



Lenovo ThinkSystem SR650 Server Product Guide

Lenovo ThinkSystem SR650 is an ideal 2-socket 2U rack server for small businesses up to large enterprises that need industry-leading reliability, management, and security, as well as maximizing performance and flexibility for future growth. The SR650 server is designed to handle a wide range of workloads, such as databases, virtualization and cloud computing, virtual desktop infrastructure (VDI), enterprise applications, collaboration/email, and business analytics and big data.

Featuring the Intel Xeon Processor Scalable Family, the SR650 server offers scalable performance, storage capacity, and I/O expansion. The SR650 server supports up to two processors, up to 1.5 TB (support for up to 3 TB is planned for future) of 2666 MHz TruDDR4 memory, up to 24x 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, the dedicated storage controller slot, and up to 6x PCIe slots.

The SR650 server offers basic 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 SR650 server, provides advanced service processor control, monitoring, and alerting functions.

The following figure shows the ThinkSystem SR650.



Figure 1. Lenovo ThinkSystem SR650

Did you know?

The SR650 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 SR650 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 SR650 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 SR650 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

Combining performance and flexibility, the SR650 server is a great choice for small and medium businesses up to the large enterprise. It can provide outstanding uptime to keep business-critical applications and cloud deployments running safely. 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 SR650 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 28-core processors, up to 38.5 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, 56 cores, and 112 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 1.5 TB of memory capacity (support for up to 3 TB is planned for the future).
- Offers flexible and scalable internal storage in a 2U rack form factor with up to 24x 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, PCIe 3.0 slot for an internal storage controller, 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 SR650 server provides many features to simplify serviceability and increase system uptime:

- Provides easy access to upgrades and serviceable parts (such as processors, memory DIMMs, and adapter cards) with tool-less cover removal.
- Offers data protection and greater system uptime with hot-swap drives supporting basic or advanced RAID redundancy.
- 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, flash storage adapters), 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 SR650 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.
- Offers advanced cryptographic functionality (such as digital signatures and remote attestation) with an integrated Trusted Platform Module (TPM) or optional Trusted Cryptographic Module (TPM) (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 SR650 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 SR650 server with up to 16x 2.5-inch drive bays.

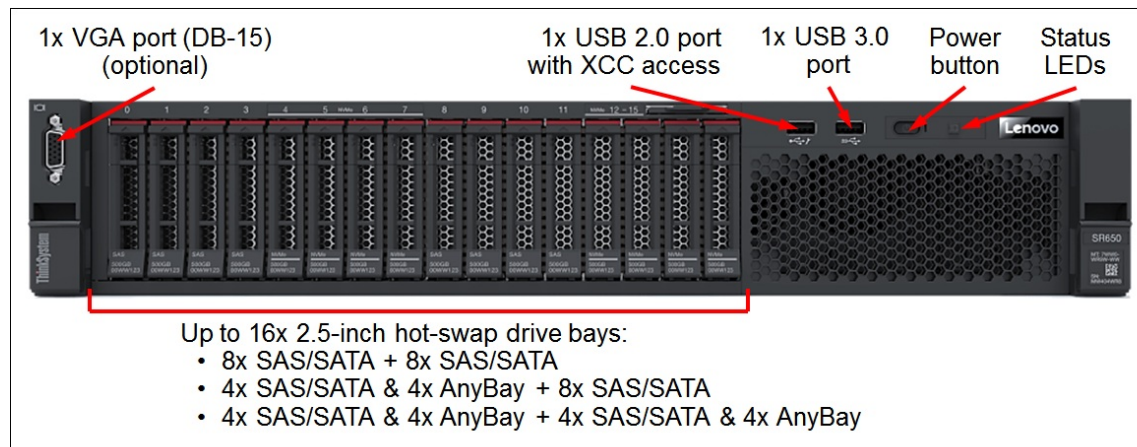


Figure 2. Front view of the SR650: Up to 16x 2.5-inch drive bays

The following figure shows the front of the SR650 server with up to 24x 2.5-inch drive bays.

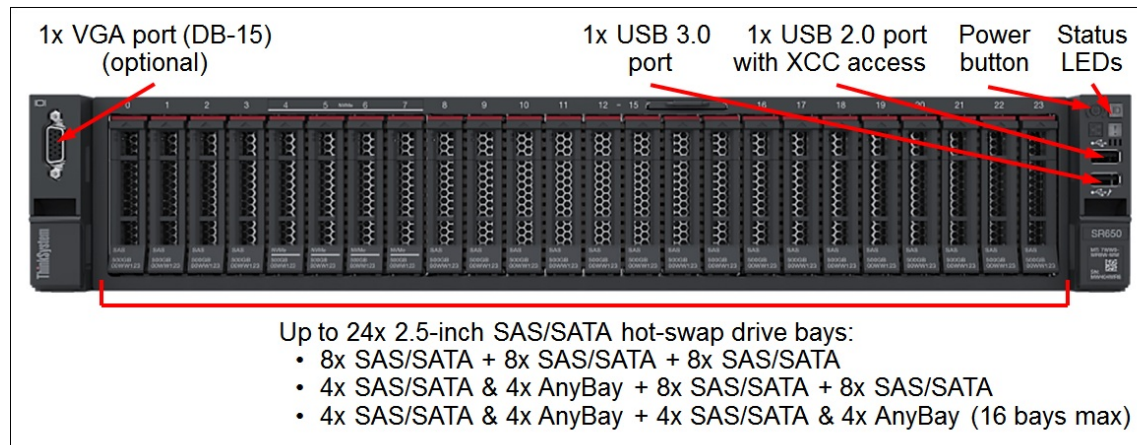


Figure 3. Front view of the SR650: Up to 24x 2.5-inch drive bays

The following figure shows the front of the SR650 server with 8x 3.5-inch drive bays.

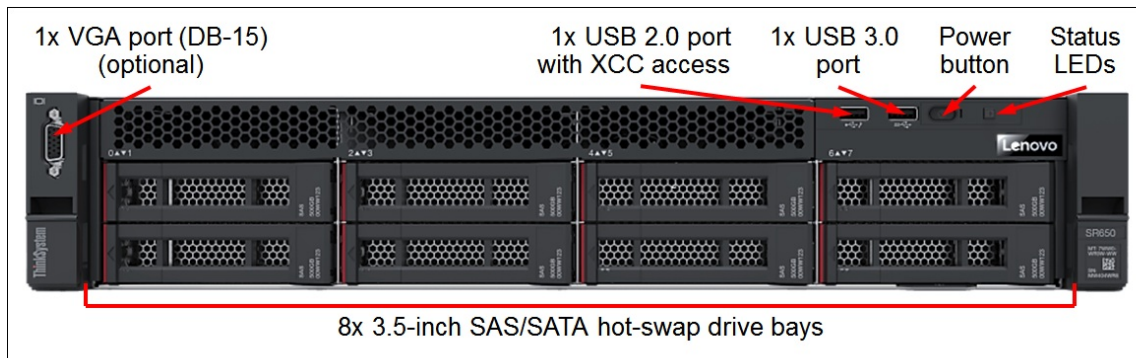


Figure 4. Front view of the SR650: 8x 3.5-inch drive bays

The following figure shows the front of the SR650 server with 12x 3.5-inch drive bays.

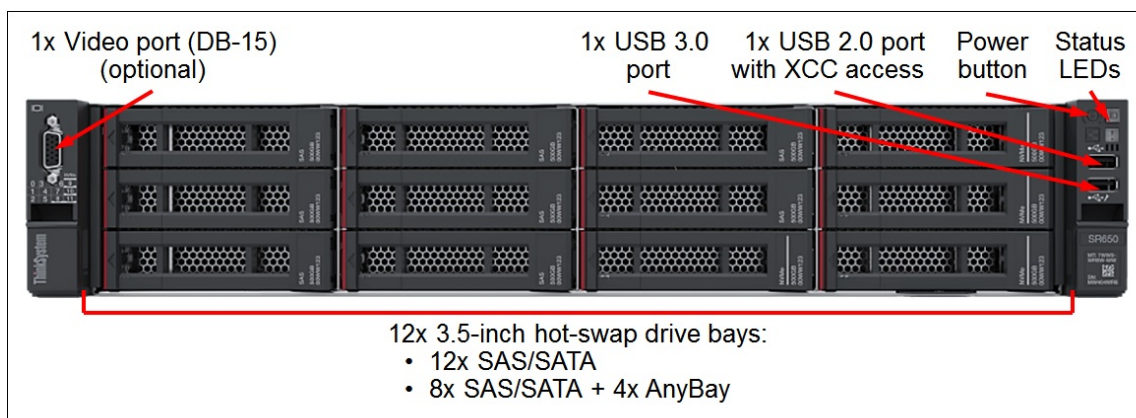


Figure 5. Front view of the SR650: 12x 3.5-inch drive bays

The following figure shows the rear of the SR650 server.

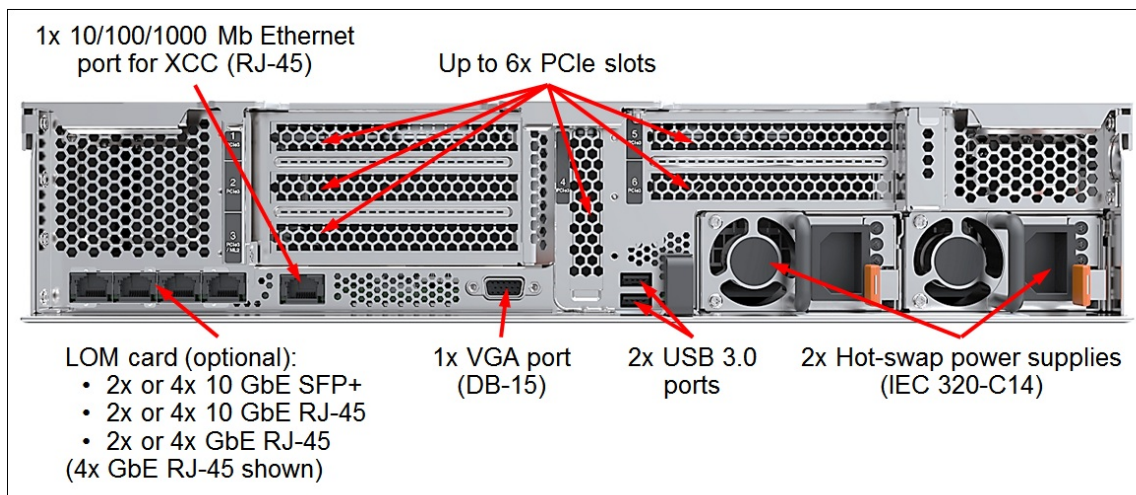


Figure 6. Rear view of the SR650

The following figure shows the locations of key components inside the SR650 server.

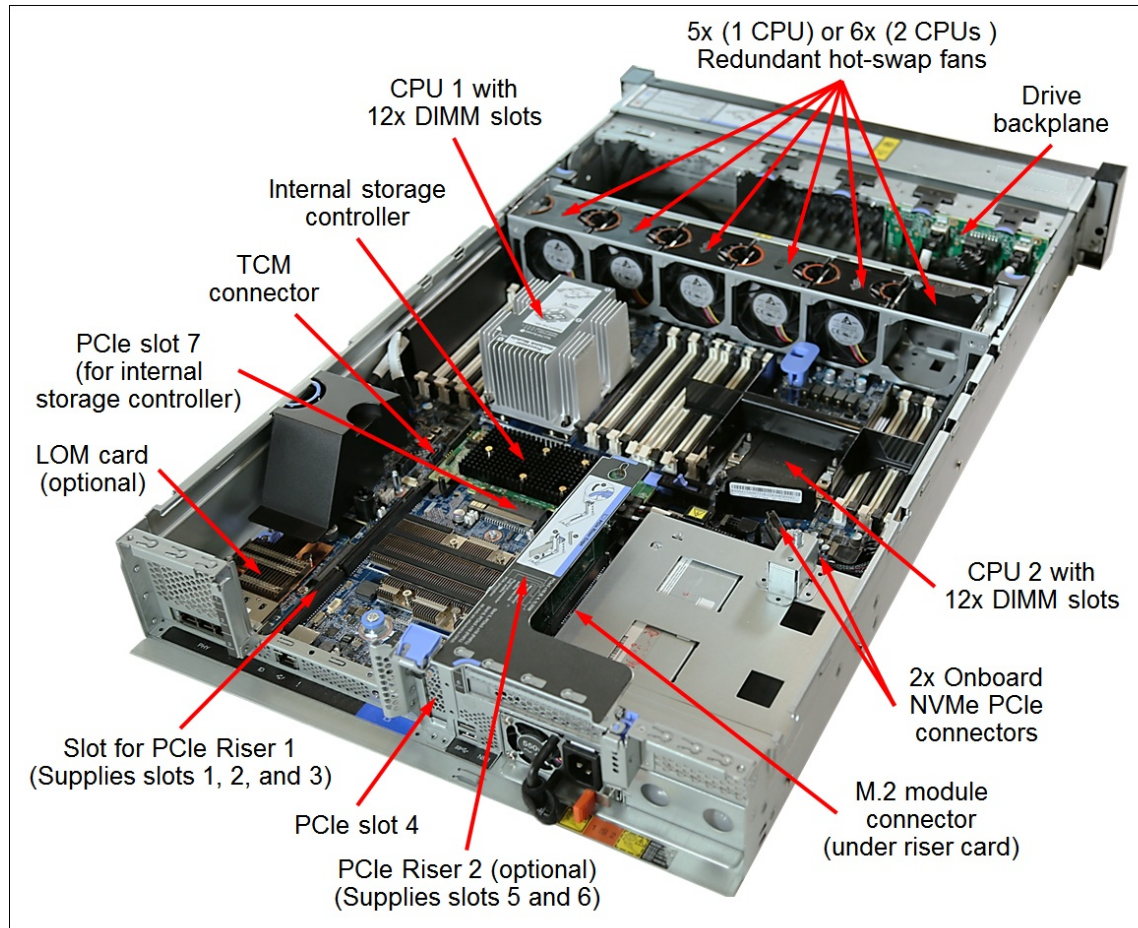


Figure 7. Internal view of the SR650

System specifications

The following table lists the system specifications for the SR650 server.

