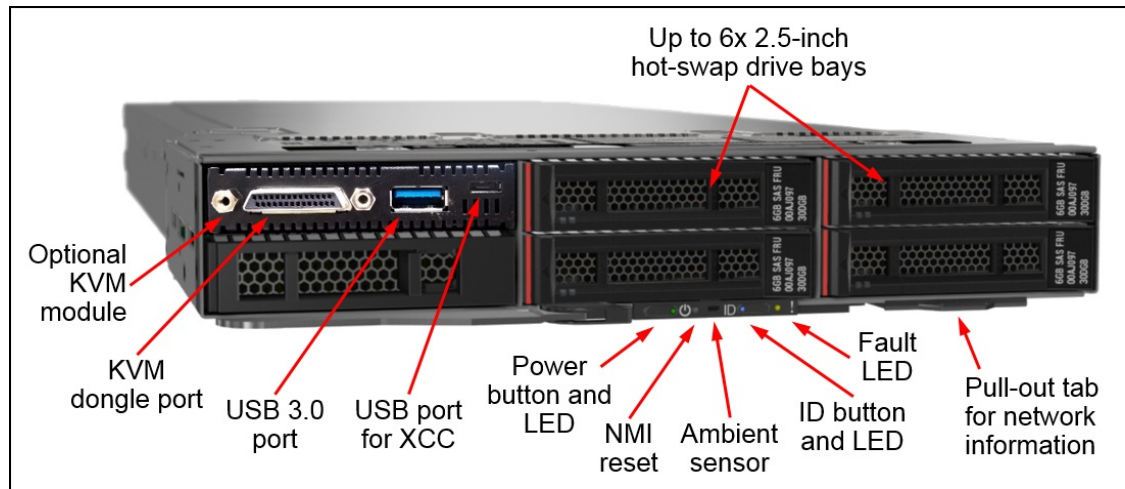
Figure 5. Front view of the SD530 compute node

The following figure shows the internals of the SD530 server identifying key components.
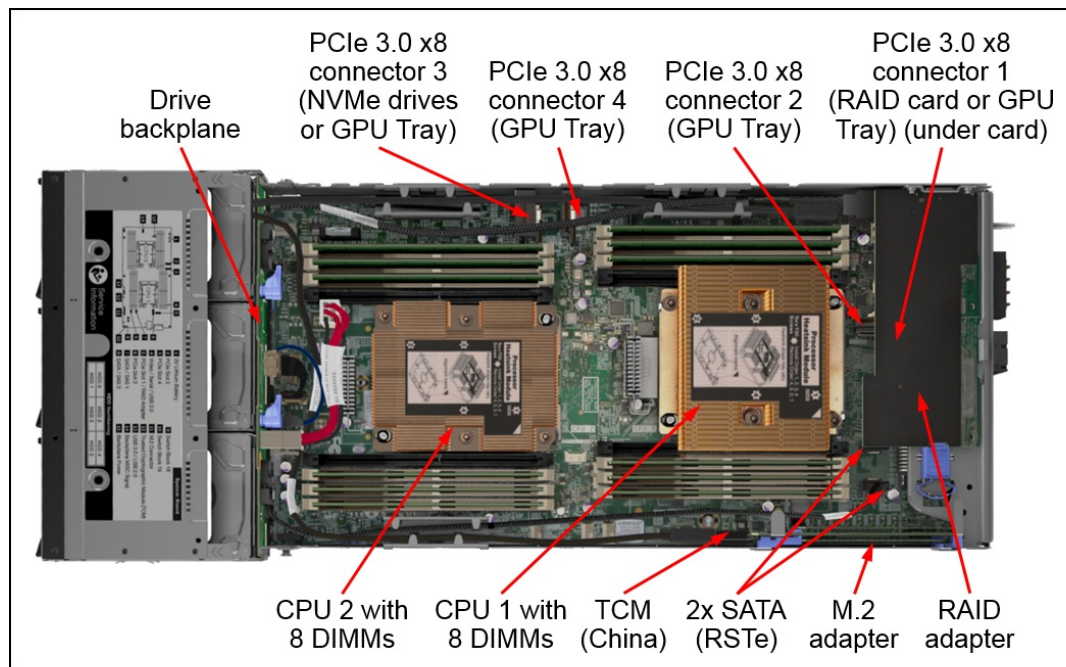
Figure 6. Internal view of the SD530 compute node

The SD530 also supports the addition of a GPU Tray which adds support for two double-wide GPUs, as shown in the following figure.

Figure 7. SD530 with attached GPU Tray

Standard specifications - SD530 server

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

Table 1. Standard specifications - ThinkSystem SD530

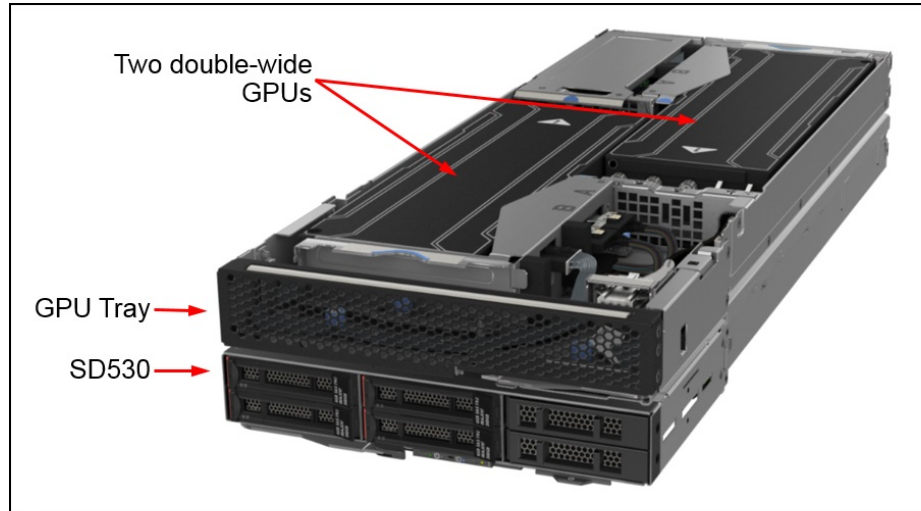| Components	Specification
Machine type	7X21
Form factor	Half-wide, 1U compute node. Optional GPU Tray adds 1U.
Supported chassis	ThinkSystem D2 Enclosure, 2U high; up to 4 servers per chassis. ThinkSystem Modular Enclosure, 2U high; up to 4 servers per chassis.
Processor	One or two Intel Xeon Processor 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 205W. 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, LRDIMMs and 3DS RDIMMs are supported, but memory types cannot be mixed.
Memory maximums	With 16 DIMMs: • 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 12 DIMMs: • 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 • 3DS RDIMMs: Up to 1.5 TB with 12x 128 GB 3DS RDIMMs and two processors
Memory protection	ECC, SDDC (for x4-based memory DIMMs), ADDDC (for x4-based memory DIMMs, requires Intel Xeon Gold or Platinum processors), memory mirroring, and memory sparing.
Storage bays	Up to six 2.5-inch hot-swap drive bays. Depending on the drive backplane selected, the supported drives can be SAS, SATA or NVMe drives. Up to four NVMe drives can be installed with a suitable drive backplane. 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	• 92.16TB using 6x 15.36TB 2.5-inch SAS SSDs • 30.72TB using 4x 7.68TB 2.5-inch NVMe SSDs • 14.4TB using 6x 2.4TB 2.5-inch HDDs
Storage controller	Onboard 6 Gb SATA using embedded Intel RSTe software RAID, supporting RAID 0, 1, 10, 5, 50. Optional 12 Gb SAS/SATA RAID using SAS3408-based cacheless RAID controller, supporting RAID 0, 1, 10, 5. Optional 12 Gb SAS/SATA HBA.
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 enclosure. Networking ports are based on the Intel Ethernet Connection X722 in the chipset of the SD530 node.

Components	Specification
PCI Expansion slots	One or two PCIe 3.0 slots: • One PCIe 3.0 x16 low-profile slot, or • Two PCIe 3.0 x8 low-profile slots Additional slots with the optional GPU Tray: • Two PCIe 3.0 x16 full-length double-width slots
Ports	Front: Optional KVM Breakout Module providing one USB 3.0 port, one micro USB port for XClarity Controller connectivity, and a KVM connector port for a breakout cable that provides one VGA port, two USB 2.0 ports and one DB9 serial port for local connectivity. Additional ports provided by the enclosure as described in the Enclosure specifications section.
Cooling	Supplied by the D2 Enclosure.
Power supply	Supplied by the D2 Enclosure.
Hot-swap parts	HDDs and SSDs
Systems management	Operator panel with system error LED and ID and power controls. XClarity Controller embedded management, XClarity Administrator centralized infrastructure delivery, XClarity Integrator plugins, and XClarity Energy Manager centralized server power management. Optional XClarity Controller Advanced to enable remote control functions. System Management Module (SMM) in the D2 Enclosure provides additional systems management functions.
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, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, VMware ESXi. See the Operating system support section for specifics.
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 - Enclosure

The SD530 servers are supported in both the ThinkSystem D2 Enclosure and ThinkSystem Modular Enclosure. The following table lists the standard specifications of the enclosures.

> **Tip**: The only difference between the D2 Enclosure and the Modular Enclosure is that the D2 Enclosure has a single-port SMM management module and the Modular Enclosure has a dual-port SMM management module.

Table 2. Standard specifications: D2 Enclosure and Modular Enclosure

Components	Specification
Machine type	7X20: D2 Enclosure (ships with single port SMM) 7X22: Modular Enclosure (ships with dual port SMM)
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	*D2 Enclosure*: Single port SMM is standard, supports Dual Port SMM as a field upgrade *Modular Enclosure*: Dual Port SMM is standard 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. Supports the SMM with one Ethernet port (D2 Enclosure) or the Dual Port SMM with two Ethernet ports (Modular Enclosure, or the D2 Enclosure with the Dual Port SMM installed). The Dual Port SMM allows a single incoming Ethernet connection to be daisy chained across 7 enclosures and 28 servers, thereby significantly reducing the number of Ethernet switch ports needed to manage an entire rack of SD530 servers and enclosures.
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)

Enclosure models

Up to four SD530 servers are supported in a D2 Enclosure or a Modular Enclosure.

The following table lists the base CTO models of the enclosures.

Table 3. Base CTO models

Machine Type/Model	Description
7X20CTO1WW	ThinkSystem D2 Enclosure (3-Year Warranty)
7X22CTO1WW	ThinkSystem Modular Enclosure (3-Year Warranty)

The following table lists the base chassis choices for CTO configurations

Table 4. Base chassis for CTO models

Feature code	Description
AUXM	ThinkSystem D2 Enclosure (for both 7X20 and 7X22)

The preconfigured D2 Enclosure models and Modular 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 Brazil
- Models for EMEA countries
- Models for Hong Kong, Taiwan, Korea (HTK)
- Models for India
- Models for Japan
- Models for Latin America (except Brazil)
- Models for USA and Canada

Refer to the Enclosure specifications section for information about standard features of the enclosure.

Enclosure models for Australia and New Zealand

Table 5. Enclosure models for Australia and New Zealand

Model	I/O Shuttle	External IO Module	Power supplies	Power cords	Rail kit	CMA
D2 Enclosure models (Includes the single-port SMM)						
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
Modular Enclosure models (Includes the dual-port SMM)						
7X221000AU	4-slot x16 shuttle	10Gb RJ45 EIOM	2x 2000W	2x 1.5m C13-C14	D2 Slide Rail	Optional
7X221003AU	4-slot x16 shuttle	10Gb SFP+ EIOM	2x 2000W	2x 1.5m C13-C14	D2 Slide Rail	Optional
7X221001AU	8-slot x8 shuttle	10Gb RJ45 EIOM	2x 2000W	2x 1.5m C13-C14	D2 Slide Rail	Optional
7X221002AU	8-slot x8 shuttle	10Gb SFP+ EIOM	2x 2000W	2x 1.5m C13-C14	D2 Slide Rail	Optional

Enclosure models for South East Asian countries (ASEAN)

Table 6. Enclosure models for South East Asian countries (ASEAN)

Model	I/O Shuttle	External IO Module	Power supplies	Power cords	Rail kit	CMA
D2 Enclosure models (Includes the single-port SMM)						
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

Enclosure models for Brazil

Table 7. Enclosure models for Brazil

Model	I/O Shuttle	External IO Module	Power supplies	Power cords	Rail kit	CMA
Modular Enclosure models (Includes the dual-port SMM)						
7X22A00BBR	4-slot x16 shuttle	Open	2x 2000W	2x 2.8m C13-C14 10A	D2 Slide Rail	Optional
7X22A00CBR	8-slot x8 shuttle	Open	2x 2000W	2x 2.8m C13-C14 10A	D2 Slide Rail	Optional

Enclosure models for EMEA countries

Table 8. Enclosure models for EMEA countries

Model	I/O Shuttle	External IO Module	Power supplies	Power cords	Rail kit	CMA
D2 Enclosure models (Includes the single-port SMM)						
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
Modular Enclosure models (Includes the dual-port SMM)						
7X22A008EA	4-slot x16 shuttle	Open	2x 2000W	2x 2.8m C13-C14	D2 Slide Rail	Included
7X22A006EA	8-slot x8 shuttle	Open	2x 2000W	2x 2.8m C13-C14	D2 Slide Rail	Included

Enclosure models for Hong Kong, Taiwan, Korea (HTK)

Table 9. Enclosure models for Hong Kong, Taiwan, Korea (HTK)

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

Enclosure models for India

Table 10. Enclosure models for India

Model	I/O Shuttle	External IO Module	Power supplies	Power cords	Rail kit	CMA
D2 Enclosure models (Includes the single-port SMM)						
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

Enclosure models for Japan

Table 11. Enclosure models for Japan

Model	I/O Shuttle	External IO Module	Power supplies	Power cords	Rail kit	CMA
D2 Enclosure models (Includes the single-port SMM)						
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
Modular Enclosure models (Includes the dual-port SMM)						
7X22A002JP	4-slot x16 shuttle	10Gb RJ45 EIOM	2x 2000W	2x 1.0m C13-C14	D2 Slide Rail	Included
7X22A004JP	4-slot x16 shuttle	10Gb SFP+ EIOM	2x 2000W	2x 1.0m C13-C14	D2 Slide Rail	Included
7X22A001JP	8-slot x8 shuttle	10Gb SFP+ EIOM	2x 2000W	2x 1.0m C13-C14	D2 Slide Rail	Included
7X22A007JP	8-slot x8 shuttle	10Gb RJ45 EIOM	2x 2000W	2x 1.0m C13-C14	D2 Slide Rail	Included

Enclosure models for Latin American (except Brazil)

Table 12. Enclosure models for Latin American (except Brazil)

Model	I/O Shuttle	External IO Module	Power supplies	Power cords	Rail kit	CMA
D2 Enclosure models (Includes the single-port SMM)						
7X20A019LA	8-slot x8 shuttle	10Gb SFP+ EIOM	2x 1100W	2x 2.0m C13-C14 13A	D2 Slide Rail	Optional

Enclosure models for USA and Canada

Table 13. Enclosure models for USA and Canada

Model	I/O Shuttle	External IO Module	Power supplies	Power cords	Rail kit	CMA
D2 Enclosure models (Includes the single-port SMM)						
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
Modular Enclosure models (Includes the dual-port SMM)						
7X22A003NA	4-slot x16 shuttle	Open	2x 2000W	2x 1.0m C13-C14	D2 Slide Rail	Optional
7X22A005NA	8-slot x8 shuttle	Open	2x 2000W	2x 1.0m C13-C14	D2 Slide Rail	Optional

Enclosure support

The SD530 is supported in all models of the D2 Enclosure or Modular 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).

All servers installed in an enclosure must have the same drive backplane (for example, all four servers use the 6-drive backplane)

The enclosure supports oversubscription and power supply redundancy options to ensure 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.

Use Lenovo Capacity Planner to determine the exact power needs of the configuration:
https://datacentersupport.lenovo.com/us/en/products/solutions-and-software/software/lenovo-capacity-planner/solutions/ht504651

System power consumption is highly dependent on configuration, workload, and ambient temperature. Lenovo recommends that customers use Lenovo Capacity Planner to select the power supplies best suited for their deployment requirements.

Processor options

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

Processors with the T suffix have more robust thermal characteristics (higher T-case). Processors with the M suffix support support greater than 768 GB per processor.

