# Lenovo ThinkSystem SR650 Server (Xeon SP Gen 1 / Gen 2)

## 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 second generation of Intel Xeon Processor Scalable Family (Xeon SP Gen 2), the SR650 server offers scalable performance, storage capacity, and I/O expansion. The SR650 server supports up to two processors and up to 3 TB of memory, up to 24x 2.5-inch or 14x 3.5-inch drive bays with an extensive choice of drive technologies, and flexible I/O expansion options with a LOM slot, a dedicated storage controller slot, and up to 6x rear PCIe expansion 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 with 2.5-inch hot-swap drives.



Figure 1. Lenovo ThinkSystem SR650 with 2.5-inch drive bays

## Did you know?

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 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.

The SR650 server delivers outstanding memory performance with Performance+ 2933 MHz DIMMs, which is achieved by supporting two-DIMMs-per-channel configurations at speeds up to 10% faster than the Intel specification defines, 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 second generation of the Intel Xeon Processor Scalable Family with up to 28-core processors, up to 38.5 MB of last level cache (LLC), up to 2933 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 Speed Select Technology provides improvements in server utilization and guaranteed per-core performance service levels with more granular control over processor performance.
    - Intel Deep Learning Boost (Vector Neural Network Instruction set [VNNI]) is designed to deliver significant, more efficient Deep Learning (Inference) acceleration for high-performance Artificial Intelligence (AI) 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 2933 MHz memory speeds and up to 3 TB of memory capacity with 3DS RDIMMs.
- Boosts the performance of data-intensive applications and delivers consistent service levels at scale for virtualized and cloud environments by using the innovative persistent memory technology that provides a unique combination of affordable large memory capacity and non-volatility for up to 7.5 TB of total server memory capacity, including 3DS RDIMMs and DCPMMs (DC persistent memory modules).
- Offers flexible and scalable internal storage in a 2U rack form factor with up to 24x 2.5-inch and 2x 3.5-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 an AnyBay design.
- Provides I/O scalability with a 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:

- Offers protection in the event of a non-correctable memory failure with Single Device Data Correction (SDDC, also known as Chipkill, requires x4-based DIMMs), Adaptive Double Device Data Correction (ADDDC, also known as Redundant Bit Steering [RBS], requires x4-based DIMMs and Intel Xeon Gold or Platinum processors), memory mirroring, and memory rank sparing.
- Provides easy access to upgrades and serviceable parts (such as processors, memory DIMMs, and adapter cards) with tool-less cover removal.

- Offers 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 system 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.
- Centralizes infrastructure resource management with Lenovo XClarity Integrators for VMware vCenter and Microsoft System Center, extending XClarity Administrator features to virtualization management software tools and enabling users to deploy and manage infrastructure end-to-end.
- Offers advanced cryptographic functionality (such as digital signatures and remote attestation) with an integrated Trusted Platform Module (TPM) or optional Trusted Cryptographic Module (TCM) or Nationz TPM (available only in PRC).
- Keeps user data safe with Lenovo Business Vantage, a security software tool suite designed to work with the Trusted Cryptographic Module or Nationz TPM (available only in PRC).
- 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.

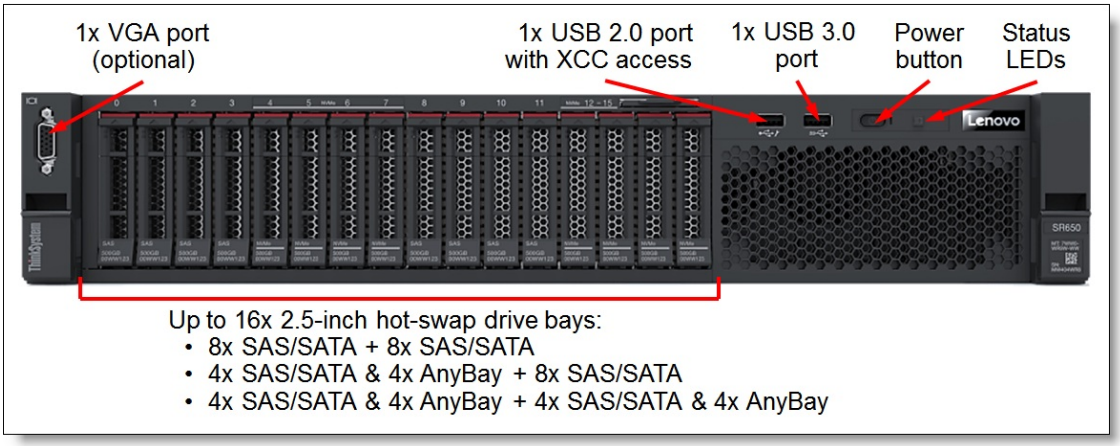



Figure 2. Front view of the SR650: Up to 16x 2.5-inch drive bays

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

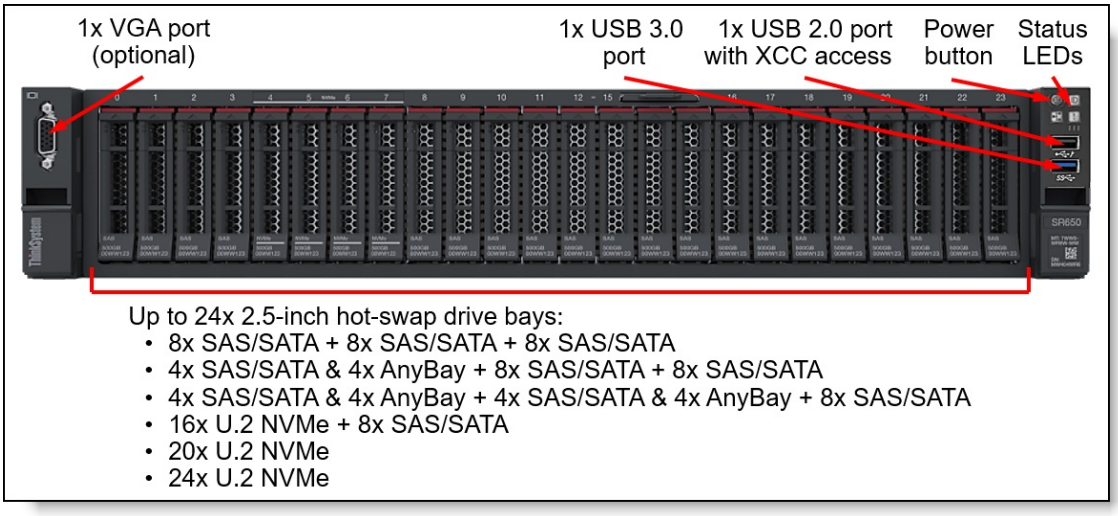



Figure 3. Front view of the SR650: Up to 24x 2.5-inch drive bays

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

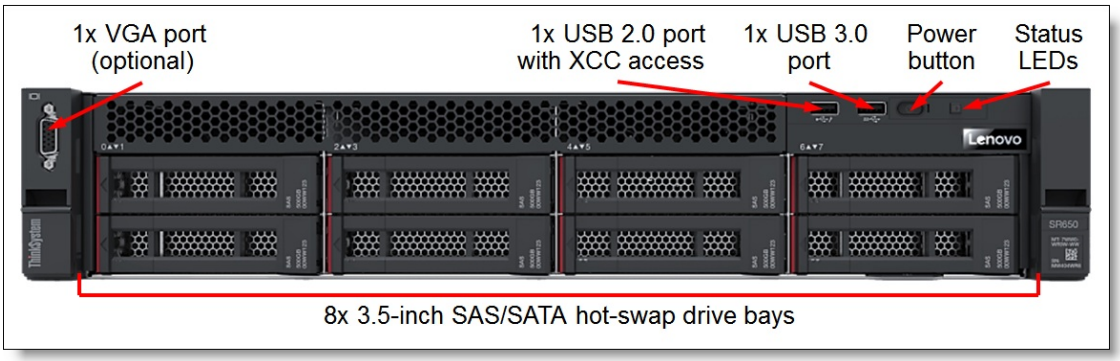



Figure 4. Front view of the SR650: 8x 3.5-inch drive bays

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

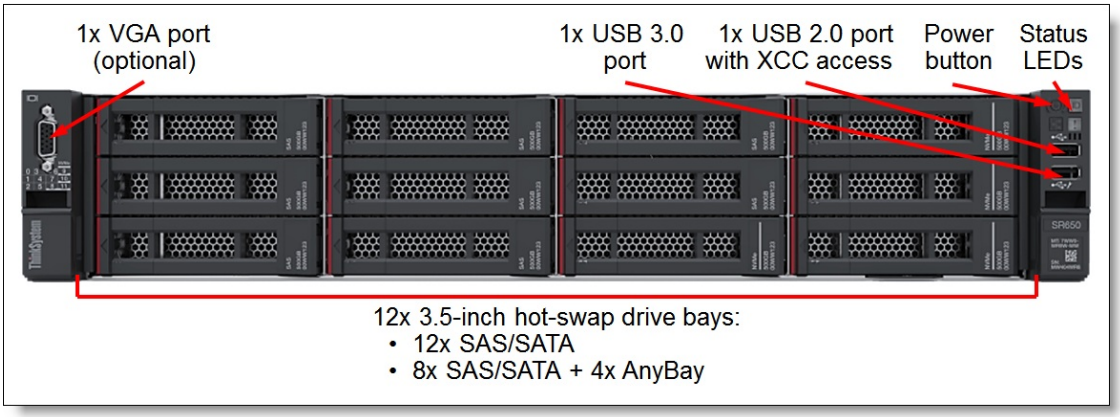



Figure 5. Front view of the SR650: 12x 3.5-inch drive bays

The front of the SR650 server includes the following components:

- Up to 16x 2.5-inch, or 24x 2.5-inch, or 8x 3.5-inch, or 12x 3.5-inch hot-swap drive bays.
- One VGA port (optional).
- One USB 3.0 port.
- One USB 2.0 port with XClarity Controller access.
- Power button.
- Status LEDs.

The following figure shows the rear of the SR650 server.

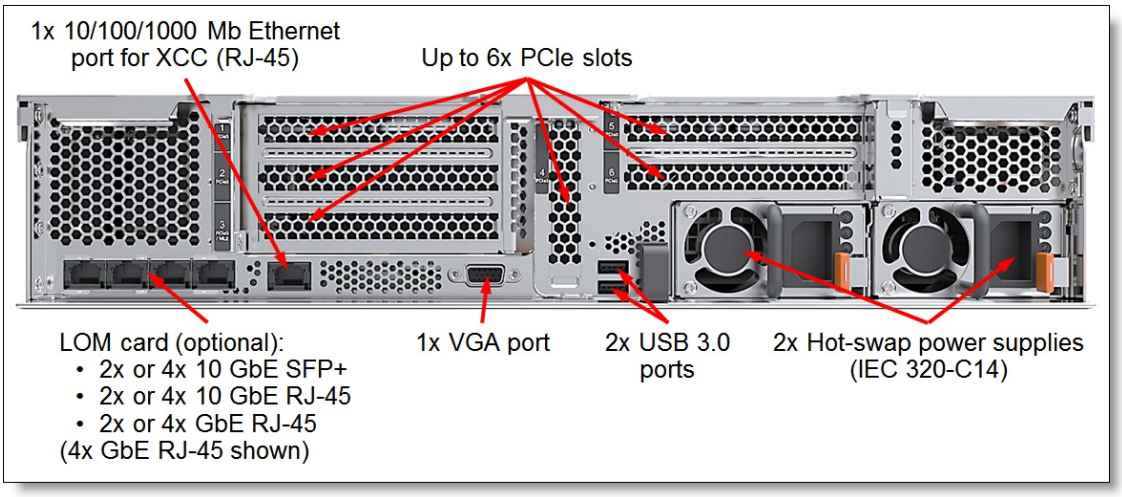



Figure 6. Rear view of the SR650

The rear of the SR650 server includes the following components:

- Up to six PCIe expansion slots (depending on the riser cards selected).
- One LOM card slot.
- One 1 GbE port for XClarity Controller.
- One VGA port.
- Two USB 3.0 ports.
- Up to two hot-swap power supplies.

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

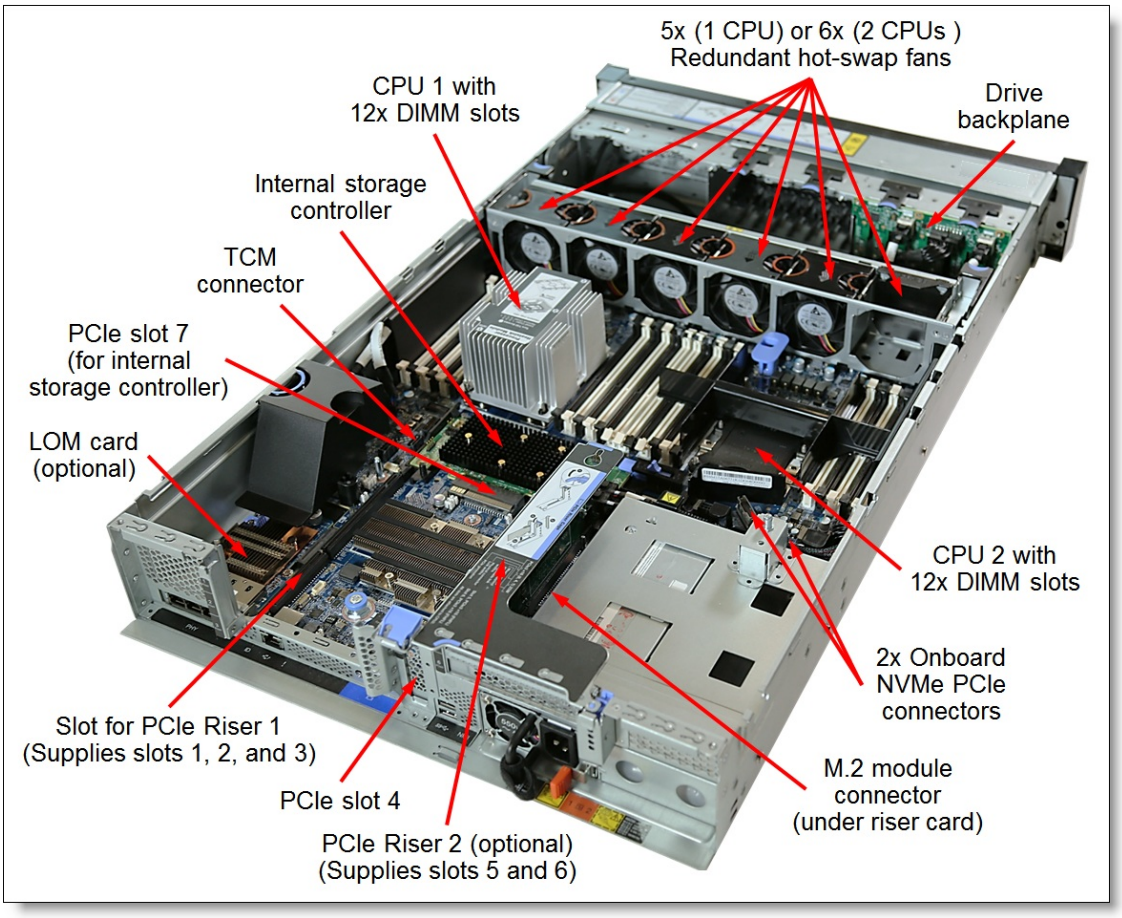



Figure 7. Internal view of the SR650

The following key components are located inside the SR650 server:

- Up to two processors.
- 24 DIMM slots (12 DIMM slots per processor).
- Drive backplanes.
- Two onboard NVMe PCIe connectors.
- One M.2 module connector.
- One LOM card connector.
- Two onboard PCIe slots 4 and 7.
- Two slots for PCIe riser cards.
- One TCM connector.
- Five (one processor) or six (two processors) hot-swap system fans.

## System specifications

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

Table 1. SR650 system specifications

| Attribute | Specification |
|---|---|
| Machine types | 7X05 - 1 year warranty<br>7X06 - 3 year warranty |
| Form factor | 2U rack-mount. |

| Attribute | Specification |
|---|---|
| Processor | Up to two 2nd Gen Intel Xeon Bronze, Silver, Gold, or Platinum processors:<br>• Up to 28 cores (2.7 GHz core speeds).<br>• Up to 3.9 GHz core speeds (8 cores).<br>• UPI links up to 10.4 GT/s (2 UPI links used).<br>• Up to 38.5 MB cache.<br>• Up to 2933 MHz memory speed.<br>1st Gen Intel Xeon processors are also supported. |
| 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 (1st Gen processors only), or 3DS RDIMMs. Memory speed up to 2933 MHz depending on the processor selected. Memory types cannot be intermixed. |
| Persistent memory | Up to 12x TruDDR4 2666 MHz DCPMMs in the DIMM slots. Not supported with 1st Gen Intel Xeon SP processors. |
| Memory protection | • Processor's integrated memory controllers: Error correction code (ECC), SDDC (for x4-based memory DIMMs), ADDDC (for x4-based memory DIMMs, requires Intel Xeon Gold or Platinum processors), memory mirroring, memory rank sparing, patrol scrubbing, and demand scrubbing.<br>• DCPMM's onboard memory controllers: ECC, SDDC, DDDC, patrol scrubbing, and demand scrubbing.<br>**Note:** In the configurations with DCPMMs, memory mirroring is supported only in the App Direct mode (other DCPMM modes do not support memory mirroring) and applies only to the RDIMMs or 3DS RDIMMs (DCPMMs are not mirrored). Memory sparing is not supported in the configurations with DCPMMs. |
| Memory capacity | • Memory DIMMs only: Up to 3 TB with up to 24x 128 GB 3DS RDIMMs (Up to 1.5 TB per processor).<br>• Memory DIMMs and persistent memory modules:<br>  ◦ App Direct Mode: Up to 7.5 TB with up to 12x 128 GB 3DS RDIMMs and up to 12x 512 GB DCPMMs (Up to 3.75 TB per processor).<br>  ◦ Memory Mode: Up to 6 TB with up to 12x 512 GB DCPMMs (Up to 3 TB per processor).<br>**Note:** Server configurations with more than 1 TB of memory capacity per socket (including DCPMMs and RDIMMs or 3DS RDIMMs) require processors that support up to 4.5 TB (L-suffix) per socket. |

| Attribute | Specification |
|---|---|
| Drive bays | • Up to 16 SFF (front) and 2 LFF (rear) hot-swap drive bays:<br>  ◦ 8x 2.5" SAS/SATA + 8x 2.5" SAS/SATA + 2x 3.5" SAS/SATA<br>  ◦ 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 8x 2.5" SAS/SATA + 2x 3.5" SAS/SATA<br>  ◦ 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 2x 3.5" SAS/SATA<br>• Up to 24 SFF (front) and 2 LFF (rear) hot-swap drive bays:<br>  ◦ 8x 2.5" SAS/SATA + 8x 2.5" SAS/SATA + 8x 2.5" SAS/SATA + 2x 3.5" SAS/SATA<br>  ◦ 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 8x 2.5" SAS/SATA + 8x 2.5" SAS/SATA + 2x 3.5" SAS/SATA<br>  ◦ 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 8x 2.5" SAS/SATA + 2x 3.5" SAS/SATA<br>  ◦ 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 4x 2.5" SAS/SATA & 4x 2.5" AnyBay<br>  ◦ 16x 2.5" U.2 NVMe PCIe + 8x 2.5" SAS/SATA (factory-installed only)<br>  ◦ 20x 2.5" U.2 NVMe PCIe<br>  ◦ 24x 2.5" U.2 NVMe PCIe<br>• Up to 10 LFF SAS/SATA hot-swap drive bays: 8x 3.5" (front) + 2x 3.5" (rear)<br>• Up to 14 LFF hot-swap drive bays:<br>  ◦ 12x 3.5" SAS/SATA (front) + 2x 3.5" SAS/SATA (rear)<br>  ◦ 8x 3.5" SAS/SATA & 4x 3.5" AnyBay (front) + 2x 3.5" SAS/SATA (rear) |
| Internal storage capacity | • 2.5-inch drives:<br>  ◦ 368.64TB using 24x 15.36TB 2.5-inch SAS SSDs<br>  ◦ 368.64TB using 24x 15.36TB 2.5-inch NVMe SSDs<br>  ◦ 57.6TB using 24x 2.4TB 2.5-inch HDDs<br>• 3.5-inch drives:<br>  ◦ 252TB using 14x 18TB 3.5-inch HDDs<br>  ◦ 107.52TB using 14x 7.68TB 3.5-inch SAS/SATA SSDs<br>  ◦ 30.72TB using 4x 7.68TB 3.5-inch NVMe SSDs |
| Storage controller | 12 Gbps SAS/6 Gbps SATA RAID<br>• RAID 0/1/10: RAID 530-16i<br>• RAID 0/1/10/5/50:<br>  ◦ RAID 530-8i<br>  ◦ RAID 730-8i 1GB Cache<br>• RAID 0/1/10/5/50/6/60:<br>  ◦ RAID 730-8i 2GB Flash<br>  ◦ RAID 930-8i 2GB Flash<br>  ◦ RAID 930-16i 4GB or 8GB Flash<br>  ◦ RAID 930-24i 4 GB Flash<br><br>12 Gbps SAS/6 Gbps SATA non-RAID: 430-8i or 16i HBA<br><br>NVMe PCIe<br>• Onboard NVMe<br>• 810-4P NVMe Switch Adapter<br>• 1610-4P NVMe Switch Adapter<br>• 1610-8P NVMe Switch Adapter |
| Optical drive bays | None. Support for an external USB DVD RW Optical Disk Drive (SeeOptical drives). |

| Attribute | Specification |
|---|---|
| Network interfaces | • Onboard LOM slot for up to 4x 1/10 Gb Ethernet ports:<br>  ◦ 2x or 4x 1 GbE RJ-45 ports (no 10/100 Mb support)<br>  ◦ 2x or 4x 10 GbE RJ-45 ports (no 10/100 Mb support)<br>  ◦ 2x or 4x 10 GbE SFP+ ports (no 10/100 Mb support)<br>• 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.<br>• 1x RJ-45 10/100/1000 Mb Ethernet systems management port. |
| I/O expansion slots | 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:<br>• Slot 1: PCIe 3.0 x16 or PCIe 3.0 x8; full-height, half-length (PCIe x16 slot can be single- or double-wide)<br>• Slot 2: PCIe 3.0 x8; full-height, half-length (not present if Slot 1 is PCIe x16 double-wide or Slot 3 is ML2 x16)<br>• Slot 3: PCIe 3.0 x8, or PCIe 3.0 x16, or ML2 x8, or ML2 x16; full-height, half-length<br>• Slot 4: PCIe 3.0 x8; low profile (vertical slot on system planar)<br>• Slot 5: PCIe 3.0 x16; full-height, half-length<br>• Slot 6: PCIe 3.0 x16; full-height, half-length<br>• Slot 7: PCIe 3.0 x8 (for an internal storage controller)<br>Slots 5 and 6 require the second processor to be installed. Single-wide PCIe x16 Slot 1 requires the second processor to be installed. |
| Ports | • Front: 1x USB 2.0 port with XClarity Controller access and 1x USB 3.0 port; optional 1x VGA port.<br>• Rear: 2x USB 3.0 ports and 1x VGA port; optional 1x DB-9 serial port. |
| Cooling | Five (one processor) or six (two processors) hot-swap single-rotor 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. HVDC support (PRC only). |
| Video | Matrox G200e with 16 MB memory integrated into the XClarity Controller. Maximum resolution is 1920x1200 at 60 Hz with 32 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 Integrators for VMware vCenter and Microsoft System Center, XClarity Energy Manager, Capacity Planner. |
| Security features | Power-on password, administrator's password, secure firmware updates, Trusted Platform Module (TPM) 1.2 or 2.0 (configurable UEFI setting). Optional lockable front bezel. Optional Trusted Cryptographic Module (TCM) or Nationz TPM (available only in PRC). Optional Lenovo Business Vantage security software (available only in PRC). |
| Operating systems | Microsoft Windows Server, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, VMware ESXi. See the Operating systems section for specifics. |
| Warranty | One-year (Machine Type 7X05) or three-year (Machine Type 7X06) customer-replaceable unit (CRU) and onsite limited warranty with 9x5 Next Business Day Parts Delivered. |
| Service and support | Optional Lenovo Services upgrades: 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 YourData, Enterprise Software Support, and Basic Hardware Installation Services. |
| Dimensions | Width: 445 mm (17.5 in.), height: 87 mm (3.4 in.), depth: 764 mm (30.1 in.). See Physical specifications for details. |
| Weight | Minimum configuration: 19 kg (41.9 lb), maximum: 32 kg (70.5 lb) |

## Models

ThinkSystem SR650 models can be configured by using the Lenovo Data Center Solution Configurator (DCSC).

Configure-to-order (CTO) models are used to create models with factory-integrated server customizations. For CTO models, two base CTO models are available for the SR650 as listed in the following table, CTO1WW and CTOLWW:

- The CTO1WW base CTO model is for general business and is selectable by choosing **General Purpose** mode in DCSC.
- The CTOLWW base model is intended for High Performance Computing (HPC) and Artificial Intelligence (AI) configurations and solutions, including configurations for Lenovo Scalable Infrastructure (LeSI), and is enabled using either the **HPC & AI LeSI Solutions** mode or **HPC & AI ThinkSystem Hardware** mode in DCSC. CTOLWW configurations can also be built using System x and Cluster Solutions Configurator (x-config).

Preconfigured server models may also be available for the SR650, however these are region-specific; that is, each region may define their own server models, and not all server models are available in every region.

The following table lists the base CTO models of the ThinkSystem SR650 server.