Table 1. SR650 system specifications

Components	Specification
Form factor	2U rack-mount.
Processor	Up to two Intel Xeon Bronze, Silver, Gold, or Platinum processors: <ul style="list-style-type: none"> Up to 28 cores (2.8 GHz core speeds) Up to 3.6 GHz core speeds (4 cores) Two UPI links up to 10.4 GT/s each Up to 38.5 MB cache Up to 2666 MHz memory speed
Chipset	Intel C624.
Memory	Up to 24 DIMM sockets (12 DIMMs per processor; six memory channels per processor with two DIMMs per channel). Support for RDIMMs, LRDIMMs, or 3DS RDIMMs (support for 3DS RDIMMs is planned for future). Memory types cannot be intermixed. Memory speed up to 2666 MHz.

Components	Specification
Memory capacity	<ul style="list-style-type: none"> • With RDIMMs: Up to 768 GB with 24x 32 GB RDIMMs and two processors. • With LRDIMMs: Up to 1.5 TB with 24x 64 GB LRDIMMs and two processors. • With 3DS RDIMMs: Up to 3 TB with 128 GB 3DS RDIMMs and two processors (requires processors that support 1.5 TB of memory per socket; support is planned for future).
Memory protection	Error correction code (ECC), Single Device Data Correction (SDDC, also known as Chipkill; for x4-based memory DIMMs), 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 ◦ 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 4x 2.5" SAS/SATA & 4x 2.5" AnyBay • Up to 24 SFF hot-swap drive bays: <ul style="list-style-type: none"> ◦ 8x 2.5" SAS/SATA + 8x 2.5" SAS/SATA + 8x 2.5" SAS/SATA ◦ 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 8x 2.5" SAS/SATA + 8x 2.5" SAS/SATA • 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 7.68 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 • 12 Gbps NL SAS HDD SEDs up to 4 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>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	Up to 184 TB with 24x 7.68 TB 2.5" SAS SSDs
Storage controller	<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/24i 4 GB Flash. <p>12 Gbps SAS/6 Gbps SATA non-RAID: 430-8i or 16i HBA. NVMe PCIe non-RAID: Onboard NVMe, 1610-4P NVMe Switch Adapter.</p>
Optical drive bays	None. Support for an external USB DVD RW Optical Disk Drive (See Optical drives).

Components	Specification
Network interfaces	<ul style="list-style-type: none"> • Onboard LOM slot for up to 4x 1/10 Gb Ethernet ports: <ul style="list-style-type: none"> ◦ 2x or 4x 1 GbE RJ-45 ports (no 10/100 Mb support) ◦ 2x or 4x 10 GbE RJ-45 ports (no 10/100 Mb support) ◦ 2x or 4x 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 or single- or dual-port 25 GbE cards with SFP28 connectors. • 1x RJ-45 10/100/1000 Mb Ethernet systems management port.
I/O expansion slots	<p>Up to seven slots. Slots 4 and 7 are 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; 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 x16; full-height, half-length • Slot 7: PCIe 3.0 x8 (dedicated to an internal RAID controller) <p>Slots 5 and 6 require 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	Five (one processor) or six (two processors) hot-swap system fans with N+1 redundancy.
Power supply	Up to two redundant hot-swap 550 W, 750 W, or 1100 W (100 - 240 V), or 1600 W (200 - 240 V) High Efficiency Platinum AC power supplies, or 750 W (200 - 240 V) High Efficiency Titanium AC power supplies.
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, 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 Energy Manager.
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).
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 (7X05) or three-year (7X06) 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, Microcode Support, Enterprise Software Support, and Hardware Installation Services.
Dimensions	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: 32 kg (70.5 lb)

Models

SR650 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 SR650 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 SR650 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.
 - SFF and LFF drive bays are hot-swap.
 - M.2 drive bays are non-hot-swap.
- XClarity Controller: "S" = Standard, "A" = Advanced, "E" = Enterprise.
- Front VGA port: "Y" = Included; "N" = Not included, optional.
- Tool-less Rail Kit: "Y" = Included; "N" = Not included, optional.
- 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 SR650 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. SR650 server models: 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 (7 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
Relationship models - North America													
7X06A03GNA	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A03ZNA	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A030NA	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A043NA	2x 5120 14C 105W 2.2GHz	2x 32GB (2Rx4)	1x 430-16i HBA	12+4 / 24 SFF	Open bay	Open slot	5x PCIe x8 2x PCIe x16	2x 1100W	E	N	Y	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 (7 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
7X06A02CNA	1x 6126 12C 125W 2.6GHz	1x 32GB (2Rx4)	None	No bays	No bays	Open slot	2x PCIe x8	1x 750W Platinum	S	Y	N	N	C2
7X06A046NA	1x 6126 12C 125W 2.6GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A039NA	1x 6130 16C 125W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A02TNA	1x 6134 8C 130W 3.2GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A040NA	1x 6134 8C 130W 3.2GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A02VNA	1x 6140 18C 140W 2.3GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A032NA	1x 6142 16C 150W 2.6GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A03KNA	1x 6148 20C 150W 2.4GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A02UNA	1x 6150 18C 165W 2.7GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A02ZNA	1x 6152 22C 140W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A031NA	1x 8160 24C 150W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A03DNA	1x 8164 26C 150W 2.0GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
TopSeller models - North America													
7X06A057NA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	None	No bays	No bays	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A04ZNA	1x 4116 12C 85W 2.1GHz	1x 32GB (2Rx4)	None	No bays	No bays	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A05XNA	1x 5118 12C 105W 2.3GHz	1x 32GB (2Rx4)	None	No bays	No bays	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2

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

^ The server supports two onboard PCIe slots 4 and 7 and up to five I/O slots on the riser cards. An internal storage controller occupies the PCIe slot 7.

Table 3. SR650 server models: 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 (7 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
Relationship models - Latin America													
7X06A006LA	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	Open slot	5x PCIe x8	1x 750W Platinum	S	Y	Y	N	R4
7X06A02ALA	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	Open slot	5x PCIe x8	1x 750W Platinum	S	Y	Y	N	R4
7X06A02NLA	1x 6130 16C 125W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	Open slot	5x PCIe x8	1x 1100W	S	Y	Y	N	R4
7X06A023LA	1x 6130 16C 125W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	Open slot	5x PCIe x8	1x 1100W	S	Y	Y	N	R4
7X06A008LA	1x 6140 18C 140W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	Open slot	5x PCIe x8	1x 1100W	S	Y	Y	N	R4
7X06A00VLA	1x 6140 18C 140W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	Open slot	5x PCIe x8	1x 1100W	S	Y	Y	N	R4
7X06A01CLA	1x 6148 20C 150W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	Open slot	5x PCIe x8	1x 1100W	S	Y	Y	N	R4
7X06A026LA	1x 6148 20C 150W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	Open slot	5x PCIe x8	1x 1100W	S	Y	Y	N	R4
7X06A01WLA	1x 8160 24C 150W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	Open slot	5x PCIe x8	1x 1100W	S	Y	Y	N	R4
7X06A016LA	1x 8160 24C 150W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	Open slot	5x PCIe x8	1x 1100W	S	Y	Y	N	R4

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

^ The server supports two onboard PCIe slots 4 and 7 and up to five I/O slots on the riser cards. An internal storage controller occupies the PCIe slot 7.

Table 4. SR650 server models: EMEA

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (7 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
Relationship models - EMEA													
7X06A035EA	1x 3104 6C 85W 1.7GHz	1x 8GB (1Rx8)	1x RAID 530-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 550W	S	N	Y	N	R2
7X06A037EA	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A03SEA	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A045EA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A03CEA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A03WEA	1x 4114 10C 85W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	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 (7 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
7X06A02WEA	1x 4114 10C 85W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A03BEA	1x 4116 12C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A03AEA	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A036EA	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A041EA	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A044EA	1x 6126 12C 125W 2.6GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A03PEA	1x 6130 16C 125W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A02SEA	1x 6134 8C 130W 3.2GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A02XEA	1x 6134 8C 130W 3.2GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A02YEA	1x 6140 18C 140W 2.3GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A03EEA	1x 6142 16C 150W 2.6GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A03HEA	1x 6148 20C 150W 2.4GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A03QEA	1x 6150 18C 165W 2.7GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A03NEA	1x 6152 22C 140W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A03LEA	1x 8160 24C 150W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A03MEA	1x 8164 26C 150W 2.0GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A038EA	2x 4110 8C 85W 2.1GHz	2x 32GB (2Rx4)	1x 430-16i HBA	12+4 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	N	Y	N	R2
7X06A033EA	2x 5120 14C 105W 2.2GHz	2x 32GB (2Rx4)	1x 430-16i HBA	12+4 / 24 SFF	Open bay	Open slot	2x PCIe x8 2x PCIe x16	1x 1100W	E	N	Y	N	R2
TopSeller models - EMEA													
7X06A04JEA	1x 3104 6C 85W 1.7GHz	1x 8GB (1Rx8)	1x RAID 530-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A04FEA	1x 3106 8C 85W 1.7GHz	1x 8GB (1Rx8)	1x RAID 530-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A04UEA	1x 4108 8C 85W 1.8GHz	1x 8GB (1Rx8)	1x RAID 930-8i	8 / 8 LFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A04TEA	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A04CEA	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A047EA	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	2x 300GB 10K HDD	Open slot	2x PCIe x8	2x 750W Platinum	E	Y	Y	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 (7 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
7X06A04NEA	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	3x 300GB 10K HDD	Open slot	2x PCIe x8	2x 750W Platinum	E	Y	Y	N	R2
7X06A04KEA	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A04HEA	1x 4110 8C 85W 2.1GHz	1x 8GB (1Rx8)	1x RAID 930-8i	8 / 8 LFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A04MEA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A04LEA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A04PEA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A04GEA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	2x 300GB 10K HDD	Open slot	2x PCIe x8	2x 750W Platinum	E	Y	Y	N	R2
7X06A04BEA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	3x 300GB 10K HDD	Open slot	2x PCIe x8	2x 750W Platinum	E	Y	Y	N	R2
7X06A04EEA	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A049EA	1x 4110 8C 85W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	3x 300GB 10K HDD	Open slot	2x PCIe x8	2x 750W Platinum	E	Y	Y	N	R2
7X06A048EA	1x 4114 10C 85W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-16i	16 / 24 SFF	Open bay	Open slot	2x PCIe x8	2x 750W Platinum	E	Y	Y	N	R2
7X06A04REA	1x 4114 10C 85W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A04QEA	1x 4114 10C 85W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A04AEA	1x 4114 10C 85W 2.2GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	3x 300GB 10K HDD	Open slot	2x PCIe x8	2x 750W Platinum	E	Y	Y	N	R2
7X06A04DEA	1x 4116 12C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A04SEA	1x 4116 12C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A00LEA	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A011EA	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A00KEA	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A01HEA	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A01SEA	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A014EA	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A01BEA	1x 5122 4C 105W 3.6GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1600W	E	Y	Y	N	R2
7X06A01REA	1x 6126 12C 125W 2.6GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	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 (7 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
7X06A01NEA	1x 6130 16C 125W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A00PEA	1x 6130 16C 125W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A01AEA	1x 6140 18C 140W 2.3GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A00NEA	1x 6140 18C 140W 2.3GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A010EA	1x 6152 22C 140W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A013EA	1x 8160 24C 150W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2

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

^ The server supports two onboard PCIe slots 4 and 7 and up to five I/O slots on the riser cards. An internal storage controller occupies the PCIe slot 7.

Table 5. SR650 server models: India

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (7 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
Relationship models - India													
7X06A00JSG	1x 5115 10C 85W 2.4GHz	1x 8GB (1Rx8)	1x RAID 530-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 550W	S	N	Y	N	N
7X06A00FSG	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 550W	S	N	Y	N	N
7X06A00ASG	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A00CSG	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 LFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A00TSG	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A00SSG	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A00RSG	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-16i	16 / 16 SFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A00YSG	1x 6130 16C 125W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A00XSG	1x 6140 18C 140W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 1100W	S	N	Y	N	N
7X06A00WSG	1x 8160 24C 150W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-16i	16 / 16 SFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 1100W	S	N	Y	N	N

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

^ The server supports two onboard PCIe slots 4 and 7 and up to five I/O slots on the riser cards. An internal storage controller occupies the PCIe slot 7.

