



Lenovo ThinkSystem SR590 Server Product Guide

Lenovo ThinkSystem SR590 is a 2-socket 2U rack server for small businesses up to large enterprises that need industry-leading reliability, management, and security, as well as balancing performance and expandability. The SR590 server is designed to handle a wide range of workloads, such as virtualization and cloud computing, IT infrastructure, enterprise applications, collaboration/email, and web serving.

Featuring the Intel Xeon Processor Scalable Family, the SR590 server offers balanced performance, storage capacity, and I/O expansion. The SR590 server supports up to two processors, up to 1 TB of 2666 MHz TruDDR4 memory, up to 16x 2.5-inch or 14x 3.5-inch drive bays with an extensive choice of NVMe PCIe SSDs, SAS/SATA SSDs, and SAS/SATA HDDs, and flexible I/O expansion options with the LOM slot and up to 6x PCIe slots.

The SR590 server offers basic software RAID or advanced hardware RAID protection and a wide range of networking options, including selectable LOM, ML2, and PCIe network adapters. The next-generation Lenovo XClarity Controller, which is built into the SR590 server, provides advanced service processor control, monitoring, and alerting functions.

The following figure shows the ThinkSystem SR590 models.



Figure 1. Lenovo ThinkSystem SR590: 16x SFF (left) or 12x LFF (right) drive bays

Did you know?

The SR590 server features a unique AnyBay design that allows a choice of drive interface types in the same drive bay: SAS drives, SATA drives, or U.2 NVMe PCIe drives.

The SR590 server offers onboard NVMe PCIe ports that allow direct connections to the U.2 NVMe PCIe SSDs, which frees up I/O slots and helps lower NVMe solution acquisition costs.

The SR590 server delivers impressive compute power per watt, featuring 80 PLUS Titanium and Platinum redundant power supplies that can deliver 96% (Titanium) or 94% (Platinum) efficiency at 50% load when connected to a 200 - 240 V AC power source.

The SR590 server is designed to meet ASHRAE A4 standards (up to 45 °C [113 °F]) in select configurations, which enable customers to lower energy costs, while still maintaining world-class reliability.

Key features

The SR590 server offers a balance of processing power, storage capacity, and cost for small and medium businesses up to the large enterprise. Ease of use and comprehensive systems management tools help make deployment easier. Outstanding reliability, availability, and serviceability (RAS) and high-efficiency design improve your business environment and help save operational costs.

Scalability and performance

The SR590 server offers numerous features to boost performance, improve scalability, and reduce costs:

- Improves productivity by offering superior system performance with the Intel Xeon Processor Scalable Family with up to 26-core processors, up to 35.75 MB of last level cache (LLC), up to 2666 MHz memory speeds, and up to 10.4 GT/s Ultra Path Interconnect (UPI) links.
 - Support for up to two processors, 52 cores, and 104 threads allows to maximize the concurrent execution of multithreaded applications.
 - Intelligent and adaptive system performance with energy efficient Intel Turbo Boost 2.0 Technology 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 utilize the hardware for virtualization workloads.
 - Intel Advanced Vector Extensions 512 (AVX-512) enable acceleration of enterprise-class and high performance computing (HPC) workloads.
- Helps maximize system performance for data intensive applications with up to 2666 MHz memory speeds and up to 1 TB of memory capacity.
- Offers flexible and scalable internal storage in a 2U rack form factor with up to 16x 2.5-inch drives for performance-optimized configurations or up to 14x 3.5-inch drives for capacity-optimized configurations, providing a wide selection of SAS/SATA HDD/SSD and PCIe NVMe SSD types and capacities.
- Provides flexibility to use SAS, SATA, or NVMe PCIe drives in the same drive bays with a unique AnyBay design.
- Provides I/O scalability with the LOM slot and up to six PCI Express (PCIe) 3.0 I/O expansion slots in a 2U rack form factor.
- Reduces I/O latency and increases overall system performance with Intel Integrated I/O Technology that embeds the PCI Express 3.0 controller into the Intel Xeon Processor Scalable Family.

Availability and serviceability

The SR590 server provides many features to simplify serviceability and increase system uptime:

- Offers protection in the event of a non-correctable memory failure with Single Device Data Correction (SDDC, also known as Chipkill, requires x4-based DIMMs), Adaptive Double Device Data Correction (ADDDC, also known as Redundant Bit Steering [RBS], requires x4-based DIMMs and Intel Xeon Gold or Platinum processors), memory mirroring, and memory rank sparing.
- Provides easy access to upgrades and serviceable parts (such as processors, memory DIMMs, and adapter cards) with tool-less cover removal.
- Offers affordable data protection with software RAID and Simple Swap drives and advanced hardware RAID data redundancy with hot-swap drives.
- Provides availability for business-critical applications with redundant hot-swap power supplies and redundant hot-swap fans.

- Simplifies servicing, speeds up problem resolution, and helps improve system availability with light path diagnostics.
- Allows preventive actions in advance of possible failure, thereby increasing server uptime and application availability with Proactive Platform Alerts (including PFA and SMART alerts) for processors, voltage regulators, memory, internal storage (SAS/SATA HDDs and SSDs, NVMe SSDs, M.2 storage), fans, power supplies, RAID controllers, and server ambient and sub-component temperatures.
- Continuously monitors system parameters, triggers alerts, and performs recovery actions in case of failure to minimize downtime with Built-in XClarity Controller (XCC).
- Provides quick access to system status, firmware, network, health, and alerts information via Virtual Operator Panel from the XClarity Mobile App running on the Android or iOS mobile device that is connected to the front USB port with XClarity Controller access.
- Speeds up troubleshooting tasks to reduce service time with diagnostics built into the XClarity Provisioning Manager.

Manageability and security

Powerful systems management features simplify local and remote management of the SR590 server and deliver enterprise-class data protection:

- Provides advanced service processor control, monitoring, and alerting functions with XClarity Controller, a next generation service processor.
- Improves Unified Extensible Firmware Interface (UEFI) system setup, configuration, updates, simplified error handling, and operating system deployment with the embedded XClarity Provisioning Manager.
- Offers XClarity Essentials software tools that can help you set up, use, and maintain the server.
- Increases uptime, reduces costs, and improves productivity through advanced server management capabilities with Lenovo XClarity Administrator that provides comprehensive hardware management.
- Provides on-the-go monitoring and management of devices in XClarity Administrator from anywhere with the Lenovo XClarity mobile app, which can help improve efficiency and reduce downtime risks.
- Centralizes infrastructure resource management with Lenovo XClarity Integrators for VMware vCenter and Microsoft System Center, extending XClarity Administrator features to virtualization management software tools and enabling users to deploy and manage infrastructure end-to-end.
- Offers advanced cryptographic functionality (such as digital signatures and remote attestation) with an integrated Trusted Platform Module (TPM) or optional Trusted Cryptographic Module (TCM) (available only in China).
- Keeps user data safe with Lenovo Business Vantage, a security software tool suite designed to work with the Trusted Cryptographic Module (TCM) (available only in China).
- Offers enterprise-class data protection with advanced RAID and optional self-encrypting drives.
- Provides faster, stronger encryption with industry-standard AES NI support.
- Helps prevent certain classes of malicious buffer overflow attacks with Intel Execute Disable Bit functionality, when combined with a supporting operating system.
- Enhances security through hardware-based resistance to malicious software attacks with Intel Trusted Execution Technology, allowing an application to run in its own isolated space, protected from all other software running on a system.

Energy efficiency

The SR590 server offers the following energy-efficiency features to save energy, reduce operational costs, increase energy availability, and contribute to the green environment:

- Delivers impressive compute power per watt, featuring 80 PLUS Titanium and Platinum redundant power supplies.
- Enables customers to lower energy costs with design to meet ASHRAE A4 standards in select configurations.
- Reduces power drawn with Intel Intelligent Power Capability that powers individual processor elements on and off as needed.
- Helps reduce power consumption with variable speed fans.
- Helps achieve lower heat output and reduced cooling needs with Lenovo XClarity Energy Manager that provides advanced data center power notification, analysis, and policy-based management.

Components and connectors

The following figure shows the front of the SR590 server with up to 16x 2.5-inch drive bays.

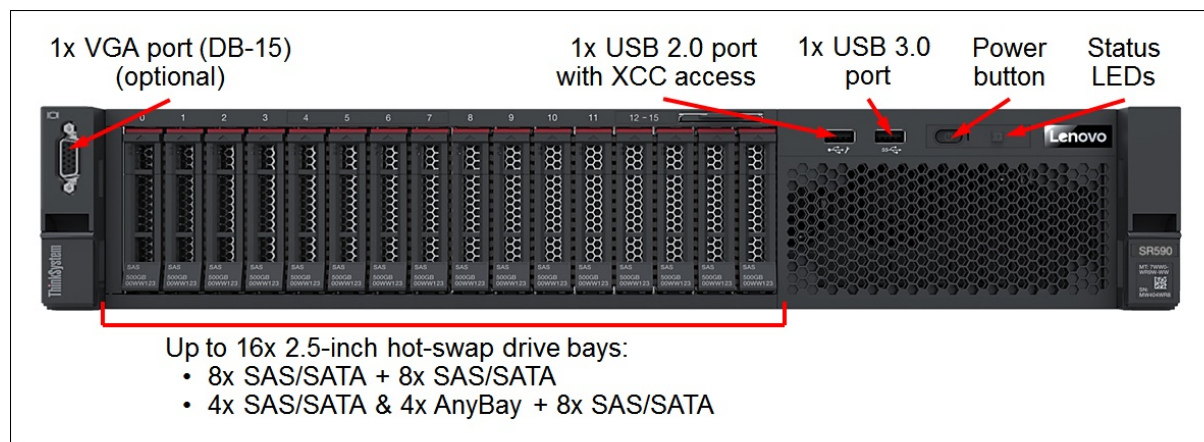


Figure 2. Front view of the SR590: Up to 16x 2.5-inch drive bays

The following figure shows the front of the SR590 server with 8x 3.5-inch drive bays.

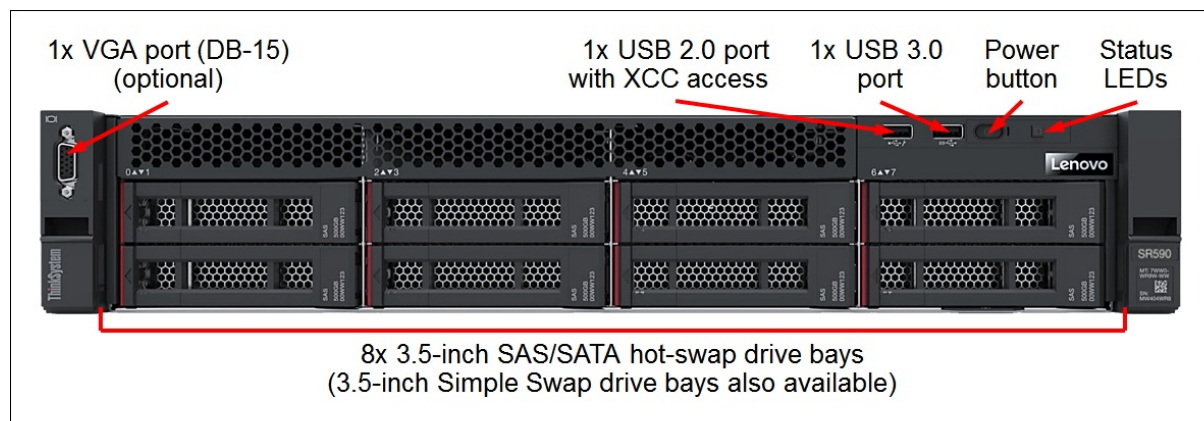


Figure 3. Front view of the SR590: 8x 3.5-inch drive bays

The following figure shows the front of the SR590 server with 12x 3.5-inch drive bays.

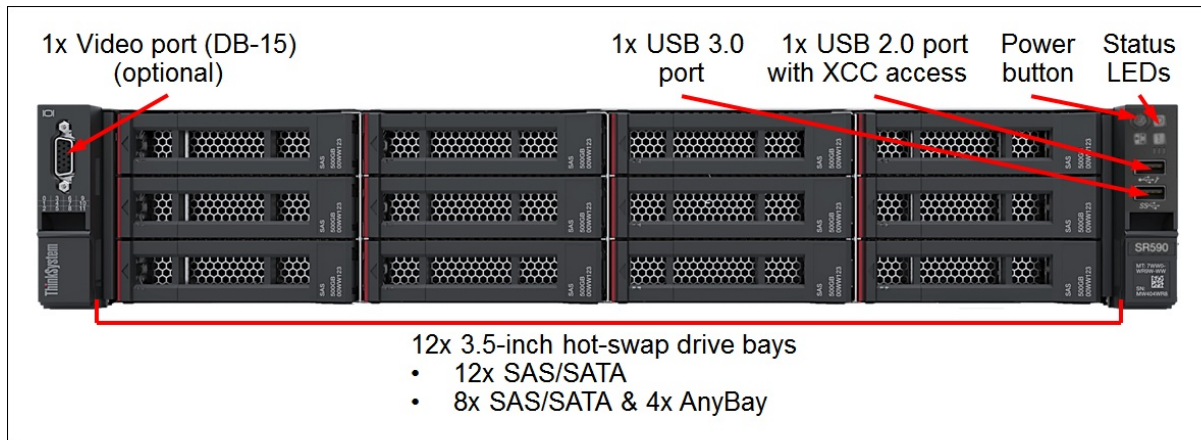


Figure 4. Front view of the SR590: 12x 3.5-inch drive bays

The following figure shows the rear of the SR590 server.

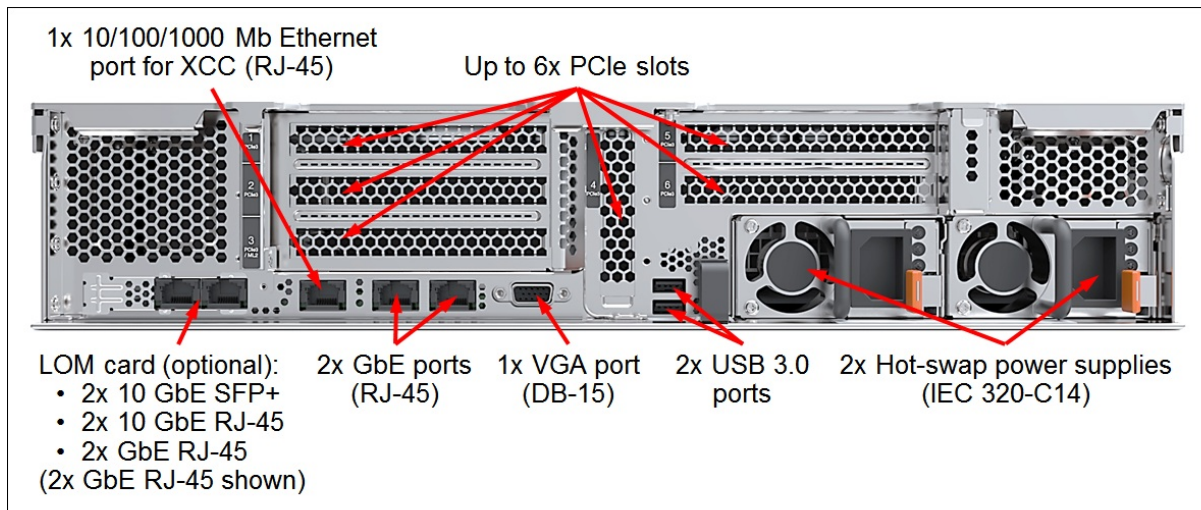


Figure 5. Rear view of the SR590

The following figure shows the locations of key components inside the SR590 server.

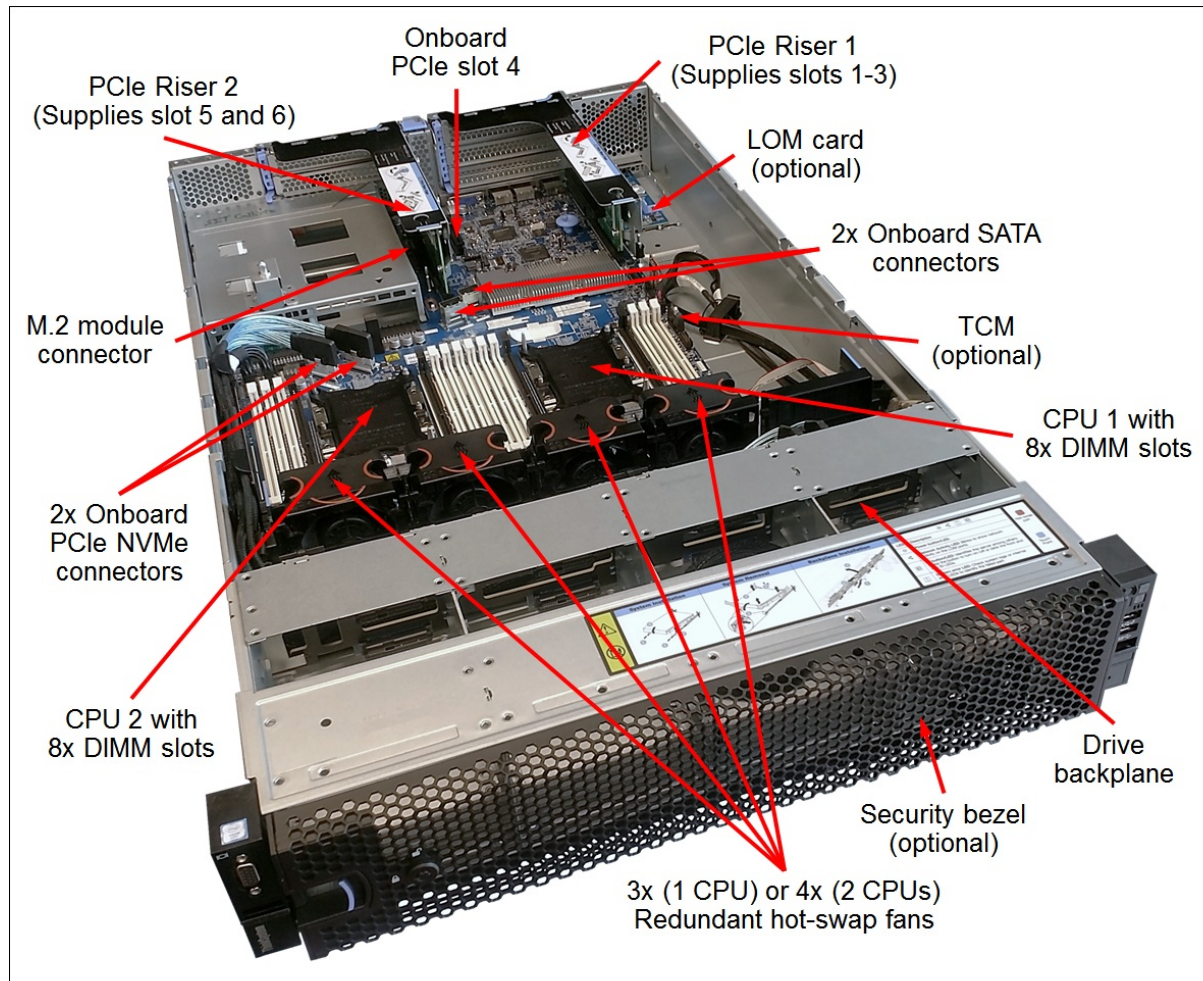


Figure 6. Internal view of the SR590

System specifications

The following table lists the system specifications for the SR590 server.

Table 1. SR590 system specifications

Attribute	Specification
Form factor	2U rack-mount.
Processor	Up to two Intel Xeon Bronze, Silver, Gold, or Platinum processors of up to 150 W TDP: <ul style="list-style-type: none"> • Up to 26 cores (2.0 GHz core speeds) • Up to 3.6 GHz core speeds (4 cores) • Two UPI links up to 10.4 GT/s each • Up to 35.75 MB cache • Up to 2666 MHz memory speed
Chipset	Intel C622.
Memory	Up to 16 DIMM sockets (8 DIMMs per processor; 6 memory channels per processor with one DIMM per channel for four channels and two DIMMs per channel for two channels). Support for RDIMMs or LRDIMMs. Memory types cannot be intermixed. Memory speed up to 2666 MHz.