Table 14. Processor options

Part number	Feature code	Description	Memory speed	L3 cache	UPI speed	AVX-512 FMA units	HT	TB
4XG7A07683	AXQX	Xeon Bronze 3104 6C 85W 1.7GHz	2133 MHz	8.25 MB	9.6 GT/s	1	No	No
4XG7A07682	AXQW	Xeon Bronze 3106 8C 85W 1.7GHz	2133 MHz	11 MB	9.6 GT/s	1	No	No
4XG7A08337	AXQZ	Xeon Silver 4108 8C 85W 1.8GHz	2400 MHz	11 MB	9.6 GT/s	1	Yes	Yes
4XG7A07681	AXQV	Xeon Silver 4109T 8C 70W 2.0GHz	2400 MHz	11 MB	9.6 GT/s	1	Yes	Yes
4XG7A07685	AXQY	Xeon Silver 4110 8C 85W 2.1GHz	2400 MHz	11 MB	9.6 GT/s	1	Yes	Yes
4XG7A07680	AXQU	Xeon Silver 4112 4C 85W 2.6GHz	2400 MHz	8.5 MB**	9.6 GT/s	1	Yes	Yes
4XG7A07679	AXQT	Xeon Silver 4114 10C 85W 2.2GHz	2400 MHz	13.75 MB	9.6 GT/s	1	Yes	Yes
4XG7A08338	B139	Xeon Silver 4114T 10C 85W 2.2GHz	2400 MHz	13.75 MB	9.6 GT/s	1	Yes	Yes
4XG7A07677	AXNZ	Xeon Silver 4116 12C 85W 2.1GHz	2400 MHz	16.5 MB	9.6 GT/s	1	Yes	Yes
4XG7A07684	B138	Xeon Silver 4116T 12C 85W 2.1GHz	2400 MHz	16.5 MB	9.6 GT/s	1	Yes	Yes
4XG7A07678	AXP0	Xeon Gold 5115 10C 85W 2.4GHz	2400 MHz	13.75 MB	10.4 GT/s	1	Yes	Yes
4XG7A09549	B13A	Xeon Gold 5117 14C 105W 2.0GHz	2400 MHz	19.25 MB	10.4 GT/s	1	Yes	Yes
7XG7A06248	AX7D	Xeon Gold 5118 12C 105W 2.3GHz	2400 MHz	16.5 MB	10.4 GT/s	1	Yes	Yes
7XG7A06250	AX7F	Xeon Gold 5119T 14C 85W 1.9GHz	2400 MHz	19.25 MB	10.4 GT/s	1	Yes	Yes
7XG7A06247	AX7C	Xeon Gold 5120 14C 105W 2.2GHz	2400 MHz	19.25 MB	10.4 GT/s	1	Yes	Yes
7XG7A06249	AX7E	Xeon Gold 5120T 14C 105W 2.2GHz	2400 MHz	19.25 MB	10.4 GT/s	1	Yes	Yes
7XG7A06237	AX70	Xeon Gold 5122 4C 105W 3.6GHz	2666 MHz*	16.5 MB**	10.4 GT/s	2*	Yes	Yes
7XG7A06234	AWEX	Xeon Gold 6126 12C 125W 2.6GHz	2666 MHz	19.25 MB**	10.4 GT/s	2	Yes	Yes

Part number	Feature code	Description	Memory speed	L3 cache	UPI speed	AVX-512 FMA units	HT	TB
4XG7A11375	B328	Xeon Gold 6126T 12C 125W 2.6GHz	2666 MHz	19.25 MB**	10.4 GT/s	2	Yes	Yes
7XG7A06236	AX6Z	Xeon Gold 6128 6C 115W 3.4GHz	2666 MHz	19.25 MB**	10.4 GT/s	2	Yes	Yes
7XG7A06229	AX6D	Xeon Gold 6130 16C 125W 2.1GHz	2666 MHz	22 MB	10.4 GT/s	2	Yes	Yes
7XG7A06239	AX72	Xeon Gold 6130T 16C 125W 2.1GHz	2666 MHz	22 MB	10.4 GT/s	2	Yes	Yes
7XG7A06232	AX6U	Xeon Gold 6132 14C 140W 2.6GHz	2666 MHz	19.25 MB	10.4 GT/s	2	Yes	Yes
7XG7A06235	AX6Y	Xeon Gold 6134 8C 130W 3.2GHz	2666 MHz	24.75 MB**	10.4 GT/s	2	Yes	Yes
7XG7A06245	AX7A	Xeon Gold 6134M 8C 130W 3.2GHz	2666 MHz	24.75 MB**	10.4 GT/s	2	Yes	Yes
7XG7A06233	AX6W	Xeon Gold 6136 12C 150W 3.0GHz	2666 MHz	24.75 MB**	10.4 GT/s	2	Yes	Yes
7XG7A06227	AX6Q	Xeon Gold 6138 20C 125W 2.0GHz	2666 MHz	27.5 MB	10.4 GT/s	2	Yes	Yes
7XG7A06238	AX71	Xeon Gold 6138T 20C 125W 2.0GHz	2666 MHz	27.5 MB	10.4 GT/s	2	Yes	Yes
7XG7A06228	AX6R	Xeon Gold 6140 18C 140W 2.3GHz	2666 MHz	24.75 MB	10.4 GT/s	2	Yes	Yes
7XG7A06244	AX79	Xeon Gold 6140M 18C 140W 2.3GHz	2666 MHz	24.75 MB	10.4 GT/s	2	Yes	Yes
7XG7A06231	AX6E	Xeon Gold 6142 16C 150W 2.6GHz	2666 MHz	22 MB	10.4 GT/s	2	Yes	Yes
7XG7A06243	AX78	Xeon Gold 6142M 16C 150W 2.6GHz	2666 MHz	22 MB	10.4 GT/s	2	Yes	Yes
4XG7A11376	B325	Xeon Gold 6144 8C 150W 3.5GHz	2666 MHz	24.75 MB**	10.4 GT/s	2	Yes	Yes
4XG7A11377	B326	Xeon Gold 6146 12C 165W 3.2GHz	2666 MHz	24.75 MB**	10.4 GT/s	2	Yes	Yes
7XG7A06226	AWEW	Xeon Gold 6148 20C 150W 2.4GHz	2666 MHz	27.5 MB	10.4 GT/s	2	Yes	Yes
7XG7A06230	AX6T	Xeon Gold 6150 18C 165W 2.7GHz	2666 MHz	24.75 MB	10.4 GT/s	2	Yes	Yes
7XG7A06225	AX6P	Xeon Gold 6152 22C 140W 2.1GHz	2666 MHz	30.25 MB	10.4 GT/s	2	Yes	Yes
4XG7A11378	B327	Xeon Gold 6154 18C 200W 3.0GHz	2666 MHz	24.75 MB	10.4 GT/s	2	Yes	Yes
7XG7A06223	AX6L	Xeon Platinum 8153 16C 125W 2.0GHz	2666 MHz	22 MB	10.4 GT/s	2	Yes	Yes
7XG7A06224	AWEV	Xeon Platinum 8156 4C 105W 3.6GHz	2666 MHz	16.5 MB**	10.4 GT/s	2	Yes	Yes
7XG7A06246	AX7B	Xeon Platinum 8158 12C 150W 3.0GHz	2666 MHz	24.75 MB**	10.4 GT/s	2	Yes	Yes
7XG7A06222	AWGJ	Xeon Platinum 8160 24C 150W 2.1GHz	2666 MHz	33 MB	10.4 GT/s	2	Yes	Yes
7XG7A06242	AX77	Xeon Platinum 8160M 24C 150W 2.1GHz	2666 MHz	33 MB	10.4 GT/s	2	Yes	Yes
4XG7A11379	B32C	Xeon Platinum 8160T 24C 150W 2.1GHz	2666 MHz	33 MB	10.4 GT/s	2	Yes	Yes
7XG7A06221	AX6K	Xeon Platinum 8164 26C 150W 2.0GHz	2666 MHz	35.75 MB	10.4 GT/s	2	Yes	Yes
4XG7A11380	B329	Xeon Platinum 8168 24C 205W 2.7GHz	2666 MHz	33 MB	10.4 GT/s	2	Yes	Yes
7XG7A06220	AX6J	Xeon Platinum 8170 26C 165W 2.1GHz	2666 MHz	35.75 MB	10.4 GT/s	2	Yes	Yes
7XG7A06241	AX76	Xeon Platinum 8170M 26C 165W 2.1GHz	2666 MHz	35.75 MB	10.4 GT/s	2	Yes	Yes
7XG7A06219	AX6H	Xeon Platinum 8176 28C 165W 2.1GHz	2666 MHz	38.5 MB	10.4 GT/s	2	Yes	Yes
7XG7A06240	AX75	Xeon Platinum 8176M 28C 165W 2.1GHz	2666 MHz	38.5 MB	10.4 GT/s	2	Yes	Yes
4XG7A11381	B32B	Xeon Platinum 8180 28C 205W 2.5GHz	2666 MHz	38.5 MB	10.4 GT/s	2	Yes	Yes
4XG7A11382	B32A	Xeon Platinum 8180M 28C 205W 2.5GHz	2666 MHz	38.5 MB	10.4 GT/s	2	Yes	Yes

* 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 **

The processors in the SD530 require specific heatsinks depending on their thermal profile of the processor:

- 85mm heatsinks are used on processors with low thermal requirements. This heatsink allows the use of 16 DIMMs and the use of a storage adapter in the PCIe slot at the rear of the server

- 108mm heatsinks are used on CPU 1 when the processors installed have medium thermal requirements. Due to its shape, this heatsink limits the number of DIMMs to 12. A storage adapter can be used with these processors. Only CPU 1 (rear) needs this larger heatsink; CPU 2 (front) uses an 85mm heatsink.

- Thermal Transfer Module heatsinks are used on CPU 1 when the processors installed have high thermal requirements. The Thermal Transfer Module is two heatsinks connected together via thermal pipes as shown in the following figure. Due to its shape, this heatsink prevents an adapter (RAID or HBA) from being installed in PCIe slot 1 at the rear of the server and limits the number of DIMMs to 12. CPU 2 will use a larger 102mm heatsink in such configurations.

The Thermal Transfer Module (TTM) heatsink is shown in the following figure. For additional information, see the Lenovo Press article, *The Benefits of Lenovo Thermal Transfer Module Technology in ThinkSystem SD530 Servers*, https://lenovopress.com/lp0922.
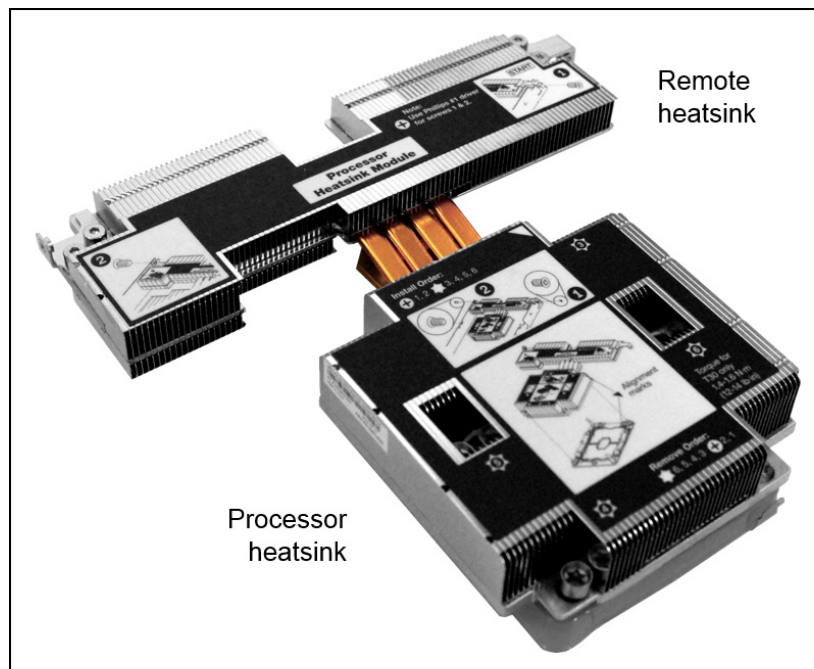

Figure 8. Thermal Transfer Module

The following table lists the heatsink used for each processor model, and the resulting support for 16 DIMMs and support for a RAID adapter or HBA. The table also lists which processors (those with an M suffix) that support more than 768 GB per processor (1.5TB for two processors).

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 Drive bays and backplanes section for details.

Storage adapter support: Some procesors require the larger T-shaped Thermal Transfer Module heatsink which precludes the use of the RAID adapter or HBA installed in the dedicated slot at the rear of the server.

Table 15. Processor support for server features

Intel Xeon Processor	Heatsink for CPU1	Supports 16 DIMMs†	Supports Storage Adapter‡	Supports >768 GB per CPU
Intel Xeon Bronze 3104 6C 85W 1.7GHz	85mm	Yes	Yes	No
Intel Xeon Bronze 3106 8C 85W 1.7GHz	85mm	Yes	Yes	No
Intel Xeon Silver 4108 8C 85W 1.8GHz	85mm	Yes	Yes	No
Intel Xeon Silver 4109T 8C 70W 2.0GHz	108mm	No	Yes	No
Intel Xeon Silver 4110 8C 85W 2.1GHz	85mm	Yes	Yes	No
Intel Xeon Silver 4112 4C 85W 2.6GHz	85mm	Yes	Yes	No
Intel Xeon Silver 4114 10C 85W 2.2GHz	85mm	Yes	Yes	No
Intel Xeon Silver 4114T 10C 85W 2.2GHz	108mm	No	Yes	No
Intel Xeon Silver 4116 12C 85W 2.1GHz	85mm	Yes	Yes	No
Intel Xeon Silver 4116T 12C 85W 2.1GHz	108mm	No	Yes	No
Intel Xeon Gold 5115 10C 85W 2.4GHz	85mm	Yes	Yes	No
Intel Xeon Gold 5117 14C 105W 2.0GHz	108mm	No	Yes	No
Intel Xeon Gold 5118 12C 105W 2.3GHz	85mm	Yes	Yes	No
Intel Xeon Gold 5119T 14C 85W 1.9GHz	108mm	No	Yes	No
Intel Xeon Gold 5120 14C 105W 2.2GHz	85mm	Yes	Yes	No
Intel Xeon Gold 5120T 14C 105W 2.2GHz	108mm	No	Yes	No
Intel Xeon Gold 5122 4C 105W 3.6GHz	108mm	No	Yes	No
Intel Xeon Gold 6126 12C 125W 2.6GHz	108mm	No	Yes	No
Intel Xeon Gold 6126T 12C 125W 2.6GHz	TTM	No	No	No
Intel Xeon Gold 6128 6C 115W 3.4GHz	108mm	No	Yes	No
Intel Xeon Gold 6130 16C 125W 2.1GHz	85mm	Yes	Yes	No
Intel Xeon Gold 6130T 16C 125W 2.1GHz	108mm	No	Yes	No
Intel Xeon Gold 6132 14C 140W 2.6GHz	108mm	No	Yes	No
Intel Xeon Gold 6134 8C 130W 3.2GHz	108mm	No	Yes	No
Intel Xeon Gold 6134M 8C 130W 3.2GHz	108mm	No	Yes	Yes
Intel Xeon Gold 6136 12C 150W 3.0GHz	108mm	No	Yes	No
Intel Xeon Gold 6138 20C 125W 2.0GHz	108mm	No	Yes	No
Intel Xeon Gold 6138T 20C 125W 2.0GHz	108mm	No	Yes	No
Intel Xeon Gold 6140 18C 140W 2.3GHz	108mm	No	Yes	No
Intel Xeon Gold 6140M 18C 140W 2.3GHz	108mm	No	Yes	Yes
Intel Xeon Gold 6142 16C 150W 2.6GHz	108mm	No	Yes	No
Intel Xeon Gold 6142M 16C 150W 2.6GHz	108mm	No	Yes	Yes
Intel Xeon Gold 6144 8C 150W 3.5GHz	TTM	No	No	No
Intel Xeon Gold 6146 12C 165W 3.2GHz	TTM	No	No	No

Intel Xeon Processor	Heatsink for CPU1	Supports 16 DIMMs†	Supports Storage Adapter‡	Supports >768 GB per CPU
Intel Xeon Gold 6148 20C 150W 2.4GHz	108mm	No	Yes	No
Intel Xeon Gold 6150 18C 165W 2.7GHz	108mm	No	Yes	No
Intel Xeon Gold 6152 22C 140W 2.1GHz	108mm	No	Yes	No
Intel Xeon Gold 6154 18C 200W 3.0GHz	TTM	No	No	No
Intel Xeon Platinum 8153 16C 125W 2.0GHz	85mm	Yes	Yes	No
Intel Xeon Platinum 8156 4C 105W 3.6GHz	108mm	No	Yes	No
Intel Xeon Platinum 8158 12C 150W 3.0GHz	108mm	No	Yes	No
Intel Xeon Platinum 8160 24C 150W 2.1GHz	108mm	No	Yes	No
Intel Xeon Platinum 8160M 24C 150W 2.1GHz	108mm	No	Yes	Yes
Intel Xeon Platinum 8160T 24C 150W 2.1GHz	TTM	No	No	No
Intel Xeon Platinum 8164 26C 150W 2.0GHz	108mm	No	Yes	No
Intel Xeon Platinum 8168 24C 205W 2.7GHz	TTM	No	No	No
Intel Xeon Platinum 8170 26C 165W 2.1GHz	108mm	No	Yes	No
Intel Xeon Platinum 8170M 26C 165W 2.1GHz	108mm	No	Yes	Yes
Intel Xeon Platinum 8176 28C 165W 2.1GHz	108mm	No	Yes	No
Intel Xeon Platinum 8176M 28C 165W 2.1GHz	108mm	No	Yes	Yes
Intel Xeon Platinum 8180 28C 205W 2.5GHz	TTM	No	No	No
Intel Xeon Platinum 8180M 28C 205W 2.5GHz	TTM	No	No	Yes

† With 16 DIMMs, drive bays are limited to 4x 2.5-inch SAS/SATA drives or 4x 2.5-inch NVMe drives (6 drive bays not supported). See the Drive bays and backplanes section for details.
‡ No in this column means no support for ThinkSystem SD530 HW RAID Kit or ThinkSystem 430-8i SAS/SATA 12Gb Dense HBA

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 16. 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)
3DS RDIMMs			
7X77A01307	AUNF	ThinkSystem 128GB TruDDR4 2666 MHz (8Rx4 1.2V) 3DS RDIMM	12 (6 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.
† 12 is the effective maximum number of 128 GB DIMMs that the SD530 supports, since using any more than 12x 128 GB DIMMs requires an M-suffix processor, and the heatsink required for all M-suffix processors prevents more than 12 DIMM slots.

The following rules apply when selecting the memory configuration:

- The server supports RDIMMs and LRDIMMs.
- Mixing RDIMMs and LRDIMMs is not supported.
- Mixing 3DS RDIMMs with either RDIMMs or 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 the Processor specifications table 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
- SDDC (for x4-based memory DIMMs; look for "x4" in the DIMM description)
- ADDDC (for x4-based memory DIMMs; Gold and Platinum processors only)
- 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 or all of which are NVMe. These configurations also support an optional 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. 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.