Table 6. SR650 server models: 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 (7 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
Relationship models - Hong Kong, Taiwan, Korea													
7X06A05ECN	1x 3104 6C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A05MCN	1x 3104 6C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A05WCN	1x 3106 8C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A053CN	1x 3106 8C 85W 1.7GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A05LCN	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A05FCN	1x 4108 8C 85W 1.8GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A04XCN	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A05QCN	1x 4110 8C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A04VCN	1x 4112 4C 85W 2.6GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A05KCN	1x 4112 4C 85W 2.6GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A055CN	1x 4114 10C 85W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A021CN	1x 4114 10C 85W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A05VCN	1x 4114 10C 85W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A05UCN	1x 4116 12C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A05TCN	1x 4116 12C 85W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A00ECN	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A02HCN	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-16i	16 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	S	S	N
7X06A02JCN	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A003CN	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A01UCN	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A005CN	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A01VCN	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A007CN	1x 5122 4C 105W 3.6GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	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 (7 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
7X06A01YCN	1x 5122 4C 105W 3.6GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A00MCN	1x 6130 16C 125W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A020CN	1x 6130 16C 125W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A00GCN	1x 6134 8C 130W 3.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A01QCN	1x 6134 8C 130W 3.2GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A00ZCN	1x 6136 12C 150W 3.0GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A01TCN	1x 6136 12C 150W 3.0GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A00QCN	1x 6140 18C 140W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A02KCN	1x 6140 18C 140W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A00UCN	1x 6148 20C 150W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A02LCN	1x 6148 20C 150W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A02FCN	1x 6152 22C 140W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
7X06A02QCN	1x 6152 22C 140W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	N	N
TopSeller models - Hong Kong, Taiwan, Korea													
7X06A027CN	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-16i	16 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	Y	N
7X06A01LCN	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-16i	16 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	Y	N
7X06A009CN	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-16i	16 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	Y	N
7X06A01DCN	1x 5120T 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-16i	16 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	Y	N
7X06A01KCN	1x 5122 4C 105W 3.6GHz	1x 16GB (2Rx8)	1x RAID 930-16i	16 / 16 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	S	N	Y	Y	N

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

^ The server supports two onboard PCIe slots 4 and 7 and up to five I/O slots on the riser cards. An internal storage controller occupies the PCIe slot 7.

Table 7. SR650 server models: Japan

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (7 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
Relationship models - Japan													
7X06A01JJP	1x 3104 6C 85W 1.7GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 550W	A	N	Y	N	N
7X06A07TJP	1x 4108 8C 85W 1.8GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 550W	A	N	Y	N	N
7X06A07UJJP	1x 4110 8C 85W 2.1GHz	1x 16GB (1Rx4)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 750W Platinum	A	N	Y	N	N
7X06A058JP	1x 5122 4C 105W 3.6GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	4x 10Gb RJ-45	5x PCIe x8	1x 750W Platinum	A	Y	Y	N	N
7X06A056JP	1x 6134 8C 130W 3.2GHz	1x 16GB (1Rx4)	1x RAID 930-24i	20+4 / 24 SFF	Open bay	4x 10Gb RJ-45	5x PCIe x8	1x 1100W	A	Y	Y	N	N
7X06A05JJP	1x 8160 24C 150W 2.1GHz	1x 16GB (1Rx4)	1x RAID 930-24i	20+4 / 24 SFF	Open bay	4x 10Gb RJ-45	5x PCIe x8	1x 1600W	A	Y	Y	N	N
7X06A05YJP	1x 8180 28C 205W 2.5GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	4x 10Gb RJ-45	5x PCIe x8	1x 1100W	A	Y	Y	N	N
TopSeller models - Japan													
7X06A01MJP	1x 3104 6C 85W 1.7GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 8 LFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 550W	A	N	Y	N	N
7X06A05AJP	1x 3106 8C 85W 1.7GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 550W	A	N	Y	N	N
7X06A05BJP	1x 4110 8C 85W 2.1GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 550W	A	N	Y	N	N
7X06A02BJP	1x 4112 4C 85W 2.6GHz	1x 16GB (1Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	4x 1Gb RJ-45	5x PCIe x8	1x 550W	A	N	Y	N	N

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

^ The server supports two onboard PCIe slots 4 and 7 and up to five I/O slots on the riser cards. An internal storage controller occupies the PCIe slot 7.

Table 8. SR650 server models: ASEAN

Model number	Intel Xeon processor* (2 max)	Memory RDIMM (24 max)	Storage controller	Drive bays (std / max)	Drives	Eth. LOM	I/O slots (7 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
Relationship models - ASEAN													
7X06A03FSG	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 24 SFF	Open bay	4x 10Gb RJ-45	2x PCIe x8	1x 750W Platinum	A	N	Y	N	R2
7X06A03RSG	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 10Gb RJ-45	2x PCIe x8	1x 1100W	A	N	Y	N	R2
7X06A03JSG	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 24 SFF	Open bay	4x 10Gb RJ-45	2x PCIe x8	1x 750W Platinum	A	N	Y	N	R2
7X06A034SG	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 24 SFF	Open bay	4x 10Gb RJ-45	2x PCIe x8	1x 750W Platinum	A	N	Y	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 (7 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
7X06A03XSG	1x 6130 16C 125W 2.1GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 24 SFF	Open bay	4x 10Gb RJ-45	2x PCIe x8	1x 1100W	A	N	Y	N	R2
7X06A042SG	1x 6134 8C 130W 3.2GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 24 SFF	Open bay	4x 10Gb RJ-45	2x PCIe x8	1x 1100W	A	N	Y	N	R2
7X06A03USG	1x 6140 18C 140W 2.3GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 24 SFF	Open bay	4x 10Gb RJ-45	2x PCIe x8	1x 1100W	A	N	Y	N	R2
7X06A03TSG	1x 6148 20C 150W 2.4GHz	1x 32GB (2Rx4)	1x RAID 530-8i	8 / 24 SFF	Open bay	4x 10Gb RJ-45	2x PCIe x8	1x 1100W	A	N	Y	N	R2
7X06A03VSG	1x 6152 22C 140W 2.1GHz	1x 32GB (2Rx4)	1x RAID 530-8i	8 / 24 SFF	Open bay	4x 10Gb RJ-45	2x PCIe x8	1x 1100W	A	N	Y	N	R2

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

^ The server supports two onboard PCIe slots 4 and 7 and up to five I/O slots on the riser cards. An internal storage controller occupies the PCIe slot 7.

Table 9. SR650 server models: 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 (7 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
Relationship models - Australia and New Zealand													
7X06A06PAU	1x 5115 10C 85W 2.4GHz	1x 8GB (1Rx8)	1x RAID 530-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 550W	S	N	Y	N	R2
7X06A06JAU	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 530-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 550W	S	N	Y	N	R2
7X06A04WAU	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	A	N	Y	N	R2
7X06A06WAU	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 8 LFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A06TAU	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-16i	12 / 14 LFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A06QAU	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A05NAU	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A06SAU	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A05DAU	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A06VAU	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-16i	16 / 16 SFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A05CAU	2x 5120 14C 105W 2.2GHz	2x 32GB (2Rx4)	1x 430-16i HBA	12+4 / 24 SFF	Open bay	Open slot	5x PCIe x8 2x PCIe x16	1x 1100W	E	N	Y	N	R2
7X06A05HAU	1x 6126 12C 125W 2.6GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	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 (7 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
7X06A068AU	1x 6126T 12C 125W 2.6GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A06ZAU	1x 6130 16C 125W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A054AU	1x 6130 16C 125W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A05SAU	1x 6134 8C 130W 3.2GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	S	N	Y	N	R2
7X06A05PAU	1x 6134 8C 130W 3.2GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A06GAU	1x 6134 8C 130W 3.2GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A06HAU	1x 6140 18C 140W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 16 SFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A052AU	1x 6140 18C 140W 2.3GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A06LAU	1x 6140 18C 140W 2.3GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A05RAU	1x 6142 16C 150W 2.6GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A06UAU	1x 6142 16C 150W 2.6GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A050AU	1x 6148 20C 150W 2.4GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A06KAU	1x 6148 20C 150W 2.4GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A05GAU	1x 6150 18C 165W 2.7GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A06RAU	1x 6150 18C 165W 2.7GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A051AU	1x 6152 22C 140W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A06FAU	1x 6152 22C 140W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A06YAU	1x 8160 24C 150W 2.1GHz	1x 16GB (2Rx8)	1x RAID 930-16i	16 / 16 SFF	Open bay	4x 1Gb RJ-45	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A04YAU	1x 8160 24C 150W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A06MAU	1x 8160 24C 150W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A059AU	1x 8164 26C 150W 2.0GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
7X06A06XAU	1x 8164 26C 150W 2.0GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	S	N	Y	N	R2
TopSeller models - Australia and New Zealand													
7X06A06DAU	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A065AU	1x 5115 10C 85W 2.4GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	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 (7 max)^	Power supply (2 max)	XClarity Controller	Front VGA port	Tool-less Rail Kit	CMA	Power cord
7X06A063AU	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A060AU	1x 5118 12C 105W 2.3GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A067AU	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A061AU	1x 5120 14C 105W 2.2GHz	1x 16GB (2Rx8)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A066AU	1x 5122 4C 105W 3.6GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1600W	E	Y	Y	N	R2
7X06A062AU	1x 6126 12C 125W 2.6GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A06CAU	1x 6126 12C 125W 2.6GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A06BAU	1x 6130 16C 125W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 750W Platinum	E	Y	Y	N	R2
7X06A05ZAU	1x 6130 16C 125W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A064AU	1x 6140 18C 140W 2.3GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A06AAU	1x 6152 22C 140W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2
7X06A069AU	1x 8160 24C 150W 2.1GHz	1x 32GB (2Rx4)	1x RAID 930-8i	8 / 24 SFF	Open bay	Open slot	2x PCIe x8	1x 1100W	E	Y	Y	N	R2

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

^ The server supports two onboard PCIe slots 4 and 7 and up to five I/O slots on the riser cards. An internal storage controller occupies the PCIe slot 7.

Processors

The SR650 server supports one or two Intel Xeon Bronze, Silver, Gold, or Platinum processors. The following table lists the specifications of the processors for the SR650 server.

Table 10. Processor 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 GHz	8 / 16	11 MB	2400 MHz	768 GB	9.6 GT/s	85W	Yes	Yes	Yes	Yes
4109T	2.0 / 3 GHz	8 / 16	11 MB	2400 MHz	768 GB	9.6 GT/s	70W	Yes	Yes	Yes	Yes
4110	2.1 / 3 GHz	8 / 16	11 MB	2400 MHz	768 GB	9.6 GT/s	85W	Yes	Yes	Yes	Yes
4112	2.6 / 3 GHz	4 / 8	8.25 MB	2400 MHz	768 GB	9.6 GT/s	85W	Yes	Yes	Yes	Yes
4114	2.2 / 3 GHz	10 / 20	13.75 MB	2400 MHz	768 GB	9.6 GT/s	85W	Yes	Yes	Yes	Yes
4116	2.1 / 3 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
5118	2.3 / 3.2 GHz	12 / 24	16.5 MB	2400 MHz	768 GB	10.4 GT/s	105W	Yes	Yes	Yes	Yes
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
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
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
6150	2.7 / 3.7 GHz	18 / 36	24.75 MB	2666 MHz	768 GB	10.4 GT/s	165W	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
6154	3.0 / 3.7 GHz	18 / 36	24.75 MB	2666 MHz	768 GB	10.4 GT/s	200W	Yes	Yes	Yes	Yes
Intel Xeon Platinum processors											
8156	3.6 / 3.7 GHz	4 / 8	16.5 MB	2666 MHz	768 GB	10.4 GT/s	105W	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
8168	2.7 / 3.7 GHz	24 / 48	33 MB	2666 MHz	768 GB	10.4 GT/s	205W	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
8170	2.1 / 3.7 GHz	26 / 52	35.75 MB	2666 MHz	768 GB	10.4 GT/s	165W	Yes	Yes	Yes	Yes
8176	2.1 / 3.8 GHz	28 / 56	38.5 MB	2666 MHz	768 GB	10.4 GT/s	165W	Yes	Yes	Yes	Yes
8180	2.5 / 3.8 GHz	28 / 56	38.5 MB	2666 MHz	768 GB	10.4 GT/s	205W	Yes	Yes	Yes	Yes