Attribute	Specification
Memory capacity	<ul style="list-style-type: none"> • With RDIMMs: Up to 512 GB with 16x 32 GB RDIMMs and two processors. • With LRDIMMs: Up to 1 TB with 16x 64 GB LRDIMMs and two processors.
Memory protection	Error correction code (ECC), SDDC (for x4-based memory DIMMs), ADDDC (for x4-based memory DIMMs, requires Intel Xeon Gold or Platinum processors), memory mirroring, memory rank sparing, patrol scrubbing, and demand scrubbing.
Drive bays	<ul style="list-style-type: none"> • Up to 16 SFF hot-swap drive bays: <ul style="list-style-type: none"> ◦ 8x 2.5" SAS/SATA + 8x 2.5" SAS/SATA ◦ 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 8x 2.5" SAS/SATA • 8 LFF SATA Simple Swap drive bays • 8 LFF SAS/SATA hot-swap drive bays • Up to 14 LFF hot-swap drive bays: <ul style="list-style-type: none"> ◦ 12x 3.5" SAS/SATA (front) + 2x 3.5" SAS/SATA (rear) ◦ 8x 3.5" SAS/SATA & 4x 3.5" AnyBay (front) + 2x 3.5" SAS/SATA (rear)
Drive types	<p>2.5-inch hot-swap drives:</p> <ul style="list-style-type: none"> • 12 Gbps SAS HDDs up to 1.8 TB • 12 Gbps Nearline (NL) SAS HDDs up to 2 TB • 12 Gbps SAS HDD SEDs up to 600 GB • 12 Gbps SAS SSDs up to 3.84 TB • 6 Gbps NL SATA HDDs up to 2 TB • 6 Gbps SATA SSDs up to 480 GB • U.2 NVMe PCIe 3.0 x4 SSDs up to 3.84 TB <p>3.5-inch hot-swap drives:</p> <ul style="list-style-type: none"> • 12 Gbps SAS HDDs up to 900 GB (2.5" HDD in a 3.5" tray) • 12 Gbps NL SAS HDDs up to 10 TB • 6 Gbps NL SATA HDDs up to 10 TB • 6 Gbps SATA SSDs up to 480 GB (2.5" SSD in a 3.5" tray) • U.2 NVMe PCIe 3.0 x4 SSDs up to 3.84 TB <p>3.5-inch Simple Swap drives:</p> <ul style="list-style-type: none"> • 6 Gbps NL SATA HDDs up to 8 TB <p>Internal M.2 SSDs:</p> <ul style="list-style-type: none"> • 6 Gbps SATA up to 128 GB <p>Notes:</p> <ul style="list-style-type: none"> • Intermix of SAS, SATA, and NVMe PCIe drives is supported within a system, but not within a RAID array. • NVMe PCIe SSDs do not support hardware RAID controllers. • NVMe PCIe SSDs are supported in the AnyBay drive bays and require the second processor to be installed.
Internal storage capacity	<ul style="list-style-type: none"> • 2.5-inch models: Up to 61.44 TB with 16x 3.84 TB 2.5" SAS SSDs. • 3.5-inch models: Up to 140 TB with 14x 10 TB 3.5" NL SAS/SATA HDDs.
Storage controller	<p>6 Gbps SATA:</p> <ul style="list-style-type: none"> • Onboard SATA AHCI (non-RAID). • RAID 0/1/10/5 with the onboard SATA RAID (Intel RSTe). <p>12 Gbps SAS/6 Gbps SATA RAID:</p> <ul style="list-style-type: none"> • RAID 0/1/10/5/50 with RAID 530-8i or RAID 730-8i 1GB Cache (China only). • RAID 0/1/10/5/50/6/60 with RAID 930-8i 2GB Flash or 16i 4 GB Flash. <p>12 Gbps SAS/6 Gbps SATA non-RAID: 430-8i or 16i HBA. NVMe PCIe non-RAID: Onboard NVMe.</p>

Attribute	Specification
Optical drive bays	None. Support for an external USB DVD RW Optical Disk Drive (See Optical drives).
Network interfaces	<ul style="list-style-type: none"> • 2x Integrated 1 GbE RJ-45 ports (no 10/100 Mb support) • Onboard LOM slot for up to 4x 1/10 Gb Ethernet ports: <ul style="list-style-type: none"> ◦ 2x 1 GbE RJ-45 ports (no 10/100 Mb support) ◦ 2x 10 GbE RJ-45 ports (no 10/100 Mb support) ◦ 2x 10 GbE SFP+ ports (no 10/100 Mb support) • Optional Mezzanine LOM (ML2) slot for dual-port 10 GbE cards with SFP+ or RJ-45 connectors. • 1x RJ-45 10/100/1000 Mb Ethernet systems management port.
I/O expansion slots	<p>Up to six slots. Slot 4 is the fixed slots on the system planar, and the remaining slots depend on the riser cards installed. The slots are as follows:</p> <ul style="list-style-type: none"> • Slot 1: PCIe 3.0 x16 or PCIe 3.0 x8; full-height, half-length (PCIe x16 slot is double-wide) • Slot 2: PCIe 3.0 x8; full-height, half-length (not present if the slot 1 is PCIe x16) • Slot 3: PCIe 3.0 x8 or ML2 x8; full-height, half-length • Slot 4: PCIe 3.0 x8; low profile (vertical slot on system planar) • Slot 5: PCIe 3.0 x16; full-height, half-length • Slot 6: PCIe 3.0 x8; full-height, half-length <p>Slot 5 requires the second processor to be installed.</p>
Ports	<ul style="list-style-type: none"> • Front: <ul style="list-style-type: none"> ◦ 1x USB 2.0 port with XClarity Controller access. ◦ 1x USB 3.0 port. ◦ 1x DB-15 VGA port (optional). • Rear: 2x USB 3.0 ports and 1x DB-15 VGA port. Optional 1x DB-9 serial port.
Cooling	Three (one processor) or four (two processors) hot-swap system fans with N+1 redundancy.
Power supply	Up to two redundant hot-swap 550 W or 750 W (100 - 240 V) High Efficiency Platinum or 750 W (200 - 240 V) High Efficiency Titanium AC power supplies. HVDC support (China only).
Video	Matrox G200 with 16 MB memory integrated into the XClarity Controller. Maximum resolution is 1920x1200 at 60 Hz with 16 bits per pixel.
Hot-swap parts	Drives (select models), power supplies, and fans.
Systems management	XClarity Controller (XCC) Standard, Advanced, or Enterprise (Pilot 4 chip), proactive platform alerts, light path diagnostics, XClarity Provisioning Manager, XClarity Essentials, XClarity Administrator, XClarity Integrators for VMware vCenter and Microsoft System Center, XClarity Energy Manager, Capacity Planner.
Security features	Power-on password, administrator's password, secure firmware updates, Trusted Platform Module (TPM) 1.2 or 2.0 (configurable UEFI setting). Optional lockable front bezel. Optional Trusted Cryptographic Module (TCM) (available only in China). Optional Lenovo Business Vantage security software (available only in China).
Operating systems	Microsoft Windows Server 2012 R2 and 2016; Red Hat Enterprise Linux 6 (x64) and 7; SUSE Linux Enterprise Server 11 (x64) and 12; VMware vSphere (ESXi) 6.0 and 6.5.
Warranty	One-year (7X98) or three-year (7X99) customer-replaceable unit (CRU) and onsite limited warranty with 9x5 Next Business Day Parts Delivered.
Service and support	Optional service upgrades are available through Lenovo Services: 2-hour or 4-hour response time, 6-hour or 24-hour committed service repair, warranty extension up to 5 years, 1-year or 2-year post-warranty extensions, YourDrive Your Data, Enterprise Software Support, and Basic Hardware Installation Services.
Dimensions	Height: 87 mm (3.4 in), width: 445 mm (17.5 in), depth: 720 mm (28.3 in)

Attribute	Specification
Weight	Minimum configuration: 19 kg (41.9 lb), maximum: 26 kg (57.3 lb)

Models

SR590 server models are country-specific; that is, each country may define their own server models, and not all server models are available in every country. For a complete list of the SR590 models, contact a Lenovo or Lenovo Business Partner representative in your country. Configure-to-order (CTO) models can also be created for factory-integrated server customization.

All models of the SR590 server are shipped with the following items:

- *Rack Installation Guide*
- *Electronic Publications Flyer*

Models table conventions: The model tables shown in this section use the following conventions:

- Drive bays:
 - If the number is shown as "x", it represents the quantity of the SAS/SATA drive bays.
 - If the number is shown as "x+y", it represents the quantity of the SAS/SATA + AnyBay drive bays.
- XClarity Controller: "S" = Standard, "A" = Advanced, "E" = Enterprise.
- Front VGA port: "Y" = Included; "N" = Not included, optional.
- Tool-less Rail Kit: "S" = Slide; "F" = Friction; "N" = Not included, optional (for the slide rail kit only).
- Cable Management Arm (CMA): "Y" = Included; "N" = Not included, optional.
- Power cord:
 - "C2" = 2.8 m country-specific line cord.
 - "R2" = 2.8 m C13-C14 rack power cable.
 - "R4" = 4.3 m C13-C14 rack power cable.
 - "N" = Not included; see [Power supplies and cables](#) for the ordering information.

The following tables list the models of the SR590 server for the following regions:

- [North America](#)
- [Latin America](#)
- [Europe, Middle East, and Africa \(EMEA\)](#)
- [India](#)
- [Hong Kong, Taiwan, Korea](#)
- [Japan](#)
- [Association of Southeast Asian Nations \(ASEAN\)](#)
- [Australia and New Zealand](#)

Table 2. SR590 server models (3-year warranty): North America

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (6 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
Relationship models - North America													
7X99A00HNA	1x 3104 6C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (6 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
7X99A00GNA	1x 3104 6C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A028NA	1x 3106 8C 85W 1.7GHz	1x 16GB (2Rx8)	1x SATA RAID	8 / 8 SS LFF	Open bay	Open slot	1x PCIe x8	1x 550W	S	N	S	N	R2
7X99A03ANA	1x 3106 8C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 8 HS LFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A00TNA	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A003NA	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A020NA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A01SNA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 8 HS LFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A009NA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A03DNA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A00JNA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A01VNA	1x 4114 10C 85W 2.2GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A01RNA	1x 4114 10C 85W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A023NA	2x 4114 10C 85W 2.2GHz	2x 32GB (2Rx4)	1x 430-16i HBA	12+4 / 16 HS SFF	Open bay	Open slot	5x PCIe x8 1x PCIe x16	2x 750W Platinum	E	Y	S	N	R2
7X99A006NA	1x 4116 12C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A038NA	1x 4116 12C 85W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-16i	12 / 14 HS LFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A02CNA	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 8 HS LFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A02HNA	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A030NA	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 HS LFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A02JNA	2x 5118 12C 105W 2.3GHz	2x 32GB (2Rx4)	1x 430-16i HBA	12+4 / 16 HS SFF	Open bay	Open slot	5x PCIe x8 1x PCIe x16	2x 750W Platinum	E	Y	S	N	R2
7X99A01MNA	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A02ZNA	1x 6130 16C 125W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A02KNA	1x 6142 16C 150W 2.6GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2

* Processor details: Processor quantity and model, cores, thermal design power (TDP), and core speed.

^ The server supports one onboard PCIe slot 4 and up to five I/O slots on the riser cards. An internal storage controller occupies the PCIe slot 4. The onboard SATA RAID controller does not consume a PCIe slot.

Table 3. SR590 server models (3-year warranty): Latin America

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (6 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
Relationship models - Latin America													
7X99A017LA	1x 4108 8C 85W 1.8GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	Y	S	N	R2
7X99A02ALA	1x 4108 8C 85W 1.8GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	Y	S	N	R2
7X99A02ELA	1x 4114 10C 85W 2.2GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	Y	S	N	R2
7X99A027LA	1x 4114 10C 85W 2.2GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	Y	S	N	R2
7X99A02XLA	1x 5120 14C 105W 2.2GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	Y	S	N	R2
7X99A00VLA	1x 5120 14C 105W 2.2GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	Y	S	N	R2
7X99A02QLA	1x 6140 18C 140W 2.3GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	Y	S	N	R2
7X99A029LA	1x 6140 18C 140W 2.3GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	Y	S	N	R2

* Processor details: Processor quantity and model, cores, thermal design power (TDP), and core speed.

^ The server supports one onboard PCIe slot 4 and up to five I/O slots on the riser cards. An internal storage controller occupies the PCIe slot 4. The onboard SATA RAID controller does not consume a PCIe slot.

Table 4. SR590 server models (3-year warranty): EMEA

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (6 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
Relationship models - EMEA													
7X99A014EA	1x 3104 6C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A00GEA	1x 3104 6C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A00DEA	1x 3106 8C 85W 1.7GHz	1x 16GB (2Rx8)	1x SATA RAID	8 / 8 SS LFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A00TEA	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A003EA	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A033EA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A01SEA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 8 HS LFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (6 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
7X99A009EA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A03CEA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	A	N	S	N	R2
7X99A016EA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A039EA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 HS LFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	A	N	S	N	R2
7X99A01VEA	1x 4114 10C 85W 2.2GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A01REA	1x 4114 10C 85W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A03BEA	1x 4114 10C 85W 2.2GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	2x 750W Platinum	A	N	S	N	R2
7X99A01NEA	2x 4114 10C 85W 2.2GHz	2x 32GB (2Rx4)	1x 430-16i HBA	12+4 / 16 HS SFF	Open bay	Open slot	5x PCIe x8 1x PCIe x16	2x 750W Platinum	E	Y	S	N	R2
7X99A00SEA	1x 4116 12C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A01JEA	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 8 HS LFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A02HEA	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A011EA	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 HS LFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A022EA	2x 5118 12C 105W 2.3GHz	2x 32GB (2Rx4)	1x 430-16i HBA	12+4 / 16 HS SFF	Open bay	Open slot	5x PCIe x8 1x PCIe x16	2x 750W Platinum	E	Y	S	N	R2
7X99A01KEA	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A01FEA	1x 6130 16C 125W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A01BEA	1x 6142 16C 150W 2.6GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2

* Processor details: Processor quantity and model, cores, thermal design power (TDP), and core speed.

^ The server supports one onboard PCIe slot 4 and up to five I/O slots on the riser cards. An internal storage controller occupies the PCIe slot 4. The onboard SATA RAID controller does not consume a PCIe slot.

Table 5. SR590 server models (3-year warranty): India

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (6 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
Relationship models - India													
7X99A024SG	1x 4108 8C 85W 1.8GHz	1x 8GB (1Rx8)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	1x PCIe x8	1x 750W Platinum	S	N	F	N	R2
7X99A02BSG	1x 4110 8C 85W 2.1GHz	1x 8GB (1Rx8)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	1x PCIe x8	1x 750W Platinum	S	N	F	N	R2
7X99A00NSG	1x 4110 8C 85W 2.1GHz	1x 8GB (1Rx8)	1x RAID 530-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	1x PCIe x8	1x 750W Platinum	S	N	F	N	R2
7X99A00LSG	1x 4110 8C 85W 2.1GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	1x PCIe x8	1x 750W Platinum	S	N	F	N	R2
7X99A00WSG	1x 5115 10C 85W 2.4GHz	1x 8GB (1Rx8)	1x RAID 530-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	1x PCIe x8	1x 750W Platinum	S	N	F	N	R2
7X99A002SG	1x 5115 10C 85W 2.4GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	1x PCIe x8	1x 750W Platinum	S	N	F	N	R2
7X99A00CSG	1x 5118 12C 105W 2.3GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	1x PCIe x8	1x 750W Platinum	S	N	F	N	R2

* Processor details: Processor quantity and model, cores, thermal design power (TDP), and core speed.

^ The server supports one onboard PCIe slot 4 and up to five I/O slots on the riser cards. An internal storage controller occupies the PCIe slot 4. The onboard SATA RAID controller does not consume a PCIe slot.

Table 6. SR590 server models (3-year warranty): Hong Kong, Taiwan, Korea

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (6 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
Relationship models - Hong Kong, Taiwan, Korea													
7X99A00RCN	1x 3104 6C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A00FCN	1x 3104 6C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A02YCN	1x 3106 8C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A00KCN	1x 3106 8C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A034CN	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A01TCN	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A010CN	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (6 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
7X99A01ZCN	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A00ACN	1x 4112 4C 85W 2.6GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A01UCN	1x 4112 4C 85W 2.6GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A01DCN	1x 4114 10C 85W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A026CN	1x 4114 10C 85W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A01QCN	1x 4116 12C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A018CN	1x 4116 12C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A032CN	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A01ACN	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A01PCN	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A02GCN	1x 5117 14C 105W 2.0GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A01CCN	1x 5117 14C 105W 2.0GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A02PCN	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A01HCN	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A02FCN	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A004CN	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A02NCN	1x 5120T 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A00BCN	1x 5120T 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A02MCN	1x 5122 4C 105W 3.6GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N
7X99A008CN	1x 5122 4C 105W 3.6GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	2x 1Gb RJ-45	4x PCIe x8	1x 750W Platinum	S	N	S	N	N

* Processor details: Processor quantity and model, cores, thermal design power (TDP), and core speed.

^ The server supports one onboard PCIe slot 4 and up to five I/O slots on the riser cards. An internal storage controller occupies the PCIe slot 4. The onboard SATA RAID controller does not consume a PCIe slot.

Table 7. SR590 server models (3-year warranty): Japan

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (6 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
Relationship models - Japan													
7X99A037JP	1x 6130 16C 125W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12+4 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	A	N	S	N	N
7X99A02DJP	1x 6134 8C 130W 3.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	A	N	S	N	N
7X99A00YJP	1x 6136 12C 150W 3.0GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	A	N	S	N	N
7X99A02RJP	1x 8164 26C 150W 2.0GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	A	N	S	N	N

* Processor details: Processor quantity and model, cores, thermal design power (TDP), and core speed.

^ The server supports one onboard PCIe slot 4 and up to five I/O slots on the riser cards. An internal storage controller occupies the PCIe slot 4. The onboard SATA RAID controller does not consume a PCIe slot.

Table 8. SR590 server models (3-year warranty): ASEAN

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (6 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
Relationship models - ASEAN													
7X99A02TSG	1x 3104 6C 85W 1.7GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A031SG	1x 3106 8C 85W 1.7GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A02WSG	1x 4108 8C 85W 1.8GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A007SG	1x 4110 8C 85W 2.1GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A00MSG	1x 4112 4C 85W 2.6GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A00USG	1x 4114 10C 85W 2.2GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A02LSG	1x 4116 12C 85W 2.1GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A00PSG	1x 5115 10C 85W 2.4GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A01XSG	1x 5117 14C 105W 2.0GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A01LSG	1x 5118 12C 105W 2.3GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (6 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
7X99A02VSG	1x 5120 14C 105W 2.2GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A015SG	1x 5122 4C 105W 3.6GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A00ZSG	1x 6126 12C 125W 2.6GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A01YSG	1x 6128 6C 115W 3.4GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A036SG	1x 6130 16C 125W 2.1GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A012SG	1x 6132 14C 140W 2.6GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A005SG	1x 6134 8C 130W 3.2GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A013SG	1x 6138 20C 125W 2.0GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A025SG	1x 6140 18C 140W 2.3GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A01WSG	1x 6142 16C 150W 2.6GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2
7X99A00QSG	1x 6148 20C 150W 2.4GHz	1x 16GB (1Rx4)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	N	R2

* Processor details: Processor quantity and model, cores, thermal design power (TDP), and core speed.

^ The server supports one onboard PCIe slot 4 and up to five I/O slots on the riser cards. An internal storage controller occupies the PCIe slot 4. The onboard SATA RAID controller does not consume a PCIe slot.