Table 2. Base CTO models

| Description | Machine Type/Model General purpose | Machine Type/Model for HPC and AI |
|---|---|---|
| ThinkSystem SR650 - 3 year Warranty | 7X06CTO1WW | 7X06CTOLWW |
| ThinkSystem SR650 - 1 year Warranty | 7X05CTO1WW | 7X05CTOLWW |

For CTO orders, the following table lists the base chassis feature codes for the server.

Table 3. Base chassis for CTO models

| Feature code | Description |
|---|---|
| AUVV | ThinkSystem SR650 2.5" Chassis with 8, 16 or 24 bays |
| AUVW | ThinkSystem SR650 3.5" Chassis with 8 or 12 bays |
| AUVX | ThinkSystem SR650 2.5" Chassis with 8 or 16 bays |

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:
  - "L2" = 2.8 m line cord.
  - "R2" = 2.8 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
- Brazil
- Latin America (except Brazil)
- Europe, Middle East, and Africa (EMEA)
- India
- Hong Kong, Taiwan, Korea
- Japan
- Association of Southeast Asian Nations (ASEAN)
- Australia and New Zealand

Table 4. 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) | GPU | XClarity Controller | Front VGA port | Tool-less Rail Kit | CMA | Power cord |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Relationship models - North America | | | | | | | | | | | | | | |
| 7X06A0FHNA | 1x 4208 8C 85W 2.1GHz | 1x 16GB (x8) 2933MHz | None | No bays / 24‡ SFF | Open bay | Open slot | 2x PCIe x8 | 1x 750W Platinum | N | E | Y | Y | N | R2 |
| 7X06A0KLNA | 1x 4208 8C 85W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 530-8i | 8 / 8 LFF | Open bay | Open slot | 2x PCIe x8 | 1x 750W Platinum | N | E | Y | Y | N | R2 |
| 7X06A0FENA | 1x 4214 12C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | None | No bays / 24‡ SFF | Open bay | Open slot | 2x PCIe x8 | 1x 750W Platinum | N | E | Y | Y | N | R2 |
| 7X06A0FKNA | 1x 4216 16C 100W 2.1GHz | 1x 32GB (x4) 2933MHz | None | No bays / 24‡ SFF | Open bay | Open slot | 2x PCIe x8 | 1x 750W Platinum | N | E | Y | Y | N | R2 |
| 7X06A0FLNA | 1x 5218 16C 125W 2.3GHz | 1x 32GB (x4) 2933MHz | None | No bays / 24‡ SFF | Open bay | Open slot | 2x PCIe x8 | 1x 750W Platinum | N | 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.
‡ Models with 8, 16, or 24 SFF drive bays can be upgraded with 2 additional LFF rear drive bays (See Internal storage for details) that are not included in the maximum quantity shown.
† Includes NVIDIA GRID vPC Subscription Licenses 3Yr, 1 CCU for 64 concurrent users.

Table 5. SR650 server models: Brazil

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TopSeller models - Brazil | | | | | | | | | | | | | |
| 7X06100RBR | 1x 3204 6C 85W 1.9GHz | 1x 16GB (x8) 2666MHz | 1x RAID 530-8i | 8 / 8 LFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 550W | S | N | Y | N | R2 |
| 7X06A0HKBR | 1x 4210 10C 85W 2.2GHz | 1x 32GB (x4) 2666MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open bay | 4x 1Gb RJ-45 | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | Y | Y | N | R2 |
| 7X06100VBR | 1x 4210 10C 85W 2.2GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open bay | 4x 1Gb RJ-45 | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | Y | Y | N | L2 |
| 7X06A0KGBR | 1x 4210 10C 85W 2.2GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 2x 750W Platinum | S | Y | Y | N | L2 |
| 7X06A0KDBR | 1x 4210 10C 85W 2.2GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open bay | 4x 1Gb RJ-45 | 3x PCIe x8 1x PCIe x16 | 2x 750W Platinum | E | Y | Y | N | L2 |
| 7X06A0M8BR | 1x 4210R 10C 100W 2.4GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open bay | 4x 1Gb RJ-45 | 3x PCIe x8 | 2x 750W Platinum | S | N | Y | N | R2 |
| 7X06A0MABR | 1x 4210R 10C 100W 2.4GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open bay | 4x 1Gb RJ-45 | 3x PCIe x8 | 2x 750W Platinum | S | N | Y | N | R2 |
| 7X06A0HJBR | 1x 4214 12C 85W 2.2GHz | 1x 32GB (x4) 2666MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open bay | 4x 1Gb RJ-45 | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | Y | Y | N | R2 |
| 7X06A0KFBR | 1x 4214 12C 85W 2.2GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 2x 750W Platinum | S | Y | Y | N | L2 |
| 7X06100WBR | 1x 4214 12C 85W 2.2GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open bay | 4x 1Gb RJ-45 | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | Y | Y | N | L2 |
| 7X06A0M5BR | 1x 4214R 12C 100W 2.4GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open bay | 4x 1Gb RJ-45 | 3x PCIe x8 | 2x 750W Platinum | S | N | Y | N | R2 |
| 7X06A0M7BR | 1x 4214R 12C 100W 2.4GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open bay | 4x 1Gb RJ-45 | 3x PCIe x8 | 2x 750W Platinum | S | N | Y | N | R2 |
| 7X06A0HUBR | 1x 5218 16C 125W 2.3GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open bay | 4x 1Gb RJ-45 | 2x PCIe x8 | 1x 750W Platinum | S | Y | Y | N | L2 |
| 7X06A0HVBR | 2x 5218 16C 125W 2.3GHz | 2x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open bay | 4x 1Gb RJ-45 | 2x PCIe x8 | 2x 750W Platinum | S | Y | Y | N | L2 |
| 7X06A0L1BR | 1x 4214R 12C 100W 2.4GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open Bay | 4x 1Gb RJ-45 | 1x PCIe x16 1x PCIe x8 | 2x 750W Platinum | S | Y | Y | N | L2 |
| 7X06A0L2BR | 1x 4210R 10C 100W 2.4GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open Bay | 4x 1Gb RJ-45 | 1x PCIe x16 1x PCIe x8 | 2x 750W Platinum | S | Y | Y | N | L2 |
| 7X06A0L3BR | 1x 4210R 10C 100W 2.4GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open Bay | 4x 1Gb RJ-45 | 1x PCIe x16 1x PCIe x8 | 2x 750W Platinum | E | Y | Y | N | L2 |

* 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: Latin America (except Brazil)

| 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 (except Brazil) | | | | | | | | | | | | | |
| 7X06A0H8LA | 1x 4210 10C 85W 2.2GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | S | Y | Y | N | R2 |
| 7X06A0M6LA | 1x 4210R 10C 100W 2.4GHz | 1x 16GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | S | Y | Y | N | R2 |
| 7X06A0M4LA | 1x 4214R 12C 100W 2.4GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 16 SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | S | Y | Y | N | R2 |
| 7X06A0MBLA | 1x 5218R 20C 125W 2.1GHz | 1x 32GB (x4) 2933MHz | 1x RAID 930-16i 4GB | 8 / 16 SFF | Open bay | 2x 10Gb RJ-45 | 5x PCIe x8 | 2x 750W Platinum | E | Y | Y | N | R2 |
| 7X06A0HBLA | 1x 5220 18C 125W 2.2GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 1100W Platinum | S | Y | Y | N | R2 |
| 7X06A0MCLA | 1x 6230R 26C 150W 2.1GHz | 2x 32GB (x4) 2933MHz | 1x RAID 930-16i 4GB | 8 / 16 SFF | Open bay | 2x 10Gb RJ-45 | 5x PCIe x8 | 2x 1100W Platinum | E | Y | Y | N | R2 |
| 7X06A0M9LA | 1x 6240R 24C 165W 2.4GHz | 2x 32GB (x4) 2933MHz | 1x RAID 930-16i 4GB | 8 / 16 SFF | Open bay | 4x 10Gb RJ-45 | 5x PCIe x8 | 2x 1100W Platinum | E | Y | Y | N | R2 |
| TopSeller models - Latin America (except Brazil) | | | | | | | | | | | | | |
| 7X06A0H9LA | 1x 4214 12C 85W 2.2GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | S | Y | Y | N | R2 |
| 7X06A0HALA | 1x 4216 16C 100W 2.1GHz | 1x 32GB (x4) 2933MHz | 1x RAID 730-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | S | 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.
‡ Models with 8, 16, or 24 SFF drive bays can be upgraded with 2 additional LFF rear drive bays (See Internal storage for details) that are not included in the maximum quantity shown.

Table 7. 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) | GPU | XClarity Controller | Front VGA port | Tool-less Rail Kit | CMA | Power cord |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Relationship models - EMEA | | | | | | | | | | | | | | |
| 7X06A0AWEA | 1x 4208 8C 85W 2.1GHz | 1x16GB(x8) 2666MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0ATEA | 1x 4208 8C 85W 2.1GHz | 1x16GB(x8) 2666MHz | 1x RAID 930-16i 4GB | 12 / 14 LFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0HSEA | 1x 4208 8C 85W 2.1GHz | 1x16GB(x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | 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) | GPU | XClarity Controller | Front VGA port | Tool-less Rail Kit | CMA | Power cord |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7X06A0KAEA | 1x 4208 8C 85W 2.1GHz | 1x16GB(x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0JPEA | 1x 4208 8C 85W 2.1GHz | 1x 32GB 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0K9EA | 1x 4208 8C 85W 2.1GHz | 1x 32GB 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0H5EA | 1x 4208 8C 85W 2.1GHz | 1x 32GB 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | 2x480GB PM883 | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0B3EA | 1x 4210 10C 85W 2.2GHz | 1x16GB(x8) 2666MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0B7EA | 1x 4210 10C 85W 2.2GHz | 1x16GB(x8) 2666MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0B4EA | 1x 4210 10C 85W 2.2GHz | 1x16GB(x8) 2666MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0HTEA | 1x 4210 10C 85W 2.2GHz | 1x 32GB 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0B0EA | 1x 4210 10C 85W 2.2GHz | 1x 32GB 2666MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 2x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0H7EA | 1x 4210 10C 85W 2.2GHz | 1x 32GB 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | 2x480GB PM883 | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0JXEA | 1x 4210R 10C 100W 2.4GHz | 1x16GB(x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0JSEA | 1x 4210R 10C 100W 2.4GHz | 1x 32GB 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0JZEA | 1x 4210R 10C 100W 2.4GHz | 1x 32GB 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0JYEA | 1x 4210R 10C 100W 2.4GHz | 1x 32GB 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 2x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0B9EA | 1x 4214 12C 85W 2.2GHz | 1x16GB(x8) 2666MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0AZEA | 1x 4214 12C 85W 2.2GHz | 1x 32GB 2666MHz | 1x RAID 930-16i 4GB | 12 / 14 LFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0AVEA | 1x 4214 12C 85W 2.2GHz | 1x 32GB 2666MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 2x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0B2EA | 1x 4214 12C 85W 2.2GHz | 1x 32GB 2666MHz | 1x RAID 930-16i 4GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0K1EA | 1x 4214R 12C 100W 2.4GHz | 1x 32GB 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0JREA | 1x 4214R 12C 100W 2.4GHz | 1x 32GB 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 2x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0AREA | 1x 4215 8C 85W 2.5GHz | 1x16GB(x8) 2666MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0K4EA | 1x 4215R 8C 130W 3.2GHz | 1x 32GB 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0JNEA | 1x 4215R 8C 130W 3.2GHz | 1x 32GB 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0JLEA | 1x 4215R 8C 130W 3.2GHz | 1x 32GB 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0AXEA | 1x 4216 16C 100W 2.1GHz | 1x16GB(x8) 2666MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | 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) | GPU | XClarity Controller | Front VGA port | Tool-less Rail Kit | CMA | Power cord |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7X06A0B5EA | 1x 5217 8C 115W 3.0GHz | 1x16GB(x8) 2666MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0H6EA | 1x 5217 8C 115W 3.0GHz | 1x 32GB 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0BCEA | 1x 5218 16C 125W 2.3GHz | 1x16GB(x8) 2666MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0ASEA | 1x 5218 16C 125W 2.3GHz | 1x 32GB 2666MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0LSEA | 1x 5218R 20C 125W 2.1GHz | 2x 32GB 2666MHz | None | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0K5EA | 1x 5218R 20C 125W 2.1GHz | 1x 32GB 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0JHEA | 1x 5218R 20C 125W 2.1GHz | 1x 32GB 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0K6EA | 1x 5220R 24C 150W 2.2GHz | 1x 32GB 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X061011EA | 1x 6138 20C 125W 2.0GHz | 2x 32GB 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | N | N | Y | N | R2 |
| 7X06A0J9EA | 1x 6226 12C 125W 2.7GHz | 1x 32GB 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0K7EA | 1x 6226R 16C 150W 2.9GHz | 1x 32GB 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0JJEA | 1x 6226R 16C 150W 2.9GHz | 1x 32GB 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0BBEA | 1x 6230 20C 125W 2.1GHz | 1x16GB(x8) 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0BAEA | 1x 6230 20C 125W 2.1GHz | 1x 32GB 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0K2EA | 1x 6230R 26C 150W 2.1GHz | 1x 32GB 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0JKEA | 1x 6230R 26C 150W 2.1GHz | 1x 32GB 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0JCEA | 1x 6234 8C 130W 3.3GHz | 1x 32GB 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0JUEA | 1x 6238R 28C 165W 2.2GHz | 1x 32GB 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0AQEA | 1x 6240 18C 150W 2.6GHz | 1x16GB(x8) 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0JMEA | 1x 6240R 24C 165W 2.4GHz | 1x 32GB 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x 750W Platinum | N | E | N | Y | N | R2 |
| 7X06A0B1EA | 1x 6242 16C 150W 2.8GHz | 1x16GB(x8) 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0JQEA | 1x 6242R 20C 205W 3.1GHz | 1x 32GB 2933MHz | None | No bays 8 SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0B6EA | 1x 6244 8C 150W 3.6GHz | 1x16GB(x8) 2933MHz | None | No bays 16 SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0J7EA | 1x 6246 12C 165W 3.3GHz | 1x 32GB 2933MHz | None | No bays 8 SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0JTEA | 1x 6246R 16C 205W 3.4GHz | 1x 32GB 2933MHz | None | No bays 8 SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | 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) | GPU | XClarity Controller | Front VGA port | Tool-less Rail Kit | CMA | Power cord |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7X06A0AUEA | 1x 6248 20C 150W 2.5GHz | 1x16GB(x8) 2933MHz | None | No bays 24‡ SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0J6EA | 2x 6248 20C 150W 2.5GHz | 12x 32GB 2933MHz | 1x M.2 RAID | No bays 16 SFF 2x M.2 | 1x128GB M.2 SSD | 4x10Gb RJ-45 | 3x x8 3x x16 | 2x1600W Platinum | | E | N | Y | N | R2 |
| 7X06A0J5EA | 2x 6248 20C 150W 2.5GHz | 12x 32GB 2933MHz | 1x M.2 RAID | No bays 16 SFF 2x M.2 | 1x128GB M.2 SSD | 4x10Gb RJ-45 | 3x x8 3x x16 | 2x1600W Platinum | | 2x M10† | N | Y | N | R2 |
| 7X06A0GVEA | 2x 6248 20C 150W 2.5GHz | 12x 32GB 2933MHz | 1x M.2 RAID | No bays 16 SFF 2x M.2 | 2x128GB M.2 SSD | 4x10Gb RJ-45 | 3x x8 3x x16 | 2x1600W Platinum | | 2x M10†† | N | Y | N | R2 |
| 7X06A0GYEA | 2x 6248 20C 150W 2.5GHz | 12x 32GB 2933MHz | 1x M.2 RAID | No bays 16 SFF 2x M.2 | 2x128GB M.2 SSD | 4x10Gb RJ-45 | 3x x8 3x x16 | 2x1600W Platinum | | 2x M10† | N | Y | N | R2 |
| 7X06A0JBEA | 2x 6248 20C 150W 2.5GHz | 12x 32GB 2933MHz | 1x M.2 RAID | No bays 16 SFF 2x M.2 | 1x128GB M.2 SSD | 4x10Gb RJ-45 | 5x x8 2x x16 | 2x1600W Platinum | | E | N | Y | N | R2 |
| 7X06A0JEEA | 2x 6248 20C 150W 2.5GHz | 12x 32GB 2933MHz | 1x M.2 RAID | No bays 16 SFF 2x M.2 | 1x128GB M.2 SSD | 4x10Gb RJ-45 | 5x x8 2x x16 | 2x1600W Platinum | | 2x M10† 4x T4† | N | Y | N | R2 |
| 7X06A0GWEA | 2x 6248 20C 150W 2.5GHz | 12x 32GB 2933MHz | 1x M.2 RAID | No bays 16 SFF 2x M.2 | 2x128GB M.2 SSD | 4x10Gb RJ-45 | 5x x8 2x x16 | 2x1600W Platinum | | 4x T4†† | N | Y | N | R2 |
| 7X06A0GUEA | 2x 6248 20C 150W 2.5GHz | 12x 32GB 2933MHz | 1x M.2 RAID | No bays 16 SFF 2x M.2 | 2x128GB M.2 SSD | 4x10Gb RJ-45 | 5x x8 2x x16 | 2x1600W Platinum | | 4x T4† | N | Y | N | R2 |
| 7X06A0JVEA | 1x 6248R 24C 205W 3.0GHz | 1x 32GB 2933MHz | None | No bays 8 SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | 4x T4 | N | Y | N | R2 |
| 7X06A0JWEA | 1x 6250 8C 185W 3.9GHz | 1x 32GB 2933MHz | None | No bays 8 SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0AYEA | 1x 6254 18C 200W 3.1GHz | 1x 32GB 2933MHz | None | No bays 16 SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0K0EA | 1x 6256 12C 205W 3.6GHz | 1x 32GB 2933MHz | None | No bays 8 SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | N | Y | N | R2 |
| 7X06A0K3EA | 1x 6258R 28C 205W 2.7GHz | 1x 32GB 2933MHz | None | No bays 8 SFF | Open bay | Open slot | 2x x8 | 1x1100W Platinum | N | E | 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.
‡ Models with 8, 16, or 24 SFF drive bays can be upgraded with 2 additional LFF rear drive bays (See Internal storage for details) that are not included in the maximum quantity shown.
† Includes NVIDIA GRID vPC Subscription Licenses for 3 Years, 64 CCU.
†† Includes NVIDIA GRID vPC Subscription Licenses for 5 Years, 64 CCU.

Table 8. 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TopSeller models - India | | | | | | | | | | | | | |
| 7X06A0CXSG | 1x 3204 6C 85W 1.9GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0D4SG | 1x 3204 6C 85W 1.9GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0BWSG | 1x 4208 8C 85W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0CYSG | 1x 4208 8C 85W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0BLSG | 1x 4210 10C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0C6SG | 1x 4210 10C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0C9SG | 1x 4214 12C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0C5SG | 1x 4214 12C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0BESG | 1x 4215 8C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0CCSG | 1x 4215 8C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0D8SG | 1x 4216 16C 100W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0CJSG | 1x 4216 16C 100W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0DKSG | 1x 5215 10C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0DHSG | 1x 5215 10C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0CQSG | 1x 5217 8C 115W 3.0GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0BUSG | 1x 5217 8C 115W 3.0GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0CZSG | 1x 5218 16C 125W 2.3GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0DGSG | 1x 5218 16C 125W 2.3GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0MTSG | 1x 5220 18C 125W 2.2GHz | 1x 32GB (x4) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7X06A0DLSG | 1x 5220 18C 125W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0DBSG | 1x 5220 18C 125W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0C3SG | 1x 6230 20C 125W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0DDSG | 1x 6230 20C 125W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0D1SG | 1x 6240 18C 150W 2.6GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0CPSG | 1x 6240 18C 150W 2.6GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0DQSG | 1x 6242 16C 150W 2.8GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0CHSG | 1x 6242 16C 150W 2.8GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0D2SG | 1x 6244 8C 150W 3.6GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 16 SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0D0SG | 1x 6248 20C 150W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0CNSG | 1x 6248 20C 150W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0CBSG | 1x 6252 24C 150W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0CKSG | 1x 6252 24C 150W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | R2 |
| 7X06A0CLSG | 1x 6254 18C 200W 3.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 16 SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | 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.
‡ Models with 8, 16, or 24 SFF drive bays can be upgraded with 2 additional LFF rear drive bays (See Internal storage for details) that are not included in the maximum quantity shown.

Table 9. 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TopSeller models - Hong Kong, Taiwan, Korea | | | | | | | | | | | | | |
| 7X06A0BSCN | 1x 3204 6C 85W 1.9GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7X06A0D3CN | 1x 3204 6C 85W 1.9GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0CECN | 1x 4208 8C 85W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0CDCN | 1x 4208 8C 85W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0DCCN | 1x 4210 10C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0CTCN | 1x 4210 10C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LDCN | 1x 4210R 10C 100W 2.4GHz | 1x 16GB (x8) 2933MHz | None | No bays / 14 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LFCN | 1x 4210R 10C 100W 2.4GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LKCN | 1x 4210R 10C 100W 2.4GHz | 1x 16GB (x8) 2933MHz | None | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0D5CN | 1x 4214 12C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0L5CN | 1x 4214R 12C 100W 2.4GHz | 1x 16GB(x8) 2933MHz | None | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LLCN | 1x 4214R 12C 100W 2.4GHz | 1x 16GB(x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LPCN | 1x 4214R 12C 100W 2.4GHz | 1x 16GB(x8) 2933MHz | 1x RAID 930-8i 2GB | No bays / 14 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BRCN | 1x 4214 12C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0DJCN | 1x 4215 8C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BVCN | 1x 4215 8C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LACN | 1x 4215R 8C 130W 3.2GHz | 1x 16GB(x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LJCN | 1x 4215R 8C 130W 3.2GHz | 1x 16GB(x8) 2933MHz | None | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LNCN | 1x 4215R 8C 130W 3.2GHz | 1x 16GB(x8) 2933MHz | None | No bays / 14 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BNCN | 1x 4216 16C 100W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0CRCN | 1x 4216 16C 100W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0D7CN | 1x 5215 10C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0C7CN | 1x 5215 10C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0CUCN | 1x 5217 8C 115W 3.0GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7X06A0D6CN | 1x 5217 8C 115W 3.0GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06100YCN | 1x 5217 8C 115W 3.0GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | Y | N | Y |
| 7X06100ZCN | 1x 5217 8C 115W 3.0GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | Y | N | Y |
| 7X061010CN | 1x 5217 8C 115W 3.0GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | Y | N | Y |
| 7X06A0C8CN | 1x 5218 16C 125W 2.3GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06100XCN | 1x 5218 16C 125W 2.3GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | Y | N | Y |
| 7X06A0L4CN | 1x 5218R 20C 125 W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | No bays / 14 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0L7CN | 1x 5218R 20C 125 W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0DFCN | 1x 5218 16C 125W 2.3GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0C0CN | 1x 5220 18C 125W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BYCN | 1x 5220 18C 125W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LECN | 1x 5220R 24C 150W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | No bays / 14 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LQCN | 1x 5220R 24C 150W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LGCN | 1x 6226R 16C 150W 2.9GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | No bays / 14 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LHCN | 1x 6226R 16C 150W 2.9GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0DECN | 1x 6230 20C 125W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0DACN | 1x 6230 20C 125W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LMCN | 1x 6230R 26C 150W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | No bays / 14 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LRCN | 1x 6230R 26C 150W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LBCN | 1x 6238R 28C 165W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | No bays / 14 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BXCN | 1x 6240 18C 150W 2.6GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0DNCN | 1x 6240 18C 150W 2.6GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0L9CN | 1x 6240R 24C 165W 2.4GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0D9CN | 1x 6242 16C 150W 2.8GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BHCN | 1x 6242 16C 150W 2.8GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7X06A0L6CN | 1x 6242R 20C 205W 3.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0C4CN | 1x 6244 8C 150W 3.6GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 16 SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0L8CN | 1x 6246R 16C 205W 3.4GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0CMCN | 1x 6248 20C 150W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BDCN | 1x 6248 20C 150W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LCCN | 1x 6248R 24C 205W 3.0GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0DMCN | 1x 6252 24C 150W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BTCN | 1x 6252 24C 150W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BMCN | 1x 6254 18C 200W 3.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 16 SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | 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.
‡ Models with 8, 16, or 24 SFF drive bays can be upgraded with 2 additional LFF rear drive bays (See Internal storage for details) that are not included in the maximum quantity shown.