For the SR650 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 SR650 Intel Xeon Bronze 3104 6C 85W 1.7GHz Processor Option Kit	7XG7A05572	AWEJ
ThinkSystem SR650 Intel Xeon Bronze 3106 8C 85W 1.7GHz Processor Option Kit	7XG7A05570	AWEH
Intel Xeon Silver processors		
ThinkSystem SR650 Intel Xeon Silver 4108 8C 85W 1.8GHz Processor Option Kit	7XG7A05571	AWEG
ThinkSystem SR650 Intel Xeon Silver 4109T 8C 70W 2.0GHz Processor Option Kit	7XG7A05574	AWET
ThinkSystem SR650 Intel Xeon Silver 4110 8C 85W 2.1GHz Processor Option Kit	7XG7A05575	AWEE
ThinkSystem SR650 Intel Xeon Silver 4112 4C 85W 2.6GHz Processor Option Kit	7XG7A05577	AWEF
ThinkSystem SR650 Intel Xeon Silver 4114 10C 85W 2.2GHz Processor Option Kit	7XG7A05578	AWEC
ThinkSystem SR650 Intel Xeon Silver 4116 12C 85W 2.1GHz Processor Option Kit	7XG7A05576	AWER
Intel Xeon Gold processors		
ThinkSystem SR650 Intel Xeon Gold 5115 10C 85W 2.4GHz Processor Option Kit	7XG7A05596	AWDU
ThinkSystem SR650 Intel Xeon Gold 5118 12C 105W 2.3GHz Processor Option Kit	7XG7A05580	AWEP
ThinkSystem SR650 Intel Xeon Gold 5120 14C 105W 2.2GHz Processor Option Kit	7XG7A05583	AWE6
ThinkSystem SR650 Intel Xeon Gold 5120T 14C 105W 2.2GHz Processor Option Kit	7XG7A05582	AWE8
ThinkSystem SR650 Intel Xeon Gold 5122 4C 105W 3.6GHz Processor Option Kit	7XG7A05591	AWED
ThinkSystem SR650 Intel Xeon Gold 6126 12C 125W 2.6GHz Processor Option Kit	7XG7A05590	AWEL
ThinkSystem SR650 Intel Xeon Gold 6126T 12C 125W 2.6GHz Processor Option Kit	7XG7A05589	AWE5
ThinkSystem SR650 Intel Xeon Gold 6130 16C 125W 2.1GHz Processor Option Kit	7XG7A05587	AWEN
ThinkSystem SR650 Intel Xeon Gold 6130T 16C 125W 2.1GHz Processor Option Kit	7XG7A05586	AWE4
ThinkSystem SR650 Intel Xeon Gold 6134 8C 130W 3.2GHz Processor Option Kit	7XG7A05605	AWE9
ThinkSystem SR650 Intel Xeon Gold 6136 12C 150W 3.0GHz Processor Option Kit	7XG7A05604	AWE3
ThinkSystem SR650 Intel Xeon Gold 6138 20C 125W 2.0GHz Processor Option Kit	7XG7A05585	AWDZ
ThinkSystem SR650 Intel Xeon Gold 6138T 20C 125W 2.0GHz Processor Option Kit	7XG7A05584	AWEM
ThinkSystem SR650 Intel Xeon Gold 6140 18C 140W 2.3GHz Processor Option Kit	7XG7A05603	AWE1
ThinkSystem SR650 Intel Xeon Gold 6142 16C 150W 2.6GHz Processor Option Kit	7XG7A05601	AWDW
ThinkSystem SR650 Intel Xeon Gold 6148 20C 150W 2.4GHz Processor Option Kit	7XG7A05598	AWDX
ThinkSystem SR650 Intel Xeon Gold 6150 18C 165W 2.7GHz Processor Option Kit	7XG7A05597	AWDT
ThinkSystem SR650 Intel Xeon Gold 6152 22C 140W 2.1GHz Processor Option Kit	7XG7A05595	AWDV
ThinkSystem SR650 Intel Xeon Gold 6154 18C 200W 3.0GHz Processor Option Kit	7XG7A05594	AWDN

Description	Part number	Feature code*
Intel Xeon Platinum processors		
ThinkSystem SR650 Intel Xeon Platinum 8153 16C 125W 2.0GHz Processor Option Kit	7XG7A05593	AWDR
ThinkSystem SR650 Intel Xeon Platinum 8156 4C 105W 3.6GHz Processor Option Kit	7XG7A05592	AWDL
ThinkSystem SR650 Intel Xeon Platinum 8158 12C 150W 3.0GHz Processor Option Kit	7XG7A05617	AWDS
ThinkSystem SR650 Intel Xeon Platinum 8160 24C 150W 2.1GHz Processor Option Kit	7XG7A05616	AWDP
ThinkSystem SR650 Intel Xeon Platinum 8160T 24C 150W 2.1GHz Processor Option Kit	7XG7A05614	AWEK
ThinkSystem SR650 Intel Xeon Platinum 8164 26C 150W 2.0GHz Processor Option Kit	7XG7A05613	AWDM
ThinkSystem SR650 Intel Xeon Platinum 8168 24C 205W 2.7GHz Processor Option Kit	7XG7A05612	AWDJ
ThinkSystem SR650 Intel Xeon Platinum 8170 26C 165W 2.1GHz Processor Option Kit	7XG7A05611	AWDK
ThinkSystem SR650 Intel Xeon Platinum 8176 28C 165W 2.1GHz Processor Option Kit	7XG7A05610	AWDH
ThinkSystem SR650 Intel Xeon Platinum 8180 28C 205W 2.5GHz Processor Option Kit	7XG7A05608	AWDF

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

Configuration note: If processors with 200 W or 205 W TDP are used, or if Gold 6126T or Platinum 8160T processors are used, the following conditions must be met:

- 8x 2.5" configuration in the 24x2.5" chassis (drive backplane in the center location only)
- No rear HDD kit installed
- No PCIe flash adapters installed
- No GPUs installed
- No Intel OPA adapters installed
- Up to four NVMe drives supported (8x2.5" AnyBay backplane connected to the onboard NVMe ports)
- No Mellanox ConnectX-3 Pro ML2 FDR 2-Port QSFP VPI Adapter installed
- No RAID 930-24i installed
- ASHRAE A2 (35°C [95 °F]) only; no fan failure support

Memory

The SR650 server supports up to 12 TruDDR4 memory DIMMs with one processor and up to 24 DIMMs when two processors are installed. Each processor has six memory channels, and there are two DIMMs per channel.

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, LRDIMMs, or 3DS RDIMMs (support for 3DS RDIMMs is planned for future).
- Mixing different types of memory (RDIMMs, LRDIMMs, and 3DS RDIMMs) 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: 768 GB (384 GB per processor).
 - LRDIMMs: 1.5 TB (768 GB per processor).
 - 3DS RDIMMs: 3 TB (1.5 GB per processor) (requires processors that support 1.5 TB of memory per socket; support is planned for future).

The following memory protection technologies are supported:

- ECC
- SDDC (for x4-based memory DIMMs)
- Memory mirroring
- Memory rank sparing
- Patrol scrubbing
- Demand scrubbing

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

If memory mirroring is used, then DIMMs must be installed in pairs (a minimum of one pair per each processor), and both DIMMs in a pair must be identical in type and size.

If memory rank sparing is used, then a minimum of one quad-rank DIMM or two single-rank or dual-rank DIMMs must be installed per populated channel (the DIMMs do not need being identical). In rank sparing mode, one rank of a DIMM in each populated channel is reserved as spare memory. The 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 SR650 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	12 / 24
ThinkSystem 16GB TruDDR4 2666 MHz (1Rx4 1.2V) RDIMM	7X77A01302	AUNB	12 / 24
ThinkSystem 16GB TruDDR4 2666 MHz (2Rx8 1.2V) RDIMM	7X77A01303	AUNC	12 / 24
ThinkSystem 32GB TruDDR4 2666 MHz (2Rx4 1.2V) RDIMM	7X77A01304	AUND	12 / 24
LRDIMMs - 2666 MHz			
ThinkSystem 64GB TruDDR4 2666 MHz (4Rx4 1.2V) LRDIMM	7X77A01305	AUNE	12 / 24

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

Internal storage

The SR650 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
 - c. 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 4x 2.5" SAS/SATA & 4x 2.5" AnyBay
2. Up to 24 SFF hot-swap drive bays:
 - a. 8x 2.5" SAS/SATA + 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 + 8x 2.5" SAS/SATA
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 SR650 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 figures show the internal drive bay configurations.

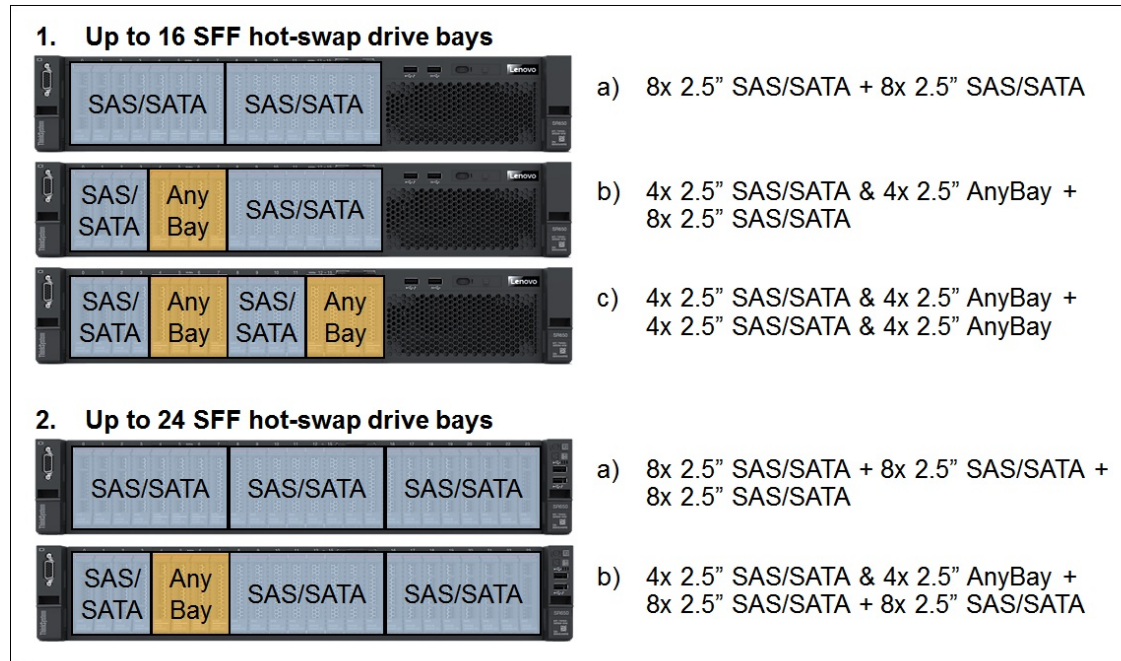


Figure 8. Internal 2.5-inch drive bay configurations

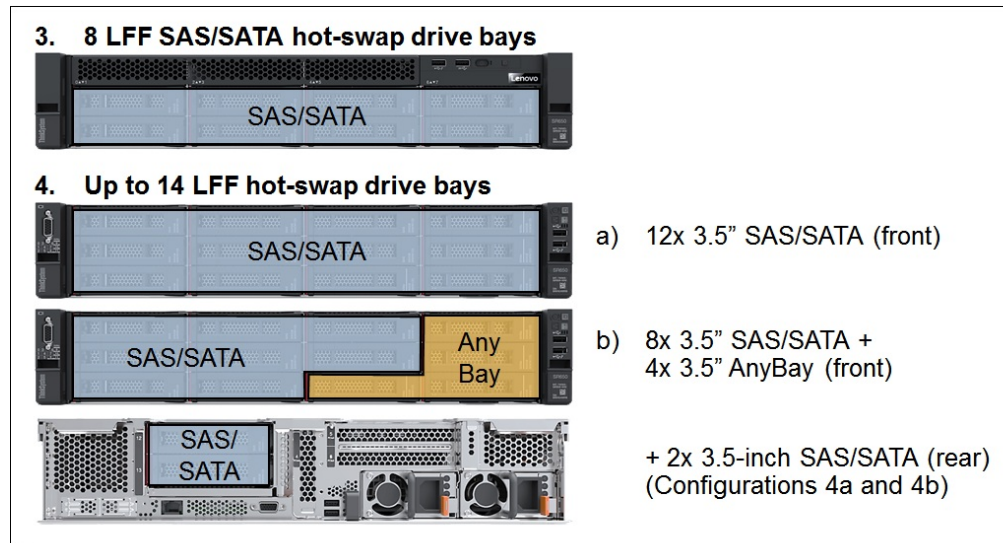


Figure 9. Internal 3.5-inch drive bay configurations

The following table lists the internal storage options for the SR650 server.