Table 9. SR590 server models (3-year warranty): Australia and New Zealand

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (6 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
Relationship models - Australia and New Zealand													
7X99A00HAU	1x 3104 6C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A03EAU	1x 3104 6C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	Y	R2
7X99A035AU	1x 3104 6C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A03JAU	1x 3104 6C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 HS LFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	Y	R2
7X99A00DAU	1x 3106 8C 85W 1.7GHz	1x 16GB (2Rx8)	1x SATA RAID	8 / 8 SS LFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A03LAU	1x 3106 8C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	Y	R2
7X99A03KAU	1x 3106 8C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 HS LFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	Y	R2
7X99A019AU	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A00EAU	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A020AU	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A00XAU	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 8 HS LFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A021AU	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A03GAU	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-16i	16 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	Y	R2
7X99A00JAU	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 HS LFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A03FAU	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 HS LFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	Y	R2
7X99A02SAU	1x 4114 10C 85W 2.2GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A02UAU	1x 4114 10C 85W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A023AU	2x 4114 10C 85W 2.2GHz	2x 32GB (2Rx4)	1x 430-16i HBA	12+4 / 16 HS SFF	Open bay	Open slot	5x PCIe x8 1x PCIe x16	2x 750W Platinum	E	Y	S	N	R2
7X99A006AU	1x 4116 12C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A03MAU	1x 4116 12C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-16i	16 / 16 HS SFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	Y	R2
7X99A03HAU	1x 4116 12C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 HS LFF	Open bay	Open slot	1x PCIe x8	1x 750W Platinum	E	N	S	Y	R2
7X99A02CAU	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 8 HS LFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (6 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
7X99A01EAU	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A030AU	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 HS LFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A02JAU	2x 5118 12C 105W 2.3GHz	2x 32GB (2Rx4)	1x 430-16i HBA	12+4 / 16 HS SFF	Open bay	Open slot	5x PCIe x8 1x PCIe x16	2x 750W Platinum	E	Y	S	N	R2
7X99A01MAU	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A02ZAU	1x 6130 16C 125W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2
7X99A02KAU	1x 6142 16C 150W 2.6GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 16 HS SFF	Open bay	Open slot	4x PCIe x8	1x 750W Platinum	S	N	S	N	R2

* Processor details: Processor quantity and model, cores, thermal design power (TDP), and core speed.

^ The server supports one onboard PCIe slot 4 and up to five I/O slots on the riser cards. An internal storage controller occupies the PCIe slot 4. The onboard SATA RAID controller does not consume a PCIe slot.

Processors

The SR590 server supports one or two Intel Xeon Bronze, Silver, Gold, or Platinum processors of up to 150 W TDP.

The following table lists the specifications of the processors for the SR590 server.

Table 10. CPU specifications (HT = Hyper-Threading, TB = Turbo Boost, VT = Virtualization Technology)

CPU model	Core frequency (Base / TB Max)	Number of cores / threads	Cache	Max DDR4 frequency	Max memory per socket	UPI speed	TDP	HT	TB	VT-x	VT-d
Intel Xeon Bronze processors											
3104	1.7 / 1.7 GHz	6 / 6	8.25 MB	2133 MHz	768 GB	9.6 GT/s	85W	No	No	Yes	Yes
3106	1.7 / 1.7 GHz	8 / 8	11 MB	2133 MHz	768 GB	9.6 GT/s	85W	No	No	Yes	Yes
Intel Xeon Silver processors											
4108	1.8 / 3.0 GHz	8 / 16	11 MB	2400 MHz	768 GB	9.6 GT/s	85W	Yes	Yes	Yes	Yes
4109T	2.0 / 3.0 GHz	8 / 16	11 MB	2400 MHz	768 GB	9.6 GT/s	70W	Yes	Yes	Yes	Yes
4110	2.1 / 3.0 GHz	8 / 16	11 MB	2400 MHz	768 GB	9.6 GT/s	85W	Yes	Yes	Yes	Yes
4112	2.6 / 3.0 GHz	4 / 8	8.25 MB	2400 MHz	768 GB	9.6 GT/s	85W	Yes	Yes	Yes	Yes
4114	2.2 / 3.0 GHz	10 / 20	13.75 MB	2400 MHz	768 GB	9.6 GT/s	85W	Yes	Yes	Yes	Yes
4114T	2.2 / 3.0 GHz	10 / 20	13.75 MB	2400 MHz	768 GB	9.6 GT/s	85W	Yes	Yes	Yes	Yes
4116	2.1 / 3.0 GHz	12 / 24	16.5 MB	2400 MHz	768 GB	9.6 GT/s	85W	Yes	Yes	Yes	Yes
4116T	2.1 / 3.0 GHz	12 / 24	16.5 MB	2400 MHz	768 GB	9.6 GT/s	85W	Yes	Yes	Yes	Yes
Intel Xeon Gold processors											
5115	2.4 / 3.2 GHz	10 / 20	13.75 MB	2400 MHz	768 GB	10.4 GT/s	85W	Yes	Yes	Yes	Yes
5117	2.0 / 2.8 GHz	14 / 28	19.25 MB	2400 MHz	768 GB	10.4 GT/s	105W	Yes	Yes	Yes	Yes
5118	2.3 / 3.2 GHz	12 / 24	16.5 MB	2400 MHz	768 GB	10.4 GT/s	105W	Yes	Yes	Yes	Yes
5119T	1.9 / 3.2 GHz	14 / 28	19.25 MB	2400 MHz	768 GB	10.4 GT/s	85W	Yes	Yes	Yes	Yes

CPU model	Core frequency (Base / TB Max)	Number of cores / threads	Cache	Max DDR4 frequency	Max memory per socket	UPI speed	TDP	HT	TB	VT-x	VT-d
5120	2.2 / 3.2 GHz	14 / 28	19.25 MB	2400 MHz	768 GB	10.4 GT/s	105W	Yes	Yes	Yes	Yes
5120T	2.2 / 3.2 GHz	14 / 28	19.25 MB	2400 MHz	768 GB	10.4 GT/s	105W	Yes	Yes	Yes	Yes
5122	3.6 / 3.7 GHz	4 / 8	16.5 MB	2666 MHz	768 GB	10.4 GT/s	105W	Yes	Yes	Yes	Yes
6126	2.6 / 3.7 GHz	12 / 24	19.25 MB	2666 MHz	768 GB	10.4 GT/s	125W	Yes	Yes	Yes	Yes
6126T	2.6 / 3.7 GHz	12 / 24	19.25 MB	2666 MHz	768 GB	10.4 GT/s	125W	Yes	Yes	Yes	Yes
6128	3.4 / 3.7 GHz	6 / 12	19.25 MB	2666 MHz	768 GB	10.4 GT/s	115W	Yes	Yes	Yes	Yes
6130	2.1 / 3.7 GHz	16 / 32	22 MB	2666 MHz	768 GB	10.4 GT/s	125W	Yes	Yes	Yes	Yes
6130T	2.1 / 3.7 GHz	16 / 32	22 MB	2666 MHz	768 GB	10.4 GT/s	125W	Yes	Yes	Yes	Yes
6132	2.6 / 3.7 GHz	14 / 18	19.25 MB	2666 MHz	768 GB	10.4 GT/s	140W	Yes	Yes	Yes	Yes
6134	3.2 / 3.7 GHz	8 / 16	24.75 MB	2666 MHz	768 GB	10.4 GT/s	130W	Yes	Yes	Yes	Yes
6136	3.0 / 3.7 GHz	12 / 24	24.75 MB	2666 MHz	768 GB	10.4 GT/s	150W	Yes	Yes	Yes	Yes
6138	2.0 / 3.7 GHz	20 / 40	27.5 MB	2666 MHz	768 GB	10.4 GT/s	125W	Yes	Yes	Yes	Yes
6138T	2.0 / 3.7 GHz	20 / 40	27.5 MB	2666 MHz	768 GB	10.4 GT/s	125W	Yes	Yes	Yes	Yes
6140	2.3 / 3.7 GHz	18 / 36	24.75 MB	2666 MHz	768 GB	10.4 GT/s	140W	Yes	Yes	Yes	Yes
6142	2.6 / 3.7 GHz	16 / 32	22 MB	2666 MHz	768 GB	10.4 GT/s	150W	Yes	Yes	Yes	Yes
6148	2.4 / 3.7 GHz	20 / 40	27.5 MB	2666 MHz	768 GB	10.4 GT/s	150W	Yes	Yes	Yes	Yes
6152	2.1 / 3.7 GHz	22 / 44	30.25 MB	2666 MHz	768 GB	10.4 GT/s	140W	Yes	Yes	Yes	Yes
Intel Xeon Platinum processors											
8153	2.0 / 2.8 GHz	16 / 32	22 MB	2666 MHz	768 GB	10.4 GT/s	125W	Yes	Yes	Yes	Yes
8156	3.6 / 3.7 GHz	4 / 8	16.5 MB	2666 MHz	768 GB	10.4 GT/s	105W	Yes	Yes	Yes	Yes
8158	3.0 / 3.7 GHz	12 / 24	24.75 MB	2666 MHz	768 GB	10.4 GT/s	150W	Yes	Yes	Yes	Yes
8160	2.1 / 3.7 GHz	24 / 48	33 MB	2666 MHz	768 GB	10.4 GT/s	150W	Yes	Yes	Yes	Yes
8160T	2.1 / 3.7 GHz	24 / 48	33 MB	2666 MHz	768 GB	10.4 GT/s	150W	Yes	Yes	Yes	Yes
8164	2.0 / 3.7 GHz	26 / 52	35.75 MB	2666 MHz	768 GB	10.4 GT/s	150W	Yes	Yes	Yes	Yes

For the SR590 server models that come standard with one processor, the second processor can be ordered, if required (see the following table for ordering information). The second processor must be of the same model as the first processor. The second processor option includes a processor, a heatsink, and an additional system fan.

Table 11. Processor options

Description	Part number	Feature code*
Intel Xeon Bronze processors		
ThinkSystem SR590 Intel Xeon Bronze 3104 6C 85W 1.7GHz Processor Option Kit	4XG7A07261	AWEJ
ThinkSystem SR590 Intel Xeon Bronze 3106 8C 85W 1.7GHz Processor Option Kit	4XG7A07259	AWEH
Intel Xeon Silver processors		
ThinkSystem SR590 Intel Xeon Silver 4108 8C 85W 1.8GHz Processor Option Kit	4XG7A07260	AWEG
ThinkSystem SR590 Intel Xeon Silver 4109T 8C 70W 2.0GHz Processor Option Kit	4XG7A07262	AWET
ThinkSystem SR590 Intel Xeon Silver 4110 8C 85W 2.1GHz Processor Option Kit	4XG7A07263	AWEE
ThinkSystem SR590 Intel Xeon Silver 4112 4C 85W 2.6GHz Processor Option Kit	4XG7A07265	AWEF
ThinkSystem SR590 Intel Xeon Silver 4114 10C 85W 2.2GHz Processor Option Kit	4XG7A07266	AWEC
ThinkSystem SR590 Intel Xeon Silver 4114T 10C 85W 2.2GHz Processor Option Kit	4XG7A09076	AWES
ThinkSystem SR590 Intel Xeon Silver 4116 12C 85W 2.1GHz Processor Option Kit	4XG7A07264	AWER

Description	Part number	Feature code*
ThinkSystem SR590 Intel Xeon Silver 4116T 12C 85W 2.1GHz Processor Option Kit	4XG7A09077	AWEA
Intel Xeon Gold processors		
ThinkSystem SR590 Intel Xeon Gold 5115 10C 85W 2.4GHz Processor Option Kit	4XG7A09047	AWDU
ThinkSystem SR590 Intel Xeon Gold 5117 14C 105W 2.0GHz Processor Option Kit	4XG7A09395	B137
ThinkSystem SR590 Intel Xeon Gold 5118 12C 105W 2.3GHz Processor Option Kit	4XG7A07267	AWEP
ThinkSystem SR590 Intel Xeon Gold 5119T 14C 85W 1.9GHz Processor Option Kit	4XG7A09075	AWEQ
ThinkSystem SR590 Intel Xeon Gold 5120 14C 105W 2.2GHz Processor Option Kit	4XG7A07269	AWE6
ThinkSystem SR590 Intel Xeon Gold 5120T 14C 105W 2.2GHz Processor Option Kit	4XG7A07268	AWE8
ThinkSystem SR590 Intel Xeon Gold 5122 4C 105W 3.6GHz Processor Option Kit	4XG7A09072	AWED
ThinkSystem SR590 Intel Xeon Gold 6126 12C 125W 2.6GHz Processor Option Kit	4XG7A09037	AWEL
ThinkSystem SR590 Intel Xeon Gold 6126T 12C 125W 2.6GHz Processor Option Kit	4XG7A07257	AWE5
ThinkSystem SR590 Intel Xeon Gold 6128 6C 115W 3.4GHz Processor Option Kit	4XG7A09074	AWEB
ThinkSystem SR590 Intel Xeon Gold 6130 16C 125W 2.1GHz Processor Option Kit	4XG7A07258	AWEN
ThinkSystem SR590 Intel Xeon Gold 6130T 16C 125W 2.1GHz Processor Option Kit	4XG7A07272	AWE4
ThinkSystem SR590 Intel Xeon Gold 6132 14C 140W 2.6GHz Processor Option Kit	4XG7A09073	AWDY
ThinkSystem SR590 Intel Xeon Gold 6134 8C 130W 3.2GHz Processor Option Kit	4XG7A09042	AWE9
ThinkSystem SR590 Intel Xeon Gold 6136 12C 150W 3.0GHz Processor Option Kit	4XG7A09043	AWE3
ThinkSystem SR590 Intel Xeon Gold 6138 20C 125W 2.0GHz Processor Option Kit	4XG7A07271	AWDZ
ThinkSystem SR590 Intel Xeon Gold 6138T 20C 125W 2.0GHz Processor Option Kit	4XG7A07270	AWEM
ThinkSystem SR590 Intel Xeon Gold 6140 18C 140W 2.3GHz Processor Option Kit	4XG7A09044	AWE1
ThinkSystem SR590 Intel Xeon Gold 6142 16C 150W 2.6GHz Processor Option Kit	4XG7A09045	AWDW
ThinkSystem SR590 Intel Xeon Gold 6148 20C 150W 2.4GHz Processor Option Kit	4XG7A09046	AWDX
ThinkSystem SR590 Intel Xeon Gold 6152 22C 140W 2.1GHz Processor Option Kit	4XG7A09048	AWDV
Intel Xeon Platinum processors		
ThinkSystem SR590 Intel Xeon Platinum 8153 16C 125W 2.0GHz Processor Option Kit	4XG7A09064	AWDR
ThinkSystem SR590 Intel Xeon Platinum 8156 4C 105W 3.6GHz Processor Option Kit	4XG7A09071	AWDL
ThinkSystem SR590 Intel Xeon Platinum 8158 12C 150W 3.0GHz Processor Option Kit	4XG7A09038	AWDS
ThinkSystem SR590 Intel Xeon Platinum 8160 24C 150W 2.1GHz Processor Option Kit	4XG7A09039	AWDP
ThinkSystem SR590 Intel Xeon Platinum 8160T 24C 150W 2.1GHz Processor Option Kit	4XG7A09040	AWEK
ThinkSystem SR590 Intel Xeon Platinum 8164 26C 150W 2.0GHz Processor Option Kit	4XG7A09041	AWDM

* For CTO configurations, the feature code represents a processor, and fans and heatsinks are derived by the configuration tool.

Memory

The SR590 server supports up to 8 TruDDR4 memory DIMMs with one processor and up to 16 DIMMs when two processors are installed. Each processor has six memory channels, and there is a one DIMM per channel for four channels and two DIMMs per channel for two channels for a total of 8 DIMMs per processor.

Lenovo 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 on every ThinkSystem server to maximize performance and reliability.

TruDDR4 memory has a unique signature programmed into the DIMM, which enables Lenovo servers to verify whether the memory installed is qualified and supported. Lenovo qualified and supported TruDDR4 memory is covered by Lenovo warranty, and service and support provided worldwide.

The following rules apply when selecting the memory configuration:

- The server supports RDIMMs and LRDIMMs.
- Mixing different types of memory (RDIMMs and LRDIMMs) is not supported.
- Mixing x4 and x8 RDIMMs and RDIMMs of different capacity is supported.
- All DIMMs in the server operate at the same speed up to 2666 MHz, which is determined by the maximum memory speed supported by the specific processor.
Note: Maximum memory speed can be achieved when Max performance mode is enabled in UEFI.
- The following maximum memory capacities supported by the server:
 - RDIMMs: 512 GB (256 GB per processor).
 - LRDIMMs: 1024 GB (512 GB per processor).

The following memory protection technologies are supported:

- ECC
- SDDC (for x4-based memory DIMMs)
- ADDDC (for x4-based memory DIMMs; Gold and Platinum processors only)
- Memory mirroring
- Memory rank sparing
- Patrol scrubbing
- Demand scrubbing

Single Device Data Correction (SDDC) works only in the independent channel mode (the default operational mode) and supports only x4-based memory DIMMs.

Adaptive Double Device Data Correction (ADDDC) works with x4-based memory DIMMs and requires two DIMM ranks per channel, Intel Xeon Gold or Platinum processors, and the Closed Page memory access mode.

If memory mirroring is used, then DIMMs must be installed in quantities of 2 or 4 per processor for mirroring across two memory channels, or 3 or 6 per processor for mirroring across three memory channels. All DIMMs must be identical in type and size.

If memory rank sparing is used, then a dual-rank or quad-rank DIMM must be installed per populated channel (the DIMMs do not need to be identical; single-rank DIMMs are not supported). In rank sparing mode, one rank of a DIMM in each populated channel is reserved as spare memory. The size of a rank varies depending on the DIMMs installed.

SDDC, memory mirroring, and memory rank sparing modes are mutually exclusive. Only one operational memory mode can be enabled on the server, and it is a system-wide setting.

The following table lists memory options available for the SR590 server.

Table 12. Memory options

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

* The maximum quantity shown is with one processor / two processors.

Internal storage

The SR590 server supports the following internal drive bay configurations:

1. Up to 16 SFF hot-swap drive bays:
 - a. 8x 2.5" SAS/SATA + 8x 2.5" SAS/SATA
 - b. 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 8x 2.5" SAS/SATA
2. 8 LFF SATA Simple Swap drive bays
3. 8 LFF SAS/SATA hot-swap drive bays
4. Up to 14 LFF hot-swap drive bays:
 - a. 12x 3.5" SAS/SATA (front) + 2x 3.5" SAS/SATA (rear)
 - b. 8x 3.5" SAS/SATA & 4x 3.5" AnyBay (front) + 2x 3.5" SAS/SATA (rear)

In addition, the SR590 server models can be configured with one or two internal M.2 SATA SSDs. The server also supports configurations without drive bays.

Lenovo AnyBay is a unique drive bay type that allows a choice of drive interface types in the same drive bay: SAS drives, SATA drives, or U.2 NVMe PCIe drives.

The following figure shows the internal drive bay configurations.

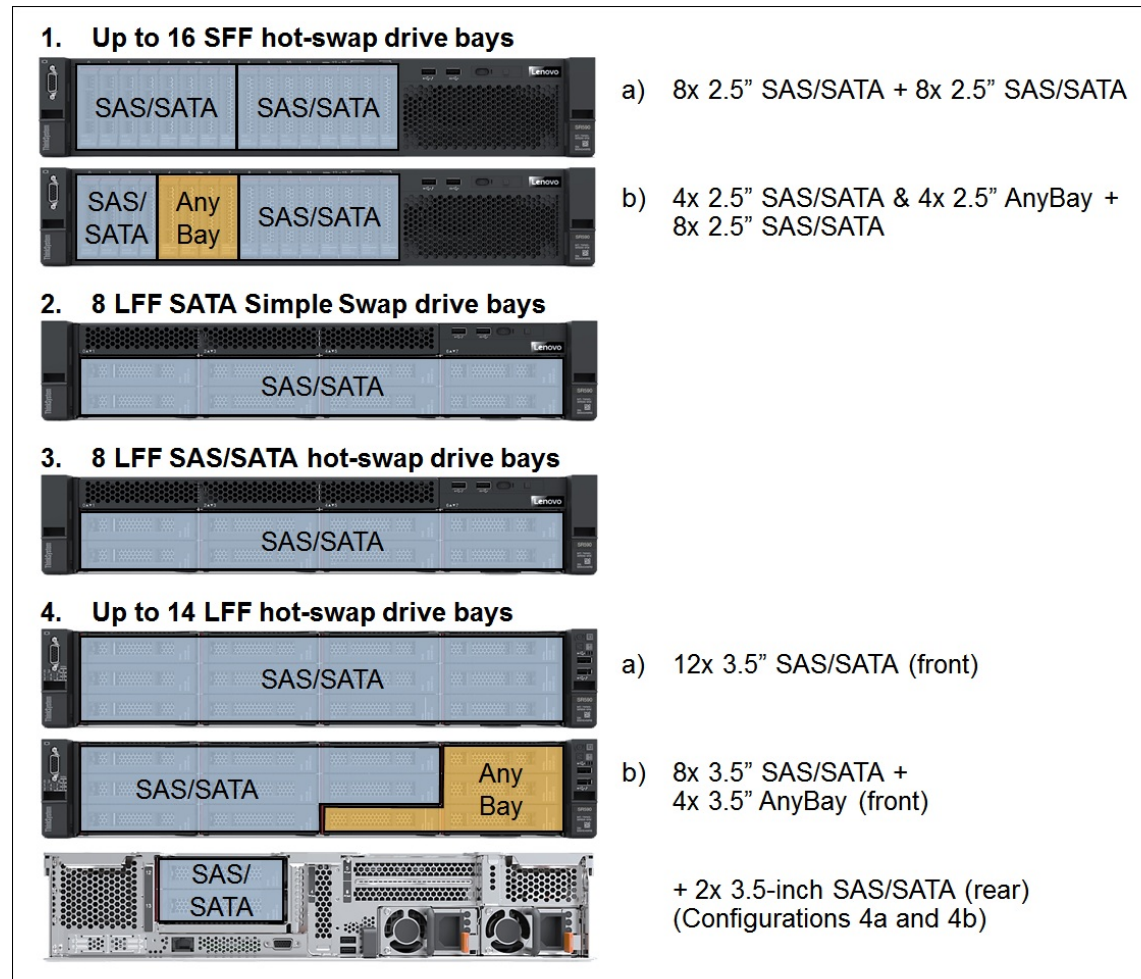


Figure 7. Internal drive bay configurations

The following table lists the internal storage options for the SR590 server.