Enclosure requirement: All servers installed in an enclosure must have the same drive backplane (for example, all four servers use the 6-drive backplane).

Figure 9. Drive bay configurations of the SD530
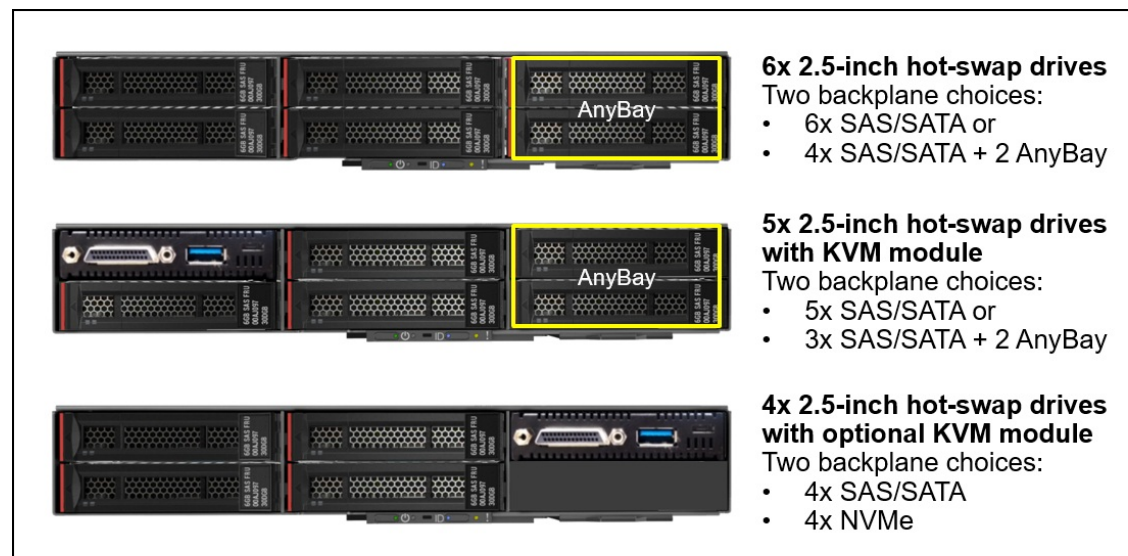
The drive bay configurations are made available through the use of either a 2x3 SAS/SATA backplane, 2x3 AnyBay backplane, a 2x2 SAS/SATA backplane or a 2x2 NVMe backplane. Ordering details are listed in the following table.

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

Table 17. 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
None*	B324	ThinkSystem SD530 2.5" NVMe 4-Bay Backplane Kit	4x NVMe

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

Not all processor selections support the 3x2 backplanes, and some ony 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 18. Backplane support by processor

Intel Xeon processor	12 DIMMs		16 DIMMs	
	2x2 backplane	2x3 backplane	2x2 backplane	2x3 backplane
Bronze 3104 6C 85W 1.7GHz	Yes	Yes	Yes	No
Bronze 3106 8C 85W 1.7GHz	Yes	Yes	Yes	No
Silver 4108 8C 85W 1.8GHz	Yes	Yes	Yes	No
Silver 4109T 8C 70W 2.0GHz	Yes	No	No	No
Silver 4110 8C 85W 2.1GHz	Yes	Yes	Yes	No
Silver 4112 4C 85W 2.6GHz	Yes	Yes	Yes	No
Silver 4114 10C 85W 2.2GHz	Yes	Yes	Yes	No
Silver 4114T 10C 85W 2.2GHz	Yes	No	No	No
Silver 4116 12C 85W 2.1GHz	Yes	Yes	Yes	No
Silver 4116T 12C 85W 2.1GHz	Yes	No	No	No
Gold 5115 10C 85W 2.4GHz	Yes	Yes	Yes	No
Gold 5117 14C 105W 2.0GHz	Yes	Yes	No	No
Gold 5118 12C 105W 2.3GHz	Yes	Yes	Yes	No
Gold 5119T 14C 85W 1.8GHz	Yes	No	No	No
Gold 5120 14C 105W 2.2GHz	Yes	Yes	Yes	No
Gold 5120T 14C 105W 2.2GHz	Yes	No	No	No
Gold 5122 4C 105W 3.6GHz	Yes	No	No	No
Gold 6126 12C 125W 2.6GHz	Yes	Yes	No	No
Gold 6126T 12C 125W 2.6GHz	Yes	No	No	No
Gold 6128 6C 115W 3.4GHz	Yes	No	No	No
Gold 6130 16C 125W 2.1GHz	Yes	Yes	Yes	No
Gold 6130T 16C 125W 2.1GHz	Yes	No	No	No
Gold 6132 14C 140W 2.6GHz	Yes	No	No	No
Gold 6134 8C 130W 3.2GHz	Yes	No	No	No
Gold 6134M 8C 130W 3.2GHz	Yes	No	No	No

Intel Xeon processor	12 DIMMs		16 DIMMs	
	2x2 backplane	2x3 backplane	2x2 backplane	2x3 backplane
Gold 6136 12C 150W 3.0GHz	Yes	No	No	No
Gold 6138 20C 125W 2.0GHz	Yes	Yes	No	No
Gold 6138T 20C 125W 2.0GHz	Yes	No	No	No
Gold 6140 18C 140W 2.3GHz	Yes	Yes	No	No
Gold 6140M 18C 140W 2.3GHz	Yes	Yes	No	No
Gold 6142 16C 150W 2.6GHz	Yes	No	No	No
Gold 6142M 16C 150W 2.6GHz	Yes	No	No	No
Gold 6144 8C 150W 3.5GHz	Yes	No	No	No
Gold 6146 12C 165W 3.2GHz	Yes	No	No	No
Gold 6148 20C 150W 2.4GHz	Yes	No	No	No
Gold 6150 18C 165W 2.7GHz	Yes	No	No	No
Gold 6152 22C 140W 2.1GHz	Yes	Yes	No	No
Gold 6154 18C 200W 3.0GHz	Yes	No	No	No
Platinum 8153 16C 125W 2.0GHz	Yes	Yes	Yes	No
Platinum 8156 4C 105W 3.6GHz	Yes	No	No	No
Platinum 8158 12C 150W 3.0GHz	Yes	No	No	No
Platinum 8160 24C 150W 2.1GHz	Yes	No	No	No
Platinum 8160M 24C 150W 2.1GHz	Yes	No	No	No
Platinum 8160T 24C 150W 2.1GHz	Yes	No	No	No
Platinum 8164 26C 150W 2.0GHz	Yes	No	No	No
Platinum 8168 24C 205W 2.7GHz	Yes	No	No	No
Platinum 8170 26C 165W 2.1GHz	Yes	No	No	No
Platinum 8170M 26C 165W 2.1GHz	Yes	No	No	No
Platinum 8176 28C 165W 2.1GHz	Yes	No	No	No
Platinum 8176M 28C 165W 2.1GHz	Yes	No	No	No
Platinum 8180 28C 205W 2.5GHz	Yes	No	No	No
Platinum 8180M 28C 205W 2.5GHz	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.
- PCIe NVMe connectivity for the 2x2 NVMe backplane from the PCIe connectors #3 and #4 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, as listed in the following table.

Table 19. 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

Supported drives are listed in the Internal drive options section.

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

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

Storage adapters with high-end processors: The use of processors with a high thermal profile such as the 205W processors preclude the use of the RAID adapter or the HBA. See Processor options for specifics. With such processors, only the onboard Intel RSTe 6 Gb SATA software RAID controller can be used.

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

The following table lists the ordering information.

Table 20. RAID controllers

Part number	Feature code	Description
None	AUYL	ThinkSystem SD530 SW RAID Kit
4C57A16216	AUYK	ThinkSystem SD530 HW RAID Kit (RAID 530-8i equivalent)
4C57A16217	B0SS	ThinkSystem 430-8i SAS/SATA 12Gb Dense HBA

Table 21. Controller specifications

Feature	Intel RSTe	430-8i Dense	SD530 RAID
Adapter type	Software RAID	HBA	RAID controller
Part number	None	4C57A16217	4C57A16216
Form factor	Onboard	Custom	Custom
Controller chip	Intel PCH (RSTe)	LSI SAS3408	LSI SAS3408
Host interface	Not applicable	PCIe 3.0 x8	PCIe 3.0 x8
Port interface	6 Gb SATA	12 Gb SAS	12 Gb SAS
Number of ports	6	6	6
Port connectors	2x onboard SATA	2x SlimSAS x4	2x SlimSAS x4
Drive interface	SATA	SAS, SATA	SAS, SATA
Drive type	HDD, SSD	HDD, SSD, SED**	HDD, SSD, SED
Hot-swap drives	No	Yes	Yes
Max devices	Varies	8	6
RAID levels	0, 1, 10, 5	No RAID	0, 1, 10, 5, 50
JBOD mode	Yes	Yes	Yes
Cache	None	No	None
CacheVault cache protection	No	No	No
Performance Accelerator (FastPath)	No	No	Yes
SSD Caching (CacheCade Pro 2.0)	No	No	No
SED support	No	Yes**	Yes (SafeStore)

** The SAS/SATA HBA supports SEDs (self-encrypting drives) by using software on the server and simply passing SED commands through the HBA to the drives.

Internal drive options

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

2.5-inch hot-swap drives:

- 2.5-inch hot-swap 12 Gb SAS HDDs
- 2.5-inch hot-swap 6 Gb SATA HDDs
- 2.5-inch hot-swap 12 Gb SAS SSDs
- 2.5-inch hot-swap 6 Gb SATA SSDs
- 2.5-inch hot-swap PCIe 4.0 NVMe SSDs
- 2.5-inch hot-swap PCIe 3.0 NVMe SSDs

M.2 drives:

- M.2 SATA drives

M.2 drive support: The use of M.2 drives requires an additional adapter as described in the M.2 drives subsection.

PCIe 4.0 NVMe drive support: When installed in this server, PCIe 4.0 NVMe drives will operate at PCIe 3.0 speeds.

Table 22. 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
7XB7A00069	B0YS	ThinkSystem 2.5" 2.4TB 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
2.5-inch hot-swap SED HDDs - 12 Gb SAS 10K			
7XB7A00070	B0YV	ThinkSystem 2.5" 2.4TB 10K SAS 12Gb Hot Swap 512e HDD FIPS	6
2.5-inch hot-swap SED HDDs - 12 Gb NL SAS			
7XB7A00064	B0YM	ThinkSystem 2.5" 2TB 7.2K SAS 12Gb Hot Swap 512e HDD FIPS	6

Table 23. 2.5-inch hot-swap 6 Gb 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 24. 2.5-inch hot-swap 12 Gb SAS SSDs

Part number	Feature	Description	Maximum supported
2.5-inch hot-swap SSDs - 12 Gb SAS - Performance (10+ DWPD)			
4XB7A10219	B4Y4	ThinkSystem 2.5" SS530 400GB Performance SAS 12Gb Hot Swap SSD	6
4XB7A10230	B4Y5	ThinkSystem 2.5" SS530 800GB Performance SAS 12Gb Hot Swap SSD	6
4XB7A10231	B4Y6	ThinkSystem 2.5" SS530 1.6TB Performance SAS 12Gb Hot Swap SSD	6
4XB7A10232	B4Y7	ThinkSystem 2.5" SS530 3.2TB Performance SAS 12Gb Hot Swap SSD	6
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
7N47A00126	AVRB	ThinkSystem 2.5" HUSMM32 1.6TB Performance SAS 12Gb Hot Swap SSD	6
2.5-inch hot-swap SSDs - 12 Gb SAS - Mainstream (3-5 DWPD)			
4XB7A17062	B8HU	ThinkSystem 2.5" PM1645a 800GB Mainstream SAS 12Gb Hot Swap SSD	6
4XB7A17063	B8J4	ThinkSystem 2.5" PM1645a 1.6TB Mainstream SAS 12Gb Hot Swap SSD	6
4XB7A17064	B8JD	ThinkSystem 2.5" PM1645a 3.2TB Mainstream SAS 12Gb Hot Swap SSD	6
4XB7A17065	B8JA	ThinkSystem 2.5" PM1645a 6.4TB Mainstream SAS 12Gb Hot Swap SSD	6
4XB7A13653	B4A0	ThinkSystem 2.5" PM1645 800GB Mainstream SAS 12Gb Hot Swap SSD	6
4XB7A13654	B4A1	ThinkSystem 2.5" PM1645 1.6TB Mainstream SAS 12Gb Hot Swap SSD	6
4XB7A13655	B4A2	ThinkSystem 2.5" PM1645 3.2TB Mainstream SAS 12Gb Hot Swap SSD	6
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
7N47A00119	AVRG	ThinkSystem 2.5" PM1635a 1.6TB Mainstream SAS 12Gb Hot Swap SSD	6
7N47A00120	AVRJ	ThinkSystem 2.5" PM1635a 3.2TB Mainstream SAS 12Gb Hot Swap SSD	6
2.5-inch hot-swap SSDs - 12 Gb SAS - Entry / Capacity (<3 DWPD)			
4XB7A38175	B91A	ThinkSystem 2.5" PM1643a 960GB Entry SAS 12Gb Hot Swap SSD	6
4XB7A38176	B91B	ThinkSystem 2.5" PM1643a 1.92TB Entry SAS 12Gb Hot Swap SSD	6
4XB7A17054	B91C	ThinkSystem 2.5" PM1643a 3.84TB Entry SAS 12Gb Hot Swap SSD	6
4XB7A17055	B91D	ThinkSystem 2.5" PM1643a 7.68TB Entry SAS 12Gb Hot Swap SSD	6
4XB7A17056	BC4R	ThinkSystem 2.5" PM1643a 15.36TB Entry SAS 12Gb Hot Swap SSD	6
4XB7A17168	B6TL	ThinkSystem 2.5" PM1643 960GB Entry SAS 12Gb Hot Swap SSD	6
4XB7A13645	B4A7	ThinkSystem 2.5" PM1643 3.84TB Capacity SAS 12Gb Hot Swap SSD	6
4XB7A13646	B4A6	ThinkSystem 2.5" PM1643 7.68TB Capacity SAS 12Gb Hot Swap SSD	6
7N47A00121	AUMK	ThinkSystem 2.5" PM1633a 3.84TB Capacity SAS 12Gb Hot Swap SSD	6

Part number	Feature	Description	Maximum supported
7N47A00122	AUML	ThinkSystem 2.5" PM1633a 7.68TB Capacity SAS 12Gb Hot Swap SSD	6
7N47A00123	B116	ThinkSystem 2.5" PM1633a 15.36TB Capacity SAS 12Gb Hot Swap SSD	6
2.5-inch hot-swap SED SSDs - 12 Gb SAS - Performance (10+ DWPD)			
7SD7A05754	B11P	ThinkSystem 2.5" HUSMM32 400GB Performance SAS 12Gb Hot Swap SSD FIPS	6
7SD7A05753	B11Q	ThinkSystem 2.5" HUSMM32 800GB Performance SAS 12Gb Hot Swap SSD FIPS	6
7SD7A05752	B11R	ThinkSystem 2.5" HUSMM32 1.6TB Performance SAS 12Gb Hot Swap SSD FIPS	6

Table 25. 2.5-inch hot-swap 6 Gb SATA SSDs

Part number	Feature	Description	Maximum supported
2.5-inch hot-swap SSDs - 6 Gb SATA - Mainstream (3-5 DWPD)			
4XB7A17087	B8J1	ThinkSystem 2.5" 5300 240GB Mainstream SATA 6Gb Hot Swap SSD	6
4XB7A17088	B8HY	ThinkSystem 2.5" 5300 480GB Mainstream SATA 6Gb Hot Swap SSD	6
4XB7A17089	B8J6	ThinkSystem 2.5" 5300 960GB Mainstream SATA 6Gb Hot Swap SSD	6
4XB7A17090	B8JE	ThinkSystem 2.5" 5300 1.92TB Mainstream SATA 6Gb Hot Swap SSD	6
4XB7A17091	B8J7	ThinkSystem 2.5" 5300 3.84TB Mainstream SATA 6Gb Hot Swap SSD	6
4XB7A13633	B49L	ThinkSystem 2.5" Intel S4610 240GB Mainstream SATA 6Gb Hot Swap SSD	6
4XB7A13634	B49M	ThinkSystem 2.5" Intel S4610 480GB Mainstream SATA 6Gb Hot Swap SSD	6
4XB7A13635	B49N	ThinkSystem 2.5" Intel S4610 960GB Mainstream SATA 6Gb Hot Swap SSD	6
4XB7A13636	B49P	ThinkSystem 2.5" Intel S4610 1.92TB Mainstream SATA 6Gb Hot Swap SSD	6
4XB7A10237	B488	ThinkSystem 2.5" 5200 240GB Mainstream SATA 6Gb Hot Swap SSD	6
4XB7A10238	B489	ThinkSystem 2.5" 5200 480GB Mainstream SATA 6Gb Hot Swap SSD	6
4XB7A10239	B48A	ThinkSystem 2.5" 5200 960GB Mainstream SATA 6Gb Hot Swap SSD	6
4XB7A10240	B48B	ThinkSystem 2.5" 5200 1.92TB Mainstream SATA 6Gb Hot Swap SSD	6
4XB7A10241	B48C	ThinkSystem 2.5" 5200 3.84TB Mainstream SATA 6Gb Hot Swap SSD	6
7SD7A05723	B0ZP	ThinkSystem 2.5" Intel S4600 240GB Mainstream SATA 6Gb Hot Swap SSD	6
7SD7A05722	B0ZQ	ThinkSystem 2.5" Intel S4600 480GB Mainstream SATA 6Gb Hot Swap SSD	6
7SD7A05721	B0ZR	ThinkSystem 2.5" Intel S4600 960GB Mainstream SATA 6Gb Hot Swap SSD	6
7SD7A05720	B0ZS	ThinkSystem 2.5" Intel S4600 1.92TB Mainstream SATA 6Gb Hot Swap SSD	6
7SD7A05765	B10W	ThinkSystem 2.5" 5100 240GB Mainstream SATA 6Gb Hot Swap SSD	6
7SD7A05764	B10X	ThinkSystem 2.5" 5100 480GB Mainstream SATA 6Gb Hot Swap SSD	6
7SD7A05763	B10Y	ThinkSystem 2.5" 5100 960GB Mainstream SATA 6Gb Hot Swap SSD	6