Table 13. Internal storage options

Description	Part number	Feature code	Maximum supported
Factory-installed backplane kits			
ThinkSystem SR550/SR650 2.5" SATA/SAS 8-Bay Backplane Kit	None*	AURA	3
ThinkSystem SR650 2.5" AnyBay 8-Bay Backplane Kit	None*	AUR5	2
ThinkSystem SR550/SR650 3.5" SATA/SAS 8-Bay Backplane Kit	None*	AUR6	1
ThinkSystem SR550/SR650 3.5" SATA/SAS 12-Bay Backplane Kit	None*	AUR9	1
ThinkSystem SR650 3.5" AnyBay 12-Bay Backplane Kit	None*	AUR8	1
ThinkSystem SR590/SR650 3.5" Rear HDD Kit	7XH7A06253	AURZ	1
Backplane kit field upgrade options			
ThinkSystem SR550/SR650 2.5" SATA/SAS 8-Bay Backplane Kit	7XH7A06254	None**	3
ThinkSystem SR650 2.5" AnyBay 8-Bay Backplane Kit	7XH7A06251	None***	2
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 AUVX) or 24x 2.5" chassis (Feature code AUVV)			
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 930-8i (8) + Onboard NVMe (4)
16x 2.5-in. SAS/SATA hot-swap (front)	2	0	1x RAID 930-16i (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)
8x 2.5-in. SAS/SATA + 8x 2.5-in. AnyBay hot-swap (front)	0	2	1x RAID 930-16i (16) + Onboard NVMe (4) + NVMe Switch (4)
			1x 430-16i HBA (16) + Onboard NVMe (4) + NVMe Switch (4)
			2x RAID 930-8i (8+8) + Onboard NVMe (4) + NVMe Switch (4)
			2x 430-8i HBA (8+8) + Onboard NVMe (4) + NVMe Switch (4)
24x 2.5" chassis (Feature code AUVV)			
24x 2.5-in. SAS/SATA hot-swap (front)	3	0	3x RAID 930-8i (8+8+8)
			3x 430-8i HBA (8+8+8)
			1x RAID 930-24i (24)
			1x RAID 930-8i (8) + 1x RAID 930-16i (16)
20x 2.5-in. SAS/SATA + 4x 2.5-in. AnyBay hot-swap (front)	2	1	1x RAID 930-24i (24) + Onboard NVMe (4)
			3x 430-8i HBA (8+8+8) + Onboard NVMe (4)

* The numbers in brackets (x or x+y or x+y+z) 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 AUVW)					
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)
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 AUVX), and they support adding drive bays by using the 2.5" SAS/SATA 8-drive backplane kit (7XH7A06254) or 2.5" AnyBay 8-drive backplane kit (7XH7A06251).
- 24x 2.5-inch front drives are supported only on storage dense models that use the 24x 2.5" chassis (feature code AUVV).
- 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.

Controllers for internal storage

The following table lists the storage controllers and options for internal storage of the SR650 server.

Table 16. RAID controllers and HBAs for internal storage

Description	Part number	Feature code	Maximum supported	I/O slots supported
12 Gb SAS/SATA RAID controllers				
ThinkSystem RAID 530-8i PCIe 12Gb Adapter	7Y37A01082	AUNG	2	7, 4, 2, 3, 1
ThinkSystem RAID 730-8i 1GB Cache PCIe 12Gb Adapter	7Y37A01083	AUNH	2*	7, 4, 2, 3, 1
ThinkSystem RAID 930-8i 2GB Flash PCIe 12Gb Adapter	7Y37A01084	AUNJ	3	7, 4, 2, 3, 1
ThinkSystem RAID 930-16i 4GB Flash PCIe 12Gb Adapter	7Y37A01085	AUNK	1	7, 4, 2, 3, 1
ThinkSystem RAID 930-24i 4GB Flash PCIe 12Gb Adapter	7Y37A01086	AUV1	1	1, 2, 3
12 Gb SAS/SATA non-RAID HBAs				
ThinkSystem 430-8i SAS/SATA 12Gb HBA	7Y37A01088	AUNL	3	7, 4, 2, 3, 1
ThinkSystem 430-16i SAS/SATA 12Gb HBA	7Y37A01089	AUNM	1	7, 4, 2, 3, 1
NVMe PCIe interfaces (non-RAID)				
Onboard NVMe interface (4-port)	None	None	1	-
ThinkSystem 1610-4P NVMe Switch Adapter	7Y37A01081	AUV2	1	1, 5, 6**

* Available in China only.

** If the NVMe Switch Adapter is installed in the PCIe slot 1, the PCIe x16 riser card (feature code AUR3) is required.

Configuration notes:

- Low profile SAS RAID controllers and HBAs for internal storage are supported in the PCIe x8 slots on the system board and full-high PCIe x8 and x16 slots supplied by the riser card 1.
- Full-height SAS RAID controllers for internal storage are supported in the full-height PCIe x8 and x16 slots supplied by the riser card 1.
- NVMe Switch Adapter is supported in the full-height PCIe x16 slots supplied by the riser cards 1 and 2.
- In the configurations without GPU installed, the total quantity of the RAID 930-8i, 16i, 24i, and 8e controllers in the server must not exceed 4 (up to 4 supercapacitors can be mounted in the server).
- In the configurations with GPU installed, the total quantity of the RAID 930-8i, 16i, 24i, and 8e controllers in the server must not exceed 3 (up to 3 supercapacitors can be mounted in the server).

The onboard NVMe interface and the NVMe Switch Adapter provide 4x PCIe 3.0 x4 ports each for JBOD (non-RAID) connectivity to U.2 NVMe PCIe SSDs in the AnyBay drive bays. The NVMe Switch Adapter has a PCIe 3.0 x16 host interface.

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

Table 17. Storage controller features and specifications (LP = Low profile, FHHL = Full-height half-length)

Feature	RAID 530-8i	RAID 730-8i	RAID 930-8i	RAID 930-16i	RAID 930-24i	430-8i HBA	430-16i HBA
Form factor	PCIe LP	PCIe LP	PCIe LP	PCIe LP	PCIe FHHL	PCIe LP	PCIe LP
SAS controller chip	SAS3408	SAS3108	SAS3508	SAS3516	SAS3508	SAS3408	SAS3416
SAS expander chip	None	None	None	None	SAS35X36R	None	None
Host interface	PCIe 3.0 x8	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	12 Gb SAS	12 Gb SAS	12 Gb SAS	12 Gb SAS	12 Gb SAS	12 Gb SAS	12 Gb SAS
Number of ports	8	8	8	16	24	8	16
Connector type	SFF-8643 x4	SFF-8643 x4	SFF-8643 x4	SFF-8643 x4	SFF-8643 x4	SFF-8643 x4	SFF-8643 x4

Feature	RAID 530-8i	RAID 730-8i	RAID 930-8i	RAID 930-16i	RAID 930-24i	430-8i HBA	430-16i HBA
Number of connectors	2	2	2	4	6	2	4
Drive interface	SAS, SATA	SAS, SATA	SAS, SATA	SAS, SATA	SAS, SATA	SAS, SATA	SAS, SATA
Drive type	HDD, SSD, SED	HDD, SSD, SED	HDD, SSD, SED	HDD, SSD, SED	HDD, SSD, SED	HDD, SSD, SED*	HDD, SSD, SED*
Hot-swap drive support	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of drives	8	8	8	16	24	8	16
RAID levels	0/1/10/5/50	0/1/10/5/50	0/1/10/5/50/6/60	0/1/10/5/50/6/60	0/1/10/5/50/6/60	None	None
JBOD mode	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cache	None	1 GB	2 GB	4 GB	4 GB	None	None
Cache protection	None	None	Flash backup (Included)	Flash backup (Included)	Flash backup (Included)	None	None
SED key management (SafeStore)	Yes	Yes	Yes	Yes	Yes	No	No
SSD I/O acceleration (FastPath)	Yes	No	Yes	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.

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 SR650 server.

Table 18. 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	24
ThinkSystem 2.5" 300GB 15K SAS 12Gb Hot Swap 512n HDD	7XB7A00021	AULV	24
ThinkSystem 2.5" 600GB 10K SAS 12Gb Hot Swap 512n HDD	7XB7A00025	AULZ	24
ThinkSystem 2.5" 600GB 15K SAS 12Gb Hot Swap 512n HDD	7XB7A00022	AULW	24
ThinkSystem 2.5" 900GB 10K SAS 12Gb Hot Swap 512n HDD	7XB7A00026	AUM0	24

Description	Part number	Feature code	Maximum supported
ThinkSystem 2.5" 900GB 15K SAS 12Gb Hot Swap 512e HDD	7XB7A00023	AULX	24
ThinkSystem 2.5" 1.2TB 10K SAS 12Gb Hot Swap 512n HDD	7XB7A00027	AUM1	24
ThinkSystem 2.5" 1.8TB 10K SAS 12Gb Hot Swap 512e HDD	7XB7A00028	AUM2	24
2.5-inch hot-swap HDDs - 12 Gbps NL SAS			
ThinkSystem 2.5" 1TB 7.2K SAS 12Gb Hot Swap 512n HDD	7XB7A00034	AUM6	24
ThinkSystem 2.5" 2TB 7.2K SAS 12Gb Hot Swap 512n HDD	7XB7A00035	AUM7	24
2.5-inch hot-swap HDDs - 6 Gbps NL SATA			
ThinkSystem 2.5" 1TB 7.2K SATA 6Gb Hot Swap 512n HDD	7XB7A00036	AUUE	24
ThinkSystem 2.5" 2TB 7.2K SATA 6Gb Hot Swap 512e HDD	7XB7A00037	AUUJ	24
2.5-inch hot-swap SEDs - 12 Gbps SAS			
ThinkSystem 2.5" 300GB 10K SAS 12Gb Hot Swap 512n HDD SED	7XB7A00030	AUM4	24
ThinkSystem 2.5" 600GB 10K SAS 12Gb Hot Swap 512n HDD SED	7XB7A00031	AUM5	24
2.5-inch hot-swap SSDs - Performance 12 Gbps SAS			
ThinkSystem 2.5" HUSMM32 400GB Performance SAS 12Gb Hot Swap SSD	7N47A00124	AUMG	24
ThinkSystem 2.5" HUSMM32 800GB Performance SAS 12Gb Hot Swap SSD	7N47A00125	AUMH	24
2.5-inch hot-swap SSDs - Mainstream 12 Gbps SAS			
ThinkSystem 2.5" PM1635a 400GB Mainstream SAS 12Gb Hot Swap SSD	7N47A00117	AUMC	24
ThinkSystem 2.5" PM1635a 800GB Mainstream SAS 12Gb Hot Swap SSD	7N47A00118	AUMD	24
2.5-inch hot-swap SSDs - Capacity 12 Gbps SAS			
ThinkSystem 2.5" PM1633a 3.84TB Capacity SAS 12Gb Hot Swap SSD	7N47A00121	AUMK	24
ThinkSystem 2.5" PM1633a 7.68TB Capacity SAS 12Gb Hot Swap SSD	7N47A00122	AUML	24
2.5-inch hot-swap SSDs - PM863a Entry 6 Gbps SATA			
ThinkSystem 2.5" PM863a 240GB Entry SATA 6Gb Hot Swap SSD	7N47A00111	AUUQ	24
ThinkSystem 2.5" PM863a 480GB Entry SATA 6Gb Hot Swap SSD	7N47A00112	AUM9	24
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	24
ThinkSystem 2.5" Intel S3520 480GB Entry SATA 6Gb Hot Swap SSD	7N47A00100	AUUZ	24
2.5-inch hot-swap SSDs - Performance U.2 NVMe PCIe*			
ThinkSystem U.2 PX04PMB 800GB Performance 2.5" NVMe PCIe 3.0 x4 HS SSD	7XB7A05923	AWG6	8
ThinkSystem U.2 PX04PMB 1.6TB Performance 2.5" NVMe PCIe 3.0 x4 HS SSD	7XB7A05922	AWG7	8
2.5-inch hot-swap SSDs - Mainstream U.2 NVMe PCIe*			
ThinkSystem U.2 PX04PMB 960GB Mainstream 2.5" NVMe PCIe 3.0 x4 HS SSD	7N47A00095	AUUY	8
ThinkSystem U.2 PX04PMB 1.92TB Mainstream 2.5" NVMe PCIe 3.0 x4 HS SSD	7N47A00096	AUMF	8
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	8
ThinkSystem U.2 PM963 3.84TB Entry 2.5" NVMe PCIe 3.0 x4 Hot Swap SSD	7N47A00985	AUUU	8

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

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
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" 10TB 7.2K SAS 12Gb Hot Swap 512e HDD	7XB7A00046	AUUG	14
3.5-inch hot-swap SEDs - 12 Gbps NL SAS			
ThinkSystem 3.5" 4TB 7.2K SAS 12Gb Hot Swap 512n HDD FIPS	7XB7A00047	AUUH	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	7XB7A00054	AUUB	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: 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	AUUL	2
ThinkSystem M.2 CV3 128GB SATA 6Gbps Non-Hot-Swap SSD	7N47A00130	AUUV	2

Optical drives

The SR650 server supports the external USB optical drive option listed in the following table.

Table 21. 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 SR650 server supports one LOM card slot and up to seven PCIe slots: one slot on the system planar that is dedicated to an internal storage controller, one regular 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 or slot 3 is ML2 x16)
- Slot 3: PCIe 3.0 x8, or ML2 x8, or ML2 x16; 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 x16; full-height, half-length
- Slot 7: PCIe 3.0 x8 (dedicated to an internal storage controller)

Configuration notes:

- Slots 5 and 6 require the second processor to be installed.
- Slots 1 - 3 are not present if the Rear HDD Kit is installed.