Table 10. 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 | | | | | | | | | | | | | |
| 7X06A0CGJP | 1x 6230 20C 125W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | A | N | Y | N | N |
| 7X06A0DVJP | 1x 6240 18C 150W 2.6GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 1100W Platinum | A | N | Y | N | N |
| 7X06A0DRJP | 1x 6242 16C 150W 2.8GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 1100W Platinum | A | N | Y | N | N |
| 7X06A0DWJP | 1x 6244 8C 150W 3.6GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 16 SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 1100W Platinum | A | N | Y | N | N |
| 7X06A0DPJP | 1x 6244 8C 150W 3.6GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 16 SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 1600W Platinum | A | N | Y | N | N |
| 7X06A0DTJP | 1x 6248 20C 150W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 1100W Platinum | A | N | Y | N | N |
| 7X06A0DUJP | 1x 6252 24C 150W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 1100W Platinum | A | N | Y | N | N |
| 7X06A0DSJP | 1x 6254 18C 200W 3.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 16 SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 1100W Platinum | A | N | Y | N | N |
| TopSeller 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7X06A0BKJP | 1x 3204 6C 85W 1.9GHz | 1x 16GB (x4) 2666MHz | 1x RAID 730-8i 2GB | 8 / 8 LFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 550W Platinum | A | N | Y | N | N |
| 7X06A0BQJP | 1x 3204 6C 85W 1.9GHz | 1x 16GB (x4) 2666MHz | 1x RAID 730-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | A | N | Y | N | N |
| 7X06A0BPJP | 1x 4208 8C 85W 2.1GHz | 1x 16GB (x4) 2666MHz | 1x RAID 730-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | A | N | Y | N | N |
| 7X06A0BGJP | 1x 4210 10C 85W 2.2GHz | 1x 16GB (x4) 2666MHz | 1x RAID 730-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | A | N | Y | N | N |
| 7X06A0CAJP | 1x 4210 10C 85W 2.2GHz | 1x 16GB (x4) 2666MHz | 1x RAID 930-16i 4GB | 12 / 14 LFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | A | N | Y | N | N |
| 7X06A0BFJP | 1x 4214 12C 85W 2.2GHz | 1x 16GB (x4) 2666MHz | 1x RAID 730-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | A | N | Y | N | N |
| 7X06A0BJJP | 1x 4215 8C 85W 2.5GHz | 1x 16GB (x4) 2666MHz | 1x RAID 730-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | A | N | Y | N | N |
| 7X06A0BZJP | 1x 4216 16C 100W 2.1GHz | 1x 16GB (x4) 2666MHz | 1x RAID 730-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | A | N | Y | N | N |
| 7X06A0C2JP | 1x 4216 16C 100W 2.1GHz | 1x 16GB (x4) 2666MHz | 1x RAID 930-16i 4GB | 12 / 14 LFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | A | N | Y | N | N |
| 7X06A0C1JP | 1x 5215 10C 85W 2.5GHz | 1x 16GB (x4) 2666MHz | 1x RAID 730-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | A | N | Y | N | N |
| 7X06A0CVJP | 1x 5217 8C 115W 3.0GHz | 1x 16GB (x4) 2666MHz | 1x RAID 730-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | A | N | Y | N | N |
| 7X06A0CWJP | 1x 5218 16C 125W 2.3GHz | 1x 16GB (x4) 2666MHz | 1x RAID 730-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | A | N | Y | N | N |
| 7X06A0CSJP | 1x 5220 18C 125W 2.2GHz | 1x 16GB (x4) 2666MHz | 1x RAID 730-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | A | N | Y | N | N |
| 7X06A0CFJP | 1x 5222 4C 105W 3.8GHz | 1x 16GB (x4) 2666MHz | 1x RAID 730-8i 2GB | 8 / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 5x PCIe x8 | 1x 750W Platinum | A | N | Y | N | N |
| 7X06A0KPJP | 1x 5218R 20C 125W 2.1GHz | 1x 16GB (x4) 2666MHz | None | No bays / 16‡ SFF | Open bay | 4x 1Gb RJ-45 | 2x PCIe x8 | 1x 750W Platinum | A | N | Y | N | N |
| 7X06A0KVJP | 1x 5220R 24C 150W 2.2GHz | 1x 16GB (x4) 2666MHz | None | No bays / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 2x PCIe x8 | 1x 1100W Platinum | A | N | Y | N | N |
| 7X06A0KUJP | 1x 6226R 16C 150W 2.9GHz | 1x 16GB (x4) 2933MHz | None | No bays / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 2x PCIe x8 | 1x 1100W Platinum | A | N | Y | N | N |
| 7X06A0KTJP | 1x 6230R 26C 150W 2.1GHz | 1x 16GB (x4) 2933MHz | None | No bays / 16‡ SFF | Open bay | 4x 1Gb RJ-45 | 2x PCIe x8 | 1x 1100W Platinum | A | N | Y | N | N |
| 7X06A0KRJP | 1x 6238R 28C 165W 2.2GHz | 1x 16GB (x4) 2933MHz | None | No bays / 16‡ SFF | Open bay | 4x 1Gb RJ-45 | 2x PCIe x8 | 1x 1100W Platinum | A | N | Y | N | N |
| 7X06A0KMJP | 1x 6240R 24C 165W 2.4GHz | 1x 16GB (x4) 2933MHz | None | No bays / 24‡ SFF | Open bay | 4x 1Gb RJ-45 | 2x PCIe x8 | 1x 1100W Platinum | A | N | Y | N | N |
| 7X06A0KXJP | 1x 6242R 20C 205W 3.1GHz | 1x 16GB (x4) 2933MHz | None | No bays / 8 SFF | Open bay | 4x 1Gb RJ-45 | 2x PCIe x8 | 1x 1100W Platinum | A | N | Y | N | N |
| 7X06A0KQJP | 1x 6246R 16C 205W 3.4GHz | 1x 16GB (x4) 2933MHz | None | No bays / 8 SFF | Open bay | 4x 1Gb RJ-45 | 2x PCIe x8 | 1x 1100W Platinum | A | N | Y | N | N |
| 7X06A0KWJP | 1x 6248R 24C 205W 3.0GHz | 1x 16GB (x4) 2933MHz | None | No bays / 8 SFF | Open bay | 4x 1Gb RJ-45 | 2x PCIe x8 | 1x 1100W Platinum | A | N | Y | N | N |
| 7X06A0L0JP | 1x 6258R 28C 205W 2.7GHz | 1x 16GB (x4) 2933MHz | None | No bays / 8 SFF | Open bay | 4x 1Gb RJ-45 | 2x PCIe x8 | 1x 1100W Platinum | 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.
‡ Models with 8, 16, or 24 SFF drive bays can be upgraded with 2 additional LFF rear drive bays (See Internal storage for details) that are not included in the maximum quantity shown.

Table 11. 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TopSeller models - ASEAN | | | | | | | | | | | | | |
| 7X06A0BSSG | 1x 3204 6C 85W 1.9GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0D3SG | 1x 3204 6C 85W 1.9GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0CESG | 1x 4208 8C 85W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0CDSG | 1x 4208 8C 85W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0DCSG | 1x 4210 10C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0CTSG | 1x 4210 10C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0D5SG | 1x 4214 12C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BRSG | 1x 4214 12C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0DJSG | 1x 4215 8C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BVSG | 1x 4215 8C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BNSG | 1x 4216 16C 100W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0CRSG | 1x 4216 16C 100W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0D7SG | 1x 5215 10C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0C7SG | 1x 5215 10C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0CUSG | 1x 5217 8C 115W 3.0GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0D6SG | 1x 5217 8C 115W 3.0GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0C8SG | 1x 5218 16C 125W 2.3GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7X06A0DFSG | 1x 5218 16C 125W 2.3GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LYSG | 1x 5218 16C 125W 2.3GHz | 1x 32GB (x4) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | N | Y |
| 7X06A0LZSG | 1x 5220 18C 125W 2.2GHz | 1x 32GB (x4) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | N | Y |
| 7X06A0C0SG | 1x 5220 18C 125W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BYSG | 1x 5220 18C 125W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0DESG | 1x 6230 20C 125W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0DASG | 1x 6230 20C 125W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BXSG | 1x 6240 18C 150W 2.6GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0DNSG | 1x 6240 18C 150W 2.6GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0D9SG | 1x 6242 16C 150W 2.8GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BHSG | 1x 6242 16C 150W 2.8GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0C4SG | 1x 6244 8C 150W 3.6GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 16 SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0CMSG | 1x 6248 20C 150W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BDSG | 1x 6248 20C 150W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0DMSG | 1x 6252 24C 150W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BTSG | 1x 6252 24C 150W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0BMSG | 1x 6254 18C 200W 3.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 16 SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | 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.
‡ Models with 8, 16, or 24 SFF drive bays can be upgraded with 2 additional LFF rear drive bays (See Internal storage for details) that are not included in the maximum quantity shown.

Table 12. 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 | | | | | | | | | | | | | |
| 7X06A0EHAU | 1x 3204 6C 85W 1.9GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0EKAU | 1x 3204 6C 85W 1.9GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0EJAU | 1x 4208 8C 85W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0ELAU | 1x 4208 8C 85W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0EUAU | 1x 4210 10C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0EPAU | 1x 4210 10C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0ECAU | 1x 4214 12C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0ESAU | 1x 4214 12C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0EFAU | 1x 4215 8C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0ERAU | 1x 4215 8C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LUAU | 1x 4215R 8C 130W 3.2GHz | 1x 32GB (x4) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | N | Y |
| 7X06A0DYAU | 1x 4216 16C 100W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0F3AU | 1x 4216 16C 100W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LTAU | 1x 4216 16C 100W 2.1GHz | 1x 32GB (x4) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | N | Y |
| 7X06A0EDAU | 1x 5215 10C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0EGAU | 1x 5215 10C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0F2AU | 1x 5217 8C 115W 3.0GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0F8AU | 1x 5217 8C 115W 3.0GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0EMAU | 1x 5218 16C 125W 2.3GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0F7AU | 1x 5218 16C 125W 2.3GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0EEAU | 1x 5220 18C 125W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0DZAU | 1x 5220 18C 125W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0LVAU | 1x 6226R 16C 150W 2.9GHz | 1x 32GB (x4) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | N | Y |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7X06A0LWAU | 1x 6226R 16C 150W 2.9GHz | 1x 32GB (x4) 2933MHz | None | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | N | Y |
| 7X06A0LXAU | 1x 6226R 16C 150W 2.9GHz | 1x 64GB (x4) 2933MHz | None | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | N | Y |
| 7X06A0F6AU | 1x 6230 20C 125W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0F5AU | 1x 6230 20C 125W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0F1AU | 1x 6240 18C 150W 2.6GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0E1AU | 1x 6240 18C 150W 2.6GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0EVAU | 1x 6242 16C 150W 2.8GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0E7AU | 1x 6242 16C 150W 2.8GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0EQAU | 1x 6244 8C 150W 3.6GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 16 HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0EAAU | 1x 6248 20C 150W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0E9AU | 1x 6248 20C 150W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0ENAU | 1x 6252 24C 150W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0E8AU | 1x 6252 24C 150W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| 7X06A0EBAU | 1x 6254 18C 200W 3.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 16 HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | S | N | N | N | N |
| TopSeller models - Australia and New Zealand | | | | | | | | | | | | | |
| 7X06A0EWAU | 1x 3204 6C 85W 1.9GHz | 1x 16GB (x8) 2933MHz | 1x RAID 530-8i | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | Y | N |
| 7X06A0ETAU | 1x 4208 8C 85W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 530-8i | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | Y | N |
| 7X06A0KBAU | 1x 4208 8C 85W 2.1GHz | 1x 16GB (x8) 2666MHz | 1x RAID 930-8i 2GB | 8 / 8 HS LFF | Open bay | Open slot | 2x PCIe x8 | 1x 750W Platinum | E | Y | Y | Y | R2 |
| 7X06A0EZAU | 1x 4208 8C 85W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | Y | N |
| 7X06A0KCAU | 1x 4208 8C 85W 2.1GHz | 1x 16GB (x8) 2666MHz | 1x RAID 930-16i 4GB | 12 / 14 HS LFF | Open bay | Open slot | 2x PCIe x8 | 1x 750W Platinum | E | Y | Y | Y | R2 |
| 7X06A0EXAU | 1x 4210 10C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 530-8i | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | Y | N |
| 7X06A0E0AU | 1x 4210 10C 85W 2.2GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | Y | N |
| 7X06A0E2AU | 1x 4210 10C 85W 2.2GHz | 1x 32GB (x4) 2933MHz | 1x RAID 530-8i | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | Y | N |
| 7X06A0E3AU | 1x 4210 10C 85W 2.2GHz | 1x 32GB (x4) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | Y | N |
| 7X06A0E4AU | 1x 4215 8C 85W 2.5GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | Y | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7X06A0K8AU | 1x 4214 12C 85W 2.2GHz | 1x 16GB (x8) 2666MHz | 1x RAID 930-8i 2GB | 8 / 16 HS SFF | Open bay | Open slot | 2x PCIe x8 | 1x 750W Platinum | E | Y | Y | Y | R2 |
| 7X06A0E5AU | 1x 4215 8C 85W 2.5GHz | 1x 32GB (x4) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | Y | N |
| 7X06A0E6AU | 1x 4216 16C 100W 2.1GHz | 1x 16GB (x8) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | Y | N |
| 7X06A0F0AU | 1x 4216 16C 100W 2.1GHz | 1x 32GB (x4) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | Y | N |
| 7X06A0EYAU | 1x 5217 8C 115W 3.0GHz | 1x 32GB (x4) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | N | Y | Y | N |
| 7X06A0F4AU | 1x 5218 16C 125W 2.3GHz | 1x 32GB (x4) 2933MHz | 1x RAID 930-8i 2GB | 8 / 24‡ HS SFF | Open bay | Open slot | 3x PCIe x8 1x PCIe x16 | 1x 750W Platinum | E | 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.
‡ Models with 8, 16, or 24 SFF drive bays can be upgraded with 2 additional LFF rear drive bays (See Internal storage for details) that are not included in the maximum quantity shown.

## 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.

**Processor support**: Both 1st Gen and 2nd Gen Intel Xeon SP processors are supported. For supported 1st Gen processors, see the Continued support for 1st Gen Intel Xeon Scalable processors section.

Abbreviations used in the table:

- UPI: Ultra Path Interconnect
- TDP: Thermal Design Power
- HT: Hyper-Threading
- TB: Turbo Boost 2.0
- VT-x: Virtualization Technology
- VT-d: Virtualization Technology for Directed I/O
- SST-PP: Speed Select Technology - Performance Profile
- FMA: Fused-Multiply Add (AVX-512)
- DCPMM: DC Persistent Memory Module
- RAS: Reliability, Availability, and Serviceability
  - Std: Standard RAS
  - Adv: Advanced RAS

Table 13. Processor specifications

| CPU model | Cores / threads | Core speed (Base / TB Max) | Cache | Max DDR4 speed | Max memory capacity per socket | UPI speed | TDP | HT | TB | VT-x | VT-d | SST-PP | FMA units | DCPMM | RAS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Intel Xeon Bronze processors** | | | | | | | | | | | | | | | |
| 3204 | 6 / 6 | 1.9 / 1.9 GHz | 8.25 MB | 2133 MHz | 1 TB | 9.6 GT/s | 85 W | N | N | Y | Y | N | 1 | N | Std |
| 3206R | 8 / 8 | 1.9 / 1.9 GHz | 11 MB | 2133 MHz | 1 TB | 9.6 GT/s | 85 W | N | N | Y | Y | N | 1 | N | Std |
| **Intel Xeon Silver processors** | | | | | | | | | | | | | | | |
| 4208 | 8 / 16 | 2.1 / 3.2 GHz | 11 MB | 2400 MHz | 1 TB | 9.6 GT/s | 85 W | Y | Y | Y | Y | N | 1 | N | Std |
| 4209T | 8 / 16 | 2.2 / 3.2 GHz | 11 MB | 2400 MHz | 1 TB | 9.6 GT/s | 70 W | Y | Y | Y | Y | N | 1 | N | Std |
| 4210 | 10 / 20 | 2.2 / 3.2 GHz | 13.75 MB | 2400 MHz | 1 TB | 9.6 GT/s | 85 W | Y | Y | Y | Y | N | 1 | N | Std |
| 4210R | 10 / 20 | 2.4 / 3.2 GHz | 13.75 MB | 2400 MHz | 1 TB | 9.6 GT/s | 100 W | Y | Y | Y | Y | N | 1 | N | Std |
| 4210T | 10 / 20 | 2.3 / 3.2 GHz | 13.75 MB | 2400 MHz | 1 TB | 9.6 GT/s | 95 W | Y | Y | Y | Y | N | 1 | N | Std |
| 4214 | 12 / 24 | 2.2 / 3.2 GHz | 16.5 MB | 2400 MHz | 1 TB | 9.6 GT/s | 85 W | Y | Y | Y | Y | N | 1 | N | Std |
| 4214R | 12 / 24 | 2.4 / 3.5 GHz | 16.5 MB | 2400 MHz | 1 TB | 9.6 GT/s | 100 W | Y | Y | Y | Y | N | 1 | N | Std |
| 4214Y | 12 / 24 | 2.2 / 3.2 GHz | 16.5 MB | 2400 MHz | 1 TB | 9.6 GT/s | 85 W | Y | Y | Y | Y | Y | 1 | N | Std |
| | 10 / 20 | 2.3 / 3.2 GHz | | | | | | | | | | | | | |
| | 8 / 16 | 2.4 / 3.2 GHz | | | | | | | | | | | | | |
| 4215 | 8 / 16 | 2.5 / 3.5 GHz | 11 MB | 2400 MHz | 1 TB | 9.6 GT/s | 85 W | Y | Y | Y | Y | N | 1 | Y | Std |
| 4215R | 8 / 16 | 3.2 / 4.0 GHz | 11 MB | 2400 MHz | 1 TB | 9.6 GT/s | 130 W | Y | Y | Y | Y | N | 1 | Y | Std |
| 4216 | 16 / 32 | 2.1 / 3.2 GHz | 22 MB | 2400 MHz | 1 TB | 9.6 GT/s | 100 W | Y | Y | Y | Y | N | 1 | N | Std |
| **Intel Xeon Gold processors** | | | | | | | | | | | | | | | |
| 5215 | 10 / 20 | 2.5 / 3.4 GHz | 13.75 MB | 2666 MHz | 1 TB | 10.4 GT/s | 85 W | Y | Y | Y | Y | N | 1 | Y | Adv |
| 5215L | 10 / 20 | 2.5 / 3.4 GHz | 13.75 MB | 2666 MHz | 4.5 TB | 10.4 GT/s | 85 W | Y | Y | Y | Y | N | 1 | Y | Adv |
| 5217 | 8 / 16 | 3.0 / 3.7 GHz | 11 MB | 2666 MHz | 1 TB | 10.4 GT/s | 115 W | Y | Y | Y | Y | N | 1 | Y | Adv |
| 5218 | 16 / 32 | 2.3 / 3.9 GHz | 22 MB | 2666 MHz | 1 TB | 10.4 GT/s | 125 W | Y | Y | Y | Y | N | 1 | Y | Adv |
| 5218B | 16 / 32 | 2.3 / 3.9 GHz | 22 MB | 2666 MHz | 1 TB | 10.4 GT/s | 125 W | Y | Y | Y | Y | N | 1 | Y | Adv |
| 5218R | 20 / 40 | 2.1 / 4.0 GHz | 27.5 MB | 2666 MHz | 1 TB | 10.4 GT/s | 125 W | Y | Y | Y | Y | N | 1 | Y | Adv |
| 5218N | 16 / 32 | 2.3 / 3.7 GHz | 22 MB | 2666 MHz | 1 TB | 10.4 GT/s | 110 W | Y | Y | Y | Y | N | 1 | Y | Adv |
| 5218T | 16 / 32 | 2.1 / 3.8 GHz | 22 MB | 2666 MHz | 1 TB | 10.4 GT/s | 105 W | Y | Y | Y | Y | N | 1 | Y | Adv |

| CPU model | Cores / threads | Core speed (Base / TB Max) | Cache | Max DDR4 speed | Max memory capacity per socket | UPI speed | TDP | HT | TB | VT-x | VT-d | SST-PP | FMA units | DCPMM | RAS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5220 | 18 / 36 | 2.2 / 3.9 GHz | 24.75 MB | 2666 MHz | 1 TB | 10.4 GT/s | 125 W | Y | Y | Y | Y | N | 1 | Y | Adv |
| 5220R | 24 / 48 | 2.2 / 4.0 GHz | 35.75 MB | 2666 MHz | 1 TB | 10.4 GT/s | 150 W | Y | Y | Y | Y | N | 1 | Y | Adv |
| 5220S | 18 / 36 | 2.7 / 3.9 GHz | 24.75 MB | 2666 MHz | 1 TB | 10.4 GT/s | 125 W | Y | Y | Y | Y | N | 1 | Y | Adv |
| 5220T | 18 / 36 | 1.9 / 3.9 GHz | 24.75 MB | 2666 MHz | 1 TB | 10.4 GT/s | 105 W | Y | Y | Y | Y | N | 1 | Y | Adv |
| 5222 | 4 / 8 | 3.8 / 3.9 GHz | 16.5 MB | 2933 MHz | 1 TB | 10.4 GT/s | 105 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6208U | 16 / 32 | 2.9 / 3.9 GHz | 22 MB | 2933 MHz | 1 TB | No UPI | 150 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6222V | 20 / 40 | 1.8 / 3.6 GHz | 27.5 MB | 2400 MHz | 1 TB | 10.4 GT/s | 115 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6226 | 12 / 24 | 2.7 / 3.7 GHz | 19.25 MB | 2933 MHz | 1 TB | 10.4 GT/s | 125 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6226R | 16 / 32 | 2.9 / 3.9 GHz | 22 MB | 2933 MHz | 1 TB | 10.4 GT/s | 150 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6230 | 20 / 40 | 2.1 / 3.9 GHz | 27.5 MB | 2933 MHz | 1 TB | 10.4 GT/s | 125 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6230N | 20 / 40 | 2.3 / 3.9 GHz | 27.5 MB | 2933 MHz | 1 TB | 10.4 GT/s | 125 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6230R | 26 / 52 | 2.1 / 4.0 GHz | 35.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 150 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6230T | 20 / 40 | 2.1 / 3.9 GHz | 27.5 MB | 2933 MHz | 1 TB | 10.4 GT/s | 125 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6234 | 8 / 16 | 3.3 / 4.0 GHz | 24.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 130 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6238 | 22 / 44 | 2.1 / 3.7 GHz | 30.25 MB | 2933 MHz | 1 TB | 10.4 GT/s | 140 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6238L | 22 / 44 | 2.1 / 3.7 GHz | 30.25 MB | 2933 MHz | 4.5 TB | 10.4 GT/s | 140 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6238R | 28 / 56 | 2.2 / 4.0 GHz | 38.5 MB | 2933 MHz | 1 TB | 10.4 GT/s | 165 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6238T | 22 / 44 | 1.9 / 3.7 GHz | 30.25 MB | 2933 MHz | 1 TB | 10.4 GT/s | 125 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6240 | 18 / 36 | 2.6 / 3.9 GHz | 24.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 150 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6240L | 18 / 36 | 2.6 / 3.9 GHz | 24.75 MB | 2933 MHz | 4.5 TB | 10.4 GT/s | 150 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6240R | 24 / 48 | 2.4 / 4.0 GHz | 35.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 165 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6240Y | 18 / 36 | 2.6 / 3.9 GHz | 24.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 150 W | Y | Y | Y | Y | Y | 2 | Y | Adv |
| | 14 / 28 | 2.8 / 3.9 GHz | | | | | | | | | | | | | |
| | 8 / 16 | 3.1 / 3.9 GHz | | | | | | | | | | | | | |
| 6242 | 16 / 32 | 2.8 / 3.9 GHz | 22 MB | 2933 MHz | 1 TB | 10.4 GT/s | 150 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6242R | 20 / 40 | 3.1 / 4.1 GHz | 35.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 205 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6244 | 8 / 16 | 3.6 / 4.4 GHz | 24.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 150 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6246 | 12 / 24 | 3.3 / 4.2 GHz | 24.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 165 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6246R | 16 / 32 | 3.4 / 4.1 GHz | 35.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 205 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6248 | 20 / 40 | 2.5 / 3.9 GHz | 27.5 MB | 2933 MHz | 1 TB | 10.4 GT/s | 150 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6248R | 24 / 48 | 3.0 / 4.0 GHz | 35.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 205 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6250 | 8 / 16 | 3.9 / 4.5 GHz | 35.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 185 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6252 | 24 / 48 | 2.1 / 3.7 GHz | 35.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 150 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6252N | 24 / 48 | 2.3 / 3.6 GHz | 35.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 150 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6254 | 18 / 36 | 3.1 / 4.0 GHz | 24.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 200 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6256 | 12 / 24 | 3.6 / 4.5 GHz | 33 MB | 2933 MHz | 1 TB | 10.4 GT/s | 205 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6258R | 28 / 56 | 2.7 / 4.0 GHz | 38.5 MB | 2933 MHz | 1 TB | 10.4 GT/s | 205 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 6262V | 24 / 48 | 1.9 / 3.6 GHz | 33 MB | 2400 MHz | 1 TB | 10.4 GT/s | 135 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| **Intel Xeon Platinum processors** | | | | | | | | | | | | | | | |
| 8253 | 16 / 32 | 2.2 / 3.0 GHz | 22 MB | 2933 MHz | 1 TB | 10.4 GT/s | 125 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 8256 | 4 / 8 | 3.8 / 3.9 GHz | 16.5 MB | 2933 MHz | 1 TB | 10.4 GT/s | 105 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 8260 | 24 / 48 | 2.4 / 3.9 GHz | 35.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 165 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 8260L | 24 / 48 | 2.4 / 3.9 GHz | 35.75 MB | 2933 MHz | 4.5 TB | 10.4 GT/s | 165 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 8260Y | 24 / 48 | 2.4 / 3.9 GHz | 35.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 165 W | Y | Y | Y | Y | Y | 2 | Y | Adv |
| | 20 / 40 | 2.5 / 3.9 GHz | | | | | | | | | | | | | |
| | 16 / 32 | 2.7 / 3.9 GHz | | | | | | | | | | | | | |
| 8268 | 24 / 48 | 2.9 / 3.9 GHz | 35.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 205 W | Y | Y | Y | Y | N | 2 | Y | Adv |

| CPU model | Cores / threads | Core speed (Base / TB Max) | Cache | Max DDR4 speed | Max memory capacity per socket | UPI speed | TDP | HT | TB | VT-x | VT-d | SST-PP | FMA units | DCPMM | RAS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8270 | 26 / 52 | 2.7 / 4.0 GHz | 35.75 MB | 2933 MHz | 1 TB | 10.4 GT/s | 205 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 8276 | 28 / 56 | 2.2 / 4.0 GHz | 38.5 MB | 2933 MHz | 1 TB | 10.4 GT/s | 165 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 8276L | 28 / 56 | 2.2 / 4.0 GHz | 38.5 MB | 2933 MHz | 4.5 TB | 10.4 GT/s | 165 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 8280 | 28 / 56 | 2.7 / 4.0 GHz | 38.5 MB | 2933 MHz | 1 TB | 10.4 GT/s | 205 W | Y | Y | Y | Y | N | 2 | Y | Adv |
| 8280L | 28 / 56 | 2.7 / 4.0 GHz | 38.5 MB | 2933 MHz | 4.5 TB | 10.4 GT/s | 205 W | Y | Y | Y | Y | N | 2 | Y | Adv |

**Configuration notes:**

- The Intel Xeon Gold 5218 and 5218B processors have similar specifications; however, they use different silicon designs and cannot be mixed in the same system.
- Processors with a U suffix are only supported in single-processor configurations. This limits the PCIe slots that can be used.
- The processors that support SST-PP offer three distinct operating points that are defined by a core count with a base speed associated with that core count. The operating point is static, it is selected during the boot process and cannot be changed at runtime.