Part number	Feature	Description	Maximum supported
7SD7A05762	B10Z	ThinkSystem 2.5" 5100 1.92TB Mainstream SATA 6Gb Hot Swap SSD	6
7SD7A05761	B110	ThinkSystem 2.5" 5100 3.84TB Mainstream SATA 6Gb Hot Swap SSD	6
2.5-inch hot-swap SSDs - 6 Gb SATA - Entry (<3 DWPD)			
4XB7A38271	BCTC	ThinkSystem 2.5" Multi Vendor 240GB Entry SATA 6Gb Hot Swap SSD	6
4XB7A38272	BCTD	ThinkSystem 2.5" Multi Vendor 480GB Entry SATA 6Gb Hot Swap SSD	6
4XB7A38273	BCTE	ThinkSystem 2.5" Multi Vendor 960GB Entry SATA 6Gb Hot Swap SSD	6
4XB7A38274	BCTF	ThinkSystem 2.5" Multi Vendor 1.92TB Entry SATA 6Gb Hot Swap SSD	6
4XB7A38275	BCTG	ThinkSystem 2.5" Multi Vendor 3.84TB Entry SATA 6Gb Hot Swap SSD	6
4XB7A17075	B8HV	ThinkSystem 2.5" 5300 240GB Entry SATA 6Gb Hot Swap SSD	6
4XB7A17076	B8JM	ThinkSystem 2.5" 5300 480GB Entry SATA 6Gb Hot Swap SSD	6
4XB7A17077	B8HP	ThinkSystem 2.5" 5300 960GB Entry SATA 6Gb Hot Swap SSD	6
4XB7A17078	B8J5	ThinkSystem 2.5" 5300 1.92TB Entry SATA 6Gb Hot Swap SSD	6
4XB7A17079	B8JP	ThinkSystem 2.5" 5300 3.84TB Entry SATA 6Gb Hot Swap SSD	6
4XB7A17080	B8J2	ThinkSystem 2.5" 5300 7.68TB Entry SATA 6Gb Hot Swap SSD	6
4XB7A38144	B7EW	ThinkSystem 2.5" 5210 1.92TB Entry SATA 6Gb Hot Swap QLC SSD	6
4XB7A38145	B7EX	ThinkSystem 2.5" 5210 3.84TB Entry SATA 6Gb Hot Swap QLC SSD	6
4XB7A38146	B7EY	ThinkSystem 2.5" 5210 7.68TB Entry SATA 6Gb Hot Swap QLC SSD	6
4XB7A10247	B498	ThinkSystem 2.5" Intel S4510 240GB Entry SATA 6Gb Hot Swap SSD	6
4XB7A10248	B499	ThinkSystem 2.5" Intel S4510 480GB Entry SATA 6Gb Hot Swap SSD	6
4XB7A10249	B49A	ThinkSystem 2.5" Intel S4510 960GB Entry SATA 6Gb Hot Swap SSD	6
4XB7A13622	B49B	ThinkSystem 2.5" Intel S4510 1.92TB Entry SATA 6Gb Hot Swap SSD	6
4XB7A13623	B49C	ThinkSystem 2.5" Intel S4510 3.84TB Entry SATA 6Gb Hot Swap SSD	6
4XB7A10195	B34H	ThinkSystem 2.5" PM883 240GB Entry SATA 6Gb Hot Swap SSD	6
4XB7A10196	B34J	ThinkSystem 2.5" PM883 480GB Entry SATA 6Gb Hot Swap SSD	6
4XB7A10197	B34K	ThinkSystem 2.5" PM883 960GB Entry SATA 6Gb Hot Swap SSD	6
4XB7A10198	B34L	ThinkSystem 2.5" PM883 1.92TB Entry SATA 6Gb Hot Swap SSD	6
4XB7A10199	B34M	ThinkSystem 2.5" PM883 3.84TB Entry SATA 6Gb Hot Swap SSD	6
4XB7A10200	B4D2	ThinkSystem 2.5" PM883 7.68TB Entry SATA 6Gb Hot Swap SSD	6
7SD7A05742	B0YY	ThinkSystem 2.5" Intel S4500 240GB Entry SATA 6Gb Hot Swap SSD	6
7SD7A05741	B0YZ	ThinkSystem 2.5" Intel S4500 480GB Entry SATA 6Gb Hot Swap SSD	6
7SD7A05740	B0Z0	ThinkSystem 2.5" Intel S4500 960GB Entry SATA 6Gb Hot Swap SSD	6
7SD7A05739	B0Z1	ThinkSystem 2.5" Intel S4500 1.92TB Entry SATA 6Gb Hot Swap SSD	6
7SD7A05738	B0Z2	ThinkSystem 2.5" Intel S4500 3.84TB 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
7N47A00113	AVCZ	ThinkSystem 2.5" PM863a 960GB Entry SATA 6Gb Hot Swap SSD	6
7N47A00114	AVRC	ThinkSystem 2.5" PM863a 1.92TB Entry SATA 6Gb Hot Swap SSD	6
4XB7A10153	B2X2	ThinkSystem 2.5" 5200 480GB Entry SATA 6Gb Hot Swap SSD	6
4XB7A10154	B2X3	ThinkSystem 2.5" 5200 960GB Entry SATA 6Gb Hot Swap SSD	6
4XB7A10155	B2X4	ThinkSystem 2.5" 5200 1.92TB Entry SATA 6Gb Hot Swap SSD	6
4XB7A10156	B2X5	ThinkSystem 2.5" 5200 3.84TB Entry SATA 6Gb Hot Swap SSD	6

Part number	Feature	Description	Maximum supported
4XB7A10157	B2X6	ThinkSystem 2.5" 5200 7.68TB Entry SATA 6Gb Hot Swap SSD	6
4XB7A08502	B10N	ThinkSystem 2.5" 5100 480GB Entry SATA 6Gb Hot Swap SSD	6
4XB7A08503	B10P	ThinkSystem 2.5" 5100 960GB Entry SATA 6Gb Hot Swap SSD	6
4XB7A08504	B10Q	ThinkSystem 2.5" 5100 1.92TB Entry SATA 6Gb Hot Swap SSD	6
4XB7A08505	B10R	ThinkSystem 2.5" 5100 3.84TB Entry SATA 6Gb Hot Swap SSD	6
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
2.5-inch hot-swap SED SSDs - 6 Gb SATA - Mainstream (3-5 DWPD)			
4XB7A38193	B93K	ThinkSystem 2.5" 5300 1.92TB Mainstream SATA 6Gb Hot Swap SSD SED	6
4XB7A13981	B93J	ThinkSystem 2.5" 5200 (Max) 1.92TB Mainstream SATA 6Gb Hot Swap SSD SED	6
2.5-inch hot-swap SED SSDs - 6 Gb SATA - Entry (<3 DWPD)			
4XB7A38141	BE29	ThinkSystem 2.5" 5300 960GB Entry SATA 6Gb Hot Swap SSD SED	6
4XB7A38191	B93L	ThinkSystem 2.5" 5300 3.84TB Entry SATA 6Gb Hot Swap SSD SED	6
4XB7A38192	B93M	ThinkSystem 2.5" 5300 7.68TB Entry SATA 6Gb Hot Swap SSD SED	6

Table 26. 2.5-inch hot-swap PCIe 4.0 NVMe SSDs (operate at PCIe 3.0 speeds in this server)

Part number	Feature	Description	Maximum supported
2.5-inch SSDs - PCIe 4.0 NVMe - Mainstream (3-5 DWPD)			
4XB7A17152	BCFV	ThinkSystem U.2 Intel P5600 1.6TB Mainstream NVMe PCIe 4.0 x4 Hot Swap SSD	4
4XB7A17153	BCFR	ThinkSystem U.2 Intel P5600 3.2TB Mainstream NVMe PCIe 4.0 x4 Hot Swap SSD	4
4XB7A17154	BCFS	ThinkSystem U.2 Intel P5600 6.4TB Mainstream NVMe PCIe 4.0 x4 Hot Swap SSD	4
4XB7A64175	BE03	ThinkSystem U.3 Kioxia CM6-V 800GB Mainstream NVMe PCIe 4.0 x4 Hot Swap SSD	4
4XB7A17112	B96Z	ThinkSystem U.3 Kioxia CM6-V 1.6TB Mainstream NVMe PCIe4.0 x4 Hot Swap SSD	4
4XB7A17113	B96T	ThinkSystem U.3 Kioxia CM6-V 3.2TB Mainstream NVMe PCIe4.0 x4 Hot Swap SSD	4
4XB7A17114	B96P	ThinkSystem U.3 Kioxia CM6-V 6.4TB Mainstream NVMe PCIe4.0 x4 Hot Swap SSD	4
2.5-inch SSDs - PCIe 4.0 NVMe - Entry (<3 DWPD)			
4XB7A17145	BCFT	ThinkSystem U.2 Intel P5500 1.92TB Entry NVMe PCIe 4.0 x4 Hot Swap SSD	4
4XB7A17146	BCFW	ThinkSystem U.2 Intel P5500 3.84TB Entry NVMe PCIe 4.0 x4 Hot Swap SSD	4
4XB7A17147	BCFU	ThinkSystem U.2 Intel P5500 7.68TB Entry NVMe PCIe 4.0 x4 Hot Swap SSD	4

Table 27. 2.5-inch hot-swap PCIe 3.0 NVMe SSDs

Part number	Feature	Description	Maximum supported
2.5-inch SSDs - PCIe 3.0 NVMe - Performance (10+ DWPD)			
7N47A00081	AUMJ	ThinkSystem U.2 Intel Optane P4800X 375GB Performance NVMe PCIe 3.0 x4 Hot Swap SSD	4
7N47A00083	B2ZJ	ThinkSystem U.2 Intel Optane P4800X 750GB Performance NVMe PCIe 3.0 x4 Hot Swap SSD	4
7XB7A05923	AWG6	ThinkSystem U.2 PX04PMB 800GB Performance NVMe PCIe 3.0 x4 Hot Swap SSD	4
7XB7A05922	AWG7	ThinkSystem U.2 PX04PMB 1.6TB Performance NVMe PCIe 3.0 x4 Hot Swap SSD	4
2.5-inch SSDs - PCIe 3.0 NVMe - Mainstream (3-5 DWPD)			
4XB7A13936	B589	ThinkSystem U.2 Intel P4610 1.6TB Mainstream NVMe PCIe3.0 x4 Hot Swap SSD	4
4XB7A13937	B58A	ThinkSystem U.2 Intel P4610 3.2TB Mainstream NVMe PCIe3.0 x4 Hot Swap SSD	4
4XB7A13938	B58B	ThinkSystem U.2 Intel P4610 6.4TB Mainstream NVMe PCIe3.0 x4 Hot Swap SSD	4
4XB7A08516	B21W	ThinkSystem U.2 Toshiba CM5-V 800GB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD	4
4XB7A08517	B21X	ThinkSystem U.2 Toshiba CM5-V 1.6TB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD	4
4XB7A08518	B21Y	ThinkSystem U.2 Toshiba CM5-V 3.2TB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD	4
4XB7A08519	B2XJ	ThinkSystem U.2 Toshiba CM5-V 6.4TB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD	4
7N47A00095	AUUY	ThinkSystem U.2 PX04PMB 960GB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD	4
7N47A00096	AUMF	ThinkSystem U.2 PX04PMB 1.92TB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD	4
7SD7A05772	B11J	ThinkSystem U.2 Intel P4600 1.6TB Mainstream NVMe PCIe3.0 x4 Hot Swap SSD	4
7SD7A05771	B11K	ThinkSystem U.2 Intel P4600 3.2TB Mainstream NVMe PCIe3.0 x4 Hot Swap SSD	4
2.5-inch SSDs - PCIe 3.0 NVMe - Entry (<3 DWPD)			
4XB7A10202	B58F	ThinkSystem U.2 Intel P4510 1.0TB Entry NVMe PCIe3.0 x4 Hot Swap SSD	4
4XB7A10204	B58G	ThinkSystem U.2 Intel P4510 2.0TB Entry NVMe PCIe3.0 x4 Hot Swap SSD	4
4XB7A10205	B58H	ThinkSystem U.2 Intel P4510 4.0TB Entry NVMe PCIe3.0 x4 Hot Swap SSD	4
4XB7A10175	B34N	ThinkSystem U.2 PM983 1.92TB Entry NVMe PCIe 3.0 x4 Hot Swap SSD	4
4XB7A10176	B34P	ThinkSystem U.2 PM983 3.84TB Entry NVMe PCIe 3.0 x4 Hot Swap SSD	4
4XB7A10177	B4D3	ThinkSystem U.2 PM983 7.68TB Entry NVMe PCIe3.0 x4 Hot Swap SSD	4
7SD7A05779	B11C	ThinkSystem U.2 Intel P4500 1.0TB Entry NVMe PCIe3.0 x4 Hot Swap SSD	4
7SD7A05778	B11D	ThinkSystem U.2 Intel P4500 2.0TB Entry NVMe PCIe3.0 x4 Hot Swap SSD	4
7SD7A05777	B11E	ThinkSystem U.2 Intel P4500 4.0TB Entry NVMe PCIe3.0 x4 Hot Swap SSD	4
2.5-inch SED SSDs - PCIe 3.0 NVMe - Entry (<3 DWPD)			

Part number	Feature	Description	Maximum supported
4XB7A14058	B6K2	ThinkSystem U.2 CM5-R 960GB Entry NVMe PCIe 3.0 x4 Hot Swap SSD SED	4
4XB7A14059	B6K3	ThinkSystem U.2 CM5-R 1.92TB Entry NVMe PCIe 3.0 x4 Hot Swap SSD SED	4
4XB7A14060	B6K4	ThinkSystem U.2 CM5-R 3.84TB Entry NVMe PCIe 3.0 x4 Hot Swap SSD SED	4
4XB7A38241	BCAB	ThinkSystem U.2 CM5-R 7.68TB Entry NVMe PCIe 3.0 x4 Hot Swap SSD SED	4

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

Table 28. M.2 SATA drives

Part number	Feature	Description	Maximum supported
M.2 SSDs - 6 Gb SATA - Entry (<3 DWPD)			
7N47A00129	AUUL	ThinkSystem M.2 32GB SATA 6Gbps Non-Hot Swap SSD	2
7N47A00130	AUUV	ThinkSystem M.2 128GB SATA 6Gbps Non-Hot Swap SSD	2
4XB7A14049	B5S4	ThinkSystem M.2 5100 240GB SATA 6Gbps Non-Hot Swap SSD	2
7SD7A05703	B11V	ThinkSystem M.2 5100 480GB SATA 6Gbps Non-Hot Swap SSD	2
4XB7A17071	B8HS	ThinkSystem M.2 5300 240GB SATA 6Gbps Non-Hot Swap SSD	2
4XB7A17073	B919	ThinkSystem M.2 5300 480GB SATA 6Gbps Non-Hot Swap SSD	2

Internal tape drive

The server does not support internal tape drive options.

Optical drive

The server supports the external USB optical drive listed in the following table.

Table 29. External optical drive

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

The drive is based on the Lenovo Slim DVD Burner DB65 drive and supports the following formats: DVD-RAM, DVD-RW, DVD+RW, DVD+R, DVD-R, DVD-ROM, DVD-R DL, CD-RW, CD-R, CD-ROM.

I/O expansion options

The I/O slots for the SD530 nodes are housed in the I/O shuttle in the rear of the enclosure. See the Components and connectors section for the location.

Each SD530 supports internally 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 30. 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

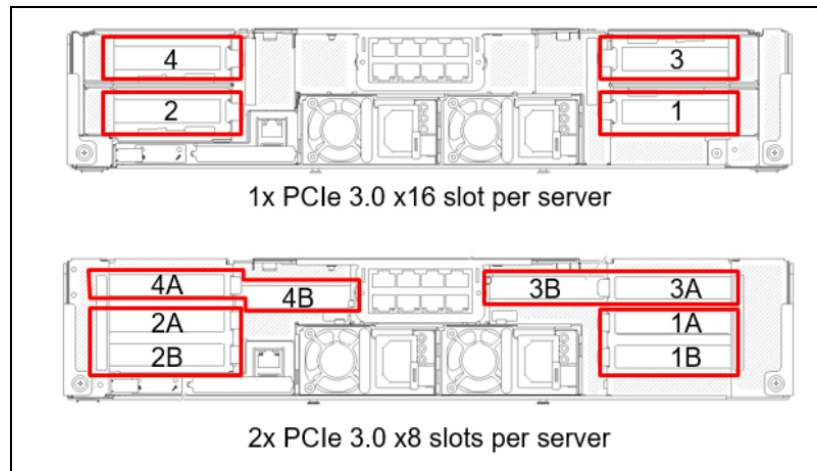The following figure shows the locations of the slots.

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.

The SD530 also supports the addition of a GPU Tray with two full-length full-height slots. Details about the GPU Tray are in the GPU Tray and GPU adapters section.

SharedIO

SharedIO is a new feature of the SD530 which implements Mellanox Multi-Host technology. With SharedIO, a Mellanox VPI adapter is installed in a slot in one SD530 server and an auxiliary adapter is installed in a slot in second server in the same enclosure. The result is that the two servers share the network connection of the VPI adapter with significant savings both in the cost of the adapters but also the cost of switch ports.