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

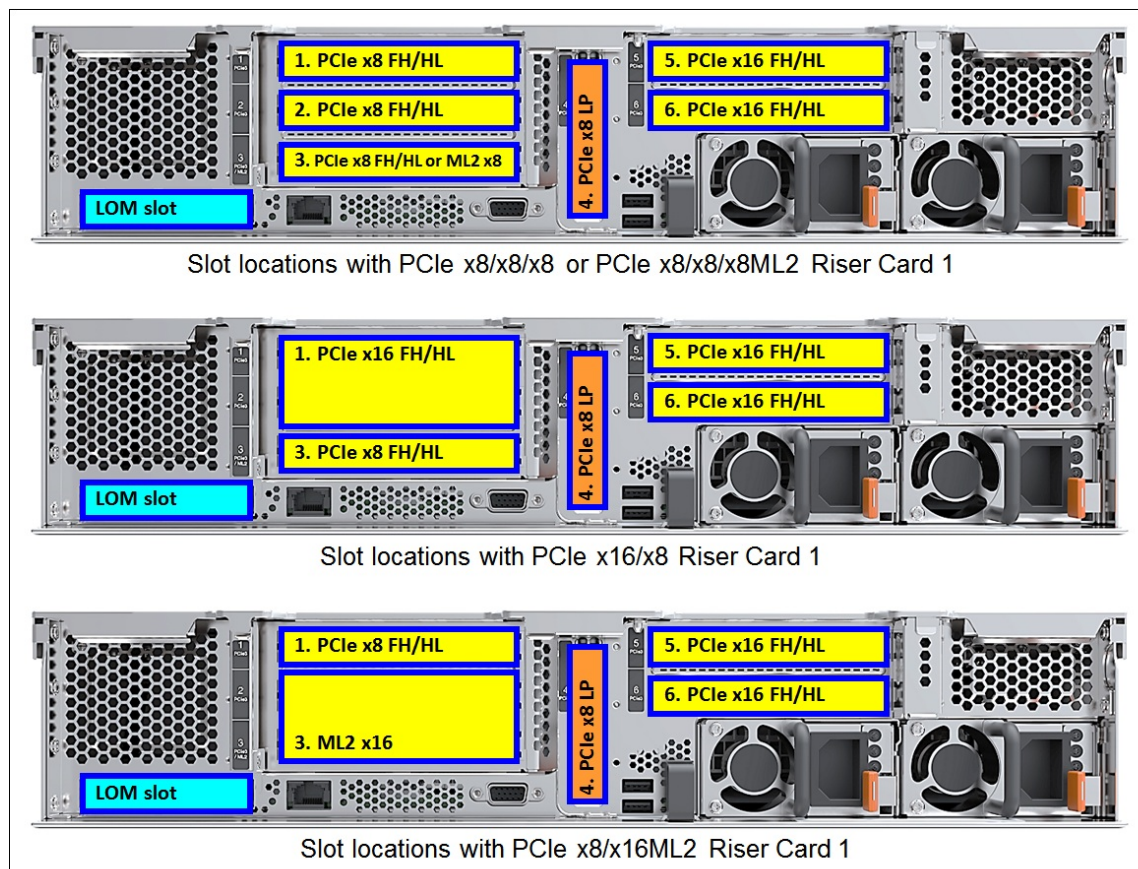


Figure 10. Slot locations

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 22. Slots available for use

Riser Card 1	Riser Card 2	Slots available for use
One processor		
None	None	LOM, 4, 7
PCIe x8/x8/x8 or PCIe x8/x8/x8ML2	None	LOM, 1, 2, 3, 4, 7
PCIe x16/x8 or PCIe x8/x16ML2	None	LOM, 1, 3, 4, 7
Two processors		
None	None	LOM, 4, 7
None	PCIe x16/x16	LOM, 4, 5, 6, 7
PCIe x8/x8/x8 or PCIe x8/x8/x8ML2	None	LOM, 1, 2, 3, 4, 7
PCIe x8/x8/x8 or PCIe x8/x8/x8ML2	PCIe x16/x16	LOM, 1, 2, 3, 4, 5, 6, 7
PCIe x16/x8 or PCIe x8/x16ML2	None	LOM, 1, 3, 4, 7
PCIe x16/x8 or PCIe x8/x16ML2	PCIe x16/x16	LOM, 1, 3, 4, 5, 6, 7

The following table lists available PCIe riser card options.

Table 23. PCIe riser cards and miscellaneous options

Description	Part number	Feature code	Maximum supported
x8 Riser Card 1 options (Riser card 1 supplies slots 1, 2, and 3)			
ThinkSystem SR550/SR590/SR650 x8/x8/x8 PCIe FH Riser 1 Kit	7XH7A02677	AUR4	1
ThinkSystem SR550/SR590/SR650 x8/x8/x8ML2 PCIe FH Riser 1 Kit	7XH7A02680	AUR7	1
x16 Riser Card 1 options (Riser card 1 supplies slots 1 and 3)			
ThinkSystem SR550/SR590/SR650 x16/x8 PCIe FH Riser 1 Kit	7XH7A02678	AUR3	1
ThinkSystem SR650 x8/x16ML2 PCIe FH Riser 1 Kit	7XH7A02681	AURB	1
Riser Card 2 option (Riser card 2 supplies slots 5 and 6)			
ThinkSystem SR550/SR590/SR650 (x16/x8)/(x16/x16) PCIe FH Riser 2 Kit	7XH7A02679	AURC	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 SR650. 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 SR650 server supports up to four onboard network ports with optional LOM cards that use the Intel Ethernet Connection X722 1/10 GbE technology integrated into the Intel C624 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 and ML2 network adapters support direct connectivity to the XClarity Controller via the Network Controller Sideband Interface (NSCI) for out-of-band systems management.

The integrated Intel Ethernet Connection X722 has the following features:

- Four 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 SR650 server.

Table 24. 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
ThinkSystem 1Gb 4-port RJ45 LOM	7ZT7A00545	AUKH	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
ThinkSystem 10Gb 4-port Base-T LOM	7ZT7A00549	AUKM	1	LOM slot
ThinkSystem 10Gb 4-port SFP+ LOM	7ZT7A00547	AUKK	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)
ML2 adapters - 25 Gb Ethernet				
Mellanox ConnectX-4 Lx ML2 1x25GbE SFP28 Adapter	00MN990	ATZR	1*	3 (ML2)
Mellanox ConnectX-4 Lx ML2 25Gb 2-Port SFP28 Ethernet Adapter	7ZT7A00507	AUKU	1*	3 (ML2)
ML2 adapters - FDR InfiniBand				
Mellanox ConnectX-3 Pro ML2 FDR 2-Port QSFP VPI Adapter	7ZT7A00501	AUKR	1*	3 (ML2)
PCIe Low Profile adapters - 1 Gb Ethernet				
ThinkSystem I350-F1 PCIe 1Gb 1-Port SFP Ethernet Adapter	7ZT7A00533	AUZZ	4 / 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	4 / 6	1, 2, 3, 4, 5, 6
Emulex VFA5.2 2x10 GbE SFP+ PCIe Adapter	00AG570	AT7S	4 / 6*	1, 2, 3, 4, 5, 6

Description	Part number	Feature code	Max qty#	I/O slots supported
Emulex VFA5.2 2x10 GbE SFP+ Adapter and FCoE/iSCSI SW	00AG580	AT7T	4 / 6*	1, 2, 3, 4, 5, 6
Intel X550-T2 Dual Port 10GBase-T Adapter	00MM860	ATPX	4 / 6	1, 2, 3, 4, 5, 6
Intel X710-DA2 PCIe 10Gb 2-Port SFP+ Ethernet Adapter	7ZT7A00537	AUKX	4 / 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	3 / 5*	1, 2, 3, 5, 6
PCIe Low Profile adapters - 25 Gb Ethernet				
Broadcom NX-E PCIe 25Gb 1-Port SFP28 Ethernet Adapter	7ZT7A00505	AUKS	4 / 6*	1, 2, 3, 4, 5, 6
Mellanox ConnectX-4 Lx 2x25GbE SFP28 Adapter	01GR250	AUAJ	4 / 6*	1, 2, 3, 4, 5, 6
PCIe Low Profile adapters - 40 Gb Ethernet				
Mellanox ConnectX-4 Lx 1x40GbE QSFP+ Adapter	00MM950	ATRN	4 / 6*	1, 2, 3, 4, 5, 6
PCIe x16 Low Profile adapters - 100 Gb Ethernet / EDR InfiniBand				
Mellanox ConnectX-4 1x100GbE/EDR IB QSFP28 VPI Adapter	00KH924	ASWQ	1 / 3*	1, 5, 6
Mellanox ConnectX-4 2x100GbE/EDR IB QSFP28 VPI Adapter	00MM960	ATRP	1 / 3*	1, 5, 6
PCIe Low Profile adapters - Omni-Path				
Intel OPA 100 Series Single-port PCIe 3.0 x8 HFA	00WE023	AU0A	4 / 6*	1, 2, 3, 4, 5, 6
Intel OPA 100 Series Single-port PCIe 3.0 x16 HFA	00WE027	AU0B	1 / 3*	1, 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 the table.

Configuration notes:

- ML2 network adapters are supported in the ML2 x8 slot 3 supplied by the x8/x8/x8ML2 Riser Card 1 (7XH7A02680).
- 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 x16 Low Profile network adapters are supported in the full-height PCIe x16 slots supplied by the riser cards 1 and 2.
- PCIe x8 or x4 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.
- Some adapters require supported transceivers or DAC cables to be purchased for the adapter. 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](#)
 - [Transceivers and cables for 25 GbE SFP28 adapters](#)
 - [Transceivers and cables for 40 GbE QSFP+ adapters](#)
 - [Cables for Mellanox FDR InfiniBand QSFP adapters](#)
 - [Transceivers and cables for 100 GbE QSFP28 network adapters](#)
 - [Cables for Mellanox EDR InfiniBand QSFP28 adapters](#)
 - [Cables for Intel Omni-Path QSFP28 adapters](#)

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

Table 25. 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
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 transceivers and cables for the 25 GbE SFP28 adapters.

Table 26. Transceivers and cables for 25 GbE SFP28 adapters

Description	Part number	Feature code
25 GbE SFP28 SR transceivers for 25 GbE SFP+ adapters		
Lenovo 25GBase-SR SFP28 Transceiver	7G17A03537	AV1B
Passive copper cables for 25 GbE SFP28 network adapters		
Lenovo 1m Passive 25G SFP28 DAC Cable	7Z57A03557	AV1W
Lenovo 3m Passive 25G SFP28 DAC Cable	7Z57A03558	AV1X
Lenovo 5m Passive 25G SFP28 DAC Cable	7Z57A03559	AV1Y

The following table lists transceivers and cables for the 40 GbE QSFP+ adapters.

Table 27. Transceivers and cables for 40 GbE QSFP+ adapters

Description	Part number	Feature code
40 GbE QSFP+ transceivers for 40 GbE network adapters		
Lenovo 40GBASE-SR4 QSFP+ Transceiver	49Y7884	A1DR
Optical cables for 40 GbE QSFP+ SR4 transceivers		
Lenovo 10m QSFP+ MPO-MPO OM3 MMF Cable	00VX003	AT2U
Lenovo 30m QSFP+ MPO-MPO OM3 MMF Cable	00VX005	AT2V

The following table lists cables for the Mellanox FDR InfiniBand QSFP adapters.

Table 28. Cables for Mellanox FDR InfiniBand QSFP adapters

Description	Part number	Feature code
Passive copper cables for Mellanox FDR InfiniBand QSFP adapters		
0.75m Mellanox QSFP Passive DAC Cable	00KF002	ARZB
1m Mellanox QSFP Passive DAC Cable	00KF003	ARZC
1.25m Mellanox QSFP Passive DAC Cable	00KF004	ARZD
1.5m Mellanox QSFP Passive DAC Cable	00KF005	ARZE
3m Mellanox QSFP Passive DAC Cable	00KF006	ARZF
Active optical cables for Mellanox FDR InfiniBand QSFP adapters		
3m Mellanox IB FDR Active Optical Fiber Cable	00KF007	ARYC
5m Mellanox IB FDR Active Optical Fiber Cable	00KF008	ARYD
10m Mellanox IB FDR Active Optical Fiber Cable	00KF009	ARYE
15m Mellanox IB FDR Active Optical Fiber Cable	00KF010	ARYF
20m Mellanox IB FDR Active Optical Fiber Cable	00KF011	ARYG
30m Mellanox IB FDR Active Optical Fiber Cable	00KF012	ARYH

The following table lists transceivers and cables for the 100 GbE QSFP28 network adapters.