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 and a heatsink; an additional system fan is not included and needs to be purchased with the second processor (see Cooling for details).

Table 14. Processor options

| Part number | Feature code* | Description |
|---|---|---|
| Intel Xeon Bronze processors | | |
| 4XG7A37938 | B4HU | SR550/SR590/SR650 Intel Xeon Bronze 3204 6C 85W 1.9GHz Processor w/o FAN |
| 4XG7A37983 | B7N3 | SR550/SR590/SR650 Intel Xeon Bronze 3206R 8C 85W 1.9GHz Processor w/o FAN |
| Intel Xeon Silver processors | | |
| 4XG7A37935 | B4HT | SR550/SR590/SR650 Intel Xeon Silver 4208 8C 85W 2.1GHz Processor w/o FAN |
| 4XG7A37944 | B4P4 | SR550/SR590/SR650 Intel Xeon Silver 4209T 8C 70W 2.2GHz Processor w/o FAN |
| 4XG7A37932 | B4HS | SR550/SR590/SR650 Intel Xeon Silver 4210 10C 85W 2.2GHz Processor w/o FAN |
| 4XG7A37981 | B7N5 | SR550/SR590/SR650 Intel Xeon Silver 4210R 10C 100W 2.4GHz Processor w/o FAN |
| 4XG7A63276 | BAZT | SR650 Intel Xeon Silver 4210T 10C 95W 2.3GHz Processor w/o FAN |
| 4XG7A37929 | B4HR | SR550/SR590/SR650 Intel Xeon Silver 4214 12C 85W 2.2GHz Processor w/o FAN |
| 4XG7A37980 | B7N6 | SR550/SR590/SR650 Intel Xeon Silver 4214R 12C 100W 2.4GHz Processor w/o FAN |
| 4XG7A37941 | B4NW | SR550/SR590/SR650 Intel Xeon Silver 4214Y 12/10/8C 85W 2.2GHz Processor w/o FAN |
| 4XG7A37926 | B4HQ | SR550/SR590/SR650 Intel Xeon Silver 4215 8C 85W 2.5GHz Processor w/o FAN |
| 4XG7A63274 | BAZU | SR590/SR650 Intel Xeon Silver 4215R 8C 130W 3.2GHz Processor w/o FAN |
| 4XG7A37923 | B4HP | SR550/SR590/SR650 Intel Xeon Silver 4216 16C 100W 2.1GHz Processor w/o FAN |
| Intel Xeon Gold processors | | |
| 4XG7A37916 | B4HN | SR550/SR590/SR650 Intel Xeon Gold 5215 10C 85W 2.5GHz Processor w/o FAN |
| 4XG7A37910 | B4P9 | SR550/SR590/SR650 Intel Xeon Gold 5215L 10C 85W 2.5GHz Processor w/o FAN |
| 4XG7A37919 | B4HM | SR550/SR590/SR650 Intel Xeon Gold 5217 8C 115W 3.0GHz Processor w/o FAN |
| 4XG7A37895 | B4HL | SR550/SR590/SR650 Intel Xeon Gold 5218 16C 125W 2.3GHz Processor w/o FAN |
| 4XG7A37958 | B6BS | SR550/SR590/SR650 Intel Xeon Gold 5218B 16C 125W 2.3GHz Processor w/o FAN |
| 4XG7A63272 | BAZS | SR550/SR590/SR650 Intel Xeon Gold 5218R 20C 125W 2.1GHz Processor w/o FAN |
| 4XG7A37955 | B5S0 | SR650 Intel Xeon Gold 5218N 16C 110W 2.3GHz Processor Option Kit w/o FAN |

| Part number | Feature code* | Description |
|---|---|---|
| 4XG7A38016 | B4P3 | SR550/SR590/SR650 Intel Xeon Gold 5218T 16C 105W 2.1GHz Processor w/o FAN |
| 4XG7A37892 | B4HK | SR550/SR590/SR650 Intel Xeon Gold 5220 18C 125W 2.2GHz Processor w/o FAN |
| 4XG7A37974 | B7N9 | SR590/SR650 Intel Xeon Gold 5220R 24C 150W 2.2GHz Processor w/o FAN |
| 4XG7A38019 | B6CW | SR550/SR590/SR650 Intel Xeon Gold 5220S 18C 125W 2.7GHz Processor w/o FAN |
| 4XG7A38005 | B6CQ | SR550/SR590/SR650 Intel Xeon Gold 5220T 18C 105W 1.9GHz Processor w/o FAN |
| 4XG7A37951 | B5S1 | SR550/SR590/SR650 Intel Xeon Gold 5222 4C 105W 3.8GHz Processor w/o FAN |
| None** | BAZV | Intel Xeon Gold 6208U 16C 150W 2.9GHz Processor |
| 4XG7A38023 | B6CV | SR550/SR590/SR650 Intel Xeon Gold 6222V 20C 115W 1.8GHz Processor w/o FAN |
| 4XG7A38021 | B6CL | SR550/SR590/SR650 Intel Xeon Gold 6226 12C 125W 2.7GHz Processor w/o FAN |
| 4XG7A38082 | BAZW | SR590/SR650 Intel Xeon Gold 6226R 16C 150W 2.9GHz Processor w/o FAN |
| 4XG7A37889 | B4HJ | SR550/SR590/SR650 Intel Xeon Gold 6230 20C 125W 2.1GHz Processor w/o FAN |
| 4XG7A38028 | B5RY | SR550/SR590/SR650 Intel Xeon Gold 6230N 20C 125W 2.3GHz Processor w/o FAN |
| 4XG7A38081 | BAZX | SR590/SR650 Intel Xeon Gold 6230R 26C 150W 2.1GHz Processor w/o FAN |
| 4XG7A38006 | B6CP | SR550/SR590/SR650 Intel Xeon Gold 6230T 20C 125W 2.1GHz Processor w/o FAN |
| 4XG7A38001 | B6CK | SR590/SR650 Intel Xeon Gold 6234 8C 130W 3.3GHz Processor w/o FAN |
| 4XG7A38008 | B6CJ | SR590/SR650 Intel Xeon Gold 6238 22C 140W 2.1GHz Processor w/o FAN |
| 4XG7A38003 | B6CR | SR590/SR650 Intel Xeon Gold 6238L 22C 140W 2.1GHz Processor w/o FAN |
| 4XG7A38080 | BAZL | SR650 Intel Xeon Gold 6238R 28C 165W 2.2GHz Processor w/o FAN |
| 4XG7A37906 | B4P2 | SR550/SR590/SR650 Intel Xeon Gold 6238T 22C 125W 1.9GHz Processor w/o FAN |
| 4XG7A15895 | B4HH | SR650 Intel Xeon Gold 6240 18C 150W 2.6GHz Processor w/o FAN |
| 4XG7A38015 | B6CS | SR590/SR650 Intel Xeon Gold 6240L 18C 150W 2.6GHz Processor w/o FAN |
| 4XG7A38079 | BAZM | SR650 Intel Xeon Gold 6240R 24C 165W 2.4GHz Processor w/o FAN |
| 4XG7A37903 | B4NV | SR590/SR650 Intel Xeon Gold 6240Y 18/14/8C 150W 2.6GHz Processor w/o FAN |
| 4XG7A37886 | B4HG | SR590/SR650 Intel Xeon Gold 6242 16C 150W 2.8GHz Processor w/o FAN |
| 4XG7A38078 | BAZN | SR650 Intel Xeon Gold 6242R 20C 205W 3.1GHz Processor w/o FAN |
| 4XG7A15874 | B4HF | SR590/SR650 Intel Xeon Gold 6244 8C 150W 3.6GHz Processor w/o FAN |
| 4XG7A37963 | B6PD | SR650 Intel Xeon Gold 6246 12C 165W 3.3GHz Processor Option Kit w/o FAN |
| 4XG7A38077 | BAZP | SR650 Intel Xeon Gold 6246R 16C 205W 3.4GHz Processor w/o FAN |
| 4XG7A15892 | B4HE | SR650 Intel Xeon Gold 6248 20C 150W 2.5GHz Processor w/o FAN |
| 4XG7A38076 | BAZQ | SR650 Intel Xeon Gold 6248R 24C 205W 3.0GHz Processor w/o FAN |
| 4XG7A38075 | B96C | SR650 Intel Xeon Gold 6250 8C 185W 3.9GHz Processor w/o FAN |
| 4XG7A15889 | B4HC | SR650 Intel Xeon Gold 6252 24C 150W 2.1GHz Processor w/o FAN |
| 4XG7A38011 | B6CT | SR590/SR650 Intel Xeon Gold 6252N 24C 150W 2.3GHz Processor w/o FAN |
| 4XG7A15872 | B4HD | SR650 Intel Xeon Gold 6254 18C 200W 3.1GHz Processor w/o FAN |
| 4XG7A38074 | B96D | SR650 Intel Xeon Gold 6256 12C 205W 3.6GHz Processor w/o FAN |
| 4XG7A38073 | BAZR | SR650 Intel Xeon Gold 6258R 28C 205W 2.7GHz Processor w/o FAN |
| 4XG7A38010 | B6CU | SR590/SR650 Intel Xeon Gold 6262V 24C 135W 1.9GHz Processor w/o FAN |
| Intel Xeon Platinum processors | | |
| 4XG7A37898 | B5RZ | SR550/SR590/SR650 Intel Xeon Platinum 8253 16C 125W 2.2GHz Processor w/o FAN |
| 4XG7A37947 | B5S2 | SR550/SR590/SR650 Intel Xeon Platinum 8256 4C 105W 3.8GHz Processor w/o FAN |
| 4XG7A15887 | B4HB | SR650 Intel Xeon Platinum 8260 24C 165W 2.4GHz Processor w/o FAN |
| 4XG7A15883 | B4P7 | SR650 Intel Xeon Platinum 8260L 24C 165W 2.4GHz Processor w/o FAN |
| 4XG7A37901 | B4NU | SR650 Intel Xeon Platinum 8260Y 24/20/16C 165W 2.4GHz Processor w/o FAN |
| 4XG7A15870 | B4HA | SR650 Intel Xeon Platinum 8268 24C 205W 2.9GHz Processor w/o FAN |

| Part number | Feature code* | Description |
|---|---|---|
| 4XG7A15868 | B4H9 | SR650 Intel Xeon Platinum 8270 26C 205W 2.7GHz Processor w/o FAN |
| 4XG7A15881 | B4H8 | SR650 Intel Xeon Platinum 8276 28C 165W 2.2GHz Processor w/o FAN |
| 4XG7A15877 | B4P6 | SR650 Intel Xeon Platinum 8276L 28C 165W 2.2GHz Processor w/o FAN |
| 4XG7A15866 | B4H7 | SR650 Intel Xeon Platinum 8280 28C 205W 2.7GHz Processor w/o FAN |
| 4XG7A15862 | B4P5 | SR650 Intel Xeon Platinum 8280L 28C 205W 2.7GHz Processor w/o FAN |

* For CTO configurations, the feature code represents a processor, and fans and heatsinks are derived by the configuration tool.
** Factory-installed only; no field upgrade. Supported in the single-processor configurations only.

**Configuration notes:**

- Processors with 200 W or 205 W TDP, or Gold 6230N, 6240Y, 6244, or 6250 processors are supported in the following hardware configurations and ambient temperature requirements:
  - 24x 2.5” chassis.
  - Ambient temperature and drive bay configurations:
    - Up to 35 °C (95 °F): 8x 2.5” SAS/SATA drive bays (drive backplane in the middle).
    - Up to 30 °C (86 °F):
      - 4x 2.5" SAS/SATA and 4x 2.5" AnyBay (up to 4 NVMe SSDs).
      - 8x 2.5" SAS/SATA and 8x 2.5" AnyBay (up to 8 NVMe SSDs).

    **Note:** Gold 6242R, 6246R, 6248R, 6250, 6256, and 6258R processors are supported only at the ambient temperature of up to 30 °C (86 °F) and only with 8x 2.5” SAS/SATA drive bays (drive backplane in the middle).
  - No rear HDD kit installed.
  - No PCIe flash adapters installed.
  - No GPU adapters installed, or up to four T4 GPU adapters installed.
  - The server performance might be impacted in case of a system fan failure.
- Gold 6230T, 6246, or 6252N processors are supported in the following hardware configurations:
  - 8x 3.5" SAS/SATA drive bays.
  - 8x 2.5" SAS/SATA drive bays.
  - 4x 2.5" SAS/SATA and 4x 2.5" AnyBay drive bays.

### Continued support for 1st Gen Intel Xeon Scalable processors

The SR650 also continues to support the 1st Gen Intel Xeon Scalable processors (formerly codenamed "Skylake") listed in the following table.

Table 15. Long-life 1st Gen Intel Xeon Scalable processors

| Part number | Feature code | Description |
|---|---|---|
| 7XG7A05570 | AWEH | ThinkSystem SR650 Intel Xeon Bronze 3106 8C 85W 1.7GHz Processor Option Kit |
| 7XG7A05574 | AWET | ThinkSystem SR650 Intel Xeon Silver 4109T 8C 70W 2.0GHz Processor Option Kit |
| 7XG7A05575 | AWEE | ThinkSystem SR650 Intel Xeon Silver 4110 8C 85W 2.1GHz Processor Option Kit |
| 7XG7A05579 | AWES | ThinkSystem SR650 Intel Xeon Silver 4114T 10C 85W 2.2GHz Processor Option Kit |
| 7XG7A05576 | AWER | ThinkSystem SR650 Intel Xeon Silver 4116 12C 85W 2.1GHz Processor Option Kit |
| 7XG7A05573 | AWEA | ThinkSystem SR650 Intel Xeon Silver 4116T 12C 85W 2.1GHz Processor Option Kit |
| 7XG7A05596 | No CTO* | ThinkSystem SR650 Intel Xeon Gold 5115 10C 85W 2.4GHz Processor Option Kit |
| 7XG7A05580 | AWEP | ThinkSystem SR650 Intel Xeon Gold 5118 12C 105W 2.3GHz Processor Option Kit |
| 7XG7A05581 | AWEQ | ThinkSystem SR650 Intel Xeon Gold 5119T 14C 85W 1.9GHz Processor Option Kit |
| 7XG7A05582 | AWE8 | ThinkSystem SR650 Intel Xeon Gold 5120T 14C 105W 2.2GHz Processor Option Kit |
| 7XG7A05590 | AWEL | ThinkSystem SR650 Intel Xeon Gold 6126 12C 125W 2.6GHz Processor Option Kit |
| 7XG7A05589 | AWE5 | ThinkSystem SR650 Intel Xeon Gold 6126T 12C 125W 2.6GHz Processor Option Kit |
| 7XG7A05587 | AWEN | ThinkSystem SR650 Intel Xeon Gold 6130 16C 125W 2.1GHz Processor Option Kit |

| Part number | Feature code | Description |
|---|---|---|
| 7XG7A05586 | AWE4 | ThinkSystem SR650 Intel Xeon Gold 6130T 16C 125W 2.1GHz Processor Option Kit |
| 7XG7A05605 | No CTO* | ThinkSystem SR650 Intel Xeon Gold 6134 8C 130W 3.2GHz Processor Option Kit |
| 7XG7A05585 | AWDZ | ThinkSystem SR650 Intel Xeon Gold 6138 20C 125W 2.0GHz Processor Option Kit |
| 7XG7A05584 | AWEM | ThinkSystem SR650 Intel Xeon Gold 6138T 20C 125W 2.0GHz Processor Option Kit |
| 7XG7A05603 | No CTO* | ThinkSystem SR650 Intel Xeon Gold 6140 18C 140W 2.3GHz Processor Option Kit |
| 7XG7A05601 | No CTO* | ThinkSystem SR650 Intel Xeon Gold 6142 16C 150W 2.6GHz Processor Option Kit |
| 7XG7A05600 | No CTO* | ThinkSystem SR650 Intel Xeon Gold 6144 8C 150W 3.5GHz Processor Option Kit |
| 7XG7A05599 | No CTO* | ThinkSystem SR650 Intel Xeon Gold 6146 12C 165W 3.2GHz Processor Option Kit |
| 7XG7A05598 | No CTO* | ThinkSystem SR650 Intel Xeon Gold 6148 20C 150W 2.4GHz Processor Option Kit |
| 7XG7A05597 | No CTO* | ThinkSystem SR650 Intel Xeon Gold 6150 18C 165W 2.7GHz Processor Option Kit |
| 7XG7A05593 | No CTO* | ThinkSystem SR650 Intel Xeon Platinum 8153 16C 125W 2.0GHz Processor Option Kit |
| 7XG7A05592 | No CTO* | ThinkSystem SR650 Intel Xeon Platinum 8156 4C 105W 3.6GHz Processor Option Kit |
| 7XG7A05617 | No CTO* | ThinkSystem SR650 Intel Xeon Platinum 8158 12C 150W 3.0GHz Processor Option Kit |
| 7XG7A05616 | No CTO* | ThinkSystem SR650 Intel Xeon Platinum 8160 24C 150W 2.1GHz Processor Option Kit |
| 7XG7A05614 | AWEK | ThinkSystem SR650 Intel Xeon Platinum 8160T 24C 150W 2.1GHz Processor Option Kit |
| 7XG7A05610 | No CTO* | ThinkSystem SR650 Intel Xeon Platinum 8176 28C 165W 2.1GHz Processor Option Kit |
| 7XG7A05607 | No CTO* | ThinkSystem SR650 Intel Xeon Platinum 8180M 28C 205W 2.5GHz Processor Option Kit |

* Only available as a field upgrade for existing customers. Not available in CTO (configure to order) configurations.

For specifications of these processors, see the Intel Xeon Scalable Processor Reference for Lenovo ThinkSystem Servers:
https://lenovopress.com/lp1262-intel-xeon-sp-processor-reference#term=SKL

## Memory

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

With 2nd Gen Xeon SP processors, the server supports memory up to 2933 MHz. With 1st Gen Xeon SP processors, the server supports memory up to 2666 MHz.

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 maximum memory capacities are supported by the server with 1st Gen Xeon SP processors (up to 2666 MHz):

- RDIMMs: 1.5 TB (768 GB per processor)
- 3DS RDIMMs: 3 TB (1.5 TB per processor)

The following maximum memory capacities supported by the server with 2nd Gen Xeon SP processors (up to 2933 MHz):

- RDIMMs: 768 GB (384 GB per processor)
- LRDIMMs: 1.5 TB (768 GB per processor)
- 3DS RDIMMs: 3 TB (1.5 GB per processor)

The following memory protection technologies are supported by the processor's integrated memory controllers:

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

The following table lists memory options are supported by the server. The table also indicates which processor generation is supported for each memory option.

Table 16. Memory options

| Part number | Feature code | Description | Maximum quantity* | Gen 1 CPU | Gen 2 CPU |
|---|---|---|---|---|---|
| **RDIMMs - 2933 MHz Performance+** | | | | | |
| 4X77A12184 | B5N6 | ThinkSystem 16GB TruDDR4 Performance+ 2933MHz (2Rx8 1.2V) RDIMM | 12 / 24 | No | Yes |
| 4X77A12185 | B5N7 | ThinkSystem 32GB TruDDR4 Performance+ 2933MHz (2Rx4 1.2V) RDIMM | 12 / 24 | No | Yes |
| 4X77A12186 | B5N8 | ThinkSystem 64GB TruDDR4 Performance+ 2933MHz (2Rx4 1.2V) RDIMM | 12 / 24 | No | Yes |
| **RDIMMs - 2933 MHz** | | | | | |
| 4ZC7A08706 | B4H1 | ThinkSystem 8GB TruDDR4 2933MHz (1Rx8 1.2V) RDIMM | 12 / 24 | No | Yes |
| 4ZC7A08707 | B4LY | ThinkSystem 16GB TruDDR4 2933MHz (1Rx4 1.2V) RDIMM | 12 / 24 | No | Yes |
| 4ZC7A08708 | B4H2 | ThinkSystem 16GB TruDDR4 2933MHz (2Rx8 1.2V) RDIMM | 12 / 24 | No | Yes |
| 4ZC7A08709 | B4H3 | ThinkSystem 32GB TruDDR4 2933MHz (2Rx4 1.2V) RDIMM | 12 / 24 | No | Yes |
| 4ZC7A08710 | B4H4 | ThinkSystem 64GB TruDDR4 2933MHz (2Rx4 1.2V) RDIMM | 12 / 24 | No | Yes |
| **3DS RDIMMs - 2933 MHz Performance+** | | | | | |
| 4X77A12187 | B5N9 | ThinkSystem 128GB TruDDR4 Performance+ 2933MHz (4Rx4 1.2V) 3DS RDIMM | 12 / 24 | No | Yes |
| **3DS RDIMMs - 2933 MHz** | | | | | |
| 4ZC7A15113 | B587 | ThinkSystem 128GB TruDDR4 2933MHz (4Rx4 1.2V) 3DS RDIMM | 12 / 24 | No | Yes |
| **RDIMMs - 2666 MHz** | | | | | |
| 7X77A01301 | AUU1 | ThinkSystem 8GB TruDDR4 2666 MHz (1Rx8 1.2V) RDIMM | 12 / 24 | Yes | No |
| 7X77A01302 | AUNB | ThinkSystem 16GB TruDDR4 2666 MHz (1Rx4 1.2V) RDIMM | 12 / 24 | Yes | Yes |
| 7X77A01303 | AUNC | ThinkSystem 16GB TruDDR4 2666 MHz (2Rx8 1.2V) RDIMM | 12 / 24 | Yes | Yes |
| 7X77A01304 | AUND | ThinkSystem 32GB TruDDR4 2666 MHz (2Rx4 1.2V) RDIMM | 12 / 24 | Yes | Yes |
| **LRDIMMs - 2666 MHz** | | | | | |
| 7X77A01305 | AUNE | ThinkSystem 64GB TruDDR4 2666 MHz (4Rx4 1.2V) LRDIMM | 12 / 24 | Yes | No |
| **3DS RDIMMs - 2666 MHz** | | | | | |
| 4ZC7A08716 | AUW5 | ThinkSystem 64GB TruDDR4 2666MHz (4Rx4, 1.2V) 3DS RDIMM | 12 / 24 | No | Yes |
| 7X77A01307 | AUNF | ThinkSystem 128GB TruDDR4 2666 MHz (8Rx4 1.2V) 3DS RDIMM | 12 / 24 | Yes | No |

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

**Configuration notes:**

- All DIMMs in the server operate at the same speed, which is determined as the lowest value of:
    - DIMM rated speed (2666 MHz or 2933 MHz).
    - Memory speed supported by the specific processor (2133 MHz, 2400 MHz, 2666 MHz, or 2933 MHz).
    - Memory speed for the selected quantity of DIMMs per channel:
        - One DIMM per channel (1 DPC): 2933 MHz.
        - Two DIMMs per channel (2 DPC)
            - Performance+ DIMMs: 2933 MHz.
            - Other supported DIMMs: 2666 MHz.

  **Note:** Maximum memory speed can be achieved when Max performance mode is enabled in UEFI.
- Mixing different types of memory (RDIMMs and 3DS RDIMMs) is not supported.
- All Performance+ DIMMs in the server must be of the same type, rank, and capacity (the same part number or feature code) to operate at 2933 MHz in the configurations with two DIMMs per channel. Performance+ DIMMs cannot be mixed with other DIMMs.
- Mixing RDIMMs of different ranks (single- or dual-rank), DRAM chip types (x4 or x8), speeds (2666 MHz or 2933 MHz), and capacities (8 GB, 16 GB, 32 GB, or 64 GB) is supported in the independent channel mode (the default operational mode) (excluding Performance+ RDIMMs).
- Mixing 3DS RDIMMs of different speeds (2666 MHz or 2933 MHz) and capacities (64 GB or 128 GB) is supported in the independent channel mode (excluding Performance+ 3DS RDIMMs).
- The 128 GB Performance+ 2933 MHz 3DS RDIMMs (feature code B5N9) running at 2933 MHz with two DIMMs per channel are supported at the ambient temperature of up to 30 °C (86 °F).
- The maximum quantity of DIMMs supported is reduced by the quantity of DC Persistent Memory Modules used in the configuration.
- Server configurations with more than 1 TB of memory capacity per socket (including DCPMMs and RDIMMs or 3DS RDIMMs) require processors that support up to 4.5 TB (L-suffix) per socket.
- For server configurations with memory protection, the following rules apply:
    - Single Device Data Correction (SDDC) works only in the independent channel mode and supports only x4-based memory DIMMs.
    - Adaptive Double Device Data Correction (ADDDC) works with x4-based memory DIMMs and requires two DIMM ranks per channel, Intel Xeon Gold or Platinum processors, and the Closed Page memory access mode.
    - If memory mirroring is used, then DIMMs must be installed in quantities of 2, 4, or 8 per processor for mirroring across two memory channels, or in quantities of 3, 6, 9, or 12 per processor for mirroring across three memory channels. Mixing two- and three-channel mirroring in the server is allowed (one processor uses two-channel mirroring, and another processor uses three-channel mirroring). All DIMMs in the server must be identical in type and size.
    - If memory rank sparing is used, then a minimum of two ranks must be installed per populated channel (a least one dual-rank or quad-rank DIMM, or two single-rank DIMMs). In rank sparing mode, one rank in each populated channel is reserved as spare memory for other ranks on the same channel. All DIMMs in the server must be identical in type and size.
    - SDDC, memory mirroring, and memory rank sparing modes are mutually exclusive. Only one operational memory mode can be enabled on the server.
    - In the configurations with DCPMMs, memory mirroring is supported only in the App Direct mode (other DCPMM modes do not support memory mirroring) and applies only to the RDIMMs or 3DS RDIMMs (DCPMMs are not mirrored). Memory sparing is not supported in the configurations with DCPMMs.