The Mellanox SharedIO Adapter and Auxiliary Card are shown in the following figure.
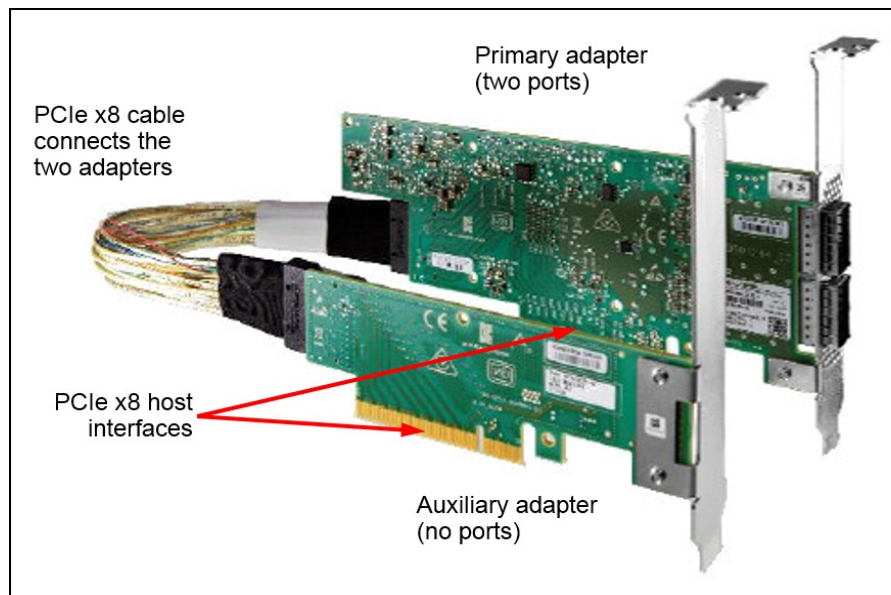
Figure 11. Lenovo ThinkSystem SharedIO ConnectX-5 Adapter

The feature takes advantage of the design of the D2 Enclosure's x8 shuttle where the slots of two of the SD530 servers are adjacent. The primary and auxiliary adapters are installed in the slots as shown in the following figure.
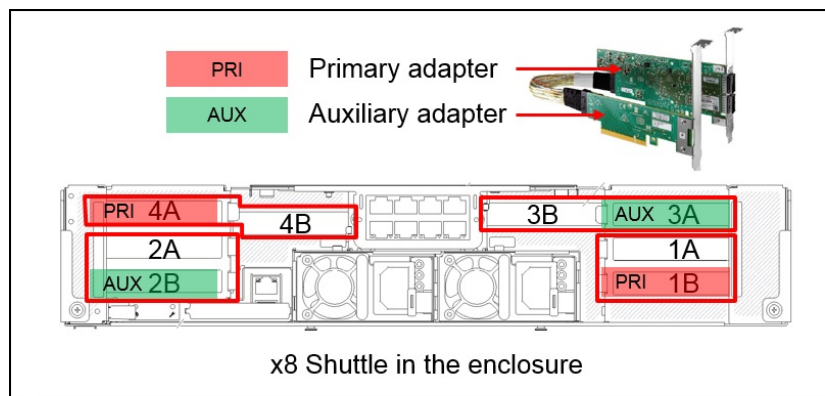

Figure 12. SharedIO adapters installed in the x8 shuttle

Configuration notes:

- When the SharedIO adapters are installed, the other slots (1A, 2A, 3B, 4B) are reserved and are not available for use with any other adapters.
- The SharedIO adapters are not supported with the x16 shuttle.

Ordering information for the adapters is in the Network adapters section.

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.

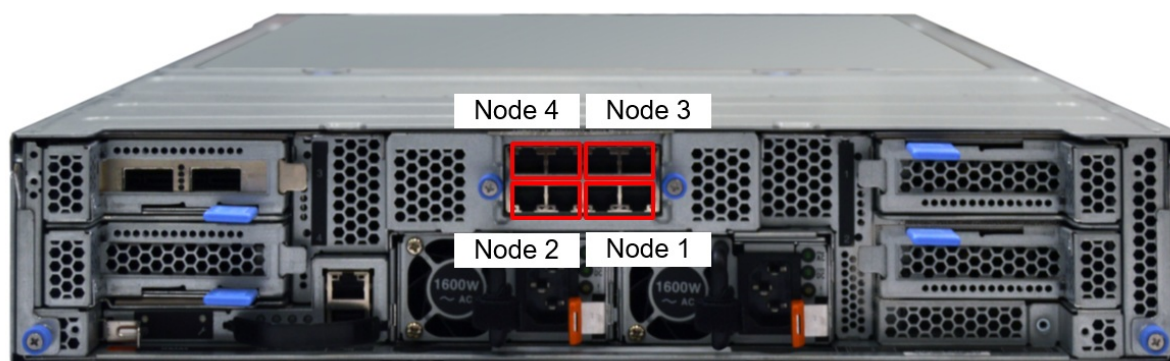The ports are assigned as shown in the following figure.

Figure 13. 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

Note: No support for 10 Mbps or 100 MBps Ethernet connections.

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 31. EIOM ordering information

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

The following table lists the supported SharedIO adapters. For details about these adapters see the SharedIO section.

Note: SharedIO adapters are only supported in the x8 shuttle. They are not supported with the x16 shuttle.

Table 32. SharedIO network adapters

Part number	Feature code	Description	Slots supported	Maximum supported
CTO only	B3RZ*	Lenovo ThinkSystem SharedIO ConnectX-5 Adapter	Shuttle x8: 1-B, 4-A	1
CTO only	B3S0*	Lenovo ThinkSystem SharedIO ConnectX-5 Auxiliary Card	Shuttle x8: 2-B, 3-A	1

* Only available through Lenovo Scalable Infrastructure (LeSI). See the LeSI product guide for details, https://lenovopress.com/lp0900.

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

Table 33. PCIe network adapters

Part number	Feature code	Description	Slots supported	Maximum supported
Gigabit Ethernet				
7ZT7A00535	AUZW	ThinkSystem I350-T4 PCIe 1Gb 4-Port RJ45 Ethernet Adapter	Both slots	2
10 Gb Ethernet RJ45				
00MM860	ATPX	Intel X550-T2 Dual Port 10GBase-T Adapter	Both slots	2
7ZT7A00496	AUKP	ThinkSystem Broadcom 57416 10GBASE-T 2-Port PCIe Ethernet Adapter	Both slots	2
4XC7A08225	B31G	ThinkSystem QLogic QL41134 PCIe 10Gb 4-Port Base-T Ethernet Adapter	Both slots	2
10 Gb Ethernet SFP+				
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
7ZT7A00537	AUKX	ThinkSystem X710-DA2 PCIe 10Gb 2-Port SFP+ Ethernet Adapter	Both slots	2
25 Gb Ethernet				
4XC7A08228	B21R	ThinkSystem QLogic QL41262 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	Both slots	2
7XC7A05523	B0WY	ThinkSystem Intel XXV710-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	Both slots	2
01GR250	AUAJ	Mellanox ConnectX-4 Lx 10/25GbE SFP28 2-port PCIe Ethernet Adapter	Both slots	2
7ZT7A00505	AUKS	ThinkSystem Broadcom 57412 25GbE SFP28 1-Port PCIe Ethernet Adapter	Both slots	2
4XC7A08229	B31C	ThinkSystem Mellanox ConnectX-5 Ex 25/40GbE 2-port Low-Latency Adapter	PCIe x16 slot	1
4XC7A16683	B5XZ	ThinkSystem Mellanox Innova-2 ConnectX-5 FPGA 25GbE 2-port Adapter	Both slots	2
40 Gb Ethernet				
00MM950	ATRN	Mellanox ConnectX-4 Lx 1x40GbE QSFP+ Adapter	Both slots	2
4XC7A08229	B31C	ThinkSystem Mellanox ConnectX-5 Ex 25/40GbE 2-port Low-Latency Adapter	PCIe x16 slot	1
100 Gb Ethernet				
00MM960	ATRP	Mellanox ConnectX-4 2x100GbE/EDR IB QSFP28 VPI Adapter	PCIe x16 slot	1
InfiniBand				
7XC7A05524	B0WX	ThinkSystem Mellanox ConnectX-4 PCIe FDR 1-Port QSFP VPI Adapter	Both slots	2
7ZT7A00500	AUVG	ThinkSystem Mellanox ConnectX-4 PCIe FDR 2-Port QSFP VPI Adapter	Both slots	2
00KH924	ASWQ	Mellanox ConnectX-4 1x100GbE/EDR IB QSFP28 VPI Adapter	PCIe x16 slot	1

Part number	Feature code	Description	Slots supported	Maximum supported
4C57A14177	B4R9	ThinkSystem Mellanox ConnectX-6 HDR100/100GbE QSFP56 1-port PCIe VPI Adapter	PCIe x16 slot	1
4C57A14178	B4RA	ThinkSystem Mellanox ConnectX-6 HDR100/100GbE QSFP56 2-port PCIe VPI Adapter	PCIe x16 slot	1
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

For more information, including the transceivers and cables that each adapter supports, see the list of Lenovo Press Product Guides in the Networking adapters category:
https://lenovopress.com/servers/options/ethernet

SAS adapters for external storage

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

Table 34. 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 35. 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 36. Fibre Channel HBAs

Part number	Feature code	Description	Slots supported	Maximum supported
32 Gb Fibre Channel				
4XC7A08250	B5SX	ThinkSystem Emulex LPe35000 32Gb 1-port PCIe Fibre Channel Adapter	Both slots	2
4XC7A08251	B5SY	ThinkSystem Emulex LPe35002 32Gb 2-port PCIe Fibre Channel Adapter	Both slots	2
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
16 Gb Fibre Channel				
01CV750	ATZB	QLogic 16Gb Enhanced Gen5 FC Single-port HBA	Both slots	2
01CV830	ATZU	Emulex 16Gb Gen6 FC Single-port HBA	Both slots	2
01CV760	ATZC	QLogic 16Gb Enhanced Gen5 FC Dual-port HBA	Both slots	2
01CV840	ATZV	Emulex 16Gb Gen6 FC Dual-port HBA	Both slots	2
8 Gb Fibre Channel				
4XC7A08220*	B0WZ	ThinkSystem Emulex LPe12000-M8-L PCIe 8Gb 1-Port SFP+ Fibre Channel Adapter	Both slots	2
4XC7A08221*	B0X0	ThinkSystem Emulex LPe12002-M8-L PCIe 8Gb 2-Port SFP+ Fibre Channel Adapter	Both slots	2

* Available in China, Japan, and AP countries only

Flash storage adapters

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

Table 37. Flash Storage Adapters

Part number	Feature code	Description	Slots supported	Maximum supported
Entry NVMe PCIe Adapters - Optimized for read-intensive workloads with an endurance of less than 3 DWPD.				
7SD7A05776	B11Z	ThinkSystem HHHL Intel P4500 4.0TB Entry NVMe PCIe 3.0 x4 Flash Adapter	Both slots	2
7SD7A05775	B120	ThinkSystem HHHL Intel P4500 8.0TB Entry NVMe PCIe3.0 x4 Flash Adapter	Both slots	2
Mainstream NVMe PCIe Adapters - Optimized for mixed-intensive application workloads with an endurance of 3-5 DWPD.				
4XB7A14075	B8JH	ThinkSystem HHHL PM1735 1.6TB Mainstream NVMe PCIe4.0 x4 Flash Adapter	Both slots	2
4XB7A14076	B8HW	ThinkSystem HHHL PM1735 3.2TB Mainstream NVMe PCIe4.0 x4 Flash Adapter	Both slots	2
4XB7A14077	B96M	ThinkSystem HHHL PM1735 6.4TB Mainstream NVMe PCIe4.0 x4 Flash Adapter	Both slots	2
4XB7A38234	BCGJ	ThinkSystem HHHL Kioxia CM5-V 1.6TB Mainstream NVMe PCIe3.0 x4 Flash Adapter	Both slots	2
4XB7A38237	BCGK	ThinkSystem HHHL Kioxia CM5-V 3.2TB Mainstream NVMe PCIe3.0 x4 Flash Adapter	Both slots	2
4XB7A38240	BCGL	ThinkSystem HHHL Kioxia CM5-V 6.4TB Mainstream NVMe PCIe3.0 x4 Flash Adapter	Both slots	2
4XB7A08520	B32L	ThinkSystem HHHL KCM51V 1.6TB Mainstream NVMe PCIe 3.0 x4 Flash Adapter	Both slots	2
4XB7A08521	B32M	ThinkSystem HHHL KCM51V 3.2TB Mainstream NVMe PCIe 3.0 x4 Flash Adapter	Both slots	2
4XB7A08522	B32N	ThinkSystem HHHL KCM51V 6.4TB Mainstream NVMe PCIe 3.0 x4 Flash Adapter	Both slots	2
7SD7A05769	B11X	ThinkSystem HHHL Intel P4600 2.0TB Mainstream NVMe PCIe3.0 x4 Flash Adapter	Both slots	2
7SD7A05768	B11Y	ThinkSystem HHHL Intel P4600 4.0TB Mainstream NVMe PCIe3.0 x4 Flash Adapter	Both slots	2
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
Performance NVMe PCIe Adapters - Optimized for write-intensive application workloads with an endurance of 10+ DWPD.				
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 Tray and GPU adapters

The SD530 supports GPU adapters with the addition of SD530 GPU tray. The GPU tray supports one or two double-wide GPUs. The SD530 server and attached GPU tray are show in the following figure. Two of these combined systems can be installed in the enclosure for a total of 4 processors and 4 GPUs in 2U of rack space.
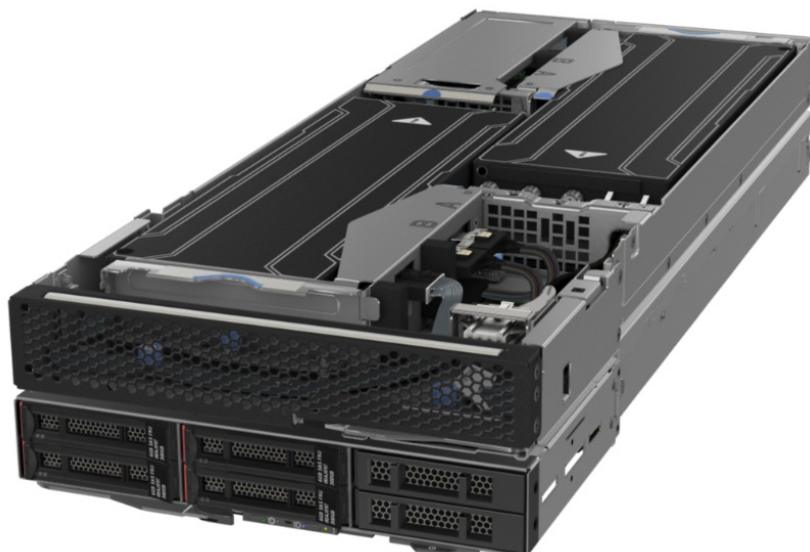

Figure 14. SD530 with GPU Tray attached

Ordering information for the GPU tray is as follows.

Table 38. GPU tray

Part number	Feature code	Description
4M17A09509	B0MU	ThinkSystem SD530 GPU Tray

The GPU Tray option includes the necessary PCIe cables to connect the two installed GPUs to the system. The GPU options, listed in the table below, include the necessary auxiliary power cables.

The GPU Tray supports 2 GPUs, once connected to each processor in the SD530. Each GPU is connected via a PCIe 3.0 x16 connect routed from two PCIe 3.0 x8 connectors on the SD530 system board. See Figure 6 for locations of the PCIe connectors.

Table 39. GPU options

Part number	Feature code	Description	Maximum supported
7C57A02888	B0LZ	ThinkSystem SD530 NVIDIA Tesla P40	2
7X67A00068	B0M1	ThinkSystem SD530 NVIDIA Tesla P100	2
4C57A09498	B1JY	ThinkSystem NVIDIA Tesla V100 16GB PCIe Passive GPU	2
4X67A12088	B34S	ThinkSystem NVIDIA Tesla V100 32GB PCIe Passive GPU	2
7C57A02891	B0RK	ThinkSystem SD530 NVIDIA Tesla M10	2
00KG655	B0M0	ThinkSystem SD530 NVIDIA Tesla M60	2
7C57A02897	B228	ThinkSystem AMD Radeon Instinct MI25 16GB PCIe Passive GPU	2
4C57A09497	B32P	ThinkSystem AMD Radeon Pro V340 32GB PCIe Passive GPU	2

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

If the GPU tray is selected then the following configuration rules apply:

- Two processors are required
- At most 12 DIMMs can be installed
- When the Tesla M10 or M60 GPUs are installed, the server system memory must be less than 1 TB
- Only SATA HDDs and SSDs are supported
- Only software RAID is supported; the RAID adapter (Feature AUYK) is not supported
- Only the 4-drive SAS/SATA drive backplane is supported. The 6-drive backplanes (including AnyBay) are not supported.
- The optional KVM module is supported.
- OS preload cannot be selected
- The GPUs installed in the GPU Tray must be identical
- The enclosure must have 2000W power supplies installed
- The following enclosure configurations are supported:
    - 2 servers and 2 GPU Trays
    - 1 server and 1 GPU Tray (the other two bays must have 2 fillers installed)
- The following enclosure configurations are **not** supported:
    - 2 servers and 1 GPU Tray is not supported
    - 3 servers and 1 GPU Tray is not supported

Power supplies

The D2 Enclosure and Modular Enclosure come standard with two hot-plug power supplies and the power supplies 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 40. Power supply options for the D2 and Modular Enclosures

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.