Table 13. Internal storage options

Description	Part number	Feature code	Maximum supported
Factory-installed backplane kits			
ThinkSystem SR550/SR590/SR650 2.5" SATA/SAS 8-Bay Backplane	None*	AURA	2
ThinkSystem SR590/SR650 2.5" AnyBay 8-Bay Backplane	None*	AUR5	1
ThinkSystem SR550/SR590/SR650 3.5" SATA/SAS 8-Bay Backplane	None*	AUR6	1
ThinkSystem SR550/SR590/SR650 3.5" SATA/SAS 12-Bay Backplane	None*	AUR9	1
ThinkSystem SR590/SR650 3.5" AnyBay 12-Bay Backplane	None*	AUR8	1
ThinkSystem SR590/SR650 3.5" Rear HDD Kit	7XH7A06253	AURZ	1
Backplane kit field upgrade options			
ThinkSystem SR590 2.5" SATA/SAS 8-Bay Backplane Kit	4XH7A08763	None**	2
ThinkSystem SR590 2.5" AnyBay 8-Bay Backplane Kit	4XH7A08764	None***	1
ThinkSystem SR590/SR650 3.5" Rear HDD Kit	7XH7A06253	AURZ	1
M.2 enablement kits			
ThinkSystem M.2 Enablement Kit	7Y37A01092	AUMU	1
ThinkSystem M.2 with Mirroring Enablement Kit	7Y37A01093	AUMV	1

* These backplane kits can be factory-installed in standard or custom (CTO or Special Bid) models, and they might not have an option part number assigned.

** Field upgrade only; adds 8x 2.5" SAS/SATA hot-swap drive bays to the previously configured models that support drive bay expansion capabilities.

*** Field upgrade only; adds 4x 2.5" SAS/SATA & 4x 2.5" AnyBay hot-swap drive bays to the previously configured models that support drive bay expansion capabilities.

M.2 Enablement Kit configuration notes:

- The M.2 Enablement Kit (7Y37A01092) supports one M.2 SATA SSD which is connected to the SATA port on the Intel Platform Controller Hub (PCH).
- The M.2 with Mirroring Enablement Kit (7Y37A01093) is connected to the Intel PCH via the PCIe link, and the kit supports two M.2 SATA SSDs that can be configured in a RAID-1 or RAID-0 drive group, or they can operate as two separate drives.

The following tables list supported internal storage configurations with the SAS/SATA and AnyBay backplanes.

Table 14. Internal storage configurations: 2.5-in. drive bays

Drive bay configuration	Backplane kit type and quantity		Storage controller type and quantity*
	2.5" SATA/SAS 8-Bay	2.5" AnyBay 8-Bay	
16x 2.5" chassis (Feature code AXEA)			
8x 2.5-in. SAS/SATA hot-swap (front)	1	0	1x RAID 530-8i (8)
			1x RAID 730-8i (8)
			1x RAID 930-8i (8)
			1x 430-8i HBA (8)
4x 2.5-in. SAS/SATA + 4x 2.5-in. AnyBay hot-swap (front)	0	1	1x RAID 530-8i (8) + Onboard NVMe (4)
			1x RAID 730-8i (8) + Onboard NVMe (4)
			1x RAID 930-8i (8) + Onboard NVMe (4)
			1x 430-8i HBA (8) + Onboard NVMe (4)
16x 2.5-in. SAS/SATA hot-swap (front)	2	0	1x RAID 930-16i (16)
			1x 430-16i HBA (16)
			1x RAID 530-8i (8) + 1x 430-8i HBA (8)
			1x RAID 730-8i (8) + 1x 430-8i HBA (8)
			2x RAID 530-8i (8+8)
			2x RAID 730-8i (8+8)
			2x RAID 930-8i (8+8)
			2x 430-8i HBA (8+8)
12x 2.5-in. SAS/SATA + 4x 2.5-in. AnyBay hot-swap (front)	1	1	1x RAID 930-16i (16) + Onboard NVMe (4)
			1x 430-16i HBA (16) + Onboard NVMe (4)

* The numbers in brackets (x or x+y) specify the quantity of drive bays connected to each of the controllers.

Table 15. Internal storage configurations: 3.5-in. drive bays

Drive bay configuration	Backplane kit type and quantity				Storage controller type and quantity*
	3.5" SATA/SAS 8-Bay	3.5" SATA/SAS 12-Bay	3.5" AnyBay 12-Bay	3.5" Rear HDD	
12x 3.5" chassis (Feature code AXEB)					
8x 3.5-in. SATA Simple Swap	0	0	0	0	Onboard AHCI (non-RAID) / Intel RSTe (RAID) (8)
8x 3.5-in. SAS/SATA hot-swap (front)	1	0	0	0	1x RAID 530-8i (8)
					1x RAID 730-8i (8)
					1x RAID 930-8i (8)
					1x 430-8i HBA (8)
12x 3.5-in. SAS/SATA hot-swap (front)	0	1	0	0	1x RAID 930-16i (12)
					1x 430-16i HBA (12)
8x 3.5-in. SAS/SATA + 4x 3.5-in. AnyBay hot-swap (front)	0	0	1	0	1x RAID 930-16i (12) + Onboard NVMe (4)
					1x 430-16i HBA (12) + Onboard NVMe (4)
8x 3.5-in. SAS/SATA + 4x 3.5-in. AnyBay (NVMe only) hot-swap (front)	0	0	1	0	1x RAID 530-8i (8) + Onboard NVMe (4)
					1x RAID 730-8i (8) + Onboard NVMe (4)
					1x RAID 930-8i (8) + Onboard NVMe (4)
					1x 430-8i HBA (8) + Onboard NVMe (4)
12x 3.5-in. SAS/SATA hot-swap (front) + 2x 3.5-in. SAS/SATA hot-swap (rear)	0	1	0	1	1x RAID 930-16i (14)
					1x 430-16i HBA (14)
8x 3.5-in. SAS/SATA + 4x 3.5-in. AnyBay hot-swap (front) + 2x 3.5-in. SAS/SATA hot-swap (rear)	0	0	1	1	1x RAID 930-16i (14) + Onboard NVMe (4)
					1x 430-16i HBA (14) + Onboard NVMe (4)

* The number in brackets (x) specifies the quantity of drive bays connected to each of the controllers.

Configuration notes:

- Models without any drive bays are based on the 16x 2.5" chassis (feature code AXEA), and they support adding drive bays by using the 2.5" SAS/SATA 8-drive backplane kit (4XH7A08763) or 2.5" AnyBay 8-drive backplane kit (4XH7A08764).
- 2x 3.5-inch rear drives are supported only on the models with 12x 3.5-inch hot-swap drive bays.
 - The 3.5" Rear HDD Kit is connected to a separate port on the internal storage controller.
 - The 3.5" Rear HDD Kit is installed in place of the PCIe Riser Card 1; PCIe slots 1, 2, and 3 are not present.
- U.2 NVMe PCIe SSDs are supported in the AnyBay drive bays and require the second processor to be installed.
- Models with 12x 3.5-inch drive bays and an 8-port SAS RAID controller or HBA support only NVMe drives in the AnyBay drive bays.

Controllers for internal storage

The following table lists the storage controllers and options for internal storage of the SR590 server.

Table 16. RAID controllers and HBAs for internal storage

Description	Part number	Feature code	Maximum supported	I/O slots supported
6 Gbps SATA controllers				
Onboard AHCI (non-RAID) / Intel RSTe (RAID)	Onboard*	Onboard*	1	-
12 Gb SAS/SATA RAID controllers				
ThinkSystem RAID 530-8i PCIe 12Gb Adapter	7Y37A01082	AUNG	2	4, 1, 2, 6, 5
ThinkSystem RAID 730-8i 1GB Cache PCIe 12Gb Adapter	7Y37A01083	AUNH	2**	4, 1, 2, 6, 5
ThinkSystem RAID 930-8i 2GB Flash PCIe 12Gb Adapter	7Y37A01084	AUNJ	2	4, 1, 2, 6, 5
ThinkSystem RAID 930-16i 4GB Flash PCIe 12Gb Adapter	7Y37A01085	AUNK	1	4, 1, 2, 6, 5
12 Gb SAS/SATA non-RAID HBAs				
ThinkSystem 430-8i SAS/SATA 12Gb HBA	7Y37A01088	AUNL	2	4, 1, 2, 6, 5
ThinkSystem 430-16i SAS/SATA 12Gb HBA	7Y37A01089	AUNM	1	4, 1, 2, 6, 5

* The onboard SATA controller integrated into the Intel C622 Platform Controller Hub (PCH) supports non-RAID (JBOD) AHCI mode or a hardware-assist, software RAID feature (Intel Rapid Storage Technology Enterprise [RSTe]).

** Available in China only.

Configuration note: Low profile SAS RAID controllers and HBAs for internal storage are supported in the PCIe x8 slot 4 on the system board and full-high PCIe x8 and x16 slots supplied by the riser cards 1 and 2.

The onboard NVMe interface provides 4x PCIe 3.0 x4 ports for JBOD (non-RAID) connectivity to U.2 NVMe PCIe SSDs in the AnyBay drive bays.

The following table summarizes features of supported SAS/SATA storage controllers.

Table 17. Storage controller features and specifications (LP = Low profile)

Feature	Intel RSTe	RAID 530-8i	RAID 730-8i	RAID 930-8i	RAID 930-16i	430-8i HBA	430-16i HBA
Form factor	Onboard	PCIe LP	PCIe LP	PCIe LP	PCIe LP	PCIe LP	PCIe LP
SAS controller chip	Not applicable	SAS3408	SAS3108	SAS3508	SAS3516	SAS3408	SAS3416
Host interface	Not applicable	PCIe 3.0 x8	PCIe 3.0 x8	PCIe 3.0 x8	PCIe 3.0 x8	PCIe 3.0 x8	PCIe 3.0 x8
Port interface	6 Gb SATA	12 Gb SAS	12 Gb SAS	12 Gb SAS	12 Gb SAS	12 Gb SAS	12 Gb SAS
Number of ports	8	8	8	8	16	8	16
Connector type	SATA x4	SFF-8643 x4	SFF-8643 x4	SFF-8643 x4	SFF-8643 x4	SFF-8643 x4	SFF-8643 x4
Number of connectors	2	2	2	2	4	2	4
Drive interface	SATA	SAS, SATA	SAS, SATA	SAS, SATA	SAS, SATA	SAS, SATA	SAS, SATA
Drive type	HDD	HDD, SSD, SED	HDD, SSD	HDD, SSD, SED	HDD, SSD, SED	HDD, SSD, SED*	HDD, SSD, SED*
Hot-swap drive support	No	Yes	Yes	Yes	Yes	Yes	Yes
Number of drives	8	8	8	8	16	8	16
RAID levels	0/1/10/5	0/1/10/5/50	0/1/10/5/50	0/1/10/5/50/6/60	0/1/10/5/50/6/60	None	None
JBOD mode	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Feature	Intel RSTe	RAID 530-8i	RAID 730-8i	RAID 930-8i	RAID 930-16i	430-8i HBA	430-16i HBA
Cache	None	None	1 GB	2 GB	4 GB	None	None
Cache protection	None	None	None	Flash backup (Included)	Flash backup (Included)	None	None
SED key management (SafeStore)	No	Yes	No	Yes	Yes	No	No
SSD I/O acceleration (FastPath)	No	Yes	No	Yes	Yes	No	No
SSD Caching (CacheCade Pro 2.0)	No	No	No	No**	No**	No	No
Consistency check	Yes	Yes	Yes	Yes	Yes	No	No
Patrol read	Yes	Yes	Yes	Yes	Yes	No	No
Online capacity expansion	Yes	Yes	Yes	Yes	Yes	No	No
Online RAID level migration	Yes	Yes	Yes	Yes	Yes	No	No
Global Hot Spare	Yes	Yes	Yes	Yes	Yes	No	No
Auto-rebuild	Yes	Yes	Yes	Yes	Yes	No	No

* HBAs do not support key management for SEDs; third-party host software is responsible for managing the keys.

** The SSD caching feature has been phased out in the new generation of advanced RAID controllers.

Important: The onboard Intel RSTe is not supported by virtualization hypervisors, including VMware vSphere (ESXi), Linux KVM, Xen, and Microsoft Hyper-V.

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

- RAID adapters
<http://lenovopress.com/servers/options/raid#rt=product-guide>
- Host bus adapters
<http://lenovopress.com/servers/options/hba#rt=product-guide>

Drives for internal storage

The following tables list drive options for the SR590 server.

Table 18. Drive options for internal storage: 3.5-inch non-hot-swap drives

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

Table 19. Drive options for internal storage: 3.5-inch hot-swap drives

Description	Part number	Feature code	Maximum supported
3.5-inch hot-swap HDDs - 12 Gbps SAS			
ThinkSystem 3.5" 300GB 15K SAS 12Gb Hot Swap 512n HDD	7XB7A00038	AUU2	14
ThinkSystem 3.5" 600GB 15K SAS 12Gb Hot Swap 512n HDD	7XB7A00039	AUU3	14
ThinkSystem 3.5" 900GB 15K SAS 12Gb Hot Swap 512e HDD	7XB7A00040	AUUC	14
3.5-inch hot-swap HDDs - 12 Gbps NL SAS			
ThinkSystem 3.5" 1TB 7.2K SAS 12Gb Hot Swap 512n HDD	7XB7A00041	AUU4	14
ThinkSystem 3.5" 2TB 7.2K SAS 12Gb Hot Swap 512n HDD	7XB7A00042	AUU5	14
ThinkSystem 3.5" 4TB 7.2K SAS 12Gb Hot Swap 512n HDD	7XB7A00043	AUU6	14
ThinkSystem 3.5" 6TB 7.2K SAS 12Gb Hot Swap 512e HDD	7XB7A00044	AUU7	14
ThinkSystem 3.5" 8TB 7.2K SAS 12Gb Hot Swap 512e HDD	7XB7A00045	B0YR	14
ThinkSystem 3.5" 10TB 7.2K SAS 12Gb Hot Swap 512e HDD	7XB7A00046	AUUG	14
3.5-inch hot-swap HDDs - 6 Gbps NL SATA			
ThinkSystem 3.5" 1TB 7.2K SATA 6Gb Hot Swap 512n HDD	7XB7A00049	AUUF	14
ThinkSystem 3.5" 2TB 7.2K SATA 6Gb Hot Swap 512n HDD	7XB7A00050	AUUD	14
ThinkSystem 3.5" 4TB 7.2K SATA 6Gb Hot Swap 512n HDD	7XB7A00051	AUU8	14
ThinkSystem 3.5" 6TB 7.2K SATA 6Gb Hot Swap 512e HDD	7XB7A00052	AUUA	14
ThinkSystem 3.5" 8TB 7.2K SATA 6Gb Hot Swap 512e HDD	7XB7A00053	AUU9	14
ThinkSystem 3.5" 10TB 7.2K SATA 6Gb Hot Swap 512e HDD	4XB7A08540	B0YE	14
3.5-inch hot-swap SSDs - PM863a Entry 6 Gbps SATA			
ThinkSystem 3.5" PM863a 240GB Entry SATA 6Gb Hot Swap SSD	7N47A00115	AUUS	14
ThinkSystem 3.5" PM863a 480GB Entry SATA 6Gb Hot Swap SSD	7N47A00116	AUUN	14
3.5-inch hot-swap SSDs - S3520 Entry 6 Gbps SATA			
ThinkSystem 3.5" Intel S3520 240GB Entry SATA 6Gb Hot Swap SSD	7N47A00105	AUUW	14
ThinkSystem 3.5" Intel S3520 480GB Entry SATA 6Gb Hot Swap SSD	7N47A00106	AUUT	14
3.5-inch hot-swap SSDs - Mainstream U.2 NVMe PCIe*			
ThinkSystem 3.5" PX04PMB 960GB Mainstream NVMe PCIe 3.0 x4 HS SSD	7N47A00982	AUUM	4
3.5-inch hot-swap SSDs - Entry U.2 NVMe PCIe*			
ThinkSystem 3.5" PM963 1.92TB Entry NVMe PCIe 3.0 x4 Hot Swap SSD	7N47A00987	AUUX	4
ThinkSystem 3.5" PM963 3.84TB Entry NVMe PCIe 3.0 x4 Hot Swap SSD	7N47A00988	AUVZ	4

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

Table 20. Drive options for internal storage: 2.5-inch hot-swap drives

Description	Part number	Feature code	Maximum supported
2.5-inch hot-swap HDDs - 12 Gbps SAS			
ThinkSystem 2.5" 300GB 10K SAS 12Gb Hot Swap 512n HDD	7XB7A00024	AULY	16
ThinkSystem 2.5" 300GB 15K SAS 12Gb Hot Swap 512n HDD	7XB7A00021	AULV	16
ThinkSystem 2.5" 600GB 10K SAS 12Gb Hot Swap 512n HDD	7XB7A00025	AULZ	16

Description	Part number	Feature code	Maximum supported
ThinkSystem 2.5" 600GB 15K SAS 12Gb Hot Swap 512n HDD	7XB7A00022	AULW	16
ThinkSystem 2.5" 900GB 10K SAS 12Gb Hot Swap 512n HDD	7XB7A00026	AUM0	16
ThinkSystem 2.5" 900GB 15K SAS 12Gb Hot Swap 512e HDD	7XB7A00023	AULX	16
ThinkSystem 2.5" 1.2TB 10K SAS 12Gb Hot Swap 512n HDD	7XB7A00027	AUM1	16
ThinkSystem 2.5" 1.8TB 10K SAS 12Gb Hot Swap 512e HDD	7XB7A00028	AUM2	16
2.5-inch hot-swap HDDs - 12 Gbps NL SAS			
ThinkSystem 2.5" 1TB 7.2K SAS 12Gb Hot Swap 512n HDD	7XB7A00034	AUM6	16
ThinkSystem 2.5" 2TB 7.2K SAS 12Gb Hot Swap 512n HDD	7XB7A00035	AUM7	16
2.5-inch hot-swap HDDs - 6 Gbps NL SATA			
ThinkSystem 2.5" 1TB 7.2K SATA 6Gb Hot Swap 512n HDD	7XB7A00036	AUUE	16
ThinkSystem 2.5" 2TB 7.2K SATA 6Gb Hot Swap 512e HDD	7XB7A00037	AUUJ	16
2.5-inch hot-swap HDD SEDs - 12 Gbps SAS			
ThinkSystem 2.5" 300GB 10K SAS 12Gb Hot Swap 512n HDD SED	7XB7A00030	AUM4	16
ThinkSystem 2.5" 600GB 10K SAS 12Gb Hot Swap 512n HDD SED	7XB7A00031	AUM5	16
2.5-inch hot-swap SSDs - SS300 Performance 12 Gbps SAS			
ThinkSystem 2.5" HUSMM32 400GB Performance SAS 12Gb HS SSD	7N47A00124	AUMG	16
ThinkSystem 2.5" HUSMM32 800GB Performance SAS 12Gb HS SSD	7N47A00125	AUMH	16
2.5-inch hot-swap SSDs - PM1635a Mainstream 12 Gbps SAS			
ThinkSystem 2.5" PM1635a 400GB Mainstream SAS 12Gb Hot Swap SSD	7N47A00117	AUMC	16
ThinkSystem 2.5" PM1635a 800GB Mainstream SAS 12Gb Hot Swap SSD	7N47A00118	AUMD	16
2.5-inch hot-swap SSDs - PM1633a Capacity 12 Gbps SAS			
ThinkSystem 2.5" PM1633a 3.84TB Capacity SAS 12Gb Hot Swap SSD	7N47A00121	AUMK	16
2.5-inch hot-swap SSDs - PM863a Entry 6 Gbps SATA			
ThinkSystem 2.5" PM863a 240GB Entry SATA 6Gb Hot Swap SSD	7N47A00111	AUUQ	16
ThinkSystem 2.5" PM863a 480GB Entry SATA 6Gb Hot Swap SSD	7N47A00112	AUM9	16
2.5-inch hot-swap SSDs - S3520 Entry 6 Gbps SATA			
ThinkSystem 2.5" Intel S3520 240GB Entry SATA 6Gb Hot Swap SSD	7N47A00099	AUM8	16
ThinkSystem 2.5" Intel S3520 480GB Entry SATA 6Gb Hot Swap SSD	7N47A00100	AUUZ	16
2.5-inch hot-swap SSDs - Mainstream U.2 NVMe PCIe*			
ThinkSystem U.2 PX04PMB 960GB Mainstr. 2.5" NVMe PCIe 3.0 x4 HS SSD	7N47A00095	AUUY	4
ThinkSystem U.2 PX04PMB 1.92TB Mainstr. 2.5" NVMe PCIe 3.0 x4 HS SSD	7N47A00096	AUMF	4
2.5-inch hot-swap SSDs - Entry U.2 NVMe PCIe*			
ThinkSystem U.2 PM963 1.92TB Entry 2.5" NVMe PCIe 3.0 x4 Hot Swap SSD	7N47A00984	AUV0	4
ThinkSystem U.2 PM963 3.84TB Entry 2.5" NVMe PCIe 3.0 x4 Hot Swap SSD	7N47A00985	AUUU	4

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

Table 21. Drive options for internal storage: M.2 non-hot-swap drives

Description	Part number	Feature code	Maximum supported
ThinkSystem M.2 CV1 32GB SATA 6Gbps Non-Hot-Swap SSD	7N47A00129	AUJL	2
ThinkSystem M.2 CV3 128GB SATA 6Gbps Non-Hot-Swap SSD	7N47A00130	AUUV	2

Optical drives

The SR590 server supports the external USB optical drive option listed in the following table.