Table 29. Transceivers and cables for 100 GbE QSFP28 network adapters

Description	Part number	Feature code
100 GbE QSFP28 transceivers for 100 GbE QSFP28 network adapters		
Lenovo 100GBase-SR4 QSFP28 Transceiver	7G17A03539	AV1D
Optical cables for 100 GbE QSFP28 SR4 transceivers		
Lenovo 5m MPO-MPO OM4 MMF Cable	7Z57A03567	AV25
Lenovo 10m MPO-MPO OM4 MMF Cable	7Z57A03569	AV27
Lenovo 20m MPO-MPO OM4 MMF Cable	7Z57A03571	AV29
Optical breakout cables for 100 GbE QSFP28 SR4 transceivers		
Lenovo 1m MPO-MPO Breakout OM4 MMF Cable	7Z57A03573	AV2B
Lenovo 3m MPO-MPO Breakout OM4 MMF Cable	7Z57A03574	AV2C
Lenovo 5m MPO-MPO Breakout OM4 MMF Cable	7Z57A03575	AV2D
Passive copper cables for 100 GbE QSFP28 network adapters		
Lenovo 1m Passive 100G QSFP28 DAC Cable	7Z57A03561	AV1Z

Description	Part number	Feature code
Lenovo 3m Passive 100G QSFP28 DAC Cable	7Z57A03562	AV20
Lenovo 5m Passive 100G QSFP28 DAC Cable	7Z57A03563	AV21
Passive copper breakout cables for 100 GbE QSFP28 network adapters		
Lenovo 1m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable	7Z57A03564	AV22
Lenovo 3m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable	7Z57A03565	AV23
Lenovo 5m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable	7Z57A03566	AV24
Active optical cables for 100 GbE QSFP28 network adapters		
Lenovo 3m 100G QSFP28 Active Optical Cable	7Z57A03546	AV1L
Lenovo 5m 100G QSFP28 Active Optical Cable	7Z57A03547	AV1M
Lenovo 10m 100G QSFP28 Active Optical Cable	7Z57A03548	AV1N
Lenovo 15m 100G QSFP28 Active Optical Cable	7Z57A03549	AV1P
Lenovo 20m 100G QSFP28 Active Optical Cable	7Z57A03550	AV1Q

The following table lists cables for the Mellanox EDR InfiniBand QSFP28 adapters.

Table 30. Cables for Mellanox EDR InfiniBand QSFP28 adapters

Description	Part number	Feature code
Passive copper cables for Mellanox EDR InfiniBand QSFP28 adapters*		
0.5m Mellanox EDR IB Passive Copper QSFP28 Cable	00MP516	ASQT
0.75m Mellanox EDR IB Passive Copper QSFP28 Cable	00MP520	ASQU
1m Mellanox EDR IB Passive Copper QSFP28 Cable	00MP524	ASQV
1.25m Mellanox EDR IB Passive Copper QSFP28 Cable	00MP528	ASQW
1.5m Mellanox EDR IB Passive Copper QSFP28 Cable	00MP532	ASQX
2m Mellanox EDR IB Passive Copper QSFP28 Cable	00MP536	ASQY
3m Mellanox EDR IB Passive Copper QSFP28 Cable	00MP560	ASRM
Active optical cables for Mellanox EDR InfiniBand QSFP28 adapters*		
3m Mellanox EDR IB Active Optical QSFP28 Cable	00MP563	ASRN
5m Mellanox EDR IB Active Optical QSFP28 Cable	00MP540	ASQZ
10m Mellanox EDR IB Active Optical QSFP28 Cable	00MP544	ASR0
15m Mellanox EDR IB Active Optical QSFP28 Cable	00MP548	ASR1
20m Mellanox EDR IB Active Optical QSFP28 Cable	00MP552	ASR2
30m Mellanox EDR IB Active Optical QSFP28 Cable	00MP556	ASR3
50m Mellanox EDR IB Active Optical QSFP28 Cable	00MP566	ASRP

* The Mellanox ConnectX-4 2x100GbE/EDR IB QSFP28 VPI Adapter (00MM960) supports only a subset of the EDR InfiniBand cables listed in the table: 00MP516, 00MP524, 00MP536, and 00MP544.

The following table lists cables for the Intel Omni-Path QSFP28 adapters.

Table 31. Cables for Intel Omni-Path QSFP28 adapters

Description	Part number	Feature code
Passive copper cables for Intel Omni-Path QSFP28 adapters		
0.5m Intel OPA 100 Series Passive Copper QSFP28 Cable	00WE031	AU0E
0.75m Intel OPA 100 Series Passive Copper QSFP28 Cable	00WE035	AU0F
1m Intel OPA 100 Series Passive Copper QSFP28 Cable	00WE039	AU0G

Description	Part number	Feature code
1.25m Intel OPA 100 Series Passive Copper QSFP28 Cable	00WE043	AU0H
1.5m Intel OPA 100 Series Passive Copper QSFP28 Cable	00WE047	AU0J
2m Intel OPA 100 Series Passive Copper QSFP28 Cable	00WE051	AU0K
3m Intel OPA 100 Series Passive Copper QSFP28 Cable	00WE055	AU0L
Active optical cables for Intel Omni-Path QSFP28 adapters		
5m Intel OPA 100 Series Active Optical QSFP28 Cable	00WE059	AU0M
10m Intel OPA 100 Series Active Optical QSFP28 Cable	00WE063	AU0N
15m Intel OPA 100 Series Active Optical QSFP28 Cable	00WE067	AU0P
20m Intel OPA 100 Series Active Optical QSFP28 Cable	00WE071	AU0Q

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

- Ethernet Adapters
<http://lenovopress.com/servers/options/ethernet?rt=product-guide>
- InfiniBand / OPA Adapters
<http://lenovopress.com/servers/options/infiniband?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 SR650 server.

Table 32. 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	4 / 4	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 (except slot 6).
- In the configurations without GPU installed, the total quantity of the RAID 930-8i, 16i, 24i, and 8e controllers in the server must not exceed 4 (up to 4 supercapacitors can be mounted in the server).
- In the configurations with GPU installed, the total quantity of the RAID 930-8i, 16i, 24i, 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 33. 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 SR650 server.

Table 34. 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	4 / 6	1, 2, 3, 4, 5, 6
Emulex 16Gb Gen6 FC Dual-port HBA	01CV840	ATZV	4 / 6	1, 2, 3, 4, 5, 6
QLogic 16Gb Enhanced Gen5 FC Single-port HBA	01CV750	ATZB	4 / 6	1, 2, 3, 4, 5, 6
QLogic 16Gb Enhanced Gen5 FC Dual-port HBA	01CV760	ATZC	4 / 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>

Flash storage adapters

The SR650 server supports the flash storage adapters listed in the following table.

Table 35. Flash storage adapters

Description	Part number	Feature code	Maximum supported*	I/O slots supported
Performance Flash Adapters				
PX04PMC 1.6TB Performance NVMe PCIe 3.0 x4 Flash Adapter	7XB7A05925	AWG8	4 / 6	1, 2, 3, 4, 5, 6
PX04PMC 3.2TB Performance NVMe PCIe 3.0 x4 Flash Adapter	7XB7A05924	AWG9	4 / 6	1, 2, 3, 4, 5, 6
Mainstream Flash Adapters				
PX04PMC 1.92TB Mainstream NVMe PCIe 3.0 x4 Flash Adapter	7N47A00097	AUUP	4 / 6	1, 2, 3, 4, 5, 6
PX04PMC 3.84TB Mainstream NVMe PCIe 3.0 x4 Flash Adapter	7N47A00098	AUVY	4 / 6	1, 2, 3, 4, 5, 6

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

Configuration notes:

- Flash storage adapters are supported in the low profile PCIe x8 slot on the system board and full-high PCIe x8 and x16 slots supplied by the riser cards 1 and 2.
- The Flash storage adapters are supported only in the environments with the air temperature of up to 35 °C (95 °F).
- The Flash storage adapters are supported only with the processors of up to 165 W TDP.

For more information, see the list of Product Guides in the Flash storage adapters category:

<http://lenovopress.com/servers/options/ssdadapter?rt=product-guide>

GPU adapters

The SR650 server supports graphics processing units (GPUs) listed in the following table.

Table 36. GPU adapters

Description	Part number	Feature code	Maximum supported*	I/O slots supported
Full-high PCIe 3.0 x16 double-wide GPU adapters				
NVIDIA Tesla M60 GPU, PCIe (Passive)	00KG655	B13J	1 / 2	1, 5
NVIDIA Tesla P100 16GB PCIe Passive GPU	7X67A00068	B13H	1 / 2	1, 5

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

Configuration notes:

- The GPU adapters require the PCIe x16 riser cards.
- The GPU adapters are supported only with the following drive bay configurations:
 - 8x or 16x 2.5-inch drive bays
 - 8x 3.5-inch drive bays
- If the GPU adapter is installed in the PCIe slot 5, the PCIe slot 6 cannot be used.
- The GPU adapters may require one of the optional GPU Thermal Kits (see [Cooling](#) for details).
- The GPU adapters are supported only with the 1100 W or 1600 W power supplies.
- The GPU adapters are supported only with the processors of up to 125 W TDP.
- The GPU adapters are supported only in the ASHARE A2 environments (up to 35 °C [95 °F]).
- The GPU adapters are not supported with the NVMe drives.
- The GPU adapters are not supported with the PCIe flash storage adapters.
- The maximum server memory that can be installed with the NVIDIA Tesla M60 GPU is 1 TB.

Cooling

The SR650 server supports up to six hot-swap system fans that provide N+1 cooling redundancy. SR650 server models with one processor include five system fans, and server models with two processors include six system fans.

The following table shows additional cooling options for configurations with GPU adapters.

Table 37. Cooling options

Description	Part number	Feature code	Maximum supported
ThinkSystem SR650 GPU Thermal Kit	7XH7A05897	None	1
ThinkSystem SR650 2nd GPU Upgrade Kit	7XH7A05899	AURU	1
ThinkSystem SR650 GPU 1U Heatsink Option Kit	7XH7A05898	None	1

Configuration notes:

- The GPU Thermal Kit (7XH7A05897) is required when adding GPUs to the SR650 server models without factory-installed GPUs. The kit provides support for up to two GPUs and contains an air duct, two low-profile heatsinks, and two full-length card holders.
- The 2nd GPU Upgrade Kit (7XH7A05899) is required when adding the second GPU to the SR650 server models with one factory-installed GPU. The kit provides support for the second GPU and contains a full-length card holder.
- The GPU 1U Heatsink Option Kit (7XH7A05898) is required when adding the second processor to the SR650 server models with one processor and one factory-installed GPU. The kit contains a low-profile heatsink for the second processor option.

Power supplies and cables

The SR650 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 38. Power supplies

Description	Part number	Feature code	Maximum supported
ThinkSystem 550W (230V/115V) Platinum Hot-Swap Power Supply	7N67A00882	AVWC	2
ThinkSystem 750W (230/115V) Platinum Hot-Swap Power Supply	7N67A00883	AVWD	2
ThinkSystem 750W (230V) Titanium Hot-Swap Power Supply	7N67A00884	AVWE	2
ThinkSystem 1100W (230V/115V) Platinum Hot-Swap Power Supply	7N67A00885	AVWF	2
ThinkSystem 1600W (230V) Platinum Hot-Swap Power Supply	7N67A00886	AVWG	2

General power supply rules are as follows:

- Minimum of 1 and maximum of 2 power supplies per system.
- If 2 are installed, power supplies must be identical.

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 Power Configurator:

<http://support.lenovo.com/documents/LNVO-PWRCONF>

The SR650 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 SR650 server.

Table 39. 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
2.0m, 13A/125V-10A/250V, C13 to IEC 320-C14 Rack Power Cable	4L67A08369	6570
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
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

Description	Part number	Feature code
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
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	6314
Japan 2.8m, 12A/250V, C13 to JIS C-8303 Line Cord	4L67A08357	5472
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

Configuration note: If the 1100 W AC power supplies (7N67A00885) in the SR650 server are connected to a low-voltage power source (100 - 125 V), the only supported power cables are those that are rated above 10A; cables that are rated at 10A are not supported.

Systems management

The SR650 supports the following systems management tools:

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

Lenovo XClarity Controller

The SR650 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 SR650 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 40. 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 SR650 server models include basic light path diagnostics, which provides the system LEDs on the front of the server (see [Components and connectors](#)) 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 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 Essentials UpdateXpress**
The UpdateXpress tool is a standalone GUI application for firmware and device driver updates that enables you to maintain your server firmware and device drivers up-to-date and help you avoid unnecessary server outages. The tool acquires and deploys individual updates and UpdateXpress System Packs (UXSPs) which are integration-tested bundles.
- **Lenovo Essentials Bootable Media Creator**
The Bootable Media Creator (BOMC) tool is used to create bootable media for offline firmware update.

For more information and downloads, visit the Lenovo XClarity Essentials web page:

<http://support.lenovo.com/us/en/documents/LNVO-center>

Lenovo XClarity Administrator

Lenovo XClarity 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 SR650 server which can be downloaded and used at no charge to discover and monitor the SR650 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 41. 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

In addition, Lenovo XClarity Administrator offers two software plug-in modules (Lenovo XClarity Integrators) at no charge (if software support is required, a Lenovo XClarity Pro software subscription license should be ordered):

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

Lenovo XClarity Integrators allow administrators to manage physical infrastructure from leading external virtualization management software tools from Microsoft and VMware. 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 Administrator Product Guide:
<http://lenovopress.com/tips1200>

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:

- Reports vital server 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 SR650 server that is licensed on a per managed node basis, that is, each managed server requires a license.

The following table lists the geo-specific Lenovo XClarity Energy Manager software license options.

Table 42. 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

Configuration note: XClarity Energy Manager requires the XClarity Controller Enterprise functionality.

Security

The SR650 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)

The following table lists the security options that are available for the SR650 server.

Table 43. 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
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.

Rack installation

The following table lists the rack installation options that are available for the SR650 server.