Power supply options do not include a power cord. For models of the D2 Enclosure and Modular 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 Lenovo Capacity Planner to determine exactly what power your server needs:
https://datacentersupport.lenovo.com/us/en/products/solutions-and-software/software/lenovo-capacity-planner/solutions/ht504651

Power cords

Line cords and rack power cables with C13 connectors can be ordered as listed in the following table.

115V customers: If you plan to use the 1100W power supply with a low-range (100-127V) power source, select a power cable that is rated above 10A. Power cables that are rated at 10A or below are not supported with low-range power.

Table 41. Power cords

Part number	Feature code	Description
Rack cables - C13 to C14		
SL67B08593	BPHZ	0.5m, 10A/100-250V, C13 to C14 Jumper Cord
00Y3043	A4VP	1.0m, 10A/100-250V, C13 to C14 Jumper Cord
4L67A08367	B0N5	1.0m, 13A/100-250V, C13 to C14 Jumper Cord
39Y7937	6201	1.5m, 10A/100-250V, C13 to C14 Jumper Cord
4L67A08368	B0N6	1.5m, 13A/100-250V, C13 to C14 Jumper Cord
4L67A08365	B0N4	2.0m, 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 Rack Power Cable
Rack cables - C13 to C14 (Y-cable)		
00Y3046	A4VQ	1.345m, 2X C13 to C14 Jumper Cord, Rack Power Cable
00Y3047	A4VR	2.054m, 2X C13 to C14 Jumper Cord, Rack Power Cable
Rack cables - C13 to C20		
39Y7938	6204	2.8m, 10A/100-250V, C13 to IEC 320-C20 Rack Power Cable
Rack cables - C13 to C20 (Y-cable)		
47C2491	A3SW	1.2m, 16A/100-250V, 2 Short C13s to Short C20 Rack Power Cable
47C2492	A3SX	2.5m, 16A/100-250V, 2 Long C13s to Short C20 Rack Power Cable
47C2493	A3SY	2.8m, 16A/100-250V, 2 Short C13s to Long C20 Rack Power Cable
47C2494	A3SZ	4.1m, 16A/100-250V, 2 Long C13s to Long C20 Rack Power Cable
Line cords		
39Y7930	6222	2.8m, 10A/250V, C13 to IRAM 2073 (Argentina) Line Cord
81Y2384	6492	4.3m 10A/220V, C13 to IRAM 2073 (Argentina) Line Cord
39Y7924	6211	2.8m, 10A/250V, C13 to AS/NZ 3112 (Australia/NZ) Line Cord
81Y2383	6574	4.3m, 10A/230V, C13 to AS/NZS 3112 (Aus/NZ) Line Cord
69Y1988	6532	2.8m, 10A/250V, C13 to NBR 14136 (Brazil) Line Cord
81Y2387	6404	4.3m, 10A/250V, C13 - 2P+Gnd (Brazil) Line Cord
39Y7928	6210	2.8m, 10A/220V, C13 to GB 2099.1 (China) Line Cord
81Y2378	6580	4.3m, 10A/220V, 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/230V, C13 to DK2-5a (Denmark) Line Cord
39Y7917	6212	2.8m, 10A/230V, C13 to CEE7-VII (Europe) Line Cord

Part number	Feature code	Description
81Y2376	6572	4.3m, 10A/230V, C13 to CEE7-VII (Europe) Line Cord
39Y7927	6269	2.8m, 10A/250V, C13(2P+Gnd) (India) Line Cord
81Y2386	6567	4.3m, 10A/240V, 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/230V, C13 to SI 32 (Israel) Line Cord
39Y7921	6217	2.8m, 220-240V, C13 to CEI 23-16 (Italy/Chile) Line Cord
81Y2380	6493	4.3m, 10A/230V, C13 to CEI 23-16 (Italy/Chile) Line Cord
46M2593	A1RE	2.8m, 12A/125V, C13 to JIS C-8303 (Japan) Line Cord
4L67A08362	6495	4.3m, 12A/200V, C13 to JIS C-8303 (Japan) Line Cord
39Y7926	6335	4.3m, 12A/100V, C13 to JIS C-8303 (Japan) Line Cord
39Y7922	6214	2.8m, 10A/250V, C13 to SABS 164 (S Africa) Line Cord
81Y2379	6576	4.3m, 10A/230V, C13 to SABS 164 (South Africa) Line Cord
39Y7925	6219	2.8m, 220-240V, C13 to KETI (S Korea) Line Cord
81Y2385	6494	4.3m, 12A/220V, 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/230V, C13 to SEV 1011-S24507 (Sws) Line Cord
23R7158	6386	2.8m, 10A/125V, C13 to CNS 10917-3 (Taiwan) Line Cord
81Y2375	6317	2.8m, 10A/240V, C13 to CNS 10917-3 (Taiwan) Line Cord
81Y2374	6402	2.8m, 13A/125V, C13 to CNS 60799 (Taiwan) Line Cord
4L67A08363	AX8B	4.3m, 10A 125V, C13 to CNS 10917 (Taiwan) Line Cord
81Y2389	6531	4.3m, 10A/250V, C13 to 76 CNS 10917-3 (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/230V, C13 to BS 1363/A (UK) Line Cord
90Y3016	6313	2.8m, 10A/120V, C13 to NEMA 5-15P (US) Line Cord
46M2592	A1RF	2.8m, 10A/250V, C13 to NEMA 6-15P Line Cord
00WH545	6401	2.8m, 13A/120V, 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/120V, C13 to NEMA 5-15P (US) Line Cord

Cooling

The enclosures have 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

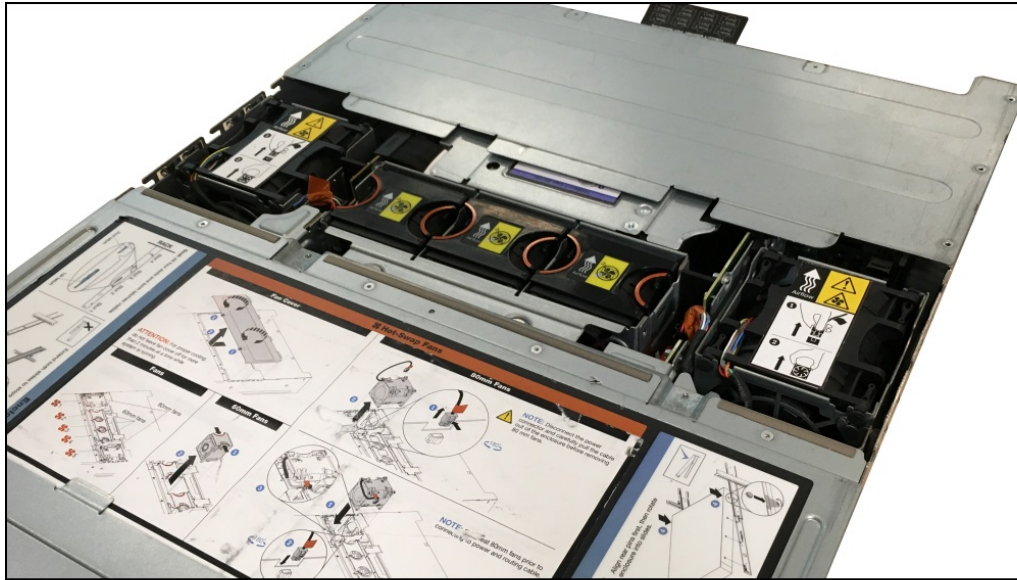The fans are accessible by simply removing the panel on the top of the enclosure.

Figure 15. 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:
https://vmware.lenovo.com/content/custom_iso/

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.

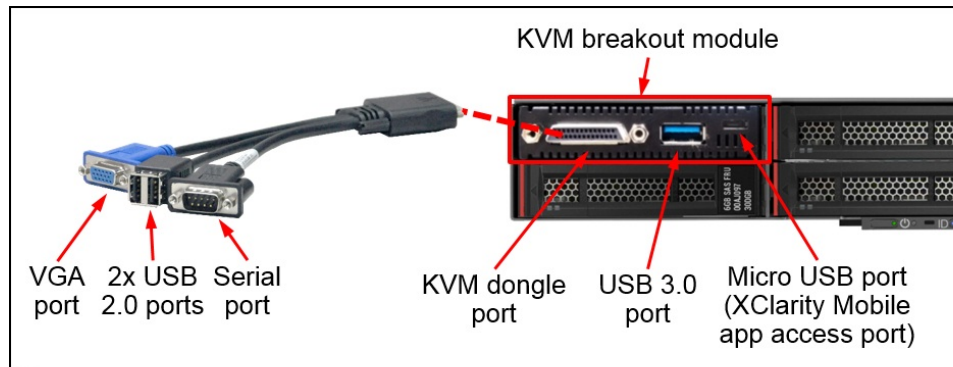The KVM module is shown in the following figure.

Figure 16. KVM breakout module and console breakout cable

The KVM module provides the following:

- KVM dongle port for optional console breakout cable, which provides VGA port, DB9 serial port, and two USB 2.0 ports
- USB 3.0 port
- Micro USB port for connectivity to the XClarity Controller

The Micro USB port is for local tethered connectivity to a mobile device running the XClarity Mobile app. This connection allows the app to connect to the XClarity Controller and 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 42. 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

System status with XClarity Mobile

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

The steps to connect the mobile device are as follows:

1. Enable USB Management on the server, by holding down the ID button for 3 seconds (or pressing the dedicated USB management button if one is present)
2. Connect the mobile device via a USB cable to the server's USB port with the management symbol

3. In iOS or Android settings, enable Personal Hotspot or USB Tethering
4. Launch the Lenovo XClarity Mobile app

Once connected you can see the following information:

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

Remote management

The D2 Enclosure (machine type 7X20) includes a System Management Module (SMM), installed in the rear of the enclosure. See Figure 3 for the location of the SMM. The SMM provides remote management via a Gigabit Ethernet port of both the enclosure and the individual servers.

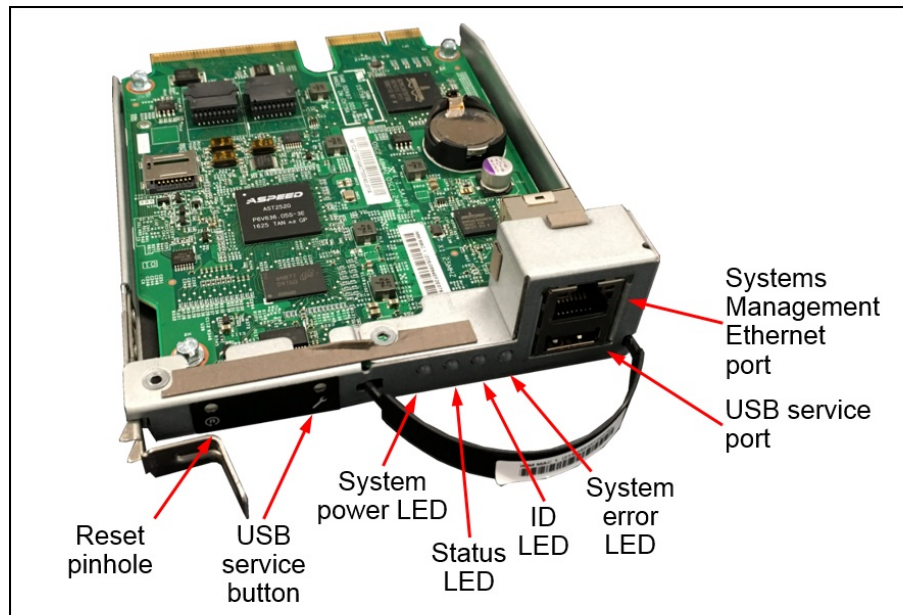The following figure shows the LEDs and connectors of the SMM.

Figure 17. 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 Modular Enclosure (machine type 7X22) has a dual-port SMM standard instead of the single-port SMM. The dual-port SMM is identical to the single-port SMM except that the dual-port SMM contains two RJ45 Ethernet ports instead of one port and supports daisy-chaining. The D2 Enclosure can be upgraded to the dual-port SMM in the field using the option part number listed in the following table.

Table 43. Part number information for the dual-port SMM (for D2 Enclosure only)

Part number	Feature code	Description
4M17A09510	AXKS	ThinkSystem Dual Ethernet Port SMM

The following figure shows the dual-port SMM on the left and the standard (single-port) SMM on the right.

Figure 18. Dual-port SMM and standard (single-port) SMM

The dual-port SMM provides the ability to daisy-chain the Ethernet management connections thereby reducing the number of ports you need in your management switches and reducing the overall cable density needed for systems management. With this feature you can connect the first SMM to your management network and the SMM in a second enclosure connects to the first SMM. The SMM in the third enclosure can then connect to the SMM in the second enclosure.

Up to 7 enclosures can be connected in a daisy-chain configuration, which means that with 4 servers in each node, a total of 28 servers can be managed remotely via one single Ethernet connection.

Notes:

- If you are using IEEE 802.1D spanning tree protocol (STP) then at most 6 enclosures can be connected together
- Do not form a loop with the network cabling. The dual-port SMM at the end of the chain should not be connected back to the switch that is connected to the top of the SMM chain.

For more information, see the Internal cable routing section of the SD530 Setup Guide at:
http://thinksystem.lenovofiles.com/help/topic/7X21/cable_routing_6U_enclosure.html?cp=2_0_5_6_5

SMM functions

The SMM provides the following functions:

- IPMI and Web interface for remote management of the enclosure
- Remote connectivity to XCC controllers in each node in the enclosure
- Node-level reporting and control (for example, node virtual reseat/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 First 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).

Supported interfaces

The SMM (both single-port and dual-port versions) can be accessed though 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 though 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

IPMI via the Ethernet port (IPMI over LAN) is supported, however it is disabled by default. For CTO orders you can specify whether you want to the feature enabled or disabled in the factory, using the feature codes listed in the following table.

Table 44. IPMI-over-LAN settings

Part number	Feature code	Description
CTO only	B7XZ	Disable IPMI-over-LAN (default)
CTO only	B7Y0	Enable IPMI-over-LAN

XClarity Controller upgrades

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 - Ability for up to 6 remote users to be log into the remote session simultaneously
- Power capping
- License for XClarity Energy Manager

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

Table 45. 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 46. 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 (LXPM) is a UEFI-based application embedded in ThinkSystem servers and accessible via the F1 key during system boot.

LXPM 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 settings, 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. It provides agent-free hardware management for ThinkSystem 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 is an optional software component for the SD530. The software can be downloaded and used at no charge to discover and monitor the SD530 and to manage firmware upgrades.

If software support is required for Lenovo XClarity Administrator, or premium features such as configuration management and operating system deployment are required, Lenovo XClarity Pro software subscription should be ordered. Lenovo XClarity Pro is licensed on a per managed system basis, that is, each managed Lenovo system requires a license.

The following table lists the Lenovo XClarity software license options.

Table 47. Lenovo XClarity Pro ordering information

Part number	Feature code	Description
00MT201	1339	Lenovo XClarity Pro, per Managed Endpoint w/1 Yr SW S&S
00MT202	1340	Lenovo XClarity Pro, per Managed Endpoint w/3 Yr SW S&S
00MT203	1341	Lenovo XClarity Pro, per Managed Endpoint w/5 Yr SW S&S
7S0X000HWW	SAYV	Lenovo XClarity Pro, per Managed Endpoint w/6 Yr SW S&S
7S0X000JWW	SAYW	Lenovo XClarity Pro, per Managed Endpoint w/7 Yr SW S&S

Lenovo XClarity Administrator offers the following standard features that are available at no charge:

- Auto-discovery and monitoring of Lenovo systems
- Firmware updates and compliance enforcement
- External alerts and notifications via SNMP traps, syslog remote logging, and e-mail
- Secure connections to managed endpoints
- NIST 800-131A or FIPS 140-3 compliant cryptographic standards between the management solution and managed endpoints
- Integration into existing higher-level management systems such as cloud automation and orchestration tools through REST APIs, providing extensive external visibility and control over hardware resources
- An intuitive, easy-to-use GUI
- Scripting with Windows PowerShell, providing command-line visibility and control over hardware resources

Lenovo XClarity Administrator offers the following premium features that require an optional Pro license:

- Pattern-based configuration management that allows to define configurations once and apply repeatedly without errors when deploying new servers or redeploying existing servers without disrupting the fabric
- Bare-metal deployment of operating systems and hypervisors to streamline infrastructure provisioning

For more information, refer to the Lenovo XClarity Administrator Product Guide:
http://lenovopress.com/tips1200

Lenovo XClarity Integrators

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

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

Lenovo XClarity Integrators offer the following additional features:

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

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

Lenovo XClarity Energy Manager

Lenovo XClarity Energy Manager (LXEM) is a power and temperature management solution for data centers. It is an agent-free, web-based console that enables you to monitor and manage power consumption and temperature in your data center through the management console. It enables server density and data center capacity to be increased through the use of power capping.

LXEM is a licensed product. A single-node LXEM license is included with the XClarity Controller 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 48. Lenovo XClarity Energy Manager

Part number	Description
4L40E51621	Lenovo XClarity Energy Manager Node License (1 license needed per server)

For more information about XClarity Energy Manager, see the following resources:

- Lenovo Support page:
  https://datacentersupport.lenovo.com/us/en/solutions/lnvo-lxem
- User Guide for XClarity Energy Manager:
  https://pubs.lenovo.com/lxem/

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 plugin Trusted Cryptographic Module (TCM) or Nationz TPM, available only in China

The plugin modules, available only for China customers, are installed in a dedicated socket on the system board, as shown in Figure 6. Ordering information is shown in the following table.

Table 49. Security features

Part number	Feature code	Description
None*	AVKE	ThinkSystem Trusted Cryptographic Module (China customers only)
None*	B22N	ThinkSystem Nationz Trusted Platform Module v2.0 (China customers only)

* Available configure-to-order or pre-configured models only; Not available as a field upgrade.