Table 22. Optical drive

Description	Part number	Feature code	Maximum supported
ThinkSystem External USB DVD RW Optical Disk Drive	7XA7A05926	AVV8	1

The External USB DVD RW Optical Disk Drive supports the following types of media: CD-ROM, CD-R, CD-RW, DVD-R, DVD+R, DVD-ROM, DVD-RAM, DVD-RW, and DVD+RW.

I/O expansion

The SR590 server supports one LOM card slot and up to six PCIe slots: one PCIe slot on the system planar and up to five PCIe slots with different riser cards installed into two riser sockets on the system planar (one riser socket supports installation of one riser card).

The slot form factors are as follows:

- LOM card slot
- Slot 1: PCIe 3.0 x16 or PCIe 3.0 x8; full-height, half-length (PCIe x16 slot is double-wide)
- Slot 2: PCIe 3.0 x8; full-height, half-length (not present if the slot 1 is PCIe x16)
- Slot 3: PCIe 3.0 x8 or ML2 x8; full-height, half-length
- Slot 4: PCIe 3.0 x8; low profile (vertical slot on system planar)
- Slot 5: PCIe 3.0 x16; full-height, half-length
- Slot 6: PCIe 3.0 x8; full-height, half-length

Notes:

- Slot 5 requires the second processor to be installed.
- Slot 4 is not present if the COM Port Upgrade Kit is installed.

The locations of the PCIe slots are shown in the following figure.

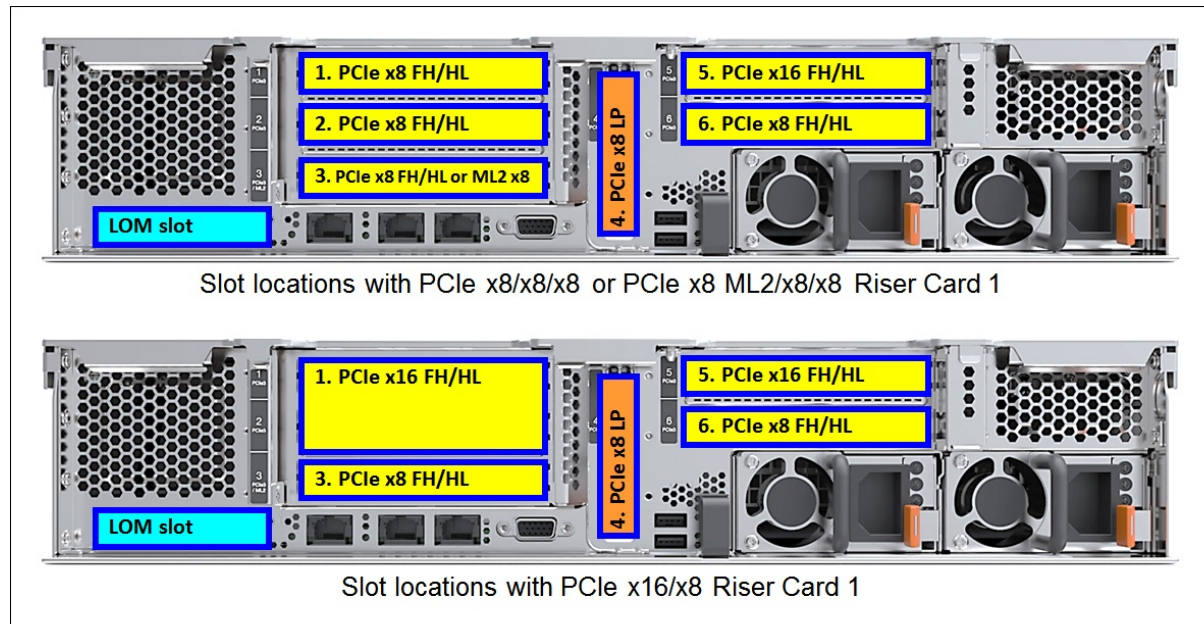


Figure 8. Slot locations

Riser 1 supplies slots 1, 2, and 3, and Riser 2 supplies slots 5 and 6. The slots that are available for use depend on the number of riser cards that are installed and whether the second processor is installed, as shown in the following table.

Table 23. Slots available for use

Riser Card 1	Riser Card 2	Slots available for use
One processor		
None	None	LOM, 4
None	PCIe x16/x8	LOM, 4, 6
PCIe x8/x8/x8 or PCIe x8 ML2/x8/x8	None	LOM, 1, 2, 3, 4
PCIe x8/x8/x8 or PCIe x8 ML2/x8/x8	PCIe x16/x8	LOM, 1, 2, 3, 4, 6
PCIe x16/x8	None	LOM, 1, 3, 4
PCIe x16/x8	PCIe x16/x8	LOM, 1, 3, 4, 6
Two processors		
None	None	LOM, 4
None	PCIe x16/x8	LOM, 4, 5, 6
PCIe x8/x8/x8 or PCIe x8 ML2/x8/x8	None	LOM, 1, 2, 3, 4
PCIe x8/x8/x8 or PCIe x8 ML2/x8/x8	PCIe x16/x8	LOM, 1, 2, 3, 4, 5, 6
PCIe x16/x8	None	LOM, 1, 3, 4
PCIe x16/x8	PCIe x16/x8	LOM, 1, 3, 4, 5, 6

The following table lists available PCIe riser card options.

Table 24. PCIe riser cards and miscellaneous options

Description	Part number	Feature code	Maximum supported
x8 Riser Card 1 options (Riser card supplies slots 1, 2, and 3)			
ThinkSystem SR590 x8/x8/x8 PCIe Riser 1	4XH7A08777	B261	1
ThinkSystem SR590 x8 ML2/x8/x8 PCIe Riser 1	4XH7A08778	B263	1
x16 Riser Card 1 option (Riser card supplies slots 1 and 3)			
ThinkSystem SR590 x16/x8 PCIe Riser 1	4XH7A08779	B260	1
Riser Card 2 option (Riser card supplies slots 5 and 6)			
ThinkSystem SR590 x16/x8 PCIe Riser 2	4XH7A08780	B262	1
Serial port upgrade kit			
ThinkSystem COM Port Upgrade Kit	7Z17A02577	AUSL	1

The COM Port Upgrade Kit, part number 7Z17A02577, is used for mounting the external serial port on the rear of the SR590. This option includes the bracket and the cable. The COM Port option is mounted in place of the PCIe slot 4, and the PCIe slot 4 cannot be used.

Network adapters

The SR590 server has two onboard 1 GbE ports (no 10/100 Mb support) and up to two additional onboard 1/10 GbE network ports (no 10/100 Mb support) with optional LOM cards. Onboard ports and LOM cards use the Intel Ethernet Connection X722 1/10 GbE technology integrated into the Intel C622 Platform Controller Hub (PCH). The server also supports ML2 adapters that are installed in the custom ML2 slot provided by an ML2 riser card. The LOM cards support direct connectivity to the XClarity Controller via the Network Controller Sideband Interface (NSCI) for out-of-band systems management.

Note: ML2 network adapters do not support NSCI when used in the SR590 server.

The integrated Intel Ethernet Connection X722 has the following features:

- Two 1 Gb Ethernet ports (no 10/100 Mb Ethernet support)
- Two 1/10 Gb Ethernet capable ports (no 10/100 Mb Ethernet support)
- NIC Teaming (load balancing and failover)
- DataCenter Bridging
- iWARP (RDMA over IP)
- VMDq and SR-IOV virtualization (10 Gb speeds only, 4 PFs, 128 VFs per device)
- IEEE 802.1q Virtual Local Area Networks (VLANs)
- NVGRE, VXLAN, IPinGRE, and MACinUDP network virtualization
- IEEE 802.1Qbg Edge Virtual Bridging
- TCP, IP, and UDP checksum offload
- Large Send Offload (LSO) and Generic Send Offload (GSO)
- Receive Side Scaling (RSS) for TCP and UDP traffic
- Jumbo frames up to 9.5 Kbytes

The following table lists the network adapters that are supported with the SR590 server.

Table 25. Network adapters

Description	Part number	Feature code	Max qty#	I/O slots supported
LOM cards - 1 Gb Ethernet				
ThinkSystem 1Gb 2-port RJ45 LOM	7ZT7A00544	AUKG	1	LOM slot
LOM cards - 10 Gb Ethernet				
ThinkSystem 10Gb 2-port Base-T LOM	7ZT7A00548	AUKL	1	LOM slot
ThinkSystem 10Gb 2-port SFP+ LOM	7ZT7A00546	AUKJ	1*	LOM slot
ML2 adapters - 10 Gb Ethernet				
Broadcom NX-E ML2 10Gb 2-Port Base-T Ethernet Adapter	7ZT7A00497	AUKQ	1	3 (ML2)
Emulex VFA5.2 ML2 Dual Port 10GbE SFP+ Adapter	00AG560	AT7U	1*	3 (ML2)
Emulex VFA5.2 ML2 2x10 GbE SFP+ Adapter and FCoE/iSCSI SW	01CV770	AU7Z	1*	3 (ML2)
Intel X710-DA2 ML2 2x10GbE SFP+ Adapter	00JY940	ATRH	1*	3 (ML2)
PCIe Low Profile adapters - 1 Gb Ethernet				
ThinkSystem NetXtreme PCIe 1Gb 2-Port RJ45 Ethernet Adapter	7ZT7A00482	AUZX	5 / 6	1, 2, 3, 4, 5, 6
ThinkSystem NetXtreme PCIe 1Gb 4-Port RJ45 Ethernet Adapter	7ZT7A00484	AUZV	5 / 6	1, 2, 3, 4, 5, 6
ThinkSystem I350-F1 PCIe 1Gb 1-Port SFP Ethernet Adapter	7ZT7A00533	AUZZ	5 / 6	1, 2, 3, 4, 5, 6
ThinkSystem I350-T2 PCIe 1Gb 2-Port RJ45 Ethernet Adapter	7ZT7A00534	AUZY	5 / 6	1, 2, 3, 4, 5, 6
ThinkSystem I350-T4 PCIe 1Gb 4-Port RJ45 Ethernet Adapter	7ZT7A00535	AUZW	5 / 6	1, 2, 3, 4, 5, 6
PCIe Low Profile adapters - 10 Gb Ethernet				
Broadcom NX-E PCIe 10Gb 2-Port Base-T Ethernet Adapter	7ZT7A00496	AUKP	5 / 6	1, 2, 3, 4, 5, 6
Emulex VFA5.2 2x10 GbE SFP+ PCIe Adapter	00AG570	AT7S	5 / 6*	1, 2, 3, 4, 5, 6
Emulex VFA5.2 2x10 GbE SFP+ Adapter and FCoE/iSCSI SW	00AG580	AT7T	5 / 6*	1, 2, 3, 4, 5, 6
Intel X550-T2 Dual Port 10GBase-T Adapter	00MM860	ATPX	5 / 6	1, 2, 3, 4, 5, 6
Intel X710-DA2 PCIe 10Gb 2-Port SFP+ Ethernet Adapter	7ZT7A00537	AUKX	5 / 6*	1, 2, 3, 4, 5, 6
PCIe Full Height adapters - 10 Gb Ethernet				
Emulex OCe14104B-NX PCIe 10Gb 4-Port SFP+ Ethernet Adapter	7ZT7A00493	AUKN	4 / 5*	1, 2, 3, 5, 6

The maximum quantity shown is with one processor / two processors (this does not apply to LOM cards and ML2 adapters).

* The adapter comes without transceivers or cables; for ordering transceivers or cables, see the configuration notes below.

Configuration notes:

- ML2 network adapters are supported in the ML2 x8 slot 3 supplied by the x8 ML2/x8/x8 Riser Card 1 (4XH7A08778).
- PCIe full-height network adapters are supported in the full-height PCIe x8 and x16 slots supplied by the riser cards 1 and 2.
- PCIe Low Profile network adapters are supported in the low profile PCIe x8 slot 4 on the system board and full-height PCIe x8 and x16 slots supplied by the riser cards 1 and 2.
- Supported transceivers or DAC cables should be purchased for the 10 GbE SFP+ adapters, and UTP Category 6 or Category 5e cables should be purchased for the 10 GbE (Cat6) or 1 GbE (Cat5e or Cat6) RJ-45 adapters. The maximum number of transceivers or cables that are supported per adapter equals the quantity of the adapter ports, and all adapter ports must have the same type of the transceiver or cable selected.

The following transceiver and cables can be purchased:

- [Transceivers and cables for 10 GbE SFP+ adapters](#)
- [UTP cables for 10 GbE and 1 GbE RJ-45 adapters](#)

The following table lists transceivers and cables for the 10 GbE SFP+ adapters.

Table 26. Transceivers and cables for 10 GbE SFP+ adapters

Description	Part number	Feature code
10 GbE SFP+ SR transceivers for 10 GbE SFP+ adapters		
Lenovo 10GBASE-SR SFP+ Transceiver	46C3447	5053
Lenovo 10GBASE-LR SFP+ Transceiver	00FE331	B0RJ
Optical cables for 10 GbE SFP+ SR transceivers		
Lenovo 0.5m LC-LC OM3 MMF Cable	00MN499	ASR5
Lenovo 1m LC-LC OM3 MMF Cable	00MN502	ASR6
Lenovo 3m LC-LC OM3 MMF Cable	00MN505	ASR7
Lenovo 5m LC-LC OM3 MMF Cable	00MN508	ASR8
Lenovo 10m LC-LC OM3 MMF Cable	00MN511	ASR9
Lenovo 15m LC-LC OM3 MMF Cable	00MN514	ASRA
Lenovo 25m LC-LC OM3 MMF Cable	00MN517	ASRB
Lenovo 30m LC-LC OM3 MMF Cable	00MN520	ASRC
Passive SFP+ DAC cables for 10 GbE SFP+ adapters		
Lenovo 0.5m Passive SFP+ DAC Cable	00D6288	A3RG
Lenovo 1m Passive SFP+ DAC Cable	90Y9427	A1PH
Lenovo 1.5m Passive SFP+ DAC Cable	00AY764	A51N
Lenovo 2m Passive SFP+ DAC Cable	00AY765	A51P
Lenovo 3m Passive SFP+ DAC Cable	90Y9430	A1PJ
Lenovo 5m Passive SFP+ DAC Cable	90Y9433	A1PK
Lenovo 7m Passive SFP+ DAC Cable	00D6151	A3RH
Active SFP+ DAC cables for 10 GbE SFP+ adapters*		
Lenovo 1m Active DAC SFP+ Cable	00VX111	AT2R
Lenovo 3m Active DAC SFP+ Cable	00VX114	AT2S
Lenovo 5m Active DAC SFP+ Cable	00VX117	AT2T

* The Emulex VFA5.2 ML2 (00AG560 and 01CV770) and PCIe (00AG570 and 00AG580) network adapters do not support active SFP+ DAC cables.

The following table lists cables for the 10 GbE and 1 GbE RJ-45 adapters.

Table 27. Cables for 10 GbE and 1 GbE RJ-45 adapters

Description	Part number	Feature code
UTP Category 6 cables (Green) for 10 GbE and 1 GbE RJ-45 adapters		
0.75m CAT6 Green Cable	00WE123	AVFW
1.0m CAT6 Green Cable	00WE127	AVFX
1.25m CAT6 Green Cable	00WE131	AVFY
1.5m CAT6 Green Cable	00WE135	AVFZ

Description	Part number	Feature code
3m CAT6 Green Cable	00WE139	AVG0
10m CAT6 Green Cable	90Y3718	A1MT
25m CAT6 Green Cable	90Y3727	A1MW
UTP Category 5e cables (Blue) for 1 GbE RJ-45 adapters		
0.75m Blue Cat5e Cable	00WE111	AVFT
1.0m Blue Cat5e Cable	00WE115	AVFU
1.25m Blue Cat5e Cable	00WE119	AVFV
1.5m Blue Cat5e Cable	40K8785	3802
3m Blue Cat5e Cable	40K5581	3803
10m Blue Cat5e Cable	40K8927	3804
25m Blue Cat5e Cable	40K8930	3805
UTP Category 5e cables (Green) for 1 GbE RJ-45 adapters		
0.75m Green Cat5e Cable	00WE099	AVFQ
1.0m Green Cat5e Cable	00WE103	AVFR
1.25m Green Cat5e Cable	00WE107	AVFS
1.5m Green Cat5e Cable	40K5643	3797
3m Green Cat5e Cable	40K5793	3798
10m Green Cat5e Cable	40K5794	3799
25m Green Cat5e Cable	40K8869	3800

For more information, see the list of Product Guides in the Ethernet adapters category:
<http://lenovopress.com/servers/options/ethernet#rt=product-guide>

SAS adapters for external storage

The following table lists SAS RAID controllers and HBAs for external storage attachments that are supported by the SR590 server.

Table 28. SAS RAID adapters and HBAs for external storage

Description	Part number	Feature code	Maximum supported*	I/O slots supported
12 Gbps SAS RAID adapters				
ThinkSystem RAID 930-8e 4GB Flash PCIe 12Gb Adapter	7Y37A01087	AUNQ	3 / 3	1, 2, 3, 4, 5
12 Gbps SAS HBAs				
ThinkSystem 430-8e SAS/SATA 12Gb HBA	7Y37A01090	AUNR	4 / 5	1, 2, 3, 4, 5
ThinkSystem 430-16e SAS/SATA 12Gb HBA	7Y37A01091	AUNN	4 / 5	1, 2, 3, 4, 5

* The maximum quantity shown is with one processor / two processors.

Configuration notes:

- Low profile SAS RAID controllers and HBAs for external storage are supported in the low profile PCIe x8 slot 4 on the system board and full-high PCIe x8 and x16 slots supplied by the riser cards 1 and 2.
- The total quantity of the RAID 930-8i, 16i, and 8e controllers in the server must not exceed 3 (up to 3 supercapacitors can be mounted in the server).

The following table summarizes features of supported RAID controllers and HBAs for external storage.