## Persistent memory

Intel Optane DC persistent memory is an innovative technology that delivers a unique combination of affordable large memory capacity and persistence (non-volatility). The persistent memory technology can help boost the performance of data-intensive applications, such as in-memory analytics, databases, content delivery networks, and high performance computing (HPC), as well as deliver consistent service levels at scale with higher virtual machine and container density.

The SR650 server supports up to six TruDDR4 DC Persistent Memory Modules (DCPMMs) when one processor is installed and up to 12 DCPMMs when two processors are installed (up to one DCPMM per processor's memory channel) for a total of up to 6 TB of persistent memory capacity. The DCPMMs are installed in the same memory DIMM slots on the system board that are used for installing RDIMMs or 3DS RDIMMs.

**2nd Gen processors only**: Persistent Memory is only supported with 2nd Generation Intel Xeon SP processors. Not supported with 1st Generation processors.

The DCPMMs support the following modes of operation:

- Memory Mode
  Memory Mode seamlessly brings large memory capacity at affordable cost points to legacy applications. In this mode, DCPMMs provide volatile memory that behaves much like traditional RDIMMs or 3DS RDIMMs (the data will not be saved in case of a power loss) and is transparent to the operating system and applications. DCPMMs provide memory capacity and RDIMMs or 3DS RDIMMs provide cache memory that is managed by the processor's memory controller. The total memory capacity that is seen by the operating system is the capacity of the DCPMMs; the capacity of the RDIMMs or 3DS RDIMMs is hidden and does not appear as a memory resource in the operating system. This mode is considered particularly suited for virtualized database deployments and big-data analytics applications.
- App Direct Mode
  App Direct Mode brings persistency to the data and structures (the data will be saved in case of a power loss). This mode requires operating system and application awareness of two types of system memory: Persistent (DCPMMs) and DRAM (RDIMMs or 3DS RDIMMs). The total memory capacity that is seen by the operating system includes the capacity of the DCPMMs and RDIMMs or 3DS RDIMMs. This mode is considered particularly suited for in-memory databases, in-memory analytics frameworks, and ultrafast storage applications.
- Mixed Memory Mode
  Mixed Memory Mode is a combination of Memory Mode and App Direct Mode, where a portion of the capacity of the DCPMMs is used for the Memory Mode operations, and the remaining capacity of the DCPMMs is used for the App Direct Mode operations.

The following memory protection technologies are supported by the DCPMM's onboard memory controllers:

- ECC
- SDDC
- DDDC
- Patrol scrubbing
- Demand scrubbing

The following table lists DCPMM options available for the SR650 server.

Table 17. DCPMM options

| Description | Part number | Feature code | Maximum quantity* |
|---|---|---|---|
| ThinkSystem 128GB TruDDR4 2666MHz (1.2V) Intel Optane DC Persistent Memory | 4ZC7A15110 | B4LV | 6 / 12 |
| ThinkSystem 256GB TruDDR4 2666MHz (1.2V) Intel Optane DC Persistent Memory | 4ZC7A15111 | B4LW | 6 / 12 |
| ThinkSystem 512GB TruDDR4 2666MHz (1.2V) Intel Optane DC Persistent Memory | 4ZC7A15112 | B4LX | 6 / 12 |

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

The following table lists supported combinations of the DCPMMs and memory DIMMs available for the SR650 server.

Table 18. Supported DCPMM and memory DIMM combinations

| DCPMM mode | DCPMM quantity* | Supported DCPMM sizes | Memory DIMM quantity* | Supported memory DIMM sizes |
|---|---|---|---|---|
| App Direct Mode | - / 1 | 128 GB, 256 GB, 512 GB | - / 12 | 16 GB, 32 GB, 64 GB, 128 GB |
| | 1 / 2 | 128 GB, 256 GB, 512 GB | 6 / 12 | 16 GB, 32 GB, 64 GB, 128 GB |
| | 2 / 4 | 128 GB, 256 GB, 512 GB | 4 / 8 | 16 GB, 32 GB, 64 GB, 128 GB |
| | 2 / 4 | 128 GB, 256 GB, 512 GB | 6 / 12 | 16 GB, 32 GB, 64 GB, 128 GB |
| | 2 / 4 | 128 GB, 256 GB, 512 GB | 8 / 16 | 16 GB, 32 GB, 64 GB, 128 GB |
| | 4 / 8 | 128 GB, 256 GB, 512 GB | 6 / 12 | 16 GB, 32 GB, 64 GB, 128 GB |
| | 6 / 12 | 128 GB, 256 GB, 512 GB | 6 / 12 | 16 GB, 32 GB, 64 GB, 128 GB |
| Memory Mode | 2 / 4 | 128 GB | 4 / 8 | 16 GB |
| | 2 / 4 | 256 GB | 4 / 8 | 32 GB |
| | 2 / 4 | 512 GB | 4 / 8 | 32 GB, 64 GB |
| | 2 / 4 | 256 GB | 6 / 12 | 16 GB |
| | 2 / 4 | 512 GB | 6 / 12 | 16 GB, 32 GB |
| | 4 / 8 | 128 GB | 6 / 12 | 16 GB |
| | 4 / 8 | 256 GB | 6 / 12 | 32 GB |
| | 4 / 8 | 512 GB | 6 / 12 | 32 GB, 64 GB |
| | 6 / 12 | 128 GB | 6 / 12 | 16 GB, 32 GB |
| | 6 / 12 | 256 GB | 6 / 12 | 32 GB, 64 GB |
| | 6 / 12 | 512 GB | 6 / 12 | 32 GB, 64 GB, 128 GB |
| Mixed Memory Mode | 2 / 4 | 256 GB | 6 / 12 | 16 GB |
| | 2 / 4 | 512 GB | 6 / 12 | 16 GB, 32 GB |
| | 2 / 4 | 256 GB | 4 / 8 | 16 GB |
| | 2 / 4 | 512 GB | 4 / 8 | 16 GB, 32 GB |
| | 4 / 8 | 128 GB | 6 / 12 | 16 GB |
| | 4 / 8 | 256 GB | 6 / 12 | 16 GB, 32 GB |
| | 4 / 8 | 512 GB | 6 / 12 | 16 GB, 32 GB, 64 GB |
| | 6 / 12 | 128 GB | 6 / 12 | 16 GB |
| | 6 / 12 | 256 GB | 6 / 12 | 16 GB, 32 GB |
| | 6 / 12 | 512 GB | 6 / 12 | 16 GB, 32 GB, 64 GB |

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

**Configuration notes:**

- DCPMMs are supported only in the configurations with 8x 2.5-inch, 16x 2.5-inch, or 8x 3.5-inch drive bays.
- All DCPMMs in the server must be of the same capacity (the same part number or feature code).
- The RDIMMs or 3DS RDIMMs are required in the configurations with DCPMMs, and all RDIMMs or 3DS RDIMMs must be of the same type, rank, and capacity (the same part number or feature code).
- The DCPMMs cannot be mixed with the 8GB TruDDR4 2933 MHz RDIMM (4ZC7A08706).
- For Mixed Memory Mode, the volatile (Memory) portion of the total capacity of DCPMMs is configured in increments of 32 GB multiplied by the number of DCPMMs in the server, and the remaining capacity is allocated to the persistent (App Direct) portion. The ratio of the total capacity of RDIMMs or 3DS RDIMMs to the total capacity of the volatile portion of DCPMMs should be between 1 to 4 and 1 to 16.
- Server configurations with more than 1 TB of memory capacity per socket (including DCPMMs and RDIMMs or 3DS RDIMMs) require processors that support up to 4.5 TB (L-suffix) per socket.
- In the configurations with the processors of 200 W or 205 W TDP, or with Gold 6230N, 6240Y, 6244, or 6250 processors, the DCPMMs require two power supplies.
- Persistent memory is not supported in configurations with GPU adapters
- Persistent memory is not supported in configurations with flash storage adapters

For more information, refer to the Intel Optane DC Persistent Memory (DCPMM) Product Guide:
http://lenovopress.com/LP1066

## Internal storage

The SR650 server supports the following internal drive bay configurations:

1. Up to 16 SFF (front) and 2 LFF (rear) hot-swap drive bays:
   a. 8x 2.5" SAS/SATA + 8x 2.5" SAS/SATA + 2x 3.5" SAS/SATA
   b. 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 8x 2.5" SAS/SATA + 2x 3.5" SAS/SATA
   c. 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 2x 3.5" SAS/SATA
2. Up to 24 SFF (front) and 2 LFF (rear) hot-swap drive bays:
   a. 8x 2.5" SAS/SATA + 8x 2.5" SAS/SATA + 8x 2.5" SAS/SATA + 2x 3.5" SAS/SATA
   b. 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 8x 2.5" SAS/SATA + 8x 2.5" SAS/SATA + 2x 3.5" SAS/SATA
   c. 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 8x 2.5" SAS/SATA + 2x 3.5" SAS/SATA
   d. 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 4x 2.5" SAS/SATA & 4x 2.5" AnyBay + 4x 2.5" SAS/SATA & 4x 2.5" AnyBay
   e. 16x 2.5" U.2 NVMe PCIe + 8x 2.5" SAS/SATA (factory-installed only)
   f. 20x 2.5" U.2 NVMe PCIe
   g. 24x 2.5" U.2 NVMe PCIe
3. Up to 10 LFF SAS/SATA hot-swap drive bays: 8x 3.5" SAS/SATA (front) + 2x 3.5" SAS/SATA (rear)
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.

The following figures show the internal drive bay configurations.

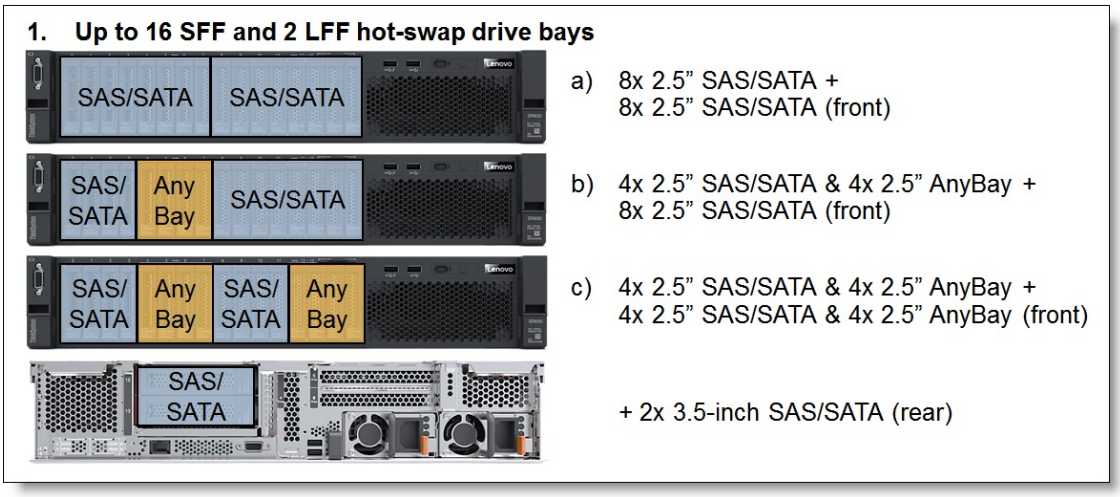



Figure 8. Drive bay configurations: 16x 2.5-inch chassis

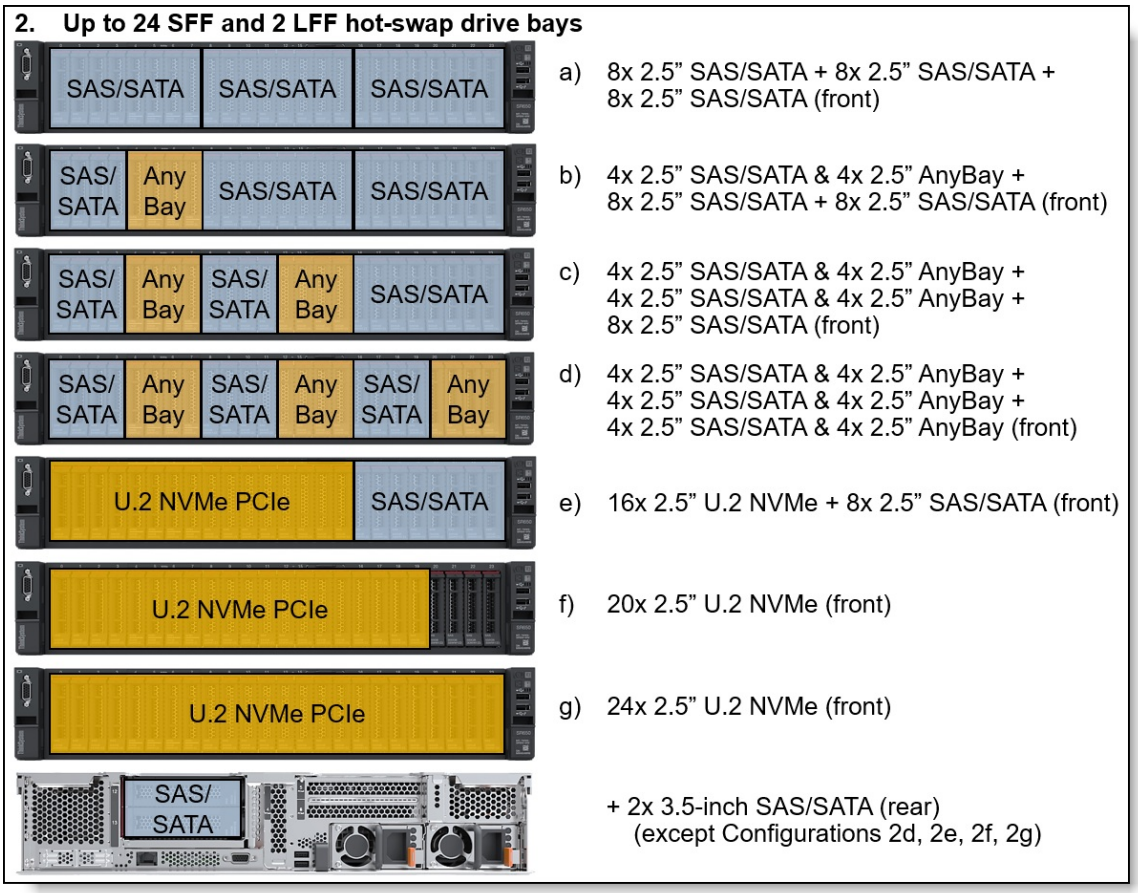



Figure 9. Drive bay configurations: 24x 2.5-inch chassis

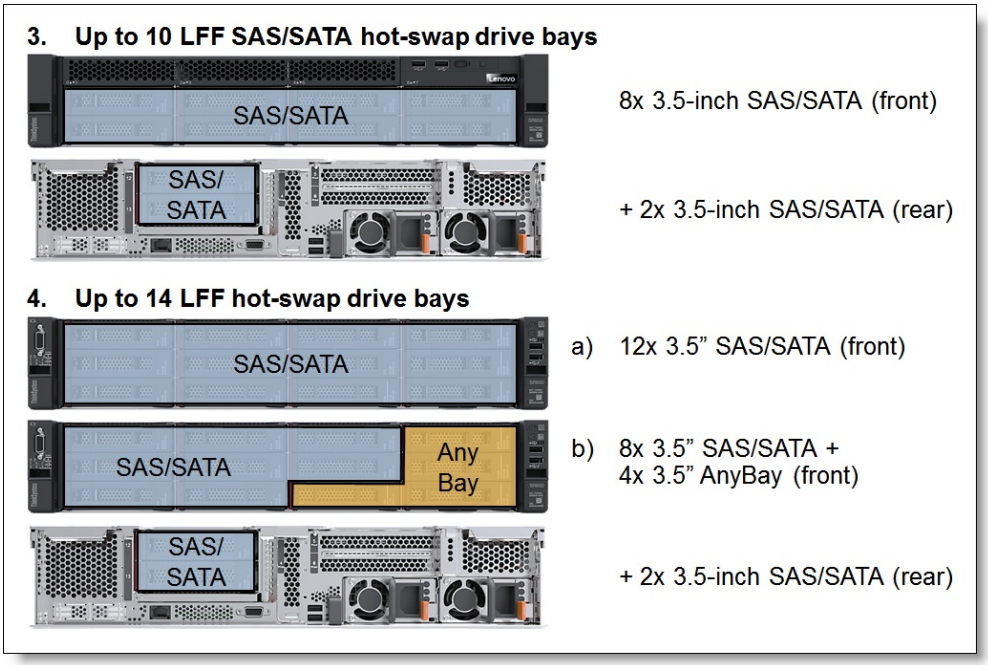



Figure 10. Drive bay configurations: 12x 3.5-inch chassis

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

Table 19. Internal storage options

| Part number | Feature code | Description | Maximum quantity |
|---|---|---|---|
| Factory-installed backplane kits | | | |
| None* | AURA | ThinkSystem 2U/Twr 2.5" SATA/SAS 8-Bay Backplane | 3 |
| None* | AUR5 | ThinkSystem 2U/Twr 2.5" AnyBay 8-Bay Backplane | 3 |
| None* | AUR6 | ThinkSystem 2U 3.5" SATA/SAS 8-Bay Backplane | 1 |
| None* | AUR9 | ThinkSystem 2U 3.5" SATA/SAS 12-Bay Backplane | 1 |
| None* | AUR8 | ThinkSystem 2U 3.5" AnyBay 12-Bay Backplane | 1 |
| None* | B4PC | ThinkSystem 2U 2.5" NVMe 8-Bay Backplane | 3 |
| 7XH7A06253 | AURZ | ThinkSystem SR590/SR650 3.5" Rear HDD/SSD Kit | 1 |
| 4XB7A64318 | BF6V | ThinkSystem SR590/SR650 Rear HDD Kit Without Fan (PRC only) | 1 |
| Backplane kit field upgrade options | | | |
| 7XH7A06254 | None** | SR550/SR650 2.5" SATA/SAS 8-Bay Backplane Upgrade Kit | 3 |
| 7XH7A06251 | None** | SR650 2.5" AnyBay 8-Bay Backplane Upgrade Kit | 3 |
| 4XH7A08770 | None** | SR550/SR590/SR650 3.5" SATA/SAS 8-Bay Backplane Upgrade Kit | 1 |
| 4XH7A08771 | None** | SR550/SR590/SR650 3.5" SATA/SAS 12-Bay Backplane Upgrade Kit | 1 |
| 4XH7A08785 | None** | SR590/SR650 3.5" AnyBay 12-Bay Backplane Upgrade Kit | 1 |
| 4XH7A09819 | None** | ThinkSystem SR650 U.2 NVMe 20-Bay Backplane Upgrade Kit | 1 |
| 4XH7A08810 | None** | ThinkSystem SR650 U.2 NVMe 24-Bay Backplane Upgrade Kit | 1 |
| 7XH7A06253 | AURZ | ThinkSystem SR590/SR650 3.5" Rear HDD/SSD Kit | 1 |
| 4XB7A64318 | BFK0 | ThinkSystem SR590/SR650 Rear HDD Kit Without Fan (PRC only) | 1 |
| M.2 enablement kits | | | |
| 7Y37A01092 | AUMU | ThinkSystem M.2 Enablement Kit | 1 |
| 7Y37A01093 | AUMV | ThinkSystem M.2 with Mirroring Enablement Kit | 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.

**Configuration notes:**

- 24x 2.5-inch front drives are supported only on storage dense models that use the 24x 2.5" chassis (feature code AUVV).
- The 2.5" SATA/SAS 8-Bay Backplane Kit (7XH7A06254) adds 8x 2.5" SAS/SATA hot-swap drive bays to the previously configured models that are based on the 16x 2.5" chassis (feature code AUVX) or 24x 2.5" chassis (feature code AUVV) and support drive bay expansion capabilities (including models without drive bays).
- The 2.5" AnyBay 8-Bay Backplane Kit (7XH7A06251) adds 4x 2.5" SAS/SATA & 4x 2.5" AnyBay hot-swap drive bays to the previously configured models that are based on the 16x 2.5" chassis (feature code AUVX) or 24x 2.5" chassis (feature code AUVV) and support drive bay expansion capabilities (including models without drive bays).
- Up to 3x 2.5" AnyBay 8-Bay Backplane Kits are supported in the server with the processors of up to 165 W TDP. Up to 2x 2.5" AnyBay 8-Bay Backplane Kits are supported in the server with the processors of more than 165 W TDP. If 3x 2.5" AnyBay 8-Bay Backplane Kits are installed in the server, the Rear HDD kit cannot be installed.
- Models without any drive bays that are based on the 12x 3.5" chassis (feature code AUVW) include the Right EIA Latch with FIO (USB ports, status LEDs, and a power button). These models support adding drive bays by using the 3.5" 8-bay backplane kit (4XH7A08770), 3.5" 12-bay backplane kit (4XH7A08771), or 3.5" AnyBay 12-bay backplane kit (4XH7A08785).
- The SAS/SATA and AnyBay backplane upgrade kits include drive backplanes and required SAS cables, NVMe cables, power cables, and drive bay fillers; storage controllers are not included.
- Previously configured models that are based on the 24x 2.5" chassis (feature code AUVV) can be upgraded to 20 or 24 U.2 NVMe PCIe drive bays by using the U.2 NVMe 20-Bay Backplane Upgrade Kit (4XH7A09819) or U.2 NVMe 24-Bay Backplane Upgrade Kit (4XH7A08810), respectively. Both kits include drive backplanes and required NVMe cables, power cables, drive bay fillers, and NVMe switch adapters. The U.2 NVMe 24-Bay Backplane Upgrade Kit also includes the x16/x8/x16 Riser Card 1 (4XH7A09902).
- For models with 16/20/24x 2.5" U.2 NVMe PCIe drive bays (either factory-installed or upgraded in the field), the following conditions must be met:
  - Two processors with up to 165 W TDP installed.
  - No GPU adapters installed.
  - No PCIe flash adapters installed.
  - No PCIe adapters with more than 25 W TDP installed.
  - 1100 W or 1600 W power supplies installed.
  - Ambient temperature of up to 30 °C (86 °F).
  - The server performance might be impacted in case of a system fan failure.

  **Note:** For additional configuration details, refer to the Controllers for internal storage and I/O expansion sections.
- For customers in China, the ThinkSystem SR590/SR650 Rear HDD Kit Without Fan feature lets add rear drives without additional fans under the following conditions:
  - Processor TDP cannot exceed 125 W
  - Ambient temperature up to 30 °C (86 °F)
  - The acoustic noise may increase
- The 3.5" Rear HDD/SSD Kit is connected to a separate port on the internal storage controller.
- The 3.5" Rear HDD/SSD Kit is installed in place of the PCIe Riser Card 1; PCIe slots 1, 2, and 3 are not present.
- Lenovo AnyBay allows a choice of drive interface types in the same drive bay: SAS drives, SATA drives, or NVMe PCIe drives.
- U.2 NVMe PCIe SSDs in the 8/16/24-drive bay configurations that contain *four AnyBay drive bays* require either the second processor (enables the onboard NVMe controller) or the 1610-4P NVMe Switch Adapter to be installed.

**Note:** In the 8/16/24-drive bay configurations that contain *four AnyBay drive bays*, the 1610-4P NVMe Switch Adapter is supported only in the configurations with one processor.

- Models with 12x 3.5-inch drive bays (8x SAS/SATA + 4x AnyBay) and an 8-port SAS RAID controller or HBA support only NVMe drives in the AnyBay drive bays.
- The M.2 Enablement Kit (7Y37A01092) supports up to 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 up to two M.2 SATA SSDs that can be configured in a RAID-1 or RAID-0 drive group, or they can operate as separate drives.

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

**Internal storage configurations tables convention:** The numbers in brackets (x or x+y or x+y+z) in the Storage controller column specify the quantity of drive bays connected to each of the controllers.