Operating system support

The server supports the following operating systems:

For a complete list of supported, certified and tested operating systems, plus additional details and links to relevant web sites, see the Operating System Interoperability Guide:
https://lenovopress.com/osig#servers=sd530-7x21

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 50. VMware ESXi preload

Part number	Feature code	Description
CTO only	AXFS	VMware ESXi 6.0 U3 (factory installed)
CTO only	AXFT	VMware ESXi 6.5 U1 (factory installed)
CTO only	B3VW	VMware ESXi 6.5 U2 (Factory Installed)
CTO only	B6U0	VMware ESXi 6.5 U3 (factory installed)
CTO only	B3VX	VMware ESXi 6.7 (Factory Installed)
CTO only	B4XA	VMware ESXi 6.7 U1 (Factory Installed)
CTO only	B6U1	VMware ESXi 6.7 U2 (factory installed)
CTO only	B88T	VMware ESXi 6.7 U3 (factory installed)
CTO only	BBZG	VMware ESXi 7.0 (Factory Installed)
CTO only	BE5E	VMware ESXi 7.0 U1 (Factory Installed)

Rack installation

The D2 Enclosure and Modular 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 51. 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 the enclosures have the following physical specifications.

D2 Enclosure and Modular 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 and Modular 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 the enclosures 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 52. 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

Description	Supports ASHRAE A2	Supports ASHRAE A3 and A4
Intel Xeon Silver 4114 10C 85W 2.2GHz Processor	Yes	Yes
Intel Xeon Silver 4114T 10C 85W 2.2GHz Processor	Yes	No
Intel Xeon Silver 4116 12C 85W 2.1GHz Processor	Yes	Yes
Intel Xeon Silver 4116T 12C 85W 2.1GHz Processor	Yes	No
Intel Xeon Gold 5115 10C 85W 2.4GHz Processor	Yes	Yes
Intel Xeon Gold 5117 14C 105W 2.0GHz Processor	Yes	No
Intel Xeon Gold 5118 12C 105W 2.3GHz Processor	Yes	Yes
Intel Xeon Gold 5119T 14C 85W 1.9GHz Processor	Yes	No
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
Intel Xeon Gold 6126T 12C 125W 2.6GHz Processor	Yes	No
Intel Xeon Gold 6128 6C 115W 3.4GHz Processor	Yes	No
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 6132 14C 140W 2.6GHz Processor	Yes	No
Intel Xeon Gold 6134 8C 130W 3.2GHz Processor	Yes	No
Intel Xeon Gold 6134M 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 6140M 18C 140W 2.3GHz Processor	Yes	No
Intel Xeon Gold 6142 16C 150W 2.6GHz Processor	Yes	No
Intel Xeon Gold 6142M 16C 150W 2.6GHz Processor	Yes	No
Intel Xeon Gold 6144 8C 150W 3.5GHz Processor	Yes	No
Intel Xeon Gold 6146 12C 165W 3.2GHz 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 Gold 6154 18C 200W 3.0GHz 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 8160M 24C 150W 2.1GHz Processor	Yes	No
Intel Xeon Platinum 8160T 24C 150W 2.1GHz Processor	Yes	No
Intel Xeon Platinum 8164 26C 150W 2.0GHz Processor	Yes	No
Intel Xeon Platinum 8168 24C 205W 2.7GHz Processor	Yes	No
Intel Xeon Platinum 8170 26C 165W 2.1GHz Processor	Yes	No

Description	Supports ASHRAE A2	Supports ASHRAE A3 and A4
Intel Xeon Platinum 8170M 26C 165W 2.1GHz Processor	Yes	No
Intel Xeon Platinum 8176 28C 165W 2.1GHz Processor	Yes	No
Intel Xeon Platinum 8176M 28C 165W 2.1GHz Processor	Yes	No
Intel Xeon Platinum 8180 28C 205W 2.5GHz Processor	Yes	No
Intel Xeon Platinum 8180M 28C 205W 2.5GHz 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)

Shock and vibration:

The server has the following vibration and shock limits:

- Vibration:
  - Operating: 0.21 G rms at 5 Hz to 500 Hz for 15 minutes across 3 axes
  - Non-operating: 1.04 G rms at 2 Hz to 200 Hz for 15 minutes across 6 surfaces
- Shock:
  - Operating: 15 G for 3 milliseconds in each direction (positive and negative X, Y, and Z axes)
  - Non-operating:
    - 12 kg - 22 kg: 50 G for 152 in./sec velocity change across 6 surfaces
    - 23 kg - 31 kg: 35 G for 152 in./sec velocity change across 6 surfaces

Warranty upgrades and post-warranty support

The SD530, D2 Enclosure and Modular Enclosure all have a 3 year warranty.

Our global network of regional support centers offers consistent, local-language support enabling you to vary response times and level of service to match the criticality of your support needs:

- **Standard Next Business Day** – Best choice for non-essential systems requiring simple maintenance.
- **Premier Next Business Day** – Best choice for essential systems requiring technical expertise from senior-level Lenovo engineers.
- **Premier 24x7 4-Hour Response** – Best choice for systems where maximum uptime is critical.
- **Premier Enhanced Storage Support 24x7 4-Hour Response** – Best choice for storage systems where maximum uptime is critical.

For more information, consult the brochure Lenovo Operational Support Services for Data Centers Services

Services

Lenovo Data Center Services empower you at every stage of your IT lifecycle. From expert advisory and strategic planning to seamless deployment and ongoing support, we ensure your infrastructure is built for success. Our comprehensive services accelerate time to value, minimize downtime, and free your IT staff to focus on driving innovation and business growth.

> **Note**: Some service options may not be available in all markets or regions. For more information, go to https://lenovolocator.com/. For information about Lenovo service upgrade offerings that are available in your region, contact your local Lenovo sales representative or business partner.

In this section:

- Lenovo Advisory Services
- Lenovo Plan & Design Services
- Lenovo Deployment, Migration, and Configuration Services
- Lenovo Support Services
- Lenovo Managed Services
- Lenovo Sustainability Services

Lenovo Advisory Services

Lenovo Advisory Services simplify the planning process, enabling customers to build future-proofed strategies in as little as six weeks. Consultants provide guidance on projects including VM migration, storage, backup and recovery, and cost management to accelerate time to value, improve cost efficiency, and build a flexibly scalable foundation.

- **Assessment Services**

  An Assessment helps solve your IT challenges through an onsite, multi-day session with a Lenovo technology expert. We perform a tools-based assessment which provides a comprehensive and thorough review of a company's environment and technology systems. In addition to the technology based functional requirements, the consultant also discusses and records the non-functional business requirements, challenges, and constraints. Assessments help organizations like yours, no matter how large or small, get a better return on your IT investment and overcome challenges in the ever-changing technology landscape.

- **Design Services**

  Professional Services consultants perform infrastructure design and implementation planning to support your strategy. The high-level architectures provided by the assessment service are turned into low level designs and wiring diagrams, which are reviewed and approved prior to implementation. The implementation plan will demonstrate an outcome-based proposal to provide business capabilities through infrastructure with a risk-mitigated project plan.

Lenovo Plan & Design Services

Unlock faster time to market with our tailored, strategic design workshops to align solution approaches with your business goals and technical requirements. Leverage our deep solution expertise and end-to-end delivery partnership to meet your goals efficiently and effectively.

Lenovo Deployment, Migration, and Configuration Services

Optimize your IT operations by shifting labor-intensive functions to Lenovo's skilled technicians for seamless on-site or remote deployment, configuration, and migration. Enjoy peace of mind, faster time to value, and comprehensive knowledge sharing with your IT staff, backed by our best-practice methodology.

- **Deployment Services for Storage and ThinkAgile**

  A comprehensive range of remote and onsite options tailored specifically for your business needs to ensure your storage and ThinkAgile hardware are fully operational from the start.

- **Hardware Installation Services**

  A full-range, comprehensive setup for your hardware, including unpacking, inspecting, and positioning components to ensure your equipment is operational and error-free for the most seamless and efficient installation experience, so you can quickly benefit from your investments.

- **DM/DG File Migration Services**

  Take the burden of file migration from your IT's shoulders. Our experts will align your requirements and business objectives to the migration plans while coordinating with your team to plan and safely execute the data migration to your storage platforms.

- **DM/DG/DE Health Check Services**

  Our experts perform proactive checks of your Firmware and system health to ensure your machines are operating at peak and optimal efficiency to maximize up-time, avoid system failures, ensure the security of IT solutions and simplify maintenance.

- **Factory Integrated Services**

  A suite of value-added offerings provided during the manufacturing phase of a server or storage system that reduces time to value. These services aim at improving your hardware deployment experience and enhance the quality of a standard configuration before it arrives at your facility.

Lenovo Support Services

In addition to response time options for hardware parts, repairs, and labor, Lenovo offers a wide array of additional support services to ensure your business is positioned for success and longevity. Our goal is to reduce your capital outlays, mitigate your IT risks, and accelerate your time to productivity.

- **Premier Support for Data Centers**

  Your direct line to the solution that promises the best, most comprehensive level of support to help you fully unlock the potential of your data center.

- **Premier Enhanced Storage Support (PESS)**

  Gain all the benefits of Premier Support for Data Centers, adding dedicated storage specialists and resources to elevate your storage support experience to the next level.

- **Committed Service Repair (CSR)**

  Our commitment to ensuring the fastest, most seamless resolution times for mission-critical systems that require immediate attention to ensure minimal downtime and risk for your business. This service is only available for machines under the Premier 4-Hour Response SLA.

- **Multivendor Support Services (MVS)**

  Your single point of accountability for resolution support across vast range of leading Server, Storage, and Networking OEMs, allowing you to manage all your supported infrastructure devices seamlessly from a single source.

- **Keep Your Drive (KYD)**

  Protect sensitive data and maintain compliance with corporate retention and disposal policies to ensure your data is always under your control, regardless of the number of drives that are installed in your Lenovo server.

- **Technical Account Manager (TAM)**

  Your single point of contact to expedite service requests, provide status updates, and furnish reports to track incidents over time, ensuring smooth operations and optimized performance as your business grows.

- **Enterprise Software Support (ESS)**

  Gain comprehensive, single-source, and global support for a wide range of server operating systems and Microsoft server applications.

For more information, consult the brochure Lenovo Operational Support Services for Data Centers.

Lenovo Managed Services

Achieve peak efficiency, high security, and minimal disruption with Lenovo's always-on Managed Services. Our real-time monitoring, 24x7 incident response, and problem resolution ensure your infrastructure operates seamlessly. With quarterly health checks for ongoing optimization and innovation, Lenovo's remote active monitoring boosts end-user experience and productivity by keeping your data center's hardware performing at its best.

Lenovo Managed Services provides continuous 24x7 remote monitoring (plus 24x7 call center availability) and proactive management of your data center using state-of-the-art tools, systems, and practices by a team of highly skilled and experienced Lenovo services professionals.

Quarterly reviews check error logs, verify firmware & OS device driver levels, and software as needed. We'll also maintain records of latest patches, critical updates, and firmware levels, to ensure you systems are providing business value through optimized performance.

Lenovo Sustainability Services

- **Asset Recovery Services**

  Lenovo Asset Recovery Services (ARS) provides a secure, seamless solution for managing end-of-life IT assets, ensuring data is safely sanitized while contributing to a more circular IT lifecycle. By maximizing the reuse or responsible recycling of devices, ARS helps businesses meet sustainability goals while recovering potential value from their retired equipment. For more information, see the Asset Recovery Services offering page.

- **CO2 Offset Services**

  Lenovo's CO2 Offset Services offer a simple and transparent way for businesses to take tangible action on their IT footprint. By integrating CO2 offsets directly into device purchases, customers can easily support verified climate projects and track their contributions, making meaningful progress toward their sustainability goals without added complexity.

- **Lenovo Certified Refurbished**

  Lenovo Certified Refurbished offers a cost-effective way to support IT circularity without compromising on quality and performance. Each device undergoes rigorous testing and certification, ensuring reliable performance and extending its lifecycle. With Lenovo's trusted certification, you gain peace of mind while making a more sustainable IT choice.

Lenovo TruScale

Lenovo TruScale XaaS is your set of flexible IT services that makes everything easier. Streamline IT procurement, simplify infrastructure and device management, and pay only for what you use – so your business is free to grow and go anywhere.

Lenovo TruScale is the unified solution that gives you simplified access to:

- The industry's broadest portfolio – from pocket to cloud – all delivered as a service
- A single-contract framework for full visibility and accountability
- The global scale to rapidly and securely build teams from anywhere
- Flexible fixed and metered pay-as-you-go models with minimal upfront cost
- The growth-driving combination of hardware, software, infrastructure, and solutions – all from one single provider with one point of accountability.

For information about Lenovo TruScale offerings that are available in your region, contact your local Lenovo sales representative or business partner.

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 D2 Enclosure and Modular Enclosure conform or there are plans for the enclosures 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.

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

Table 53. External drive enclosures

Model	Description
4587HC1	Lenovo Storage D1212 Disk Expansion Enclosure (2U enclosure with 12x LFF drive bays)
4587HC2	Lenovo Storage D1224 Disk Expansion Enclosure (2U enclosure with 24x SFF drive bays)
6413HC1	Lenovo Storage D3284 High Density Expansion Enclosure (5U enclosure with 84x LFF drive bays)
7DAHCTO1WW	Lenovo ThinkSystem D4390 Direct Attached Storage (4U enclosure with 90x LFF drive bays)

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

- Lenovo Storage D1212 and D1224
  http://lenovopress.lenovo.com/lp0512

- Lenovo Storage D3284
  http://lenovopress.lenovo.com/lp0513

- Lenovo ThinkSystem D4390
  https://lenovopress.lenovo.com/lp1681

External storage systems

Lenovo offers the ThinkSystem DE Series, ThinkSystem DG Series and ThinkSystem DM Series external storage systems for high-performance storage. See the DE Series, DG Series and DM Series product guides for specific controller models, expansion enclosures and configuration options:

- ThinkSystem DE Series Storage
  https://lenovopress.com/storage/thinksystem/de-series#rt=product-guide
- ThinkSystem DM Series Storage
  https://lenovopress.com/storage/thinksystem/dm-series#rt=product-guide
- ThinkSystem DG Series Storage
  https://lenovopress.com/storage/thinksystem/dg-series#rt=product-guide

External backup units

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

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

Table 54. External SAS backup options

Part number	Description
External SAS tape backup drives	
6160S6E	IBM TS2260 Tape Drive Model H6S
6160S7E	IBM TS2270 Tape Drive Model H7S
6160S8E	IBM TS2280 Tape Drive Model H8S
6160S9E	IBM TS2290 Tape Drive Model H9S
External SAS tape backup autoloaders	
6171S6R	IBM TS2900 Tape Autoloader w/LTO6 HH SAS
6171S7R	IBM TS2900 Tape Autoloader w/LTO7 HH SAS
6171S8R	IBM TS2900 Tape Autoloader w/LTO8 HH SAS
6171S9R	IBM TS2900 Tape Autoloader w/LTO9 HH SAS
External tape backup libraries	
6741A1F	IBM TS4300 3U Tape Library Base Unit
6741B1F	IBM TS4300 3U Tape Library Base Unit - Max 48U
6741A3F	TS4300 Tape Library Expansion Unit
6741B3F	IBM TS4300 3U Tape Library Expansion Unit - Max 48U
SAS backup drives for TS4300 Tape Library	
01KP934	LTO 6 HH SAS Drive
01KP937	LTO 7 HH SAS Drive
01KP953	LTO 8 HH SAS Drive
02JH836	LTO 9 HH SAS Drive

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

Top-of-rack Ethernet switches

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

Table 55. Ethernet LAN switches

Part number	Description
1 Gb Ethernet Rack switches	
7Y810011WW	Lenovo ThinkSystem NE0152T RackSwitch (Rear to Front)
7Z320O11WW	Lenovo ThinkSystem NE0152TO RackSwitch (Rear to Front, ONIE)
7159BAX	Lenovo RackSwitch G7028 (Rear to Front)
7159CAX	Lenovo RackSwitch G7052 (Rear to Front)
7159G52	Lenovo RackSwitch G8052 (Rear to Front)
7165H1X	Juniper EX2300-C PoE Switch
7165H2X	Juniper EX2300-24p PoE Switch
1 Gb Ethernet Campus switches	
7Z340011WW	Lenovo CE0128TB Switch (3-Year Warranty)
7Z360011WW	Lenovo CE0128TB Switch (Limited Lifetime Warranty)
7Z340012WW	Lenovo CE0128PB Switch (3-Year Warranty)
7Z360012WW	Lenovo CE0128PB Switch (Limited Lifetime Warranty)
7Z350021WW	Lenovo CE0152TB Switch (3-Year Warranty)
7Z370021WW	Lenovo CE0152TB Switch (Limited Lifetime Warranty)
7Z350022WW	Lenovo CE0152PB Switch (3-Year Warranty)
7Z370022WW	Lenovo CE0152PB Switch (Limited Lifetime Warranty)
10 Gb Ethernet switches	
7159A1X	Lenovo ThinkSystem NE1032 RackSwitch (Rear to Front)
7159B1X	Lenovo ThinkSystem NE1032T RackSwitch (Rear to Front)
7Z330O11WW	Lenovo ThinkSystem NE1064TO RackSwitch (Rear to Front, ONIE)
7159C1X	Lenovo ThinkSystem NE1072T RackSwitch (Rear to Front)
7159CRW	Lenovo RackSwitch G8272 (Rear to Front)
7159GR6	Lenovo RackSwitch G8296 (Rear to Front)
7159BR6	Lenovo RackSwitch G8124E (Rear to Front)
25 Gb Ethernet switches	
7159E1X	Lenovo ThinkSystem NE2572 RackSwitch (Rear to Front)
7Z210O21WW	Lenovo ThinkSystem NE2572O RackSwitch (Rear to Front, ONIE)
7Z330O21WW	Lenovo ThinkSystem NE2580O RackSwitch (Rear to Front, ONIE)
100 Gb Ethernet switches	
7159D1X	Lenovo ThinkSystem NE10032 RackSwitch (Rear to Front)
7Z210O11WW	Lenovo ThinkSystem NE10032O RackSwitch (Rear to Front, ONIE)