Table 29. Features and specifications of the RAID controllers and HBAs for external storage

Feature	RAID 930-8e	430-8e HBA	430-16e HBA
Form factor	PCIe LP	PCIe LP	PCIe LP
SAS controller chip	SAS3508	SAS3408	SAS3416
Host interface	PCIe 3.0 x8	PCIe 3.0 x8	PCIe 3.0 x8
Port interface	12 Gb SAS	12 Gb SAS	12 Gb SAS
Number of ports	8	8	16
Connector type	SFF-8644 x4	SFF-8644 x4	SFF-8644 x4
Number of connectors	2	2	4
Drive interface	SAS, SATA	SAS, SATA	SAS, SATA
Drive type	HDD, SSD, SED	HDD, SSD, SED*	HDD, SSD, SED*
Hot-swap drive support	Yes	Yes	Yes
Number of devices	480	2048	4096
RAID levels	0/1/10/5/50/6/60	None	None
JBOD mode	Yes	Yes	Yes
Cache	4 GB	None	None
Cache protection	Flash backup (Included)	None	None
SED key management (SafeStore)	Yes	No	No
SSD I/O acceleration (FastPath)	Yes	No	No
SSD Caching (CacheCade Pro 2.0)	No**	No	No
Consistency check	Yes	No	No
Patrol read	Yes	No	No
Online capacity expansion	Yes	No	No
Online RAID level migration	Yes	No	No
Global Hot Spare	Yes	No	No
Auto-rebuild	Yes	No	No

* HBAs do not support key management for SEDs; third-party host software is responsible for managing the keys.

** The SSD caching feature has been phased out in the new generation of advanced RAID controllers.

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

- RAID adapters
<http://lenovopress.com/servers/options/raid#rt=product-guide>
- Host bus adapters
<http://lenovopress.com/servers/options/hba#rt=product-guide>

Fibre Channel host bus adapters

The following table lists Fibre Channel HBAs supported by the SR590 server.

Table 30. Fibre Channel HBAs

Description	Part number	Feature code	Maximum supported*	I/O slots supported
16 Gb Fibre Channel - PCIe				
Emulex 16Gb Gen6 FC Single-port HBA	01CV830	ATZU	5 / 6	1, 2, 3, 4, 5, 6
Emulex 16Gb Gen6 FC Dual-port HBA	01CV840	ATZV	5 / 6	1, 2, 3, 4, 5, 6
QLogic 16Gb Enhanced Gen5 FC Single-port HBA	01CV750	ATZB	5 / 6	1, 2, 3, 4, 5, 6
QLogic 16Gb Enhanced Gen5 FC Dual-port HBA	01CV760	ATZC	5 / 6	1, 2, 3, 4, 5, 6
8 Gb Fibre Channel - PCIe				
Emulex LPe12000-M8-L PCIe 8Gb 1-Port SFP+ FC HBA	4XC7A08220	B0WZ	5 / 6	1, 2, 3, 4, 5, 6
Emulex LPe12002-M8-L PCIe 8Gb 2-Port SFP+ FC HBA	4XC7A08221	B0X0	5 / 6	1, 2, 3, 4, 5, 6

* The maximum quantity shown is with one processor / two processors.

Configuration note: FC HBAs are supported in the low profile PCIe x8 slot 4 on the system board and full-high PCIe x8 and x16 slots supplied by the riser cards 1 and 2.

For more information, see the list of Product Guides in the Host bus adapters category:

<http://lenovopress.com/servers/options/hba#rt=product-guide>

Cooling

The SR590 server supports up to four hot-swap system fans that provide N+1 cooling redundancy. SR590 server models with one processor include three system fans, and server models with two processors include four system fans.

Configuration note: If Intel Xeon 5122, 6140, 6152, 8156, 8158, 8160, or 8164 processors are installed in the server models with 12x 3.5-inch drive bays, the server performance might be impacted in case of a system fan failure.

Power supplies and cables

The SR590 server supports up to two redundant power supplies, and is capable of N+N redundancy depending on the configuration. A second power supply can be added to the models that come with one power supply.

The following table lists the power supply options.

Table 31. Power supplies

Description	Part number	Feature code	Maximum supported
ThinkSystem 550W (230V/115V) Platinum Hot-Swap Power Supply	7N67A00882	AXE8	2
ThinkSystem 750W (230/115V) Platinum Hot-Swap Power Supply	7N67A00883	AXE6	2
ThinkSystem 750W (230V) Titanium Hot-Swap Power Supply	7N67A00884	AXE7	2

Configuration notes:

- Minimum of 1 and maximum of 2 power supplies per system.
- If 2 are installed, power supplies must be identical.
- Power supplies support AC (Worldwide) and HVDC (China only) power sources.

Important: The Standalone Solution Configuration Tool (SSCT) and Lenovo Enterprise Solutions Configurator (LESC) power supply selection rules allow a subset of possible configurations due to power restrictions. Configurations that cannot be built in SSCT or LESC due to power restrictions may still be supported. To verify support and ensure that the right power supply is chosen for optimal performance, you should always validate your server configuration using the latest version of the Lenovo Capacity Planner:

<http://datacentersupport.lenovo.com/us/en/solutions/ht504651>

The SR590 server ship standard with or without a power cord (model dependent). A hot-swap power supply option ships without a power cord.

The following table lists the country-specific line cords and rack power cables that can be ordered for the SR590 server.

Table 32. Power cables

Description	Part number	Feature code
Rack power cables		
1.0m, 10A/125-250V, C13 to IEC 320-C14 Rack Power Cable	00Y3043	A4VP
1.5m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	39Y7937	6201
1.2m, 16A/100-250V, 2 Short C13s to Short C20 Rack Power Cable	47C2491	A3SW
2.0m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	4L67A08365	B0N4
2.0m, 13A/125V-10A/250V, C13 to IEC 320-C14 Rack Power Cable	4L67A08369	6570
2.5m, 16A/100-250V, 2 Long C13s to Short C20 Rack Power Cable	47C2492	A3SX
2.8m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	4L67A08366	6311
2.8m, 13A/125V-10A/250V, C13 to IEC 320-C14 Rack Power Cable	4L67A08370	6400
2.8m, 10A/100-250V, C13 to IEC 320-C20 Rack Power Cable	39Y7938	6204
2.8m, 16A/100-250V, 2 Short C13s to Long C20 Rack Power Cable	47C2493	A3SY
4.1m, 16A/100-250V, 2 Long C13s to Long C20 Rack Power Cable	47C2494	A3SZ
4.3m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	39Y7932	6263
4.3m, 13A/125V-10A/250V, C13 to IEC 320-C14 Rack Power Cable	4L67A08371	6583
Country-specific line cords		
Argentina 2.8m, 10A/250V, C13 to IRAM 2073 Line Cord	39Y7930	6222
Argentina 4.3m, 10A/250V, C13 to IRAM 2073 Line Cord	81Y2384	6492
Australia/New Zealand 2.8m, 10A/250V, C13 to AS/NZS 3112 Line Cord	39Y7924	6211
Australia/New Zealand 4.3m, 10A/250V, C13 to AS/NZS 3112 Line Cord	81Y2383	6574
Brazil 2.8m, 10A/250V, C13 to NBR 14136 Line Cord	69Y1988	6532
Brazil 4.3m, 10A/250V, C13 to NBR14136 Line Cord	81Y2387	6404
China 2.8m, 10A/250V, C13 to GB 2099.1 Line Cord	39Y7928	6210
China 4.3m, 10A/250V, C13 to GB 2099.1 Line Cord	81Y2378	6580
Denmark 2.8m, 10A/250V, C13 to DK2-5a Line Cord	39Y7918	6213
Denmark 4.3m, 10A/250V, C13 to DK2-5a Line Cord	81Y2382	6575

Description	Part number	Feature code
Europe 2.8m, 10A/250V, C13 to CEE7-VII Line Cord	39Y7917	6212
Europe 4.3m, 10A/250V, C13 to CEE7-VII Line Cord	81Y2376	6572
India 2.8m, 10A/250V, C13 to IS 6538 Line Cord	39Y7927	6269
India 4.3m, 10A/250V, C13 to IS 6538 Line Cord	81Y2386	6567
Israel 2.8m, 10A/250V, C13 to SI 32 Line Cord	39Y7920	6218
Israel 4.3m, 10A/250V, C13 to SI 32 Line Cord	81Y2381	6579
Italy 2.8m, 10A/250V, C13 to CEI 23-16 Line Cord	39Y7921	6217
Italy 4.3m, 10A/250V, C13 to CEI 23-16 Line Cord	81Y2380	6493
Japan 2.8m, 12A/125V, C13 to JIS C-8303 Line cord	46M2593	A1RE
Japan 2.8m, 12A/250V, C13 to JIS C-8303 Line Cord	4L67A08357	6533
Japan 4.3m, 12A/125V, C13 to JIS C-8303 Line Cord	39Y7926	6335
Japan 4.3m, 12A/250V, C13 to JIS C-8303 Line Cord	4L67A08362	6495
Korea 2.8m, 12A/250V, C13 to KS C8305 Line Cord	39Y7925	6219
Korea 4.3m, 12A/250V, C13 to KS C8305 Line Cord	81Y2385	6494
South Africa 2.8m, 10A/250V, C13 to SABS 164 Line Cord	39Y7922	6214
South Africa 4.3m, 10A/250V, C13 to SABS 164 Line Cord	81Y2379	6576
Switzerland 2.8m, 10A/250V, C13 to SEV 1011-S24507 Line Cord	39Y7919	6216
Switzerland 4.3m, 10A/250V, C13 to SEV 1011-S24507 Line Cord	81Y2390	6578
Taiwan 2.8m, 10A/125V, C13 to CNS 10917-3 Line Cord	23R7158	6386
Taiwan 2.8m, 10A/250V, C13 to CNS 10917-3 Line Cord	81Y2375	6317
Taiwan 2.8m, 15A/125V, C13 to CNS 10917-3 Line Cord	81Y2374	6402
Taiwan 4.3m, 10A/125V, C13 to CNS 10917-3 Line Cord	4L67A08363	AX8B
Taiwan 4.3m, 10A/250V, C13 to CNS 10917-3 Line Cord	81Y2389	6531
Taiwan 4.3m, 15A/125V, C13 to CNS 10917-3 Line Cord	81Y2388	6530
United Kingdom 2.8m, 10A/250V, C13 to BS 1363/A Line Cord	39Y7923	6215
United Kingdom 4.3m, 10A/250V, C13 to BS 1363/A Line Cord	81Y2377	6577
United States 2.8m, 10A/125V, C13 to NEMA 5-15P Line Cord	90Y3016	6313
United States 2.8m, 10A/250V, C13 to NEMA 6-15P Line Cord	46M2592	A1RF
United States 2.8m, 13A/125V, C13 to NEMA 5-15P Line Cord	00WH545	6401
United States 4.3m, 10A/125V, C13 to NEMA 5-15P Line Cord	4L67A08359	6370
United States 4.3m, 10A/250V, C13 to NEMA 6-15P Line Cord	4L67A08361	6373
United States 4.3m, 13A/125V, C13 to NEMA 5-15P Line Cord	4L67A08360	AX8A

Systems management

The SR590 supports the following systems management tools:

- Lenovo XClarity Controller
- Light path diagnostics
- Lenovo XClarity Provisioning Manager
- Lenovo XClarity Essentials
- Lenovo XClarity Administrator
- Lenovo XClarity Integrators
- Lenovo XClarity Energy Manager
- Lenovo Capacity Planner

Lenovo XClarity Controller

The S590 server contains Lenovo XClarity Controller (XCC), which provides advanced service-processor control, monitoring, and alerting functions. XClarity Controller offers three functional levels: Standard, Advanced, and Enterprise.

By default, the SR590 server includes XClarity Controller Standard features, and it can be upgraded to Advanced or Enterprise functionality by using the Features on Demand (FoD) upgrades.

XClarity Controller Standard offers the following capabilities:

- Gathering and viewing system information and inventory
- Monitoring system status and health
- Alerting and notifications
- Event logging
- Configuring network connectivity
- Configuring security
- Updating system firmware
- Configuring server settings and devices
- Real-time power usage monitoring
- Remotely controlling server power (Power on, Power off, Restart)
- Managing FoD activation keys
- Redirecting serial console via IPMI
- Capturing the video display contents when an operating system hang condition is detected

XClarity Controller Advanced Upgrade adds the following functionality to the Standard features:

- Remotely viewing video with graphics resolutions up to 1920x1200 at 60 Hz with 16 bits per pixel
- Remotely accessing the server using the keyboard and mouse from a remote client
- Remotely deploying an operating system
- Syslog alerting
- Redirecting serial console via SSH
- Displaying graphics for real-time and historical power usage data and temperature

XClarity Controller Enterprise Upgrade adds the following functionality to the Advanced features:

- Capping power usage
- Mapping the ISO and image files located on the local client as virtual drives for use by the server
- Mounting the remote ISO and image files via HTTPS, SFTP, CIFS, and NFS
- Collaborating across up to six users of the virtual console
- Controlling quality and bandwidth usage

The XClarity Controller provides remote server management through industry-standard interfaces:

- Intelligent Platform Management Interface (IPMI) Version 2.0
- Simple Network Management Protocol (SNMP) Version 3
- Common Information Model (CIM)
- Data Center Manageability Interface (DCMI) Version 1.5
- Redfish REpresentational State Transfer (REST) API
- Web browser with HTML5 support
- Command-line interface
- Virtual Operator Panel with XClarity Mobile App via the front USB port with XClarity Controller access

Virtual Operator Panel provides quick access to system status, firmware, network, health, and alerts information. With proper authentication, it also allows to configure systems management and network settings and to control system power (Power on, Power off, Restart). The Virtual Operator Panel can be accessed from the XClarity Mobile App running on the Android or iOS mobile device that is connected to the front USB port with XClarity Controller access (See [Components and connectors](#)).

Note: Depending on the system settings, the front USB port can be assigned to XClarity Controller for management functions, or to the system as a regular USB 2.0 port, or switched between two functions by using the system ID button.

The following table lists the XClarity Controller FoD upgrades.

Table 33. XClarity Controller FoD upgrades

Description	Part number	Feature code	Maximum supported
ThinkSystem XClarity Controller Standard to Advanced Upgrade	4L47A09132	AVUT	1
ThinkSystem XClarity Controller Standard to Enterprise Upgrade	None*	AUPW	1
ThinkSystem XClarity Controller Advanced to Enterprise Upgrade	4L47A09133	None**	1

* Factory-installed only.

** Field upgrade only.

Configuration notes:

- For factory-installed upgrades, either Standard to Advanced Upgrade (feature AVUT) or Standard to Enterprise Upgrade (feature AUPW) can be selected, but not both.
- For field upgrades, the Advanced to Enterprise Upgrade (4L47A09133) requires the Standard to Advanced Upgrade to be activated on the server previously with either the factory-installed feature AVUT or field upgrade 4L47A09132.

Light path diagnostics

All SR590 server models include basic light path diagnostics, which provides the system error LED on the Operator information panel on the front of the server and the LEDs near the monitored components (for example, the DIMM error LEDs on the system board).

Lenovo XClarity Provisioning Manager

Lenovo XClarity Provisioning Manager is a UEFI-embedded GUI application that combines the functions of configuring system setup settings, configuring RAID, and updating applications and firmware. It also enables you to install the supported operating systems and associated device drivers, run diagnostics, and collect service data.

Lenovo XClarity Provisioning Manager has the following features:

- Automatic hardware detection
- Collecting and viewing system inventory information
- Configuring UEFI system setup settings
- Updating the system firmware
- Configuring RAID by using the RAID Setup Wizard or Advanced mode
- Installing an operating system and device drivers automatically or manually
- Running diagnostics and collecting service data

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 XClarity Essentials OneCLI**
OneCLI is a collection of server management tools that utilize a command line interface program to manage firmware, hardware, and operating systems. It provides functions to collect full system health information (including health status), configure system setting, and update system firmware and drivers.
- **Lenovo XClarity 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 XClarity 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 is a centralized systems management solution that helps administrators deliver infrastructure faster. This solution integrates easily with Lenovo x86 servers, RackSwitch switches, and DS Series storage, providing automated agent-less discovery, monitoring, firmware updates, configuration management, and bare metal deployment of operating systems and hypervisors across multiple servers.

Lenovo XClarity Administrator is an optional software component for the SR590 server which can be downloaded and used at no charge to discover and monitor the SR590 and manage firmware upgrades for them.

If software support is required for Lenovo XClarity Administrator, or Lenovo XClarity Administrator premium features (such as configuration management and operating system deployment) are required, or both, 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 geo-specific Lenovo XClarity software license options.

Table 34. Lenovo XClarity software options

Description	Part number (NA, AP, Japan)*	Part number (EMEA, LA)**	Quantity
Lenovo XClarity Pro, per Mngd Server w/1 Yr SW S&S	00MT201	00MT207	1
Lenovo XClarity Pro, per Mngd Server w/3 Yr SW S&S	00MT202	00MT208	1
Lenovo XClarity Pro, per Mngd Server w/5 Yr SW S&S	00MT203	00MT209	1

* NA = North America; AP = Asia Pacific

** EMEA = Europe, Middle East, Africa; LA = Latin America

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

- Auto-discovery and monitoring of Lenovo x86 servers, RackSwitch switches, Flex System chassis, and DS Series storage 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 140-2 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 offers at no charge (if software support is required, a Lenovo XClarity Pro software subscription license should be ordered) two software plug-in modules, Lenovo XClarity Integrators, to manage physical infrastructure from leading external virtualization management software tools from Microsoft and VMware:

- Lenovo XClarity Integrator for Microsoft System Center
- Lenovo XClarity Integrator for VMware vCenter

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, refer to the Lenovo xClarity Integrators web page:

<http://www3.lenovo.com/us/en/data-center/software/systems-management/xclarity-integrators>

Lenovo XClarity Energy Manager

Lenovo XClarity Energy Manager provides a stand-alone, web-based agent-less power management console that provides real time data and enables you to observe, plan and manage power and cooling for Lenovo servers. Using built-in intelligence, it identifies server power consumption trends and ideal power settings and performs cooling analysis so that you can define and optimize power-saving policies.

Lenovo XClarity Energy Manager offers the following capabilities:

- Monitors room, row, rack, and device levels in the data center
- Reports vital information, such as power, temperature and resource utilization
- Monitors inlet temperature to locate hot spots, reducing the risk of data or device damage
- Provides finely-grained controls to limit platform power in compliance with IT policy
- Generates alerts when a user-defined threshold is reached

Lenovo XClarity Energy Manager is an optional software component for the SR590 server that is licensed on a per managed node basis, that is, each managed server requires a license. The 1-node Energy Manager license is included in the XClarity Controller Enterprise upgrade.

To manage systems without XClarity Controller Enterprise licenses, a node license pack should be purchased. The following table lists the geo-specific Lenovo XClarity Energy Manager software license options.

Table 35. Lenovo XClarity Energy Manager software options

Description	Part number (NA,AP, Japan)*	Part number (EMEA, LA)**	Quantity
Lenovo XClarity Energy Manager, 1 Node w/ 1 Yr S&S	01DA225	01DA228	1
Lenovo XClarity Energy Manager, 5 Nodes w/ 1 Yr S&S	01DA226	01DA229	1
Lenovo XClarity Energy Manager, 50 Nodes w/ 1 Yr S&S	01DA227	01DA230	1

* NA = North America; AP = Asia Pacific

** EMEA = Europe, Middle East, Africa; LA = Latin America

For more information, refer to the Lenovo XClarity Energy Manager web page:

<http://datacentersupport.lenovo.com/us/en/solutions/Invo-ixem>

Lenovo Capacity Planner

Lenovo Capacity Planner is a power consumption evaluation tool that enhances data center planning by enabling IT administrators and pre-sales professionals to understand various power characteristics of racks, servers, and other devices. Capacity Planner can dynamically calculate the power consumption, current, British Thermal Unit (BTU), and volt-ampere (VA) rating at the rack level, improving the planning efficiency for large scale deployments.

For more information, refer to the Capacity Planner web page:

<https://datacentersupport.lenovo.com/us/en/solutions/ht504651>

Security

The SR590 server offers the following security features:

- Power-on password
- Administrator's password
- Secure firmware updates
- Onboard Trusted Platform Module (TPM) version 1.2 or 2.0 (configurable UEFI system setting)
- Trusted Cryptographic Module (TCM) (optional; available in China only)
- Lockable front bezel (optional)
- Security Key Lifecycle Manager (SKLM) encryption key management for SEDs - FoD upgrade (optional)
- Lenovo Business Vantage security software (optional; available in China only)

The following table lists the security options that are available for the SR590 server.