Table 20. Internal storage configurations: Up to 16 SFF front drive bays without rear drive bays

| Hot-swap drive bay configuration | Backplane kit type and quantity | | | Storage controller type and quantity |
|---|---|---|---|---|
| | 8x2.5" SATA/ SAS | 8x2.5" Any Bay | 2x3.5" Rear HDD | |
| 16x 2.5" chassis (Feature code AUVX) or 24x 2.5" chassis (Feature code AUVV) | | | | |
| 8x 2.5" SAS/SATA (front) | 1 | 0 | 0 | 1x RAID 530-8i/16i (8) |
| | | | | 1x RAID 730-8i 1GB or 2GB (8) |
| | | | | 1x RAID 930-8i/16i/24i (8) |
| | | | | 1x 430-8i/16i HBA (8) |
| 4x 2.5" SAS/SATA (front) + 4x 2.5" AnyBay (front) | 0 | 1 | 0 | 1x RAID 730-8i 2GB/RAID 930-8i/16i/24i (8) + 1x Onboard/1610-4P NVMe (4) |
| | | | | 1x 430-8i/16i HBA (8) + 1x Onboard/1610-4P NVMe (4) |
| 16x 2.5" SAS/SATA (front) | 2 | 0 | 0 | 1x RAID 530-16i (16) |
| | | | | 1x RAID 930-16i/24i (16) |
| | | | | 1x RAID 530-8i/730-8i 1GB (8) + 1x 430-8i HBA (8) |
| | | | | 2x RAID 530-8i/730-8i 1GB or 2GB/930-8i (8+8) |
| | | | | 2x 430-8i HBA (8+8) |
| 12x 2.5" SAS/SATA (front) + 4x 2.5" AnyBay (front) | 1 | 1 | 0 | 1x RAID 930-16i/24i (16) + 1x Onboard/1610-4P NVMe (4) |
| | | | | 1x RAID 530-16i (16) + 1x Onboard/1610-4P NVMe (4) |
| | | | | 1x 430-16i HBA (16) + 1x Onboard/1610-4P NVMe (4) |
| 8x 2.5" SAS/SATA (front) + 8x 2.5" AnyBay (front) | 0 | 2 | 0 | 1x RAID 530-16i (16) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) |
| | | | | 1x RAID 930-16i/24i (16) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) |
| | | | | 1x 430-16i HBA (16) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) |
| | | | | 2x RAID 730-8i 2GB/930-8i (8+8) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) |
| | | | | 2x 430-8i HBA (8+8) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) |

Table 21. Internal storage configurations: Up to 16 SFF front and 2 LFF rear drive bays

| Hot-swap drive bay configuration | Backplane kit type and quantity | | | Storage controller type and quantity |
|---|---|---|---|---|
| | 8x2.5" SATA/ SAS | 8x2.5" Any Bay | 2x3.5" Rear HDD | |
| 16x 2.5" chassis (Feature code AUVX) or 24x 2.5" chassis (Feature code AUVV) | | | | |
| 8x 2.5" SAS/SATA (front) + 2x 3.5" SAS/SATA (rear) | 1 | 0 | 1 | 1x RAID 530-16i (10) |
| | | | | 1x RAID 930-16i/24i (10) |
| | | | | 1x RAID 530-8i/730-8i 1GB or 2GB/930-8i (8) + 1x 430-8i HBA (2) |
| | | | | 1x RAID 730-8i 2GB/930-8i (8) + 1x RAID 530-8i (2) |
| | | | | 1x 430-8i HBA (8) + 1x RAID 530-8i (2) |
| | | | | 1x 430-16i HBA (10) |
| | | | | 2x RAID 530-8i (8+2) |
| | | | | 2x 430-8i HBA (8+2) |
| 4x 2.5" SAS/SATA (front) + 4x 2.5" AnyBay (front) + 2x 3.5" SAS/SATA (rear) | 0 | 1 | 1 | 1x RAID 730-8i 2GB/930-8i (8) + 1x Onboard/1610-4P NVMe (4) + 1x RAID 530-8i/430-8i HBA (2) |
| | | | | 1x RAID 530-16i (10) + 1x Onboard/1610-4P NVMe (4) |
| | | | | 1x RAID 930-16i/24i (10) + 1x Onboard/1610-4P NVMe (4) |
| | | | | 1x 430-8i HBA (8) + 1x Onboard/1610-4P NVMe (4) + 1x RAID 530-8i/430-8i HBA (2) |
| | | | | 1x 430-16i HBA (10) + 1x Onboard/1610-4P NVMe (4) |
| 16x 2.5" SAS/SATA (front) + 2x 3.5" SAS/SATA (rear) | 2 | 0 | 1 | 1x RAID 530/930-16i (16) + 1x RAID 530-8i/430-8i HBA (2) |
| | | | | 1x RAID 930-24i (18) |
| | | | | 1x 430-16i HBA (16) + 1x RAID 530-8i/430-8i HBA (2) |
| | | | | 2x RAID 530-8i/730-8i 1GB or 2GB/930-8i (8+8) + 1x 430-8i HBA (2) |
| | | | | 2x RAID 730-8i 2GB/930-8i (8+8) + 1x RAID 530-8i (2) |
| | | | | 2x 430-8i HBA (8+8) + 1x RAID 530-8i (2) |
| | | | | 3x RAID 530-8i (8+8+2) |
| | | | | 3x 430-8i HBA (8+8+2) |
| 12x 2.5" SAS/SATA (front) + 4x 2.5" AnyBay (front) + 2x 3.5" SAS/SATA (rear) | 1 | 1 | 1 | 1x RAID 530/930-16i (16) + 1x Onboard/1610-4P NVMe (4) + 1x RAID 530-8i/430-8i HBA (2) |
| | | | | 1x 430-16i HBA (16) + 1x Onboard/1610-4P NVMe (4) + 1x RAID 530-8i/430-8i HBA (2) |
| | | | | 1x RAID 930-24i (18) + 1x Onboard/1610-4P NVMe (4) |
| 8x 2.5" SAS/SATA (front) + 8x 2.5" AnyBay (front) + 2x 3.5" SAS/SATA (rear) | 0 | 2 | 1 | 1x RAID 530/930-16i (16) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) + 1x RAID 530-8i/430-8i HBA (2) |
| | | | | 1x 430-16i HBA (16) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) + 1x RAID 530-8i/430-8i HBA (2) |
| | | | | 1x RAID 930-24i (18) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) |
| | | | | 2x RAID 730-8i 2GB/930-8i (8+8) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) + 1x RAID 530-8i/430-8i HBA (2) |
| | | | | 2x 430-8i HBA (8+8) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) + 1x RAID 530-8i/430-8i HBA (2) |

Table 22. Internal storage configurations: Up to 24 SFF front drive bays without rear drive bays

| Hot-swap drive bay configuration | Backplane kit type and quantity | | | | Storage controller type and quantity |
|---|---|---|---|---|---|
| | 8x2.5" SATA/ SAS | 8x2.5" Any Bay | 8x2.5" NVMe | 2x3.5" Rear HDD | |
| 24x 2.5" chassis (Feature code AUVV) | | | | | |
| 24x 2.5" SAS/SATA (front) | 3 | 0 | 0 | 0 | 1x RAID 930-24i (24) |
| | | | | | 1x RAID 730-8i 2GB/930-8i (8) + 1x RAID 530/930-16i (16) |
| | | | | | 3x RAID 730-8i 2GB/930-8i (8+8+8) |
| | | | | | 1x 430-8i HBA (8) + 1x 430-16i HBA (16) |
| | | | | | 3x 430-8i HBA (8+8+8) |
| 20x 2.5" SAS/SATA (front) + 4x 2.5" AnyBay (front) | 2 | 1 | 0 | 0 | 1x RAID 930-24i (24) + 1x Onboard/1610-4P NVMe (4) |
| | | | | | 1x RAID 730-8i 2GB/930-8i (8) + 1x RAID 530/930-16i (16) + 1x Onboard/1610-4P NVMe (4) |
| | | | | | 3x RAID 730-8i 2GB/930-8i (8+8+8) + 1x Onboard/1610-4P NVMe (4) |
| | | | | | 3x 430-8i HBA (8+8+8) + 1x Onboard/1610-4P NVMe (4) |
| 16x 2.5" SAS/SATA (front) + 8x 2.5" AnyBay (front) | 1 | 2 | 0 | 0 | 1x RAID 930-24i (24) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) |
| | | | | | 3x RAID 730-8i 2GB/930-8i (8+8+8) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) |
| | | | | | 1x 430-8i HBA (8) + 1x 430-16i HBA (16) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) |
| 12x 2.5" SAS/SATA (front) + 12x 2.5" AnyBay (front) | 0 | 3 | 0 | 0 | 1x RAID 930-24i (24) + 1x Onboard NVMe (4) + 2x 1610-4P NVMe (4+4) |
| | | | | | 3x RAID 730-8i 2GB/930-8i (8+8+8) + 1x Onboard NVMe (4) + 2x 1610-4P NVMe (4+4) |
| | | | | | 1x 430-8i HBA (8) + 1x 430-16i HBA (8+8) + 1x Onboard NVMe (4) + 2x 1610-4P NVMe (4+4) |
| | | | | | 3x 430-8i HBA (8+8+8) + 1x Onboard NVMe (4) + 2x 1610-4P NVMe (4+4) |
| 16x 2.5" U.2 NVMe (front) | 0 | 0 | 2 | 0 | 2x 810-4P NVMe (4+4) + 2x 1610-4P NVMe (4+4) |
| 16x 2.5" U.2 NVMe (front) + 8x 2.5" SAS/SATA (front) | 1 | 0 | 2 | 0 | 2x 810-4P NVMe (4+4) + 2x 1610-4P NVMe (4+4) + 1x RAID 530-8i/730-8i 1GB |
| | | | | | 2x 810-4P NVMe (4+4) + 2x 1610-4P NVMe (4+4) + 1x RAID 730-8i 2GB/930-8i |
| | | | | | 2x 810-4P NVMe (4+4) + 2x 1610-4P NVMe (4+4) + 1x 430-8i HBA |
| 20x 2.5" U.2 NVMe (front) | 0 | 0 | 3 | 0 | 1x Onboard NVMe (4) + 2x 810-4P NVMe (4+4) + 3x 1610-4P NVMe (4+4+4) |
| 24x 2.5" U.2 NVMe (front) | 0 | 0 | 3 | 0 | 4x 810-4P NVMe (4+4+4+4) + 1x 1610-8P NVMe (8) |

Table 23. Internal storage configurations: Up to 24 SFF front and 2 LFF rear drive bays

| Hot-swap drive bay configuration | Backplane kit type and quantity | | | Storage controller type and quantity |
|---|---|---|---|---|
| | 8x2.5" SATA/ SAS | 8x2.5" Any Bay | 2x3.5" Rear HDD | |
| 24x 2.5" chassis (Feature code AUVV) | | | | |
| 24x 2.5" SAS/SATA (front) + 2x 3.5" SAS/SATA (rear) | 3 | 0 | 1 | 1x RAID 930-24i (24) + 1x RAID 530-8i/430-8i HBA (2) |
| | | | | 1x RAID 730-8i 2GB/930-8i (8) + 1x RAID 530/930-16i (16) + 1x RAID 530-8i (2) |
| | | | | 1x RAID 730-8i 2GB/930-8i (8) + 1x RAID 930-16i (16) + 1x 430-8i HBA (2) |
| | | | | 1x 430-8i HBA (8) + 1x 430-16i HBA (16) + 1x RAID 530-8i (2) |
| | | | | 2x RAID 530/930-16i (16+10) |
| | | | | 2x 430-16i HBA (16+10) |
| | | | | 2x 430-8i HBA (8+2) + 1x 430-16i HBA (16) |
| | | | | 3x RAID 730-8i 2GB/930-8i (8+8+8) + 1x RAID 530-8i (2) |
| | | | | 3x RAID 730-8i 2GB/930-8i (8+8+8) + 1x 430-8i HBA (2) |
| | | | | 3x 430-8i HBA (8+8+8) + 1x RAID 530-8i (2) |
| | | | | 4x 430-8i HBA (8+8+8+2) |
| 20x 2.5" SAS/SATA (front) + 4x 2.5" AnyBay (front) + 2x 3.5" SAS/SATA (rear) | 2 | 1 | 1 | 1x RAID 930-24i (24) + 1x Onboard/1610-4P NVMe (4) + 1x RAID 530-8i (2) |
| | | | | 1x RAID 930-24i (24) + 1x Onboard/1610-4P NVMe (4) + 1x 430-8i HBA (2) |
| | | | | 1x RAID 730-8i 2GB/930-8i (8) + 1x RAID 530/930-16i (16) + 1x Onboard/1610-4P NVMe (4) + 1x RAID 530-8i (2) |
| | | | | 1x RAID 730-8i 2GB/930-8i (8) + 1x RAID 530/930-16i (16) + 1x Onboard/1610-4P NVMe (4) + 1x 430-8i HBA (2) |
| | | | | 2x RAID 530/930-16i (16+10) + 1x Onboard/1610-4P NVMe (4) |
| | | | | 2x 430-16i HBA (16+10) + 1x Onboard/1610-4P NVMe (4) |
| | | | | 3x RAID 730-8i 2GB/930-8i (8+8+8) + 1x Onboard/1610-4P NVMe (4) + 1x RAID 530-8i/430-8i HBA (2) |
| | | | | 3x 430-8i HBA (8+8+8) + 1x Onboard/1610-4P NVMe (4) + 1x RAID 530-8i/430-8i HBA (2) |
| 16x 2.5" SAS/SATA (front) + 8x 2.5" AnyBay (front) + 2x 3.5" SAS/SATA (rear) | 1 | 2 | 1 | 1x RAID 930-24i (24) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) + 1x RAID 530-8i (2) |
| | | | | 1x 430-8i HBA (8) + 1x 430-16i HBA (16) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) + 1x RAID 530-8i (2) |
| | | | | 2x RAID 530/930-16i (16+10) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) |
| | | | | 2x 430-8i HBA (8+2) + 1x 430-16i HBA (16) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) |
| | | | | 2x 430-16i HBA (16+10) + 1x Onboard NVMe (4) + 1x 1610-4P NVMe (4) |

Table 24. Internal storage configurations: Up to 12 LFF front and 2 LFF rear drive bays

| Hot-swap drive bay configuration | Backplane kit type and quantity | | | | Storage controller type and quantity |
|---|---|---|---|---|---|
| | 8x3.5" SATA/ SAS | 12x3.5" SATA/ SAS | 12x3.5" Any Bay | 2x3.5" Rear HDD | |
| 12x 3.5" chassis (Feature code AUVW) | | | | | |
| 8x 3.5" SAS/SATA (front) | 1 | 0 | 0 | 0 | 1x RAID 530/930-16i (8) |
| | | | | | 1x RAID 530-8i/730-8i 1GB or 2GB/930-8i (8) |
| | | | | | 1x 430-8i HBA (8) |
| 8x 3.5" SAS/SATA (front) + 2x 3.5" SAS/SATA (rear) | 1 | 0 | 0 | 1 | 1x RAID 530/930-16i (10) |
| | | | | | 1x 430-16i HBA (10) |
| | | | | | 1x RAID 530-8i/730-8i 1GB or 2GB/930-8i (8) + 1x 430-8i HBA (2) |
| | | | | | 1x RAID 730-8i 2GB/930-8i (8) + 1x RAID 530-8i (2) |
| | | | | | 1x RAID 530/930-16i (8) + 1x RAID 530-8i (2) |
| | | | | | 1x 430-8i HBA (8) + 1x RAID 530-8i (2) |
| | | | | | 2x RAID 530-8i (8+2) |
| | | | | | 2x 430-8i HBA (8+2) |
| 12x 3.5" SAS/SATA (front) | 0 | 1 | 0 | 0 | 1x RAID 530/930-16i (12) |
| | | | | | 1x 430-16i HBA (12) |
| 8x 3.5" SAS/SATA (front) + 4x 3.5" AnyBay (front) | 0 | 0 | 1 | 0 | 1x RAID 530/930-16i (12) + 1x Onboard/1610-4P NVMe (4) |
| | | | | | 1x 430-16i HBA (12) + 1x Onboard/1610-4P NVMe (4) |
| 8x 3.5" SAS/SATA (front) + 4x 3.5" AnyBay (NVMe only) (front)* | 0 | 0 | 1 | 0 | 1x RAID 530-8i/730-8i 1GB or 2GB/930-8i (8) + 1x Onboard/1610-4P NVMe (4) |
| | | | | | 1x 430-8i HBA (8) + 1x Onboard/1610-4P NVMe (4) |
| 12x 3.5" SAS/SATA (front) + 2x 3.5". SAS/SATA (rear) | 0 | 1 | 0 | 1 | 1x RAID 530/930-16i (14) |
| | | | | | 1x 430-16i HBA (14) |
| | | | | | 1x RAID 530/930-16i (12) + 1x RAID 530-8i (2) |
| | | | | | 1x 430-16i HBA (12) + 1x RAID 530-8i (2) |
| 8x 3.5" SAS/SATA (front) + 4x 3.5" AnyBay (front) + 2x 3.5" SAS/SATA (rear) | 0 | 0 | 1 | 1 | 1x RAID 530/930-16i (14) + 1x Onboard/1610-4P NVMe (4) |
| | | | | | 1x 430-16i HBA (14) + 1x Onboard/1610-4P NVMe (4) |

* Four NVMe SSDs are required in the 3.5" AnyBay configuration with an 8-port storage controller.

### 12-drive AnyBay 3.5-inch configuration with expander (PRC only)

In addition to the configurations described above, the SR650 server also supports internal storage configurations with the 3.5" AnyBay 12-Bay Backplane w/Expander to enable support for up to 12 SAS or SATA drives with the 8-port RAID 530/730/930-8i controllers.

**Configuration availability:** Internal storage configurations with the 3.5" AnyBay 12-Bay Backplane w/Expander and 8-port RAID 530/730/930-8i controllers are available in PRC only.

The following table lists the 3.5" AnyBay 12-Bay Backplane w/Expander for the SR650 server.

Table 25. 3.5" AnyBay 12-Bay Backplane w/Expander

| Part number | Feature code | Description | Maximum quantity |
|---|---|---|---|
| None* | BD3Q | ThinkSystem SR650 3.5" AnyBay 12-Bay Backplane w/Expander | 1 |

* The backplane kit can be factory-installed in standard or custom (CTO or Special Bid) models, and it does not have an option part number assigned.

**Configuration notes:**

- The 3.5" AnyBay 12-Bay Backplane w/Expander provides 8x 3.5" SAS/SATA (front) + 4x 3.5" AnyBay (front) drive bays.
- The following 8-port RAID adapters are supported in the configurations with the 3.5" AnyBay 12-Bay Backplane w/Expander:
  - RAID 530-8i
  - RAID 730-8i 1GB
  - RAID 730-8i 2GB
  - RAID 930-8i 2GB
- The onboard NVMe interface provides 4x PCIe 3.0 x4 ports for JBOD (non-RAID) connectivity to NVMe PCIe SSDs in the AnyBay drive bays.

### SED encryption key management with ISKLM

The server supports self-encrypting drives (SEDs) as listed in the Internal drive options section. To effectively manage a large deployment of these drives in Lenovo servers, IBM Security Key Lifecycle Manager (SKLM) offers a centralized key management solution. A Lenovo Feature on Demand (FoD) upgrade is used to enable this SKLM support in the management processor of the server.

The following table lists the part numbers and feature codes for the upgrades.

Table 26. FoD upgrades for SKLM support

| Part number | Feature code | Description |
|---|---|---|
| Security Key Lifecycle Manager - FoD (United States, Canada, Asia Pacific, and Japan) | | |
| 00D9998 | A5U1 | SKLM for System x/ThinkSystem w/SEDs - FoD per Install with 1 year S&S |
| 00D9999 | AS6C | SKLM for System x/ThinkSystem w/SEDs - FoD per Install with 3 year S&S |
| Security Key Lifecycle Manager - FoD (Latin America, Europe, Middle East, and Africa) | | |
| 00FP648 | A5U1 | SKLM for System x/ThinkSystem w/SEDs - FoD per Install with 1 year S&S |
| 00FP649 | AS6C | SKLM for System x/ThinkSystem w/SEDs - FoD per Install with 3 year S&S |

## Controllers for internal storage

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

Table 27. RAID controllers and HBAs for internal storage

| Part number | Feature code | Description | Maximum quantity | I/O slots supported |
|---|---|---|---|---|
| 12 Gb SAS/SATA RAID controllers | | | | |
| 7Y37A01082 | AUNG | ThinkSystem RAID 530-8i PCIe 12Gb Adapter | 2 | 7, 4, 2, 3, 1, 5, 6 |
| 4Y37A09727 | B6CE | ThinkSystem RAID 530-16i PCIe 12Gb Adapter | 2 | 7, 4, 2, 3, 1, 5, 6 |
| 7Y37A01083 | AUNH | ThinkSystem RAID 730-8i 1GB Cache PCIe 12Gb Adapter | 3 | 7, 4, 2, 3, 1, 5, 6 |
| 4Y37A09722 | B4RQ | ThinkSystem RAID 730-8i 2GB Flash PCIe 12Gb Adapter | 3 | 7, 4, 2, 3, 1, 5, 6 |
| 7Y37A01084 | AUNJ | ThinkSystem RAID 930-8i 2GB Flash PCIe 12Gb Adapter | 3 | 7, 4, 2, 3, 1, 5, 6 |
| 7Y37A01085 | AUNK | ThinkSystem RAID 930-16i 4GB Flash PCIe 12Gb Adapter | 2 | 7, 4, 2, 3, 1, 5, 6 |

| Part number | Feature code | Description | Maximum quantity | I/O slots supported |
|---|---|---|---|---|
| 4Y37A09721 | B31E | ThinkSystem RAID 930-16i 8GB Flash PCIe 12Gb Adapter | 2 | 7, 4, 2, 3, 1, 5, 6 |
| 7Y37A01086 | AUV1 | ThinkSystem RAID 930-24i 4GB Flash PCIe 12Gb Adapter | 1 | 1, 2, 3, 5, 6 |
| 12 Gb SAS/SATA non-RAID HBAs | | | | |
| 7Y37A01088 | AUNL | ThinkSystem 430-8i SAS/SATA 12Gb HBA | 3 | 7, 4, 2, 3, 1, 5, 6 |
| 7Y37A01089 | AUNM | ThinkSystem 430-16i SAS/SATA 12Gb HBA | 2 | 7, 4, 2, 3, 1, 5, 6 |
| NVMe PCIe interfaces | | | | |
| None | B9X7 | Intel VROC (VMD NVMe RAID) Intel SSD Only (Standard) | 1 | Not applicable |
| 4L47A39164 | B96G | Intel VROC (VMD NVMe RAID) Premium (license upgrade - to enable RAID support for non-Intel NVMe SSDs) | 1 | Not applicable |
| None* | B22D | ThinkSystem 810-4P NVMe Switch Adapter | 4 | 2, 4, 7, 6 |
| 7Y37A01081 | AUV2 | ThinkSystem 1610-4P NVMe Switch Adapter | 3 | 1, 5, 6 |
| None^ | B4PA | ThinkSystem 1610-8P NVMe Switch Adapter | 1 | 1 |

* The 810-4P NVMe adapter can be factory-installed, or it is included in the 20-drive and 24-drive U.2 NVMe upgrade kits for field upgrades.
^ The 1610-8P NVMe adapter can be factory-installed, or it is included in the 24-drive NVMe upgrade kit for field upgrades.

**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 (RAID 930-24i) are supported in the full-height PCIe x8 and x16 slots supplied by the riser card 1.
- If the RAID 930-24i controller is used in the configurations with 24 front drives and 2 rear drives, the RAID 930-24i controller that connects the front drive bays must be installed in the PCIe slot 5, and the RAID 530-8i controller or 430-8i HBA that connects the rear drive bays must be installed in the onboard PCIe slot 7.
- Either RAID 530-8i or RAID 730-8i 1GB controllers can be used in the server, but not both types.
- The RAID 730-8i 2GB controller cannot be used in the server configurations with the RAID 930-8i or RAID 730-8i 1GB controllers.
- The RAID 730-8i 1GB controller does not support the 3.5" Rear HDD Kit.
- Configurations using onboard NVMe and NVMe switch adapters support RAID using Intel VROC NVMe RAID as described in the Intel VROC onboard SATA and NVMe RAID section.
- In the configurations with 2.5-inch AnyBay drive bays, the 1610-4P NVMe Switch Adapter is supported in the full-height PCIe x16 slots supplied by the riser cards 1 and 2.
    - In the configurations with one processor, the 1610-4P NVMe Switch Adapter provides 4x PCIe 3.0 x4 ports for connectivity to U.2 NVMe PCIe SSDs in four AnyBay drive bays, and it is supported in the PCIe x16 slot 1 supplied by the x16/x8 Riser Card 1 (the 1610-4P NVMe Switch Adapter has a PCIe 3.0 x16 host interface).
    - In the configurations with two processors, the onboard NVMe interface and up to two 1610-4P NVMe Switch Adapters provide 4x PCIe 3.0 x4 ports each for connectivity to U.2 NVMe PCIe SSDs in the AnyBay drive bays. Two 1610-4P NVMe Switch Adapters are supported in the PCIe x16 slots 1 and 5 or 1 and 6 only.

- Configurations with 16x 2.5-inch U.2 NVMe PCIe drive bays use the following interfaces and adapters for balanced connectivity to up to 16x U.2 NVMe PCIe SSDs (up to eight SSDs per processor) without oversubscription:
    - The onboard NVMe interface (Processor 2) that provides four PCIe 3.0 x4 ports for connections to four SSDs without oversubscription.
    - Two 810-4P NVMe Switch adapters installed in the PCIe x8 Slots 4 and 7 (Processor 1) that provide two PCIe 3.0 x4 ports each for connections to four SSDs (two SSDs per 810-4P) without oversubscription.
    - Two 1610-4P NVMe Switch adapters installed in the PCIe x16 Slot 1 (Processor 1) and PCIe x16 Slot 6 (Processor 2) that provide four PCIe 3.0 x4 ports each for connections to eight SSDs (four SSDs per 1610-4P) without oversubscription.
    - If the additional 8-bay SAS/SATA backplane is installed, it is connected to a supported internal storage controller installed in the PCIe x8 slot 3.
- Configurations with 20x 2.5-inch U.2 NVMe PCIe drive bays use the following interfaces and adapters for connectivity to up to 20x U.2 NVMe PCIe SSDs (up to eight SSDs per Processor 1, and up to 12 SSDs per Processor 2) without oversubscription:
    - The onboard NVMe interface (Processor 2) that provides four PCIe 3.0 x4 ports for connections to four SSDs without oversubscription.
    - Two 810-4P NVMe Switch adapters installed in the PCIe x8 Slots 4 and 7 (Processor 1) that provide two PCIe 3.0 x4 ports each for connections to four SSDs (two SSDs per 810-4P) without oversubscription.
    - Three 1610-4P NVMe Switch adapters installed in the PCIe x16 Slot 1 (Processor 1) and PCIe x16 Slots 5 and 6 (Processor 2) that provide four PCIe 3.0 x4 ports each for connections to twelve SSDs (four SSDs per 1610-4P) without oversubscription.
- Configurations with 24x 2.5-inch U.2 NVMe PCIe drive bays use the following interfaces and adapters for balanced connectivity to up to 24x U.2 NVMe PCIe SSDs (up to 12 SSDs per processor) with 2:1 oversubscription:
    - One 1610-8P NVMe Switch Adapter installed in the PCIe x16 Slot 1 (Processor 2) that provides eight PCIe 3.0 x4 ports for connections to eight SSDs with 2:1 oversubscription.
    - Four 810-4P NVMe Switch adapters installed in the PCIe x8 Slots 2, 4, and 7 (Processor 1) and PCIe x16 Slot 6 (Processor 2) that provide four PCIe 3.0 x4 ports each for connections to 16 SSDs (four SSDs per 810-4P) with 2:1 oversubscription.
- In the configurations without GPU installed, the total quantity of the RAID 730-8i 2GB, RAID 930-8i, RAID 930-16i, RAID 930-24i, and RAID 930-8e 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 730-8i 2GB, RAID 930-8i, RAID 930-16i, RAID 930-24i, and RAID 930-8e controllers in the server must not exceed 3 (up to 3 supercapacitors can be mounted in the server).