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

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

Fibre Channel SAN switches

Lenovo offers the ThinkSystem DB Series of Fibre Channel SAN switches for high-performance storage expansion. See the DB Series product guides for models and configuration options:

- ThinkSystem DB Series SAN Switches:
  https://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 56. Uninterruptible power supply units

Part number	Description
Rack-mounted or tower UPS units - 100-125VAC	
7DD5A001WW	RT1.5kVA 2U Rack or Tower UPS-G2 (100-125VAC)
55941AX	RT1.5kVA 2U Rack or Tower UPS (100-125VAC)
55942AX	RT2.2kVA 2U Rack or Tower UPS (100-125VAC)
7DD5A003WW	RT3kVA 2U Rack or Tower UPS-G2 (100-125VAC)
55943AX	RT3kVA 2U Rack or Tower UPS (100-125VAC)
Rack-mounted or tower UPS units - 200-240VAC	
7DD5A002WW	RT1.5kVA 2U Rack or Tower UPS-G2 (200-240VAC)
55941KX	RT1.5kVA 2U Rack or Tower UPS (200-240VAC)
55942KX	RT2.2kVA 2U Rack or Tower UPS (200-240VAC)
7DD5A005WW	RT3kVA 2U Rack or Tower UPS-G2 (200-240VAC)
55943KX	RT3kVA 2U Rack or Tower UPS (200-240VAC)
7DD5A007WW	RT5kVA 3U Rack or Tower UPS-G2 (200-240VAC)
55945KX	RT5kVA 3U Rack or Tower UPS (200-240VAC)
7DD5A008WW	RT6kVA 3U Rack or Tower UPS-G2 (200-240VAC)
55946KX	RT6kVA 3U Rack or Tower UPS (200-240VAC)
55948KX	RT8kVA 6U Rack or Tower UPS (200-240VAC)
7DD5A00AWW	RT11kVA 6U Rack or Tower UPS-G2 (200-240VAC)
55949KX	RT11kVA 6U Rack or Tower UPS (200-240VAC)
55943KT†	ThinkSystem RT3kVA 2U Standard UPS (200-230VAC) (2x C13 10A, 2x GB 10A, 1x C19 16A outlets)
55943LT†	ThinkSystem RT3kVA 2U Long Backup UPS (200-230VAC) (2x C13 10A, 2x GB 10A, 1x C19 16A outlets)
55946KT†	ThinkSystem RT6kVA 5U UPS (200-230VAC) (2x C13 10A outlets, 1x Terminal Block output)
5594XKT†	ThinkSystem RT10kVA 5U UPS (200-230VAC) (2x C13 10A outlets, 1x Terminal Block output)
Rack-mounted or tower UPS units - 380-415VAC	
55948PX	RT8kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC)
55949PX	RT11kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC)

† Only available in China and the Asia Pacific market.

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 57. Power distribution units

Part number	Feature code	Description	ANZ	ASEAN	Brazil	EET	MEA	RUCIS	WE	HTK	INDIA	JAPAN	LA	NA	PRC
0U Basic PDUs															
4PU7A93176	C0QH	0U 36 C13 and 6 C19 Basic 32A 1 Phase PDU v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93169	C0DA	0U 36 C13 and 6 C19 Basic 32A 1 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93177	C0QJ	0U 24 C13/C15 and 24 C13/C15/C19 Basic 32A 3 Phase WYE PDU v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A93170	C0D9	0U 24 C13/C15 and 24 C13/C15/C19 Basic 32A 3 Phase WYE PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
00YJ776	ATZY	0U 36 C13/6 C19 24A 1 Phase PDU	N	Y	Y	N	N	N	N	N	N	Y	Y	Y	N
00YJ779	ATZX	0U 21 C13/12 C19 48A 3 Phase PDU	N	N	Y	N	N	N	Y	N	N	Y	Y	Y	N
00YJ777	ATZZ	0U 36 C13/6 C19 32A 1 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y
00YJ778	AU00	0U 21 C13/12 C19 32A 3 Phase PDU	Y	Y	N	Y	Y	Y	Y	Y	Y	N	N	Y	Y
0U Switched and Monitored PDUs															
4PU7A93181	C0QN	0U 21 C13/C15 and 21 C13/C15/C19 Switched and Monitored 48A 3 Phase Delta PDU v2 (60A derated)	N	Y	N	N	N	N	N	Y	N	Y	N	Y	N
4PU7A93174	C0D5	0U 21 C13/C15 and 21 C13/C15/C19 Switched and Monitored 48A 3 Phase Delta PDU (60A derated)	N	Y	N	N	N	N	N	Y	N	N	N	Y	N
4PU7A93178	C0QK	0U 20 C13 and 4 C19 Switched and Monitored 32A 1 Phase PDU v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93171	C0D8	0U 20 C13 and 4 C19 Switched and Monitored 32A 1 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93182	C0QP	0U 18 C13/C15 and 18 C13/C15/C19 Switched and Monitored 63A 3 Phase WYE PDU v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A93175	C0CS	0U 18 C13/C15 and 18 C13/C15/C19 Switched and Monitored 63A 3 Phase WYE PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93180	C0QM	0U 18 C13/C15 and 18 C13/C15/C19 Switched and Monitored 32A 3 Phase WYE PDU v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A93173	C0D6	0U 18 C13/C15 and 18 C13/C15/C19 Switched and Monitored 32A 3 Phase WYE PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A93179	C0QL	0U 16 C13/C15 and 16 C13/C15/C19 Switched and Monitored 24A 1 Phase PDU v2 (30A derated)	N	Y	N	N	N	N	N	Y	N	Y	N	Y	N

Part number	Feature code	Description	ANZ	ASEAN	Brazil	EET	MEA	RUCIS	WE	HTK	INDIA	JAPAN	LA	NA	PRC
4PU7A93172	C0D7	0U 16 C13/C15 and 16 C13/C15/C19 Switched and Monitored 24A 1 Phase PDU(30A derated)	N	Y	N	N	N	N	N	Y	N	N	N	Y	N
00YJ783	AU04	0U 12 C13/12 C19 Switched and Monitored 48A 3 Phase PDU	N	N	Y	N	N	N	Y	N	N	Y	Y	Y	N
00YJ781	AU03	0U 20 C13/4 C19 Switched and Monitored 24A 1 Phase PDU	N	N	Y	N	Y	N	Y	N	N	Y	Y	Y	N
00YJ782	AU02	0U 18 C13/6 C19 Switched and Monitored 32A 3 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y
00YJ780	AU01	0U 20 C13/4 C19 Switched and Monitored 32A 1 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y
1U Switched and Monitored PDUs															
4PU7A90808	C0D4	1U 18 C19/C13 Switched and monitored 48A 3P WYE PDU V2 ETL	N	N	N	N	N	N	N	Y	N	Y	Y	Y	N
4PU7A81117	BNDV	1U 18 C19/C13 switched and monitored 48A 3P WYE PDU - ETL	N	N	N	N	N	N	N	N	N	N	N	Y	N
4PU7A90809	C0DE	1U 18 C19/C13 Switched and monitored 48A 3P WYE PDU V2 CE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y
4PU7A81118	BNDW	1U 18 C19/C13 switched and monitored 48A 3P WYE PDU – CE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y
4PU7A90810	C0DD	1U 18 C19/C13 Switched and monitored 80A 3P Delta PDU V2	N	N	N	N	N	N	N	Y	N	Y	Y	Y	N
4PU7A77467	BLC4	1U 18 C19/C13 Switched and Monitored 80A 3P Delta PDU	N	N	N	N	N	N	N	N	N	Y	N	Y	N
4PU7A90811	C0DC	1U 12 C19/C13 Switched and monitored 32A 3P WYE PDU V2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A77468	BLC5	1U 12 C19/C13 switched and monitored 32A 3P WYE PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A90812	C0DB	1U 12 C19/C13 Switched and monitored 60A 3P Delta PDU V2	N	N	N	N	N	N	N	Y	N	Y	Y	Y	N
4PU7A77469	BLC6	1U 12 C19/C13 switched and monitored 60A 3P Delta PDU	N	N	N	N	N	N	N	N	N	N	N	Y	N
46M4002	5896	1U 9 C19/3 C13 Switched and Monitored DPI PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
46M4004	5894	1U 12 C13 Switched and Monitored DPI PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
46M4003	5897	1U 9 C19/3 C13 Switched and Monitored 60A 3 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
46M4005	5895	1U 12 C13 Switched and Monitored 60A 3 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1U Ultra Density Enterprise PDUs (9x IEC 320 C13 + 3x IEC 320 C19 outlets)															
71763NU	6051	Ultra Density Enterprise C19/C13 PDU 60A/208V/3PH	N	N	Y	N	N	N	N	N	N	Y	Y	Y	N
71762NX	6091	Ultra Density Enterprise C19/C13 PDU Module	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1U C13 Enterprise PDUs (12x IEC 320 C13 outlets)															

Part number	Feature code	Description	ANZ	ASEAN	Brazil	EET	MEA	RUCIS	WE	HTK	INDIA	JAPAN	LA	NA	PRC
39M2816	6030	DPI C13 PDU+	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8941	6010	Enterprise C13 PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1U C19 Enterprise PDUs (6x IEC 320 C19 outlets)															
39Y8948	6060	Enterprise C19 PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8923	6061	Enterprise C19 3 phase PDU (60a)	N	N	Y	N	N	N	Y	N	N	N	Y	Y	N
1U Front-end PDUs (3x IEC 320 C19 outlets)															
39Y8938	6002	DPI 30amp/125V Front-end PDU with NEMA L5-30P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8939	6003	DPI 30amp/250V Front-end PDU with NEMA L6-30P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8934	6005	DPI 32amp/250V Front-end PDU with IEC 309 2P+Gnd	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8940	6004	DPI 60amp/250V Front-end PDU with IEC 309 2P+Gnd connector	Y	N	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N
39Y8935	6006	DPI 63amp/250V Front-end PDU with IEC 309 2P+Gnd connector	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1U NEMA PDUs (6x NEMA 5-15R outlets)															
39Y8905	5900	DPI 100-127v PDU with Fixed Nema L5-15P line cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Line cords for 1U PDUs that ship without a line cord															
40K9611	6504	DPI 32a Cord (IEC 309 3P+N+G)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9612	6502	DPI 32a Cord (IEC 309 P+N+G)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9613	6503	DPI 63a Cord (IEC 309 P+N+G)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9614	6500	DPI 30a Cord (NEMA L6-30P)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9615	6501	DPI 60a Cord (IEC 309 2P+G)	N	N	Y	N	N	N	Y	N	N	Y	Y	Y	N
40K9617	6505	4.3m, 32A/230V, Souriau UTG to AS/NZS 3112 (Aus/NZ) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9618	6506	4.3m, 32A/250V, Souriau UTG Female to KSC 8305 (S. Korea) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

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 58. Supported rack cabinets

Part number	Description	Supports enclosure	Maximum supported	Supports D2 CMA	Supports 0U PDUs
7D2B0001WW 7D2N0001WW	12U 1200mm Deep Micro Data Center Rack	Yes	5	Yes	No
7D2C0001WW 7D2P0001WW	18U 1200mm Deep Micro Data Center Rack	Yes	8	Yes	No
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.

Table 59. KVM console

Part number	Description
Consoles	
4XF7A84188	ThinkSystem 18.5" LCD console (with US English keyboard)
4XF7A73009	ThinkSystem 18.5" LCD console (with US English keyboard)
17238BX	1U 18.5" Standard Console (without keyboard - see the next table)

The following table lists the keyboards supported with the 1U 18.5" Standard Console (now withdrawn).

Note: These keyboards are not supported with the ThinkSystem 18.5" LCD Console.

Table 60. Keyboards for 1U 18.5" Standard Console

Part number	Description
7ZB7A05469	ThinkSystem Keyboard w/ Int.Pointing Device USB - Arabic 253 RoHS v2
7ZB7A05468	ThinkSystem Keyboard w/ Int. Pointing Device USB - Belg/UK 120 RoHS v2
7ZB7A05206	ThinkSystem Keyboard w/ Int. Pointing Device USB - Czech 489 RoHS v2
7ZB7A05207	ThinkSystem Keyboard w/ Int. Pointing Device USB - Danish 159 RoHS v2
7ZB7A05208	ThinkSystem Keyboard w/ Int. Pointing Device USB - Dutch 143 RoHS v2
7ZB7A05210	ThinkSystem Keyboard w/ Int. Pointing Device USB - Fr/Canada 445 RoHS v2
7ZB7A05209	ThinkSystem Keyboard w/ Int. Pointing Device USB - French 189 RoHS v2
7ZB7A05211	ThinkSystem Keyboard w/ Int. Pointing Device USB - German 129 RoHS v2
7ZB7A05212	ThinkSystem Keyboard w/ Int. Pointing Device USB - Greek 219 RoHS v2
7ZB7A05213	ThinkSystem Keyboard w/ Int. Pointing Device USB - Hebrew 212 RoHS v2
7ZB7A05214	ThinkSystem Keyboard w/ Int. Pointing Device USB - Hungarian 208 RoHS v2
7ZB7A05215	ThinkSystem Keyboard w/ Int. Pointing Device USB - Italian 141 RoHS v2
7ZB7A05216	ThinkSystem Keyboard w/ Int. Pointing Device USB - Japanese 194 RoHS v2
7ZB7A05217	ThinkSystem Keyboard w/ Int. Pointing Device USB - Korean 413 RoHS v2
7ZB7A05218	ThinkSystem Keyboard w/ Int. Pointing Device USB - LA Span 171 RoHS v2
7ZB7A05219	ThinkSystem Keyboard w/ Int. Pointing Device USB - Norwegian 155 RoHS v2
7ZB7A05220	ThinkSystem Keyboard w/ Int. Pointing Device USB - Polish 214 RoHS v2
7ZB7A05221	ThinkSystem Keyboard w/ Int. Pointing Device USB - Portugese 163 RoHS v2
7ZB7A05222	ThinkSystem Keyboard w/ Int. Pointing Device USB - Russian 441 RoHS v2
7ZB7A05223	ThinkSystem Keyboard w/ Int. Pointing Device USB - Slovak 245 RoHS v2
7ZB7A05231	ThinkSystem Keyboard w/ Int. Pointing Device USB - Slovenian 234 RoHS v2
7ZB7A05224	ThinkSystem Keyboard w/ Int. Pointing Device USB - Spanish 172 RoHS v2
7ZB7A05225	ThinkSystem Keyboard w/ Int. Pointing Device USB - Swed/Finn 153 RoHS v2
7ZB7A05226	ThinkSystem Keyboard w/ Int. Pointing Device USB - Swiss F/G 150 RoHS v2
7ZB7A05227	ThinkSystem Keyboard w/ Int. Pointing Device USB - Thai 191 RoHS v2
7ZB7A05467	ThinkSystem Keyboard with Int. Pointing Device USB - Trad Chinese/US 467 RoHS v2
7ZB7A05228	ThinkSystem Keyboard w/ Int. Pointing Device USB - Turkish 179 RoHS v2
7ZB7A05229	ThinkSystem Keyboard w/ Int. Pointing Device USB - UK Eng 166 RoHS v2
7ZB7A05470	ThinkSystem Keyboard w/ Int. Pointing Device USB - US Eng 103P RoHS v2
7ZB7A05230	ThinkSystem Keyboard w/ Int. Pointing Device USB - US Euro 103P RoHS v2

The following table lists the available KVM switches and the options that are supported with them.

Table 61. KVM switches and options

Part number	Description
KVM Console switches	
1754D1T	ThinkSystem Digital 2x1x16 KVM Switch (DVI video output port)
1754A1T	ThinkSystem Analog 1x8 KVM Switch (DVI video output port)
1754D2X	Global 4x2x32 Console Manager (GCM32)
1754D1X	Global 2x2x16 Console Manager (GCM16)
1754A2X	Local 2x16 Console Manager (LCM16)
1754A1X	Local 1x8 Console Manager (LCM8)
Cables for ThinkSystem Digital and Analog KVM Console switches	
4X97A11108	ThinkSystem VGA to DVI Conversion Cable
4X97A11109	ThinkSystem Single-USB Conversion Cable for Digital KVM
4X97A11107	ThinkSystem Dual-USB Conversion Cable for Digital KVM
4X97A11106	ThinkSystem USB Conversion Cable for Analog KVM
Cables for GCM and LCM Console switches	
43V6147	Single Cable USB Conversion Option (UCO)
39M2895	USB Conversion Option Pack
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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Related publications and links

For more information, see these resources:

- ThinkSystem SD530 product page
  https://www.lenovo.com/us/en/data-center/servers/high-density/ThinkSystem-SD530/p/77XX7DSSD53

- Interactive 3D Tour of the ThinkSystem SD530:
  http://lenovopress.com/LP0667

- Lenovo Press walk-through video of the ThinkSystem SD530:
  https://lenovopress.com/LP0704

- ThinkSystem SD530 drivers and support
  http://datacentersupport.lenovo.com/products/servers/thinksystem/sd530/7x21/downloads

- 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

- Lenovo Hardware Installation & Removal Videos on the ThinkSystem SD530:
    - YouTube: https://www.youtube.com/playlist?list=PLYV5R7hVcs-DOlbsCdADcoKQdMB2Uuk-T
    - Youku: https://list.youku.com/albumlist/show/id_50483438

- 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:

- Multi-Node Servers
- ThinkSystem SD530 Server

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