Table 44. 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	None^	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

^ Field upgrade only.

* 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 45. 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 SR650 server supports the following operating systems:

- Microsoft:
 - Microsoft Windows Server 2016
 - Microsoft Windows Server 2012 R2
- Red Hat:
 - Red Hat Enterprise Linux 7.3
 - Red Hat Enterprise Linux 6.9 Server x64 Edition
- SUSE:
 - SUSE Linux Enterprise Server 12 SP2
 - SUSE Linux Enterprise Server 11 for AMD64/EM64T SP4
- VMware:
 - VMware vSphere 6.5 (ESXi)
 - 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/redposig>.

Physical specifications

The SR650 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: 32 kg (70.5 lb)

Operating environment

The SR650 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
- NVMe PCIe flash adapters not installed
- Graphic processing units (GPUs) not installed
- Processors with TDP more than or equal to 150 W not installed
- Intel Xeon 5122, 6126, 6134, and 8156 processors not installed in the following models:
 - Models with 16x 2.5-inch drive bays
 - Models with 24x 2.5-inch drive bays
 - Models with 12x 3.5-inch drive bays

The SR650 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 (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 46. 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
550 W AC 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 AC 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 AC 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
1100W AC Platinum	100 - 127 V AC	1382 W	12 A	4715 BTU/hour
	200 - 240 V AC	1408 W	6 A	4804 BTU/hour
	180 - 300 V DC	1408 W	5.1 A	4804 BTU/hour
1600W AC Platinum	200 - 240 V AC	2068 W	8.7 A	7056 BTU/hour
	180 - 300 V DC	2032 W	7.3 A	6933 BTU/hour

Warranty

The SR650 server has a one-year (7X05) or three-year (Machine Type 7X06) 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. Also available are Lenovo Services warranty maintenance 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 or area. For more information about Lenovo warranty service upgrade offerings that are available in your country, refer to the Lenovo Enterprise Solutions Configurator (LESC):

<http://lesc.lenovo.com>

The following table explains warranty service definitions.

Table 47. Warranty service definitions

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

The following Lenovo warranty service upgrades are available:

- Warranty and maintenance service upgrades:
 - 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
 - Advanced Service: 24x7 service coverage with 2-hour onsite response or 6-hour committed repair
- YourDrive YourData
 Lenovo's YourDrive YourData service is a multi-drive retention offering that ensures your data is always under your control, regardless of the number of drives that are installed in your Lenovo server. In the unlikely event of a drive failure, you retain possession of your drive while Lenovo replaces the failed drive part. Your data stays safely on your premises, in your hands. The YourDrive YourData service can be purchased in convenient bundles with Lenovo warranty upgrades and extensions.
- Microcode Support
 Keeping microcode current helps prevent hardware failures and security exposure. There are two levels of service: analysis of the installed base and analysis and update where required. Offerings vary by country and can be bundled with other warranty upgrades and extensions.
- Enterprise Software Support
 Lenovo Enterprise Server Software Support can help you troubleshoot your entire server software stack. Choose support for server operating systems from Microsoft, Red Hat, SUSE, and VMware; Microsoft server applications; or both operating systems and applications. Support staff can help answer troubleshooting and diagnostic questions, address product compatibility and interoperability issues, isolate causes of problems, report defects to software vendors, and more.

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

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

Regulatory compliance

The SR650 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/GOST ME01; IEC-60950-1; GOST R 51318.22, 51318.24, 51317.3.2, and 51317.3.3
- 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 SR650 for storage expansion.

Table 48. 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
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

Description	Part number
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 SR650 in IT solutions.

Table 49. External storage systems

Description	Part number
Lenovo ThinkSystem DS Series Storage (SAS host 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 host 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**
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 S Series (SAS host connectivity)	
Lenovo Storage S2200 LFF Chassis SAS Single Controller, Rack Kit, 9x5NBD	64112B1
Lenovo Storage S2200 LFF Chassis SAS Dual Controller, Rack Kit, 9x5NBD	64112B2
Lenovo Storage S2200 SFF Chassis SAS Single Controller, Rack Kit, 9x5NBD	64112B3
Lenovo Storage S2200 SFF Chassis SAS Dual Controller, Rack Kit, 9x5NBD	64112B4
Lenovo Storage S3200 LFF Chassis SAS Single Controller, Rack Kit, 9x5NBD	64113B1

Description	Part number
Lenovo Storage S3200 LFF Chassis SAS Dual Controller, Rack Kit, 9x5NBD	64113B2
Lenovo Storage S3200 SFF Chassis SAS Single Controller, Rack Kit, 9x5NBD	64113B3
Lenovo Storage S3200 SFF Chassis SAS Dual Controller, Rack Kit, 9x5NBD	64113B4
Lenovo Storage S Series (iSCSI or FC host connectivity)	
Lenovo Storage S2200 LFF Chassis FC/iSCSI Single Controller, Rack Kit, 9x5NBD	64114B1
Lenovo Storage S2200 LFF Chassis FC/iSCSI Dual Controller, Rack Kit, 9x5NBD	64114B2
Lenovo Storage S2200 SFF Chassis FC/iSCSI Single Controller, Rack Kit, 9x5NBD	64114B3
Lenovo Storage S2200 SFF Chassis FC/iSCSI Dual Controller, Rack Kit, 9x5NBD	64114B4
Lenovo Storage S3200 LFF Chassis FC/iSCSI Single Controller, Rack Kit, 9x5NBD	64116B1
Lenovo Storage S3200 LFF Chassis FC/iSCSI Dual Controller, Rack Kit, 9x5NBD	64116B2
Lenovo Storage S3200 SFF Chassis FC/iSCSI Single Controller, Rack Kit, 9x5NBD	64116B3
Lenovo Storage S3200 SFF Chassis FC/iSCSI Dual Controller, Rack Kit, 9x5NBD	64116B4
Lenovo Storage V Series (SAS or iSCSI host 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
IBM Storwize for Lenovo (SAS [except V7000] or iSCSI host 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 V3700 3.5-inch Storage Controller Unit	6099L2C
IBM Storwize V3700 2.5-inch Storage Controller Unit	6099S2C
IBM Storwize V7000 2.5-inch Storage Controller Unit, w/3 Yr S&S (Model 524)	6195SC5†
IBM Storwize V7000 2.5-inch Storage Controller Unit, w/3 Yr S&S (LA) (Model 524)	6195SCL‡
IBM Storwize V7000 2.5-inch Storage Controller Unit, w/5 Yr S&S (Model 524)	61951F1†
IBM Storwize V7000 2.5-inch Storage Controller Unit, w/5 Yr S&S (LA) (Model 524)	61951FL‡
IBM Storwize V7000 SFF Control Enclosure, 3YR SWMA (Model HC1 [Gen2+])	6195C32†
IBM Storwize V7000 SFF Control Enclosure, 3YR SWMA, LA (Model HC1 [Gen2+])	6195C3L‡
IBM Storwize V7000 SFF Control Enclosure, 5YR SWMA (Model HC1 [Gen2+])	6195C52†
IBM Storwize V7000 SFF Control Enclosure, 5YR SWMA, LA (Model HC1 [Gen2+])	6195C5L‡
Lenovo Storage DX8200 Series (NAS, iSCSI connectivity; optional FC connectivity)	
Lenovo Storage DX8200D Storage Virtualization Entry, 4TB, 3yr SW S&S	5135A2x#

Description	Part number
Lenovo Storage DX8200D Storage Virtualization Entry, 4TB, 4yr SW S&S	5135J2x#
Lenovo Storage DX8200D Storage Virtualization Entry, 4TB, 5yr SW S&S	51351Vx#
Lenovo Storage DX8200D Storage Virtualization Mid, 16TB, 3yr SW S&S	5135B2x#
Lenovo Storage DX8200D Storage Virtualization Mid, 16TB, 4yr SW S&S	5135L2x#
Lenovo Storage DX8200D Storage Virtualization Mid, 16TB, 5yr SW S&S	51352Vx#
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#
Lenovo Storage DX8200D ServerSAN Entry, 8TB, 3yr SW S&S	5135D2x#
Lenovo Storage DX8200D ServerSAN Entry, 8TB, 4yr SW S&S	5135N2x#
Lenovo Storage DX8200D ServerSAN Entry, 8TB, 5yr SW S&S	51354Vx#
Lenovo Storage DX8200D ServerSAN Mid, 16TB, 3yr SW S&S	5135F2x#
Lenovo Storage DX8200D ServerSAN Mid, 16TB, 4yr SW S&S	5135P2x#
Lenovo Storage DX8200D ServerSAN Mid, 16TB, 5yr SW S&S	51355Vx#
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	5120C1x#
Lenovo Storage DX8200C 84TB (14x 6TB HDDs) with Cloudian HyperStore - 3yr HW/SW S&S	5120C3x#
Lenovo Storage DX8200C 112TB (14x 8TB HDDs) with Cloudian HyperStore - 3yr HW/SW S&S	5120C2x#
Lenovo Storage DX8200C 140TB (14x 10TB HDDs) with Cloudian HyperStore - 3yr HW/SW S&S	5120C4x#

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

Ethernet LAN switches

The following table lists the Ethernet LAN switches that are offered by Lenovo that can be used with the SR650 server in IT solutions.

Table 50. 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
40 Gb Ethernet switches	
Lenovo RackSwitch G8332 (Rear to Front)	7159BRX
100 Gb Ethernet switches (support 40 GbE connectivity)	
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 SR650 in IT solutions.

Table 51. 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 SR650 server in IT solutions.

Table 52. 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 SR650 server in IT solutions.

Table 53. KVM switch and console options

Description	Part number
Consoles	
1U 18.5" Standard Console (without keyboard)	17238BX
Console keyboards	
Lenovo UltraNav Keyboard USB - US Eng	00MW310
Keyboard w/ Int. Pointing Device USB - Arabic 253 RoHS v2	46W6713
Keyboard w/ Int. Pointing Device USB - Belg/UK 120 RoHS v2	46W6714
Keyboard w/ Int. Pointing Device USB - Chinese/US 467 RoHS v2	46W6715
Keyboard w/ Int. Pointing Device USB - Czech 489 RoHS v2	46W6716
Keyboard w/ Int. Pointing Device USB - Danish 159 RoHS v2	46W6717
Keyboard w/ Int. Pointing Device USB - Dutch 143 RoHS v2	46W6718
Keyboard w/ Int. Pointing Device USB - French 189 RoHS v2	46W6719
Keyboard w/ Int. Pointing Device USB - Fr/Canada 445 RoHS v2	46W6720
Keyboard w/ Int. Pointing Device USB - German 129 RoHS v2	46W6721
Keyboard w/ Int. Pointing Device USB - Greek 219 RoHS v2	46W6722
Keyboard w/ Int. Pointing Device USB - Hebrew 212 RoHS v2	46W6723
Keyboard w/ Int. Pointing Device USB - Hungarian 208 RoHS v2	46W6724
Keyboard w/ Int. Pointing Device USB - Italian 141 RoHS v2	46W6725
Keyboard w/ Int. Pointing Device USB - Japanese 194 RoHS v2	46W6726
Keyboard w/ Int. Pointing Device USB - Korean 413 RoHS v2	46W6727
Keyboard w/ Int. Pointing Device USB - LA Span 171 RoHS v2	46W6728
Keyboard w/ Int. Pointing Device USB - Norwegian 155 RoHS v2	46W6729
Keyboard w/ Int. Pointing Device USB - Polish 214 RoHS v2	46W6730
Keyboard w/ Int. Pointing Device USB - Portugese 163 RoHS v2	46W6731
Keyboard w/ Int. Pointing Device USB - Russian 441 RoHS v2	46W6732
Keyboard w/ Int. Pointing Device USB - Slovak 245 RoHS v2	46W6733
Keyboard w/ Int. Pointing Device USB - Spanish 172 RoHS v2	46W6734
Keyboard w/ Int. Pointing Device USB - Swed/Finn 153 RoHS v2	46W6735
Keyboard w/ Int. Pointing Device USB - Swiss F/G 150 RoHS v2	46W6736
Keyboard w/ Int. Pointing Device USB - Thai 191 RoHS v2	46W6737
Keyboard w/ Int. Pointing Device USB - Turkish 179 RoHS v2	46W6738
Keyboard w/ Int. Pointing Device USB - UK Eng 166 RoHS v2	46W6739
Keyboard w/ Int. Pointing Device USB - US Euro 103P RoHS v2	46W6740
Keyboard w/ Int. Pointing Device USB - Slovenian 234 RoHS v2	46W6741
Console switches	
Global 4x2x32 Console Manager (GCM32)	1754D2X
Global 2x2x16 Console Manager (GCM16)	1754D1X
Local 2x16 Console Manager (LCM16)	1754A2X

Description	Part number
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 SR650 server in IT solutions.

Table 54. 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
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

Description	Part number
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 SR650 in IT solutions.

Table 55. 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>

Lenovo Financial Services

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For more information, see these resources:

- Lenovo ThinkSystem SR650 product page
<http://www3.lenovo.com/us/en/p/77XX7SR65>
- Lenovo Enterprise Solutions Configurator (LESC):
<http://lesc.lenovo.com>
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