For more information about the server configurations with 16/20/24x 2.5-inch U.2 NVMe PCIe drive bays, refer to the *NVMe-Rich Configurations of the ThinkSystem SR650* article:
http://lenovopress.com/LP0904

### Intel VROC onboard SATA and NVMe RAID

Intel VROC (Virtual RAID on CPU) is a feature of the Intel processor that enables RAID support. There are two separate functions of VROC:

- Intel VROC SATA RAID, formerly known as Intel RSTe
- Intel VROC NVMe RAID

VROC SATA RAID (RSTe) is available and supported with all SATA drives, both SATA SSDs and SATA HDDs. If offers a 6 Gb/s connection to each drive and on the SR650 implements RAID levels 0, 1, 5, and 10.

VROC NVMe RAID offers RAID support for any NVMe drives directly connected to the ports on the server's system board or via adapters such as NVMe retimers or NVMe switch adapters. On the SR650, it implements RAID levels 0, 1, 5, and 10.

**Performance tip**: For best performance with VROC NVMe RAID, the drives in an array should all be connected to the same processor. Spanning processors is possible however performance will be unpredictable and should be evaluated based on your workload.

By default, VROC NVMe RAID support is limited to use with only Intel-branded NVMe drives (feature B9X7). If you wish to enable RAID support for non-Intel NVMe SSDs, select the VROC Premium license using the ordering information in the following table. VROC Premium is fulfilled as a Feature on Demand (FoD) license and is activated via the XCC management processor user interface.

Table 28. VROC upgrade

| Part number | Feature code | Description |
|---|---|---|
| 4L47A39164 | B96G | Intel VROC (VMD NVMe RAID) Premium |

VROC Premium is only needed for non-Intel NVMe drives in a RAID configuration. You do not need the VROC Premium license upgrade under any of the following conditions:

- If you have SATA drives connected to the onboard SATA ports, you do not need VROC Premium
- If you have Intel NVMe drives connected to the onboard NVMe ports, you do not need VROC Premium
- If you have non-Intel NVMe drives connected to the onboard NVMe ports, but you don't want RAID support, you do not need VROC Premium

**Virtualization support:** Virtualization support for Intel VROC is as follows:

- **VROC SATA RAID (RSTe)**: VROC SATA RAID is not supported by virtualization hypervisors such as ESXi, KVM, Xen, and Hyper-V. Virtualization is only supported on the onboard SATA ports in AHCI (non-RAID) mode.
- **VROC (VMD) NVMe RAID**: VROC (VMD) NVMe RAID is supported by ESXi, KVM, Xen, and Hyper-V. ESXi support is limited to RAID 1 only; other RAID levels are not supported. Windows and Linux OSes support VROC RAID NVMe, both for host boot functions and for guest OS function, and RAID-0, 1, 5, and 10 are supported.

**No ESXi support**: VROC NVMe RAID on the SR650 and SR630 is based on VROC 7.5 firmware and is currently not generally supported with VMware ESXi. Only Windows, RHEL and SLES are supported. ESXi support is currently only available using an older VROC version and requires a factory build via a Special Bid order. Full support of ESXi is planned for 1Q/2022.

### Adapter comparison

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

Table 29. Storage controller features and specifications (LP = Low profile, FHHL = Full-height half-length)

| Feature | RAID 530-8i | RAID 530-16i | RAID 730-8i 1GB | RAID 730-8i 2GB | 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 LP | PCIe FHHL | PCIe LP | |
| SAS controller | SAS3408 | SAS3416 | SAS3108 | SAS3108 | SAS3508 | SAS3516 | SAS3508 | SAS3408 | SAS3416 |
| SAS expander | None | | None | None | None | None | SAS35X36R | None | |
| Host interface | 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 | |
| Number of ports | 8 | 16 | 8 | 8 | 8 | 16 | 24 | 8 | 16 |
| Connector type | SFF-8643 x4 | | SFF-8643 x4 | SFF-8643 x4 | | | | SFF-8643 x4 | |
| Number of connectors | 2 | 4 | 2 | 2 | 2 | 4 | 6 | 2 | 4 |
| Drive interface | SAS, SATA | | SAS, SATA | SAS, SATA | | | | SAS, SATA | |
| Drive type | HDD, SSD, SED | | HDD, SSD | HDD, SSD, SED | | | | HDD, SSD, SED* | |
| Hot-swap drive support | Yes | | Yes | Yes | | | | Yes | |
| Number of drives | 8 | 16 | 8 | 8 | 8 | 16 | 24 | 8 | 16 |
| RAID levels | 0/1/10/5/50 | 0/1/10 | 0/1/10/5/50 | 0/1/10/5/50/6/60 | | | | None | |
| JBOD mode | Yes | | Yes | Yes | | | | Yes | |
| Cache | None | | 1 GB | 2 GB | 2 GB | 4 GB; 8 GB | 4 GB | None | |
| Cache protection | None | | None | Flash backup (Included) | | | | None | |
| SED key management (SafeStore) | Yes | | No | Yes | | | | No | |
| SSD I/O acceleration (FastPath) | Yes | | No | Yes | | | | No | |
| SSD Caching (CacheCade Pro 2.0) | No | | No | No | | | | No | |
| Consistency check | Yes | | Yes | Yes | | | | No | |
| Patrol read | Yes | | Yes | Yes | | | | No | |
| Online capacity expansion | Yes | | Yes | Yes | | | | No | |
| Online RAID level migration | Yes | | Yes | Yes | | | | No | |
| Global Hot Spare | Yes | | Yes | Yes | | | | No | |
| Auto-rebuild | Yes | | Yes | Yes | | | | 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 specifications about the RAID adapters and HBAs supported by the SR650, see the ThinkSystem RAID Adapter and HBA Comparison, available from:
https://lenovopress.com/lp1288-lenovo-thinksystem-raid-adapter-and-hba-reference#sr650-support=SR650

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 the hard disk drive and solid-state drive options for the internal disk storage of the server.

2.5-inch hot-swap drives:

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

3.5-inch hot-swap drives:

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

M.2 drives:

- M.2 SATA drives

**M.2 drive support**: The use of M.2 drives requires an additional adapter as described in the Internal storage section.

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

Table 30. 2.5-inch hot-swap 12 Gb SAS HDDs

| Part number | Feature | Description | Maximum supported |
|---|---|---|---|
| 2.5-inch hot-swap HDDs - 12 Gb SAS 10K | | | |
| 7XB7A00024 | AULY | ThinkSystem 2.5" 300GB 10K SAS 12Gb Hot Swap 512n HDD | 24 |
| 7XB7A00025 | AULZ | ThinkSystem 2.5" 600GB 10K SAS 12Gb Hot Swap 512n HDD | 24 |
| 7XB7A00026 | AUM0 | ThinkSystem 2.5" 900GB 10K SAS 12Gb Hot Swap 512n HDD | 24 |
| 7XB7A00027 | AUM1 | ThinkSystem 2.5" 1.2TB 10K SAS 12Gb Hot Swap 512n HDD | 24 |
| 7XB7A00028 | AUM2 | ThinkSystem 2.5" 1.8TB 10K SAS 12Gb Hot Swap 512e HDD | 24 |
| 7XB7A00069 | B0YS | ThinkSystem 2.5" 2.4TB 10K SAS 12Gb Hot Swap 512e HDD | 24 |
| 2.5-inch hot-swap HDDs - 12 Gb SAS 15K | | | |
| 7XB7A00021 | AULV | ThinkSystem 2.5" 300GB 15K SAS 12Gb Hot Swap 512n HDD | 24 |
| 7XB7A00022 | AULW | ThinkSystem 2.5" 600GB 15K SAS 12Gb Hot Swap 512n HDD | 24 |
| 7XB7A00023 | AULX | ThinkSystem 2.5" 900GB 15K SAS 12Gb Hot Swap 512e HDD | 24 |
| 2.5-inch hot-swap HDDs - 12 Gb NL SAS | | | |
| 7XB7A00034 | AUM6 | ThinkSystem 2.5" 1TB 7.2K SAS 12Gb Hot Swap 512n HDD | 24 |
| 7XB7A00035 | AUM7 | ThinkSystem 2.5" 2TB 7.2K SAS 12Gb Hot Swap 512n HDD | 24 |
| 2.5-inch hot-swap SED HDDs - 12 Gb SAS 10K | | | |
| 7XB7A00030 | AUM4 | ThinkSystem 2.5" 300GB 10K SAS 12Gb Hot Swap 512n HDD SED | 24 |
| 7XB7A00031 | AUM5 | ThinkSystem 2.5" 600GB 10K SAS 12Gb Hot Swap 512n HDD SED | 24 |
| 7XB7A00033 | B0YX | ThinkSystem 2.5" 1.2TB 10K SAS 12Gb Hot Swap 512n HDD SED | 24 |
| 7XB7A00070 | B0YV | ThinkSystem 2.5" 2.4TB 10K SAS 12Gb Hot Swap 512e HDD FIPS | 24 |
| 2.5-inch hot-swap SED HDDs - 12 Gb NL SAS | | | |
| 7XB7A00064 | B0YM | ThinkSystem 2.5" 2TB 7.2K SAS 12Gb Hot Swap 512e HDD FIPS | 24 |

Table 31. 2.5-inch hot-swap 6 Gb SATA HDDs

| Part number | Feature | Description | Maximum supported |
|---|---|---|---|
| 2.5-inch hot-swap HDDs - 6 Gb NL SATA | | | |
| 7XB7A00036 | AUUE | ThinkSystem 2.5" 1TB 7.2K SATA 6Gb Hot Swap 512n HDD | 24 |
| 7XB7A00037 | AUUJ | ThinkSystem 2.5" 2TB 7.2K SATA 6Gb Hot Swap 512e HDD | 24 |

Table 32. 2.5-inch hot-swap 12 Gb SAS SSDs

| Part number | Feature | Description | Maximum supported |
|---|---|---|---|
| 2.5-inch hot-swap SSDs - 12 Gb SAS - Write Intensive/Performance (10+ DWPD) | | | |
| 4XB7A70006 | BG07 | ThinkSystem 2.5" Nytro 3732 400GB Performance SAS 12Gb Hot Swap SSD | 24 |
| 4XB7A70005 | BG06 | ThinkSystem 2.5" Nytro 3732 800GB Performance SAS 12Gb Hot Swap SSD | 24 |
| 4XB7A70004 | BG05 | ThinkSystem 2.5" Nytro 3732 1.6TB Performance SAS 12Gb Hot Swap SSD | 24 |
| 4XB7A70003 | BG04 | ThinkSystem 2.5" Nytro 3732 3.2TB Performance SAS 12Gb Hot Swap SSD | 24 |
| 4XB7A10219 | B4Y4 | ThinkSystem 2.5" SS530 400GB Performance SAS 12Gb Hot Swap SSD | 24 |
| 4XB7A10230 | B4Y5 | ThinkSystem 2.5" SS530 800GB Performance SAS 12Gb Hot Swap SSD | 24 |
| 4XB7A10232 | B4Y7 | ThinkSystem 2.5" SS530 3.2TB Performance SAS 12Gb Hot Swap SSD | 24 |
| 2.5-inch hot-swap SSDs - 12 Gb SAS - Mixed Use/Mainstream (3-5 DWPD) | | | |
| 4XB7A17062 | B8HU | ThinkSystem 2.5" PM1645a 800GB Mainstream SAS 12Gb Hot Swap SSD | 24 |
| 4XB7A17063 | B8J4 | ThinkSystem 2.5" PM1645a 1.6TB Mainstream SAS 12Gb Hot Swap SSD | 24 |
| 4XB7A17064 | B8JD | ThinkSystem 2.5" PM1645a 3.2TB Mainstream SAS 12Gb Hot Swap SSD | 24 |
| 4XB7A17065 | B8JA | ThinkSystem 2.5" PM1645a 6.4TB Mainstream SAS 12Gb Hot Swap SSD | 24 |
| 4XB7A13655 | B4A2 | ThinkSystem 2.5" PM1645 3.2TB Mainstream SAS 12Gb Hot Swap SSD | 24 |
| 2.5-inch hot-swap SSDs - 12 Gb SAS - Read Intensive/Entry/Capacity (<3 DWPD) | | | |
| 4XB7A38175 | B91A | ThinkSystem 2.5" PM1643a 960GB Entry SAS 12Gb Hot Swap SSD | 24 |
| 4XB7A38176 | B91B | ThinkSystem 2.5" PM1643a 1.92TB Entry SAS 12Gb Hot Swap SSD | 24 |
| 4XB7A17054 | B91C | ThinkSystem 2.5" PM1643a 3.84TB Entry SAS 12Gb Hot Swap SSD | 24 |
| 4XB7A17055 | B91D | ThinkSystem 2.5" PM1643a 7.68TB Entry SAS 12Gb Hot Swap SSD | 24 |
| 4XB7A17056 | BC4R | ThinkSystem 2.5" PM1643a 15.36TB Entry SAS 12Gb Hot Swap SSD | 24 |
| 2.5-inch hot-swap SED SSDs - 12 Gb SAS - Write Intensive/Performance (10+ DWPD) | | | |
| 4XB7A70007 | BFZZ | ThinkSystem 2.5" Nytro 3732 800GB Performance SAS 12Gb Hot Swap SSD SED | 24 |

Table 33. 2.5-inch hot-swap 6 Gb SATA SSDs

| Part number | Feature | Description | Maximum supported |
|---|---|---|---|
| 2.5-inch hot-swap SSDs - 6 Gb SATA - Mixed Use/Mainstream (3-5 DWPD) | | | |
| 4XB7A17125 | BA7Q | ThinkSystem 2.5" S4620 480GB Mixed Use SATA 6Gb HS SSD | 24 |
| 4XB7A17126 | BA4T | ThinkSystem 2.5" S4620 960GB Mixed Use SATA 6Gb HS SSD | 24 |
| 4XB7A17127 | BA4U | ThinkSystem 2.5" S4620 1.92TB Mixed Use SATA 6Gb HS SSD | 24 |
| 4XB7A17128 | BK7L | ThinkSystem 2.5" S4620 3.84TB Mixed Use SATA 6Gb HS SSD | 24 |
| 4XB7A17087 | B8J1 | ThinkSystem 2.5" 5300 240GB Mainstream SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A17088 | B8HY | ThinkSystem 2.5" 5300 480GB Mainstream SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A17089 | B8J6 | ThinkSystem 2.5" 5300 960GB Mainstream SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A17090 | B8JE | ThinkSystem 2.5" 5300 1.92TB Mainstream SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A17091 | B8J7 | ThinkSystem 2.5" 5300 3.84TB Mainstream SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A13633 | B49L | ThinkSystem 2.5" Intel S4610 240GB Mainstream SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A13634 | B49M | ThinkSystem 2.5" Intel S4610 480GB Mainstream SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A13635 | B49N | ThinkSystem 2.5" Intel S4610 960GB Mainstream SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A13636 | B49P | ThinkSystem 2.5" Intel S4610 1.92TB Mainstream SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A13637 | B49Q | ThinkSystem 2.5" Intel S4610 3.84TB Mainstream SATA 6Gb Hot Swap SSD | 24 |

| Part number | Feature | Description | Maximum supported |
|---|---|---|---|
| 4XB7A10237 | B488 | ThinkSystem 2.5" 5200 240GB Mainstream SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A10240 | B48B | ThinkSystem 2.5" 5200 1.92TB Mainstream SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A10241 | B48C | ThinkSystem 2.5" 5200 3.84TB Mainstream SATA 6Gb Hot Swap SSD | 24 |
| 2.5-inch hot-swap SSDs - 6 Gb SATA - Read Intensive/Entry (<3 DWPD) | | | |
| 4XB7A17072 | B99D | ThinkSystem 2.5" S4520 240GB Read Intensive SATA 6Gb HS SSD | 24 |
| 4XB7A17101 | BA7G | ThinkSystem 2.5" S4520 480GB Read Intensive SATA 6Gb HS SSD | 24 |
| 4XB7A17102 | BA7H | ThinkSystem 2.5" S4520 960GB Read Intensive SATA 6Gb HS SSD | 24 |
| 4XB7A17103 | BA7J | ThinkSystem 2.5" S4520 1.92TB Read Intensive SATA 6Gb HS SSD | 24 |
| 4XB7A17104 | BK77 | ThinkSystem 2.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD | 24 |
| 4XB7A17105 | BK78 | ThinkSystem 2.5" S4520 7.68TB Read Intensive SATA 6Gb HS SSD | 24 |
| 4XB7A38271 | BCTC | ThinkSystem 2.5" Multi Vendor 240GB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A38272 | BCTD | ThinkSystem 2.5" Multi Vendor 480GB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A38273 | BCTE | ThinkSystem 2.5" Multi Vendor 960GB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A38274 | BCTF | ThinkSystem 2.5" Multi Vendor 1.92TB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A38275 | BCTG | ThinkSystem 2.5" Multi Vendor 3.84TB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A17075 | B8HV | ThinkSystem 2.5" 5300 240GB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A17076 | B8JM | ThinkSystem 2.5" 5300 480GB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A17077 | B8HP | ThinkSystem 2.5" 5300 960GB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A17078 | B8J5 | ThinkSystem 2.5" 5300 1.92TB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A17079 | B8JP | ThinkSystem 2.5" 5300 3.84TB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A17080 | B8J2 | ThinkSystem 2.5" 5300 7.68TB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A38185 | B9AC | ThinkSystem 2.5" 5210 960GB Entry SATA 6Gb Hot Swap QLC SSD | 24 |
| 4XB7A38144 | B7EW | ThinkSystem 2.5" 5210 1.92TB Entry SATA 6Gb Hot Swap QLC SSD | 24 |
| 4XB7A38145 | B7EX | ThinkSystem 2.5" 5210 3.84TB Entry SATA 6Gb Hot Swap QLC SSD | 24 |
| 4XB7A38146 | B7EY | ThinkSystem 2.5" 5210 7.68TB Entry SATA 6Gb Hot Swap QLC SSD | 24 |
| 4XB7A10247 | B498 | ThinkSystem 2.5" Intel S4510 240GB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A10248 | B499 | ThinkSystem 2.5" Intel S4510 480GB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A10249 | B49A | ThinkSystem 2.5" Intel S4510 960GB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A13622 | B49B | ThinkSystem 2.5" Intel S4510 1.92TB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A13623 | B49C | ThinkSystem 2.5" Intel S4510 3.84TB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A10195 | B34H | ThinkSystem 2.5" PM883 240GB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A10196 | B34J | ThinkSystem 2.5" PM883 480GB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A10197 | B34K | ThinkSystem 2.5" PM883 960GB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A10198 | B34L | ThinkSystem 2.5" PM883 1.92TB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A10199 | B34M | ThinkSystem 2.5" PM883 3.84TB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A10200 | B4D2 | ThinkSystem 2.5" PM883 7.68TB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A10155 | B2X4 | ThinkSystem 2.5" 5200 1.92TB Entry SATA 6Gb Hot Swap SSD | 24 |
| 4XB7A10157 | B2X6 | ThinkSystem 2.5" 5200 7.68TB Entry SATA 6Gb Hot Swap SSD | 24 |
| 2.5-inch hot-swap SED SSDs - 6 Gb SATA - Mixed Use/Mainstream (3-5 DWPD) | | | |
| 4XB7A38193 | B93K | ThinkSystem 2.5" 5300 1.92TB Mainstream SATA 6Gb Hot Swap SSD SED | 24 |
| 4XB7A64222 | BEMB | ThinkSystem 2.5" 5300 3.84TB Mainstream SATA 6Gb Hot Swap SSD SED | 24 |
| 4XB7A14063 | B6K0 | ThinkSystem 2.5" 5200 1.92TB Mainstream SATA 6Gb Hot Swap SSD SED | 24 |
| 2.5-inch hot-swap SED SSDs - 6 Gb SATA - Read Intensive/Entry (<3 DWPD) | | | |

| Part number | Feature | Description | Maximum supported |
|---|---|---|---|
| 4XB7A38141 | BE29 | ThinkSystem 2.5" 5300 960GB Entry SATA 6Gb Hot Swap SSD SED | 24 |
| 4XB7A38191 | B93L | ThinkSystem 2.5" 5300 3.84TB Entry SATA 6Gb Hot Swap SSD SED | 24 |
| 4XB7A38192 | B93M | ThinkSystem 2.5" 5300 7.68TB Entry SATA 6Gb Hot Swap SSD SED | 24 |

Table 34. 2.5-inch hot-swap PCIe 4.0 NVMe SSDs (operate at PCIe 3.0 speeds in this server)

| Part number | Feature | Description | Maximum supported |
|---|---|---|---|
| 2.5-inch SSDs - U.2 PCIe 4.0 NVMe - Mixed Use/Mainstream (3-5 DWPD) | | | |
| 4XB7A17152 | BCFV | ThinkSystem U.2 Intel P5600 1.6TB Mainstream NVMe PCIe 4.0 x4 Hot Swap SSD | 24 |
| 4XB7A17153 | BCFR | ThinkSystem U.2 Intel P5600 3.2TB Mainstream NVMe PCIe 4.0 x4 Hot Swap SSD | 24 |
| 4XB7A17154 | BCFS | ThinkSystem U.2 Intel P5600 6.4TB Mainstream NVMe PCIe 4.0 x4 Hot Swap SSD | 24 |
| 2.5-inch SSDs - U.3 PCIe 4.0 NVMe - Mixed Use/Mainstream (3-5 DWPD) | | | |
| 4XB7A64175 | BE03 | ThinkSystem U.3 Kioxia CM6-V 800GB Mainstream NVMe PCIe 4.0 x4 Hot Swap SSD | 24 |
| 4XB7A17112 | B96Z | ThinkSystem U.3 Kioxia CM6-V 1.6TB Mainstream NVMe PCIe4.0 x4 Hot Swap SSD | 24 |
| 4XB7A17113 | B96T | ThinkSystem U.3 Kioxia CM6-V 3.2TB Mainstream NVMe PCIe4.0 x4 Hot Swap SSD | 24 |
| 4XB7A17114 | B96P | ThinkSystem U.3 Kioxia CM6-V 6.4TB Mainstream NVMe PCIe4.0 x4 Hot Swap SSD | 24 |
| 2.5-inch SSDs - U.2 PCIe 4.0 NVMe - Read Intensive/Entry (<3 DWPD) | | | |
| 4XB7A17145 | BCFT | ThinkSystem U.2 Intel P5500 1.92TB Entry NVMe PCIe 4.0 x4 Hot Swap SSD | 24 |
| 4XB7A17146 | BCFW | ThinkSystem U.2 Intel P5500 3.84TB Entry NVMe PCIe 4.0 x4 Hot Swap SSD | 24 |
| 4XB7A17147 | BCFU | ThinkSystem U.2 Intel P5500 7.68TB Entry NVMe PCIe 4.0 x4 Hot Swap SSD | 24 |
| 4XB7A38197 | BC4Z | ThinkSystem U.2 PM1733 3.84TB Entry NVMe PCIe 4.0 x4 Hot Swap SSD | 24 |
| 4XB7A38283 | BE2E | ThinkSystem U.2 PM1733 7.68TB Entry NVMe PCIe 4.0 x4 Hot Swap SSD | 24 |
| 4XB7A38284 | BE2F | ThinkSystem U.2 PM1733 15.36TB Entry NVMe PCIe 4.0 x4 Hot Swap SSD | 24 |
| 2.5-inch SSDs - U.3 PCIe 4.0 NVMe - Read Intensive/Entry (<3 DWPD) | | | |
| 4XB7A64141 | BE2G | ThinkSystem U.3 Kioxia CM6-R 3.84TB Entry NVMe PCIe 4.0 x4 Hot Swap SSD | 24 |
| 4XB7A64142 | BE2H | ThinkSystem U.3 Kioxia CM6-R 7.68TB Entry NVMe PCIe 4.0 x4 Hot Swap SSD | 24 |
| 2.5-inch SED SSDs - U.2 PCIe 4.0 NVMe - Read Intensive/Entry (<3 DWPD) | | | |
| 4XB7A38257 | BE2A | ThinkSystem U.2 PM1733 3.84TB Entry NVMe PCIe 4.0 x4 Hot Swap SSD SED | 24 |
| 4XB7A38258 | BE2B | ThinkSystem U.2 PM1733 7.68TB Entry NVMe PCIe 4.0 x4 Hot Swap SSD SED | 24 |
| 2.5-inch SED SSDs - U.3 PCIe 4.0 NVMe - Read Intensive/Entry (<3 DWPD) | | | |
| 4XB7A38269 | BE2C | ThinkSystem U.3 Kioxia CM6-R 3.84TB Entry NVMe PCIe 4.0 x4 Hot Swap SSD SED | 24 |
| 4XB7A38270 | BE2D | ThinkSystem U.3 Kioxia CM6-R 7.68TB Entry NVMe PCIe 4.0 x4 Hot Swap SSD SED | 24 |