Table 36. Security options

Description	Part number	Feature code	Maximum supported
Lockable front bezel			
ThinkSystem 2U Security Bezel	7Z17A02580	AURX	1
Trusted Cryptographic Module (China only)			
ThinkSystem Trusted Cryptographic Module	None*	AVKE	1
Security Key Lifecycle Manager - FoD (United States, Canada, Asia Pacific, and Japan)			
SKLM for System x/ThinkSystem w/SEDs - FoD per Install w/1Yr S&S	00D9998	A5U1	1

Description	Part number	Feature code	Maximum supported
SKLM for System x/ThinkSystem w/SEDs - FoD per Install w/3Yr S&S	00D9999	AS6C	1
Security Key Lifecycle Manager - FoD (Latin America, Europe, Middle East, and Africa)			
SKLM for System x/ThinkSystem w/SEDs - FoD per Install w/1Yr S&S	00FP648	A5U1	1
SKLM for System x/ThinkSystem w/SEDs - FoD per Install w/3Yr S&S	00FP649	AS6C	1

* Factory-installed only; no field upgrade.

Lenovo Business Vantage is a security software tool suite (available only in China) designed to work with the Trusted Cryptographic Module (TCM) adapter for enhanced security, to keep user data safe, and to erase confidential data completely from a hard disk drive.

Lenovo Business Vantage provides the following features:

- Encrypts files to ensure data safety by using the TCM.
- Erases confidential data from a hard disk.
- Prohibits unauthorized access to the USB port of devices.
- Encrypts files to ensure data security on a USB storage device.

For more information, refer to the Lenovo Business Vantage web page:

<http://support.lenovo.com.cn/lenovo/wsi/es/es.html>

Rack installation

The following table lists the rack installation options that are available for the SR590 server.

Table 37. Rack installation options

Description	Part number	Feature code	Maximum supported
4-post rail kits			
ThinkSystem Tool-less Slide Rail	7M27A05702	AXCA	1
ThinkSystem Tool-less Slide Rail Kit with 2U CMA	7M27A05700	AXCH	1
ThinkSystem Screw-in Slide Rail	4M17A07274	AXFN	1
ThinkSystem Screw-in Slide Rail Kit with 2U CMA	4M17A07280	B0TD	1
ThinkSystem Tool-less Friction Rail	4M17A07273	AXFM	1
Cable management arm (CMA) upgrade			
ThinkSystem 2U CMA Upgrade Kit for Tool-less Slide Rail	7M27A05698	B135	1*
ThinkSystem 2U CMA Upgrade Kit for Screw-in Slide Rail	4M17A07275	AXFU	1**
Front VGA port			
ThinkSystem SR550/SR590/SR650 EIA Latch w/ VGA Upgrade Kit	7Z17A02578	AUS8	1

* The CMA Upgrade Kit for Tool-less Slide Rail is supported with the Tool-less Slide Rail (7M27A05702) only.

** The CMA Upgrade Kit for Screw-in Slide Rail is supported with the Screw-in Slide Rail (4M17A07274) only.

The following table summarizes the rail kit features and specifications.

Table 38. Rail kit features and specifications summary

Feature	Tool-less Slide Rail		Screw-in Slide Rail		Tool-less Friction Rail
	Without CMA	With CMA	Without CMA	With CMA	
Part number	7M27A05702	7M27A05700	4M17A07274	4M17A07280	4M17A07273
CMA	7M27A05698	Included	4M17A07275	Included	No support
Rail length	730 mm (28.74 in.)	807 mm (31.8 in.)	836.8 mm (32.9 in.)	836.8 mm (32.9 in.)	728.1 mm (28.7 in.)
Rail type	Full-out slide (ball bearing)		Full-out slide (ball bearing)		Half-out slide (friction)
Tool-less installation	Yes		No		Yes
In-rack server maintenance	Yes		Yes		No
1U PDU support	Yes		Yes		Yes
0U PDU support	Limited*		Limited*		Limited**
Rack type	IBM and Lenovo 4-post, IEC standard-compliant		IBM and Lenovo 4-post, IEC standard-compliant		IBM and Lenovo 4-post, IEC standard-compliant
Mounting holes	Square or round		Square, round, or threaded		Square or round
Mounting flange thickness	2 mm (0.08 in.) – 3.3 mm (0.13 in.)		2 mm (0.08 in.) – 3.3 mm (0.13 in.)		2 mm (0.08 in.) – 3.3 mm (0.13 in.)
Distance between front and rear mounting flanges [^]	609.6 mm (24 in.) – 863.6 mm (34 in.)		609.6 mm (24 in.) – 812.8 mm (32 in.)		609.6 mm (24 in.) – 863.6 mm (34 in.)

* If a 0U PDU is used, the rack cabinet must be at least 1100 mm (43.31 in.) deep if no CMA is used, or at least 1200 mm (47.24 in.) deep if a CMA is used.

** If a 0U PDU used, the rack must be at least 1000 mm (39.37 in.) deep.

[^] Measured when mounted on the rack, from the front surface of the front mounting flange to the rear most point of the rail.

Operating systems

The SR590 server supports the following operating systems:

- Microsoft:
 - Microsoft Windows Server 2016
 - Microsoft Windows Server 2012 R2
- Red Hat:
 - Red Hat Enterprise Linux 7.4
 - Red Hat Enterprise Linux 6.9
- SUSE:
 - SUSE Linux Enterprise Server 12 SP3
 - SUSE Linux Enterprise Server 11 x64 SP4
- VMware:
 - VMware vSphere 6.5 (ESXi) Update 1
 - VMware vSphere 6.0 (ESXi) Update 3

For the latest information about the specific versions and service levels that are supported and any other prerequisites, see the Operating System Interoperability Guide: <http://lenovopress.com/osig>.

Physical specifications

The SR590 server has the following dimensions and weight (approximate):

- Height: 87 mm (3.4 in.)
- Width: 445 mm (17.5 in.)
- Depth: 720 mm (28.3 in.)
- Weight:
 - Minimum configuration: 19 kg (41.9 lb)
 - Maximum configuration: 26 kg (57.3 lb)

Operating environment

The SR590 server complies with ASHRAE class A2 specifications. The server performance might be impacted when the operating temperature is outside the ASHRAE A2 specifications. Depending on the hardware configuration, some server models comply with ASHRAE class A3 and class A4 specifications. To comply with ASHRAE class A3 and class A4 specifications, the server models must meet the following hardware configuration requirements at the same time:

- Two power supplies installed
- NVMe drives not installed
- Rear HDD kit not installed
- No system fan fails
- Intel Xeon 6136, 6140, 6142, 6148, 6152, 8158, 8160, 8160T, or 8164 processors not installed

Configuration note: If an M.2 kit is installed the server models with 12x 3.5-inch drive bays, the operating environment should not exceed ASHRAE A3 specifications.

The SR590 server is supported in the following environment:

- Air temperature:
 - Operating:
 - ASHRAE Class A4: 5 °C - 45 °C (41 °F - 113 °F); for altitudes above 900 m (2,953 ft), decrease the maximum ambient temperature by 1 °C for every 125-m (410-ft) increase in altitude
 - ASHRAE Class A3: 5 °C - 40 °C (41 °F - 104 °F); for altitudes above 900 m (2,953 ft), decrease the maximum ambient temperature by 1 °C for every 175-m (574-ft) increase in altitude
 - ASHRAE Class A2: 10 °C - 35 °C (50 °F - 95 °F); for altitudes above 900 m (2,953 ft), decrease the maximum ambient temperature by 1 °C for every 300-m (984-ft) increase in altitude
 - Non-operating: 5 °C - 45 °C (41 °F - 113 °F)
 - Storage: -40 °C - +60 °C (-40 °F - 140 °F)
- Maximum altitude: 3,050 m (10,000 ft)
- Humidity:
 - Operating:
 - ASHRAE Class A4: 8% - 90% (non-condensing); maximum dew point: 24 °C (75 °F)
 - ASHRAE Class A3: 8% - 85% (non-condensing); maximum dew point: 24 °C (75 °F)
 - ASHRAE Class A2: 8% - 80% (non-condensing); maximum dew point: 21 °C (70 °F)
 - Storage: 8% - 90% (non-condensing)
- Electrical:
 - 100 - 127 (nominal) V AC; 50 Hz / 60 Hz
 - 200 - 240 (nominal) V AC; 50 Hz / 60 Hz
 - 180 - 300 V DC (HVDC; supported in China only)

- Acoustics:
 - Minimum configuration:
 - Operating: 5.5 bels
 - Idle: 4.9 bels
 - Maximum configuration:
 - Operating: 6.8 bels
 - Idle: 6.1 bels
- 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

The following table lists the maximum system power load, rated inlet current, and system heat output based on the power supply and source voltage.

Table 39. Rated system power, inlet current, and system heat output

Power supply	Source voltage	Maximum power load per system (two power supplies)	Rated current per inlet	System heat output
550W Platinum	100 - 127 V AC	722 W	6.2 A	2463 BTU/hour
	200 - 240 V AC	704 W	3 A	2402 BTU/hour
	180 - 300 V DC	702 W	2.5 A	2395 BTU/hour
750W Platinum	100 - 127 V AC	984 W	8.4 A	3357 BTU/hour
	200 - 240 V AC	958 W	4.1 A	3269 BTU/hour
	180 - 300 V DC	958 W	3.5 A	3269 BTU/hour
750W Titanium	200 - 240 V AC	949 W	4.1 A	3238 BTU/hour
	180 - 300 V DC	948 W	3.5 A	3235 BTU/hour

Warranty services

The SR590 server has a one-year (7X98) or three-year (Machine Type 7X99) customer-replaceable unit (CRU) and onsite limited (for field-replaceable units [FRUs] only) warranty with standard call center support during normal business hours and 9x5 Next Business Day Parts Delivered.

Some countries might have different warranty terms and conditions than the standard warranty. This is due to local business practices or laws in the specific country. Local service teams can assist in explaining country-specific terms when needed. Examples of country-specific warranty terms are second or longer business day parts delivery or parts-only base warranty.

If warranty terms and conditions include onsite labor for repair or replacement of parts, Lenovo will dispatch a service technician to the customer site to perform the replacement. Onsite labor under base warranty is limited to labor for replacement of parts that have been determined to be field-replaceable units (FRUs). Parts that are determined to be customer-replaceable units (CRUs) do not include onsite labor under base warranty.

If warranty terms include parts-only base warranty, Lenovo is responsible for delivering only replacement parts that are under base warranty (including FRUs) that will be sent to a requested location for self-service. Parts-only service does not include a service technician being dispatched onsite. Parts must be changed at customer's own cost and labor and defective parts must be returned following the instructions supplied with the spares parts.

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

Lenovo warranty service upgrade offerings are country-specific. Not all warranty service upgrades are available in every country. For information about Lenovo warranty service upgrade offerings that are available in your country or area, refer to the following resources:

- Service part numbers in Lenovo Enterprise Solutions Configurator (LESC):
<http://lesc.lenovo.com/ss>
- Lenovo Services Availability Locator
<http://lenovolocator.com/>

In general, the following Lenovo warranty service upgrades are available:

- Warranty and maintenance service upgrades:
 - 3, 4, or 5 years of warranty service coverage
 - 1-year or 2-year post-warranty extensions
 - Foundation Service: 9x5 service coverage with next business day onsite response
 - Essential Service: 24x7 service coverage with 4-hour onsite response or 24-hour committed repair (available only in select countries)
 - Advanced Service: 24x7 service coverage with 2-hour onsite response or 6-hour committed repair (available only in select countries)
- YourDrive YourData
Lenovo's YourDrive YourData service (where applicable) is a multi-drive retention offering that ensures your data is always under your control, regardless of the number of drives that are installed in your Lenovo server. In the unlikely event of a drive failure, you retain possession of your drive while Lenovo replaces the failed drive part. Your data stays safely on your premises, in your hands. The YourDrive YourData service can be purchased in convenient bundles with Foundation, Essential, or Advanced Service upgrades and extensions.
- Enterprise Server Software Support
Lenovo Enterprise Server Software Support can help you troubleshoot your entire server software stack. Choose support for server operating systems from Microsoft, Red Hat, SUSE, and VMware; Microsoft server applications; or both operating systems and applications. Support staff can help answer troubleshooting and diagnostic questions, address product compatibility and interoperability issues, isolate causes of problems, report defects to software vendors, and more.

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

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

For service definitions, country-specific details, and service limitations, please refer to the following documents:

- Lenovo Statement of Limited Warranty for Data Center Group (DCG) Servers and System Storage
<http://pcsupport.lenovo.com/us/en/solutions/ht503310>
- Lenovo Data Center Services Agreement
<http://support.lenovo.com/us/en/solutions/ht116628>

Regulatory compliance

The SR590 server conforms to the following regulations:

- United States FCC Part 15, Class A
- Canada ICES-003/NMB-03, Class A
- UL/CSA 60950-1
- Mexico NOM-019
- Argentina IEC60950-1
- Japan VCCI, Class A
- Australia/New Zealand AS/NZS CISPR 22, Class A
- China CCC GB4943.1, GB9254 Class A, GB17625.1
- Taiwan BSMI CNS13438, Class A; CNS14336-1
- Korea KN22, Class A; KN24
- Russia, Belorussia and Kazakhstan, TR CU 020/2011 and TR CU 004/2011
- IEC 60950-1 (CB Certificate and CB Test Report)
- Europe CE Mark (EN55022 Class A, EN60950-1, EN55024, EN61000-3-2, EN61000-3-3)
- CISPR 22, Class A
- Germany TUV-GS (EN60950-1/IEC60950-1, EK1-ITB2000)
- Reduction of Hazardous Substances (ROHS)
- Energy Star 2.1

External drive enclosures

The following table lists the 12 Gbps SAS external drive enclosures that are offered by Lenovo that can be used with the SR590 for storage expansion.

Note: Information provided in this section is for ordering reference purposes only. For the operating system 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 40. External drive enclosures

Description	Part number
D1212 LFF Relationship models	
D1212 LFF Chassis, Dual 3-port ESMs (US English documentation)	4587A11*
D1212 LFF Chassis, Dual 3-port ESMs (Simplified Chinese documentation)	4587A1C^
D1212 LFF Chassis, Dual 3-port ESMs (Japanese documentation)	4587A1J**
D1212 LFF TopSeller models - Brazil and Latin America	
D1212 LFF Chassis, Dual 3-port ESMs, 4x 2TB 3.5" HDDs, 4x 0.5m SAS cables	4587EAU
D1212 LFF Chassis, Dual 3-port ESMs, 4x 4TB 3.5" HDDs, 4x 0.5m SAS cables	4587EBU
D1212 LFF Chassis, Dual 3-port ESMs, 4x 6TB 3.5" HDDs, 4x 0.5m SAS cables	4587ECU
D1212 LFF Chassis, Dual 3-port ESMs, 4x 8TB 3.5" HDDs, 4x 0.5m SAS cables	4587EDU

Description	Part number
D1212 LFF Chassis, Dual 3-port ESMs, 8x 2TB 3.5" HDDs, 4x 0.5m SAS cables	4587EEU
D1212 LFF Chassis, Dual 3-port ESMs, 8x 4TB 3.5" HDDs, 4x 0.5m SAS cables	4587EFU
D1212 LFF Chassis, Dual 3-port ESMs, 8x 6TB 3.5" HDDs, 4x 0.5m SAS cables	4587EGU
D1212 LFF Chassis, Dual 3-port ESMs, 8x 8TB 3.5" HDDs, 4x 0.5m SAS cables	4587EHU
D1212 LFF Chassis, Dual 3-port ESMs, 12x 2TB 3.5" HDDs, 4x 0.5m SAS cables	4587EIU
D1212 LFF Chassis, Dual 3-port ESMs, 12x 4TB 3.5" HDDs, 4x 0.5m SAS cables	4587EJU
D1212 LFF Chassis, Dual 3-port ESMs, 12x 6TB 3.5" HDDs, 4x 0.5m SAS cables	4587EKU
D1212 LFF Chassis, Dual 3-port ESMs, 12x 8TB 3.5" HDDs, 4x 0.5m SAS cables	4587ELU
D1212 LFF TopSeller models - North America (NA) and Europe, Middle East, and Africa (EMEA)	
Lenovo Storage D1212 LFF Dual ESM Disk Expansion Enclosure (US English documentation)	4587E11
D1224 SFF Relationship models	
D1224 SFF Chassis, Dual 3-port ESMs (US English documentation)	4587A31*
D1224 SFF Chassis, Dual 3-port ESMs (Simplified Chinese documentation)	4587A3C^
D1224 SFF Chassis, Dual 3-port ESMs (Japanese documentation)	4587A3J**
D1224 SFF TopSeller models - Brazil and Latin America	
D1224 SFF Chassis, Dual 3-port ESMs, 9x 1.2TB 10K HDDs, 4x 0.5m SAS cables	4587E6U
D1224 SFF Chassis, Dual 3-port ESMs, 9x 1.2TB 10K HDDs, 2x 400GB SSDs, 4x 0.5m SAS cables	4587E2U
D1224 SFF Chassis, Dual 3-port ESMs, 9x 1.2TB 10K HDDs, 4x 400GB SSDs, 4x 0.5m SAS cables	4587E4U
D1224 SFF Chassis, Dual 3-port ESMs, 18x 1.2TB 10K HDDs, 1x 0.5m SAS cable	4587E5U
D1224 SFF Chassis, Dual 3-port ESMs, 18x 1.2TB 10K HDDs, 2x 400GB SSDs, 4x 0.5m SAS cables	4587E1U
D1224 SFF Chassis, Dual 3-port ESMs, 18x 1.2TB 10K HDDs, 4x 400GB SSDs, 4x 0.5m SAS cables	4587E3U
D1224 SFF TopSeller models - North America (NA) and Europe, Middle East, and Africa (EMEA)	
Lenovo Storage D1224 SFF Dual ESM Disk Expansion Enclosure (US English documentation)	4587E31
D3284 Relationship models	
Lenovo Storage D3284 4TB x 84 HD Expansion Enclosure	641311F
Lenovo Storage D3284 6TB x 84 HD Expansion Enclosure	641312F
Lenovo Storage D3284 8TB x 84 HD Expansion Enclosure	641313F
Lenovo Storage D3284 10TB x 84 HD Expansion Enclosure	641314F
D3284 TopSeller models	
Lenovo Storage D3284 High Density Expansion Enclosure	6413E5F
Lenovo Storage D3284 4TB x 42 HD Expansion Enclosure	6413E1H
Lenovo Storage D3284 4TB x 84 HD Expansion Enclosure	6413E1F
Lenovo Storage D3284 6TB x 42 HD Expansion Enclosure	6413E2H
Lenovo Storage D3284 6TB x 84 HD Expansion Enclosure	6413E2F
Lenovo Storage D3284 8TB x 42 HD Expansion Enclosure	6413E3H
Lenovo Storage D3284 8TB x 84 HD Expansion Enclosure	6413E3F
Lenovo Storage D3284 10TB x 42 HD Expansion Enclosure	6413E4H
Lenovo Storage D3284 10TB x 84 HD Expansion Enclosure	6413E4F

* Available worldwide (except China and Japan)

^ Available only in China

** Available only in Japan

Note: The RAID 930-8e does not support D3284 attachments.

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

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

External storage systems

The following table lists the external storage systems that are currently offered by Lenovo that can be used with the SR590 in IT solutions.

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

<http://datacentersupport.lenovo.com>

Table 41. External storage systems

Description	Part number
Lenovo ThinkSystem DS Series Storage (SAS connectivity)	
Lenovo ThinkSystem DS2200 LFF SAS Dual Controller Unit (US English documentation)	4599A41*
Lenovo ThinkSystem DS2200 LFF SAS Dual Controller Unit (Simplified Chinese documentation)	4599A4C^
Lenovo ThinkSystem DS2200 LFF SAS Dual Controller Unit (Japanese documentation)	4599A4J**
Lenovo ThinkSystem DS2200 SFF SAS Dual Controller Unit (US English documentation)	4599A21*
Lenovo ThinkSystem DS2200 SFF SAS Dual Controller Unit (Simplified Chinese documentation)	4599A2C^
Lenovo ThinkSystem DS2200 SFF SAS Dual Controller Unit (Japanese documentation)	4599A2J**
Lenovo ThinkSystem DS4200 LFF SAS Dual Controller Unit (US English documentation)	4617A41*
Lenovo ThinkSystem DS4200 LFF SAS Dual Controller Unit (Simplified Chinese documentation)	4617A4C^
Lenovo ThinkSystem DS4200 LFF SAS Dual Controller Unit (Japanese documentation)	4617A4J**
Lenovo ThinkSystem DS4200 SFF SAS Dual Controller Unit (US English documentation)	4617A21*
Lenovo ThinkSystem DS4200 SFF SAS Dual Controller Unit (Simplified Chinese documentation)	4617A2C^
Lenovo ThinkSystem DS4200 SFF SAS Dual Controller Unit (Japanese documentation)	4617A2J**
Lenovo ThinkSystem DS6200 SFF SAS Dual Controller Unit (US English documentation)	4619A21*
Lenovo ThinkSystem DS6200 SFF SAS Dual Controller Unit (Simplified Chinese documentation)	4619A2C^
Lenovo ThinkSystem DS6200 SFF SAS Dual Controller Unit (Japanese documentation)	4619A2J**
Lenovo ThinkSystem DS Series Storage (iSCSI or FC connectivity)	
Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit (US English documentation)	4599A31*
Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4599A3C^
Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4599A3J**
Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit (US English documentation)	4599A11*
Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4599A1C^
Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4599A1J**
Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit (US English documentation)	4617A31*
Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4617A3C^
Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4617A3J**

Description	Part number
Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit (US English documentation)	4617A11*
Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4617A1C^
Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4617A1J**
Lenovo ThinkSystem DS6200 SFF FC/iSCSI Dual Controller Unit (US English documentation)	4619A11*
Lenovo ThinkSystem DS6200 SFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4619A1C^
Lenovo Storage V Series (SAS, iSCSI, or FC connectivity)	
Lenovo Storage V3700 V2 LFF Control Enclosure	6535C1D
Lenovo Storage V3700 V2 LFF Control Enclosure (TopSeller)	6535EC1
Lenovo Storage V3700 V2 SFF Control Enclosure	6535C2D
Lenovo Storage V3700 V2 SFF Control Enclosure (TopSeller)	6535EC2
Lenovo Storage V3700 V2 XP LFF Control Enclosure	6535C3D
Lenovo Storage V3700 V2 XP LFF Control Enclosure (TopSeller)	6535EC3
Lenovo Storage V3700 V2 XP SFF Control Enclosure	6535C4D
Lenovo Storage V3700 V2 XP SFF Control Enclosure (TopSeller)	6535EC4
Lenovo Storage V5030 LFF Control Enclosure 3Yr S&S	6536C12
Lenovo Storage V5030 LFF Control Enclosure 5Yr S&S	6536C32
Lenovo Storage V5030 SFF Control Enclosure 3Yr S&S	6536C22
Lenovo Storage V5030 SFF Control Enclosure 5Yr S&S	6536C42
Lenovo Storage V5030F SFF Control Enclosure 3Yr S&S	6536B1F
Lenovo Storage V5030F SFF Control Enclosure 5Yr S&S	6536B2F
Lenovo Storage V7000 SFF Control Enclosure 3Yr S&S PRC	6538R11^
Lenovo Storage V7000 SFF Control Enclosure 5Yr S&S PRC	6538R21^
Lenovo Storage V7000F SFF Control Enclosure 3Yr S&S PRC	6538R1G^
Lenovo Storage V7000F SFF Control Enclosure 5Yr S&S PRC	6538R2G^
IBM Storwize for Lenovo (SAS [except V7000], iSCSI, or FC connectivity)	
IBM Storwize V3500 3.5-inch Dual Control Storage Controller Unit	6096CU2^
IBM Storwize V3500 2.5-inch Dual Control Storage Controller Unit	6096CU3^
IBM Storwize V7000 SFF Control Enclosure, 3YR SWMA	6195C32†
IBM Storwize V7000 SFF Control Enclosure, 3YR SWMA, LA	6195C3L‡
IBM Storwize V7000 SFF Control Enclosure, 5YR SWMA	6195C52†
IBM Storwize V7000 SFF Control Enclosure, 5YR SWMA, LA	6195C5L‡
Lenovo Storage DX8200 Series (NAS or iSCSI connectivity; optional FC connectivity)	
Lenovo Storage DX8200D Storage Virtualization Entry, 4TB, 3yr SW S&S	5135A3x#
Lenovo Storage DX8200D Storage Virtualization Entry, 4TB, 4yr SW S&S	5135J3x#
Lenovo Storage DX8200D Storage Virtualization Entry, 4TB, 5yr SW S&S	51351Wx#
Lenovo Storage DX8200D Storage Virtualization Mid, 16TB, 3yr SW S&S	5135B3x#
Lenovo Storage DX8200D Storage Virtualization Mid, 16TB, 4yr SW S&S	5135L3x#
Lenovo Storage DX8200D Storage Virtualization Mid, 16TB, 5yr SW S&S	51352Wx#
Lenovo Storage DX8200D Storage Virtualization High, 64TB, 3yr SW S&S	5135C3x#
Lenovo Storage DX8200D Storage Virtualization High, 64TB, 4yr SW S&S	5135M3x#
Lenovo Storage DX8200D Storage Virtualization High, 64TB, 5yr SW S&S	51353Wx#

Description	Part number
Lenovo Storage DX8200D ServerSAN Entry, 8TB, 3yr SW S&S	5135D3x#
Lenovo Storage DX8200D ServerSAN Entry, 8TB, 4yr SW S&S	5135N3x#
Lenovo Storage DX8200D ServerSAN Entry, 8TB, 5yr SW S&S	51354Wx#
Lenovo Storage DX8200D ServerSAN Mid, 16TB, 3yr SW S&S	5135F3x#
Lenovo Storage DX8200D ServerSAN Mid, 16TB, 4yr SW S&S	5135P3x#
Lenovo Storage DX8200D ServerSAN Mid, 16TB, 5yr SW S&S	51355Wx#
Lenovo Storage DX8200D ServerSAN High, 32TB, 3yr SW S&S	5135G3x#
Lenovo Storage DX8200D ServerSAN High, 32TB, 4yr SW S&S	5135Q3x#
Lenovo Storage DX8200D ServerSAN High, 32TB, 5yr SW S&S	51356Wx#
Lenovo Storage DX8200N with 1x N2226 HBA (Requires a supported external drive enclosure)	5128C1x#
Lenovo Storage DX8200N with 2x N2226 HBAs (Requires a supported external drive enclosure)	5128C2x#
Lenovo Storage DX8200C Series (S3 cloud storage)	
Lenovo Storage DX8200C 56TB (14x 4TB HDDs) with Cloudian HyperStore - 3yr HW/SW S&S	5120D1x#
Lenovo Storage DX8200C 84TB (14x 6TB HDDs) with Cloudian HyperStore - 3yr HW/SW S&S	5120D2x#
Lenovo Storage DX8200C 112TB (14x 8TB HDDs) with Cloudian HyperStore - 3yr HW/SW S&S	5120D3x#
Lenovo Storage DX8200C 140TB (14x 10TB HDDs) with Cloudian HyperStore - 3yr HW/SW S&S	5120D4x#
Lenovo Storage DX8200C 168TB (14x 12TB HDDs) with Cloudian HyperStore - 3yr HW/SW S&S	5120D5x#

* Available worldwide (except China and Japan).

^ Available only in China.

** Available only in Japan.

† Available worldwide except Latin America.

‡ Available only in Latin America.

x represents a geo-specific letter (for example: U = North America, G = EMEA). Ask a Lenovo representative for specifics.

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

- Lenovo DS Series and V Series storage:
<http://lenovopress.com/storage/san/lenovo#rt=product-guide>
- IBM Storwize for Lenovo storage:
<http://lenovopress.com/storage/san/ibm#rt=product-guide>
- Lenovo Cloud storage:
<http://lenovopress.com/storage/cloud#rt=product-guide>
- Lenovo NAS storage:
<http://lenovopress.com/storage/nas#rt=product-guide>

Ethernet LAN switches

The following table lists the Ethernet LAN switches that are offered by Lenovo that can be used with the SR590 server in IT solutions.

Table 42. Ethernet LAN switches

Description	Part number
1 Gb Ethernet switches	
Juniper EX2300-C PoE Switch	7165H1X
Juniper EX2300-24p PoE Switch	7165H2X
Lenovo RackSwitch G7028 (Rear to Front)	7159BAX
Lenovo RackSwitch G7052 (Rear to Front)	7159CAX
Lenovo RackSwitch G8052 (Rear to Front)	7159G52
10 Gb Ethernet switches	
Lenovo ThinkSystem NE1032 RackSwitch (Rear to Front)	7159A1X
Lenovo ThinkSystem NE1032T RackSwitch (Rear to Front)	7159B1X
Lenovo ThinkSystem NE1072T RackSwitch (Rear to Front)	7159C1X
Lenovo RackSwitch G8124E (Rear to Front)	7159BR6
Lenovo RackSwitch G8264 (Rear to Front)	7159G64
Lenovo RackSwitch G8264CS (Rear to Front)	7159DRX
Lenovo RackSwitch G8272 (Rear to Front)	7159CRW
Lenovo RackSwitch G8296 (Rear to Front)	7159GR6
25 Gb Ethernet switches	
Lenovo ThinkSystem NE2572 RackSwitch (Rear to Front)	7159E1X
40 Gb Ethernet switches	
Lenovo RackSwitch G8332 (Rear to Front)	7159BRX
100 Gb Ethernet switches	
Lenovo ThinkSystem NE10032 RackSwitch (Rear to Front)	7159D1X

For more information, see the list of Product Guides in the Top-of-rack Switches category:

<http://lenovopress.com/servers/options/switches#rt=product-guide>

Fibre Channel SAN switches

The following table lists currently available Fibre Channel SAN switches that are offered by Lenovo that can be used with the SR590 in IT solutions.

Table 43. Fibre Channel SAN switches

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

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

Rack cabinets

The following table lists the rack cabinets that are offered by Lenovo that can be used with the SR590 server in IT solutions.

Table 44. Rack cabinets

Description	Part number
25U S2 Standard Rack (1000 mm deep; 2 sidewall compartments)	93072RX
25U Static S2 Standard Rack (1000 mm deep; 2 sidewall compartments)	93072PX
42U S2 Standard Rack (1000 mm deep; 6 sidewall compartments)	93074RX
42U 1100mm Enterprise V2 Dynamic Rack (6 sidewall compartments)	93634PX
42U 1100mm Enterprise V2 Dynamic Expansion Rack (6 sidewall compartments)	93634EX
42U 1200mm Deep Dynamic Rack (6 sidewall compartments)	93604PX
42U 1200mm Deep Static Rack (6 sidewall compartments)	93614PX
42U Enterprise Rack (1105 mm deep; 4 sidewall compartments)	93084PX
42U Enterprise Expansion Rack (1105 mm deep; 4 sidewall compartments)	93084EX

For more information, see the list of Product Guides in the Rack cabinets category:
<http://lenovopress.com/servers/options/racks#rt=product-guide>

KVM switches and consoles

The following table lists the KVM switches and consoles that are offered by Lenovo that can be used with the SR590 server in IT solutions.

Table 45. KVM switch and console options

Description	Part number
Consoles	
1U 18.5" Standard Console (without keyboard)	17238BX
Console keyboards	
ThinkSystem Keyboard w/ Int. Pointing Device USB - Arabic 253 RoHS v2	7ZB7A05469
ThinkSystem Keyboard w/ Int. Pointing Device USB - Belg/UK 120 RoHS v2	7ZB7A05468
ThinkSystem Keyboard w/ Int. Pointing Device USB - Czech 489 RoHS v2	7ZB7A05206
ThinkSystem Keyboard w/ Int. Pointing Device USB - Danish 159 RoHS v2	7ZB7A05207
ThinkSystem Keyboard w/ Int. Pointing Device USB - Dutch 143 RoHS v2	7ZB7A05208
ThinkSystem Keyboard w/ Int. Pointing Device USB - Fr/Canada 445 RoHS v2	7ZB7A05210
ThinkSystem Keyboard w/ Int. Pointing Device USB - French 189 RoHS v2	7ZB7A05209
ThinkSystem Keyboard w/ Int. Pointing Device USB - German 129 RoHS v2	7ZB7A05211
ThinkSystem Keyboard w/ Int. Pointing Device USB - Greek 219 RoHS v2	7ZB7A05212
ThinkSystem Keyboard w/ Int. Pointing Device USB - Hebrew 212 RoHS v2	7ZB7A05213
ThinkSystem Keyboard w/ Int. Pointing Device USB - Hungarian 208 RoHS v2	7ZB7A05214
ThinkSystem Keyboard w/ Int. Pointing Device USB - Italian 141 RoHS v2	7ZB7A05215
ThinkSystem Keyboard w/ Int. Pointing Device USB - Japanese 194 RoHS v2	7ZB7A05216

Description	Part number
ThinkSystem Keyboard w/ Int. Pointing Device USB - Korean 413 RoHS v2	7ZB7A05217
ThinkSystem Keyboard w/ Int. Pointing Device USB - LA Span 171 RoHS v2	7ZB7A05218
ThinkSystem Keyboard w/ Int. Pointing Device USB - Norwegian 155 RoHS v2	7ZB7A05219
ThinkSystem Keyboard w/ Int. Pointing Device USB - Polish 214 RoHS v2	7ZB7A05220
ThinkSystem Keyboard w/ Int. Pointing Device USB - Portugese 163 RoHS v2	7ZB7A05221
ThinkSystem Keyboard w/ Int. Pointing Device USB - Russian 441 RoHS v2	7ZB7A05222
ThinkSystem Keyboard w/ Int. Pointing Device USB - Slovak 245 RoHS v2	7ZB7A05223
ThinkSystem Keyboard w/ Int. Pointing Device USB - Slovenian 234 RoHS v2	7ZB7A05231
ThinkSystem Keyboard w/ Int. Pointing Device USB - Spanish 172 RoHS v2	7ZB7A05224
ThinkSystem Keyboard w/ Int. Pointing Device USB - Swed/Finn 153 RoHS v2	7ZB7A05225
ThinkSystem Keyboard w/ Int. Pointing Device USB - Swiss F/G 150 RoHS v2	7ZB7A05226
ThinkSystem Keyboard w/ Int. Pointing Device USB - Thai 191 RoHS v2	7ZB7A05227
ThinkSystem Keyboard w/ Int. Pointing Device USB - Trad Chinese/US 467 RoHS v2	7ZB7A05467
ThinkSystem Keyboard w/ Int. Pointing Device USB - Turkish 179 RoHS v2	7ZB7A05228
ThinkSystem Keyboard w/ Int. Pointing Device USB - UK Eng 166 RoHS v2	7ZB7A05229
ThinkSystem Keyboard w/ Int. Pointing Device USB - US Eng 103P RoHS v2	7ZB7A05470
ThinkSystem Keyboard w/ Int. Pointing Device USB - US Euro 103P RoHS v2	7ZB7A05230
Console switches	
Global 4x2x32 Console Manager (GCM32)	1754D2X
Global 2x2x16 Console Manager (GCM16)	1754D1X
Local 2x16 Console Manager (LCM16)	1754A2X
Local 1x8 Console Manager (LCM8)	1754A1X
Console cables	
Single Cable USB Conversion Option (UCO)	43V6147
USB Conversion Option (4 Pack UCO)	39M2895
Virtual Media Conversion Option Gen2 (VCO2)	46M5383
Serial Conversion Option (SCO)	46M5382

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

Power distribution units

The following table lists the power distribution units (PDUs) that are offered by Lenovo that can be used with the SR590 server in IT solutions.

Table 46. Power distribution units

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

Description	Part number
0U 21 C13/12 C19 32A/200-240V/346-415V 3 Phase PDU with IEC60309 532P6 line cord	00YJ778
0U 21 C13/12 C19 48A/200-240V 3 Phase PDU with IEC60309 460P9 line cord	00YJ779
Switched and Monitored PDUs	
0U 20 C13/4 C19 Switched and Monitored 24A/200-240V/1Ph PDU w/ NEMA L6-30P line cord	00YJ781
0U 20 C13/4 C19 Switched and Monitored 32A/200-240V/1Ph PDU w/ IEC60309 332P6 line cord	00YJ780
0U 18 C13/6 C19 Switched / Monitored 32A/200-240V/346-415V/3Ph PDU w/ IEC60309 532P6 cord	00YJ782
0U 12 C13/12 C19 Switched and Monitored 48A/200-240V/3Ph PDU w/ IEC60309 460P9 line cord	00YJ783
1U 9 C19/3 C13 Switched and Monitored DPI PDU (without line cord)	46M4002
1U 9 C19/3 C13 Switched and Monitored 60A 3Ph PDU with IEC 309 3P+Gnd cord	46M4003
1U 12 C13 Switched and Monitored DPI PDU (without line cord)	46M4004
1U 12 C13 Switched and Monitored 60A 3 Phase PDU with IEC 309 3P+Gnd line cord	46M4005
Ultra Density Enterprise PDUs (9x IEC 320 C13 + 3x IEC 320 C19 outlets)	
Ultra Density Enterprise C19/C13 PDU Module (without line cord)	71762NX
Ultra Density Enterprise C19/C13 PDU 60A/208V/3ph with IEC 309 3P+Gnd line cord	71763NU
C13 Enterprise PDUs (12x IEC 320 C13 outlets)	
DPI C13 Enterprise PDU+ (without line cord)	39M2816
DPI Single Phase C13 Enterprise PDU (without line cord)	39Y8941
C19 Enterprise PDUs (6x IEC 320 C19 outlets)	
DPI Single Phase C19 Enterprise PDU (without line cord)	39Y8948
DPI 60A 3 Phase C19 Enterprise PDU with IEC 309 3P+G (208 V) fixed line cord	39Y8923
Front-end PDUs (3x IEC 320 C19 outlets)	
DPI 30amp/125V Front-end PDU with NEMA L5-30P line cord	39Y8938
DPI 30amp/250V Front-end PDU with NEMA L6-30P line cord	39Y8939
DPI 32amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8934
DPI 60amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8940
DPI 63amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8935
Universal PDUs (7x IEC 320 C13 outlets)	
DPI Universal 7 C13 PDU (with 2 m IEC 320-C19 to C20 rack power cord)	00YE443
NEMA PDUs (6x NEMA 5-15R outlets)	
DPI 100-127V PDU with fixed NEMA L5-15P line cord	39Y8905
Line cords for PDUs that ship without a line cord	
DPI 30a Line Cord (NEMA L6-30P)	40K9614
DPI 32a Line Cord (IEC 309 P+N+G)	40K9612
DPI 32a Line Cord (IEC 309 3P+N+G)	40K9611
DPI 60a Cord (IEC 309 2P+G)	40K9615
DPI 63a Cord (IEC 309 P+N+G)	40K9613
DPI Australian/NZ 3112 Line Cord (32A)	40K9617
DPI Korean 8305 Line Cord (30A)	40K9618

For more information, see the list of Product Guides in the PDU category:
<http://lenovopress.com/servers/options/pdu#rt=product-guide>

Uninterruptible power supply units

The following table list the uninterruptible power supply (UPS) units that are currently offered by Lenovo that can be used with the SR590 in IT solutions.

Table 47. Uninterruptible power supply units

Description	Part number
RT1.5kVA 2U Rack or Tower UPS (100-125VAC) (8x NEMA5-15R 12A outlets)	55941AX
RT1.5kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A outlets)	55941KX
RT2.2kVA 2U Rack or Tower UPS (100-125VAC) (8x NEMA 5-20R 16A outlets)	55942AX
RT2.2kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 1x IEC 320 C19 16A outlets)	55942KX
RT3kVA 2U Rack or Tower UPS (100-125VAC) (6x NEMA5-20R 16A, 1x NEMA L5-30R 24A outlets)	55943AX
RT3kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 1x IEC 320 C19 16A outlets)	55943KX
RT5kVA 3U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 2x IEC 320 C19 16A outlets)	55945KX
RT6kVA 3U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 2x IEC 320 C19 16A outlets)	55946KX
RT8kVA 6U Rack or Tower UPS (200-240VAC) (4x IEC 320-C19 16A outlets)	55948KX
RT11kVA 6U Rack or Tower UPS (200-240VAC) (4x IEC 320-C19 16A outlets)	55949KX
RT8kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC) (4x IEC 320-C19 16A outlets)	55948PX
RT11kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC) (4x IEC 320-C19 16A outlets)	55949PX

For more information, see the list of Product Guides in the Uninterruptible Power Supply Units category: <http://lenovopress.com/servers/options/ups#rt=product-guide>

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Related publications and links

For more information, see these resources:

- Lenovo ThinkSystem Servers product page
<https://www3.lenovo.com/us/en/p/thinksystem-servers>
- Lenovo Enterprise Solutions Configurator (LESC):
<http://lesc.lenovo.com>
- *PSREF: Product Specifications Reference*
<http://psref.lenovo.com>
- Lenovo Data Center Support
<http://datacentersupport.lenovo.com>

Related product families

Product families related to this document are the following:

- [2-Socket Rack Servers](#)

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