Table 35. 2.5-inch hot-swap PCIe 3.0 NVMe SSDs

| Part number | Feature | Description | Maximum supported |
|---|---|---|---|
| 2.5-inch SSDs - U.2 PCIe 3.0 NVMe - Write Intensive/Performance (10+ DWPD) | | | |
| 7N47A00081 | AUMJ | ThinkSystem U.2 Intel Optane P4800X 375GB Performance NVMe PCIe 3.0 x4 Hot Swap SSD | 24 |
| 7N47A00083 | B2ZJ | ThinkSystem U.2 Intel Optane P4800X 750GB Performance NVMe PCIe 3.0 x4 Hot Swap SSD | 24 |
| 2.5-inch SSDs - U.2 PCIe 3.0 NVMe - Mixed Use/Mainstream (3-5 DWPD) | | | |
| 4XB7A08516 | B21W | ThinkSystem U.2 Toshiba CM5-V 800GB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD | 24 |
| 4XB7A08517 | B21X | ThinkSystem U.2 Toshiba CM5-V 1.6TB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD | 24 |
| 4XB7A08518 | B21Y | ThinkSystem U.2 Toshiba CM5-V 3.2TB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD | 24 |
| 4XB7A08519 | B2XJ | ThinkSystem U.2 Toshiba CM5-V 6.4TB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD | 24 |
| 2.5-inch SSDs - U.2 PCIe 3.0 NVMe - Read Intensive/Entry (<3 DWPD) | | | |
| 4XB7A10204 | B58G | ThinkSystem U.2 Intel P4510 2.0TB Entry NVMe PCIe3.0 x4 Hot Swap SSD | 24 |
| 4XB7A10175 | B34N | ThinkSystem U.2 PM983 1.92TB Entry NVMe PCIe 3.0 x4 Hot Swap SSD | 24 |
| 4XB7A10176 | B34P | ThinkSystem U.2 PM983 3.84TB Entry NVMe PCIe 3.0 x4 Hot Swap SSD | 24 |
| 4XB7A10177 | B4D3 | ThinkSystem U.2 PM983 7.68TB Entry NVMe PCIe3.0 x4 Hot Swap SSD | 24 |
| 2.5-inch SED SSDs - U.2 PCIe 3.0 NVMe - Read Intensive/Entry (<3 DWPD) | | | |
| 4XB7A14060 | B6K4 | ThinkSystem U.2 CM5-R 3.84TB Entry NVMe PCIe 3.0 x4 Hot Swap SSD SED | 24 |

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

Table 36. 3.5-inch hot-swap 12 Gb SAS HDDs

| Part number | Feature | Description | Maximum supported |
|---|---|---|---|
| 3.5-inch hot-swap HDDs - 12 Gb SAS 10K | | | |
| 7XB7A00063 | B1JJ | ThinkSystem 3.5" 300GB 10K SAS 12Gb Hot Swap 512n HDD | 14 |
| 4XB7A77004 | BK12 | ThinkSystem 3.5" 1.2TB 10K SAS 12Gb Hot Swap 512n HDD | 14 |
| 3.5-inch hot-swap HDDs - 12 Gb SAS 15K | | | |
| 7XB7A00038 | AUU2 | ThinkSystem 3.5" 300GB 15K SAS 12Gb Hot Swap 512n HDD | 14 |
| 7XB7A00039 | AUU3 | ThinkSystem 3.5" 600GB 15K SAS 12Gb Hot Swap 512n HDD | 14 |
| 7XB7A00040 | AUUC | ThinkSystem 3.5" 900GB 15K SAS 12Gb Hot Swap 512e HDD | 14 |
| 3.5-inch hot-swap HDDs - 12 Gb NL SAS | | | |
| 7XB7A00041 | AUU4 | ThinkSystem 3.5" 1TB 7.2K SAS 12Gb Hot Swap 512n HDD | 14 |
| 7XB7A00042 | AUU5 | ThinkSystem 3.5" 2TB 7.2K SAS 12Gb Hot Swap 512n HDD | 14 |
| 7XB7A00043 | AUU6 | ThinkSystem 3.5" 4TB 7.2K SAS 12Gb Hot Swap 512n HDD | 14 |
| 7XB7A00044 | AUU7 | ThinkSystem 3.5" 6TB 7.2K SAS 12Gb Hot Swap 512e HDD | 14 |
| 7XB7A00045 | B0YR | ThinkSystem 3.5" 8TB 7.2K SAS 12Gb Hot Swap 512e HDD | 14 |
| 7XB7A00046 | AUUG | ThinkSystem 3.5" 10TB 7.2K SAS 12Gb Hot Swap 512e HDD | 14 |
| 7XB7A00067 | B117 | ThinkSystem 3.5" 12TB 7.2K SAS 12Gb Hot Swap 512e HDD | 14 |
| 4XB7A13906 | B496 | ThinkSystem 3.5" 14TB 7.2K SAS 12Gb Hot Swap 512e HDD | 14 |
| 4XB7A13911 | B7EZ | ThinkSystem 3.5" 16TB 7.2K SAS 12Gb Hot Swap 512e HDD | 14 |
| 4XB7A38266 | BCFP | ThinkSystem 3.5" 18TB 7.2K SAS 12Gb Hot Swap 512e HDD | 14 |
| 3.5-inch hot-swap SED HDDs - 12 Gb NL SAS | | | |
| 7XB7A00065 | B0YN | ThinkSystem 3.5" 2TB 7.2K SAS 12Gb Hot Swap 512e HDD FIPS | 14 |
| 7XB7A00047 | AUUH | ThinkSystem 3.5" 4TB 7.2K SAS 12Gb Hot Swap 512n HDD FIPS | 14 |
| 7XB7A00048 | B0YP | ThinkSystem 3.5" 6TB 7.2K SAS 12Gb Hot Swap 512e HDD FIPS | 14 |
| 7XB7A00066 | B0YQ | ThinkSystem 3.5" 8TB 7.2K SAS 12Gb Hot Swap 512e HDD FIPS | 14 |

Table 37. 3.5-inch hot-swap 6 Gb SATA HDDs

| Part number | Feature | Description | Maximum supported |
|---|---|---|---|
| 3.5-inch hot-swap HDDs - 6 Gb NL SATA | | | |
| 7XB7A00049 | AUUF | ThinkSystem 3.5" 1TB 7.2K SATA 6Gb Hot Swap 512n HDD | 14 |
| 7XB7A00050 | AUUD | ThinkSystem 3.5" 2TB 7.2K SATA 6Gb Hot Swap 512n HDD | 14 |
| 7XB7A00051 | AUU8 | ThinkSystem 3.5" 4TB 7.2K SATA 6Gb Hot Swap 512n HDD | 14 |
| 7XB7A00052 | AUUA | ThinkSystem 3.5" 6TB 7.2K SATA 6Gb Hot Swap 512e HDD | 14 |
| 7XB7A00053 | AUU9 | ThinkSystem 3.5" 8TB 7.2K SATA 6Gb Hot Swap 512e HDD | 14 |
| 7XB7A00054 | AUUB | ThinkSystem 3.5" 10TB 7.2K SATA 6Gb Hot Swap 512e HDD | 14 |
| 7XB7A00068 | B118 | ThinkSystem 3.5" 12TB 7.2K SATA 6Gb Hot Swap 512e HDD | 14 |
| 4XB7A13907 | B497 | ThinkSystem 3.5" 14TB 7.2K SATA 6Gb Hot Swap 512e HDD | 14 |
| 4XB7A13914 | B7F0 | ThinkSystem 3.5" 16TB 7.2K SATA 6Gb Hot Swap 512e HDD | 14 |
| 4XB7A38130 | BCFH | ThinkSystem 3.5" 18TB 7.2K SATA 6Gb Hot Swap 512e HDD | 14 |

Table 38. 3.5-inch hot-swap 12 Gb SAS SSDs

| Part number | Feature | Description | Maximum supported |
|---|---|---|---|
| 3.5-inch hot-swap SSDs - 12 Gb SAS - Write Intensive/Performance (10+ DWPD) | | | |
| 4XB7A70011 | BG03 | ThinkSystem 3.5" Nytro 3732 400GB Performance SAS 12Gb Hot Swap SSD | 14 |
| 4XB7A70010 | BG02 | ThinkSystem 3.5" Nytro 3732 800GB Performance SAS 12Gb Hot Swap SSD | 14 |
| 4XB7A70009 | BG01 | ThinkSystem 3.5" Nytro 3732 1.6TB Performance SAS 12Gb Hot Swap SSD | 14 |
| 4XB7A70008 | BG00 | ThinkSystem 3.5" Nytro 3732 3.2TB Performance SAS 12Gb Hot Swap SSD | 14 |
| 4XB7A10234 | B4Y8 | ThinkSystem 3.5" SS530 800GB Performance SAS 12Gb Hot Swap SSD | 14 |
| 4XB7A10236 | B4YA | ThinkSystem 3.5" SS530 3.2TB Performance SAS 12Gb Hot Swap SSD | 14 |
| 3.5-inch hot-swap SSDs - 12 Gb SAS - Mixed Use/Mainstream (3-5 DWPD) | | | |
| 4XB7A17066 | B8HT | ThinkSystem 3.5" PM1645a 800GB Mainstream SAS 12Gb Hot Swap SSD | 14 |
| 4XB7A17043 | B8JN | ThinkSystem 3.5" PM1645a 1.6TB Mainstream SAS 12Gb Hot Swap SSD | 14 |
| 4XB7A17067 | B8JK | ThinkSystem 3.5" PM1645a 3.2TB Mainstream SAS 12Gb Hot Swap SSD | 14 |
| 4XB7A17068 | B8JG | ThinkSystem 3.5" PM1645a 6.4TB Mainstream SAS 12Gb Hot Swap SSD | 14 |
| 4XB7A13659 | B4A5 | ThinkSystem 3.5" PM1645 3.2TB Mainstream SAS 12Gb Hot Swap SSD | 14 |
| 3.5-inch hot-swap SSDs - 12 Gb SAS - Read Intensive/Entry/Capacity (<3 DWPD) | | | |
| 4XB7A17058 | B91E | ThinkSystem 3.5" PM1643a 3.84TB Entry SAS 12Gb Hot Swap SSD | 14 |
| 4XB7A17059 | BEVK | ThinkSystem 3.5" PM1643a 7.68TB Entry SAS 12Gb Hot Swap SSD | 14 |

Table 39. 3.5-inch hot-swap 6 Gb SATA SSDs

| Part number | Feature | Description | Maximum supported |
|---|---|---|---|
| 3.5-inch hot-swap SSDs - 6 Gb SATA - Mixed Use/Mainstream (3-5 DWPD) | | | |
| 4XB7A17137 | BA4W | ThinkSystem 3.5" S4620 480GB Mixed Use SATA 6Gb HS SSD | 14 |
| 4XB7A17138 | BA4X | ThinkSystem 3.5" S4620 960GB Mixed Use SATA 6Gb HS SSD | 14 |
| 4XB7A17139 | BA4Y | ThinkSystem 3.5" S4620 1.92TB Mixed Use SATA 6Gb HS SSD | 14 |
| 4XB7A17140 | BK7P | ThinkSystem 3.5" S4620 3.84TB Mixed Use SATA 6Gb HS SSD | 14 |
| 4XB7A17096 | B8JL | ThinkSystem 3.5" 5300 240GB Mainstream SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A17097 | B8JF | ThinkSystem 3.5" 5300 480GB Mainstream SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A17098 | B8J0 | ThinkSystem 3.5" 5300 960GB Mainstream SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A17099 | B8HR | ThinkSystem 3.5" 5300 1.92TB Mainstream SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A17100 | B8HX | ThinkSystem 3.5" 5300 3.84TB Mainstream SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A13639 | B49R | ThinkSystem 3.5" Intel S4610 240GB Mainstream SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A13640 | B49S | ThinkSystem 3.5" Intel S4610 480GB Mainstream SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A13641 | B49T | ThinkSystem 3.5" Intel S4610 960GB Mainstream SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A13642 | B49U | ThinkSystem 3.5" Intel S4610 1.92TB Mainstream SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A13643 | B49V | ThinkSystem 3.5" Intel S4610 3.84TB Mainstream SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A10242 | B48D | ThinkSystem 3.5" 5200 240GB Mainstream SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A10245 | B48G | ThinkSystem 3.5" 5200 1.92TB Mainstream SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A10246 | B48H | ThinkSystem 3.5" 5200 3.84TB Mainstream SATA 6Gb Hot Swap SSD | 14 |
| 3.5-inch hot-swap SSDs - 6 Gb SATA - Read Intensive/Entry (<3 DWPD) | | | |
| 4XB7A17118 | BA7K | ThinkSystem 3.5" S4520 240GB Read Intensive SATA 6Gb HS SSD | 14 |
| 4XB7A17119 | BA7L | ThinkSystem 3.5" S4520 480GB Read Intensive SATA 6Gb HS SSD | 14 |
| 4XB7A17120 | BA7M | ThinkSystem 3.5" S4520 960GB Read Intensive SATA 6Gb HS SSD | 14 |

| Part number | Feature | Description | Maximum supported |
|---|---|---|---|
| 4XB7A17121 | BA7N | ThinkSystem 3.5" S4520 1.92TB Read Intensive SATA 6Gb HS SSD | 14 |
| 4XB7A17122 | BK7F | ThinkSystem 3.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD | 14 |
| 4XB7A17123 | BK7G | ThinkSystem 3.5" S4520 7.68TB Read Intensive SATA 6Gb HS SSD | 14 |
| 4XB7A38276 | BCTH | ThinkSystem 3.5" Multi Vendor 240GB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A38277 | BCTJ | ThinkSystem 3.5" Multi Vendor 480GB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A38278 | BCTK | ThinkSystem 3.5" Multi Vendor 960GB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A38279 | BCTL | ThinkSystem 3.5" Multi Vendor 1.92TB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A38281 | BCTM | ThinkSystem 3.5" Multi Vendor 3.84TB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A17081 | B8JB | ThinkSystem 3.5" 5300 240GB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A17082 | B8J9 | ThinkSystem 3.5" 5300 480GB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A17083 | B8JC | ThinkSystem 3.5" 5300 960GB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A17084 | B8HZ | ThinkSystem 3.5" 5300 1.92TB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A17085 | B8HQ | ThinkSystem 3.5" 5300 3.84TB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A17086 | B8J3 | ThinkSystem 3.5" 5300 7.68TB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A13625 | B49D | ThinkSystem 3.5" Intel S4510 240GB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A13626 | B49E | ThinkSystem 3.5" Intel S4510 480GB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A13627 | B49F | ThinkSystem 3.5" Intel S4510 960GB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A13628 | B49G | ThinkSystem 3.5" Intel S4510 1.92TB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A13629 | B49H | ThinkSystem 3.5" Intel S4510 3.84TB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A17176 | B6TM | ThinkSystem 3.5" PM883 240GB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A17177 | B6TN | ThinkSystem 3.5" PM883 480GB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A17178 | B6TP | ThinkSystem 3.5" PM883 960GB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A17179 | B6JY | ThinkSystem 3.5" PM883 1.92TB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A17180 | B6JZ | ThinkSystem 3.5" PM883 3.84TB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A10160 | B2X9 | ThinkSystem 3.5" 5200 1.92TB Entry SATA 6Gb Hot Swap SSD | 14 |
| 4XB7A10162 | B2XB | ThinkSystem 3.5" 5200 7.68TB Entry SATA 6Gb Hot Swap SSD | 14 |

Table 40. 3.5-inch hot-swap PCIe 4.0 NVMe SSDs (operate at PCIe 3.0 speeds in this server)

| Part number | Feature | Description | Maximum supported |
|---|---|---|---|
| 3.5-inch SSDs - U.2 PCIe 4.0 NVMe - Mixed Use/Mainstream (3-5 DWPD) | | | |
| 4XB7A17155 | BCFM | ThinkSystem 3.5" Intel P5600 1.6TB Mainstream NVMe PCIe 4.0 x4 Hot Swap SSD | 4 |
| 4XB7A17156 | BCFJ | ThinkSystem 3.5" Intel P5600 3.2TB Mainstream NVMe PCIe 4.0 x4 Hot Swap SSD | 4 |
| 4XB7A17157 | BCFQ | ThinkSystem 3.5" Intel P5600 6.4TB Mainstream NVMe PCIe 4.0 x4 Hot Swap SSD | 4 |
| 3.5-inch SSDs - U.3 PCIe 4.0 NVMe - Mixed Use/Mainstream (3-5 DWPD) | | | |
| 4XB7A64176 | BE04 | ThinkSystem 3.5" Kioxia CM6-V 800GB Mainstream NVMe PCIe 4.0 x4 Hot Swap SSD | 4 |
| 4XB7A17115 | B96V | ThinkSystem 3.5" Kioxia CM6-V 1.6TB Mainstream NVMe PCIe4.0 x4 Hot Swap SSD | 4 |
| 4XB7A17116 | B96K | ThinkSystem 3.5" Kioxia CM6-V 3.2TB Mainstream NVMe PCIe4.0 x4 Hot Swap SSD | 4 |
| 4XB7A17117 | B96W | ThinkSystem 3.5" Kioxia CM6-V 6.4TB Mainstream NVMe PCIe4.0 x4 Hot Swap SSD | 4 |

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

Table 41. 3.5-inch hot-swap PCIe 3.0 NVMe SSDs

| Part number | Feature | Description | Maximum supported |
|---|---|---|---|
| 3.5-inch SSDs - U.2 PCIe 3.0 NVMe - Mixed Use/Mainstream (3-5 DWPD) | | | |
| 4XB7A08532 | B21Z | ThinkSystem 3.5" Toshiba CM5-V 800GB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD | 4 |
| 4XB7A08533 | B220 | ThinkSystem 3.5" Toshiba CM5-V 1.6TB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD | 4 |
| 4XB7A08534 | B221 | ThinkSystem 3.5" Toshiba CM5-V 3.2TB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD | 4 |
| 4XB7A08535 | B2XK | ThinkSystem 3.5" Toshiba CM5-V 6.4TB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD | 4 |
| 3.5-inch SSDs - U.2 PCIe 3.0 NVMe - Read Intensive/Entry (<3 DWPD) | | | |
| 4XB7A10178 | B34Q | ThinkSystem 3.5" PM983 1.92TB Entry NVMe PCIe 3.0 x4 Hot Swap SSD | 4 |
| 4XB7A10179 | B34R | ThinkSystem 3.5" PM983 3.84TB Entry NVMe PCIe 3.0 x4 Hot Swap SSD | 4 |
| 4XB7A10180 | B4D4 | ThinkSystem 3.5" PM983 7.68TB Entry NVMe PCIe3.0 x4 Hot Swap SSD | 4 |

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

Table 42. M.2 SATA drives

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

* The 5100 and 5300 M.2 drives may require the SSD Thermal Kit, 4XH7A08791. See the Cooling section for details.

### USB memory key

For general portable storage needs, the server also supports the USB memory key option that is listed in the following table.

Table 43. USB memory key

| Part number | Feature | Description |
|---|---|---|
| 00ML200 | None* | 32GB Enterprise Value USB Memory Key |

* Field upgrade only.

## Optical drives

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

Table 44. External optical drive

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

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

## I/O expansion

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 can be single- or double-wide)
- Slot 2: PCIe 3.0 x8; full-height, half-length (not present if Slot 1 is PCIe x16 double-wide or Slot 3 is ML2 x16)
- Slot 3: PCIe 3.0 x8, or PCIe 3.0 x16, 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 (for an internal storage controller)

**Configuration notes:**

- Slots 5 and 6 require the second processor to be installed.
- Single-wide PCIe 3.0 x16 Slot 1 requires the second processor to be installed.

- The following configurations require the single-wide PCIe 3.0 x16 Slot 1:
  - 24 NVMe PCIe drive bays.
  - Two double-wide GPUs and one PCIe x16 adapter.
- Slots 1 - 3 are not present if the Rear HDD Kit is installed.
- Slots 1, 5, and 6 can be enabled for full-length PCIe adapters (such as GPU adapters):
  - Factory-installed GPUs: When a GPU adapter is selected, all required parts are derived.
  - Factory-enabled full-length support (no adapters included): Select the feature code B3RY, and all required parts will be derived based on the number of processors and PCIe riser cards selected.
  - Field upgrades: Refer to Cooling for upgrade kit requirements.

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

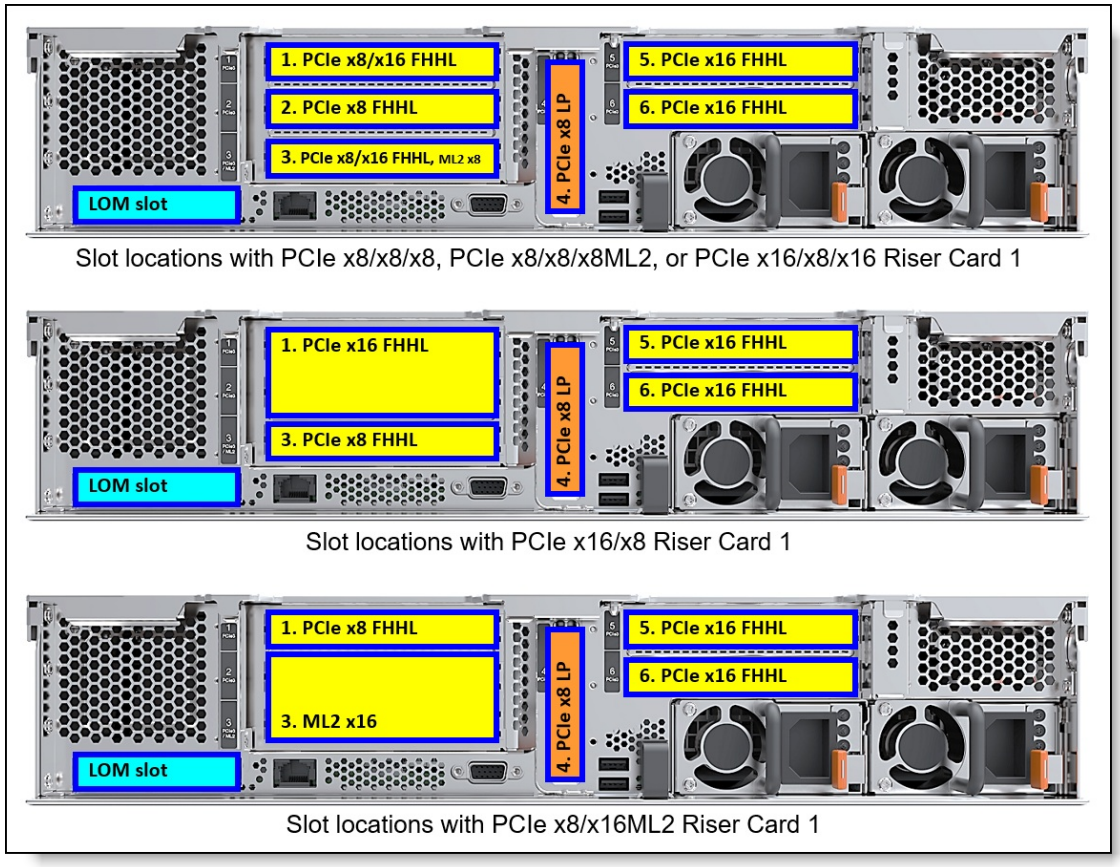



Figure 11. Slot locations

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 45. Slots available for use

| Riser Card 1 | Riser Card 2 | Slots available for use | |
|---|---|---|---|
| | | Processor 1 | Processor 2 |
| None | None | LOM, 4, 7 | - |
| None | PCIe x16/x16 | LOM, 4, 7 | 5, 6 |
| 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 | - |
| PCIe x8/x8/x8 or PCIe x8/x8/x8ML2 | PCIe x16/x16 | LOM, 1, 2, 3, 4, 7 | 5, 6 |
| PCIe x16/x8 or PCIe x8/x16ML2 | PCIe x16/x16 | LOM, 1, 3, 4, 7 | 5, 6 |
| PCIe x16/x8/x16 | PCIe x16/x16 | LOM, 2, 3, 4, 7 | 1, 5, 6 |

The following table lists available PCIe riser card options.

Table 46. PCIe riser cards and miscellaneous options

| Part number | Feature code | Description | Maximum quantity |
|---|---|---|---|
| x8 Riser Card 1 options (Riser card 1 supplies slots 1, 2, and 3) | | | |
| 7XH7A02677 | AUR4 | ThinkSystem 2U x8/x8/x8 PCIe FH Riser 1 | 1 |
| 7XH7A02680 | AUR7 | ThinkSystem 2U x8/x8/x8ML2 PCIe FH Riser 1 | 1 |
| 4XH7A09902 | B4PB | ThinkSystem SR650 x16/x8/x16 PCIe FH Riser 1 | 1 |
| x16 Riser Card 1 options (Riser card 1 supplies slots 1 and 3) | | | |
| 7XH7A02678 | AUR3 | ThinkSystem 2U x16/x8 PCIe FH Riser 1 | 1 |
| 7XH7A02681 | AURB | ThinkSystem SR650 x8/x16ML2 PCIe FH Riser 1 Kit | 1 |
| Riser Card 2 option (Riser card 2 supplies slots 5 and 6) | | | |
| 4TA7A70026 | BFJZ | ThinkSystem SR650 x16/x8(or x16) PCIe FH Riser 2 Kit V2 | 1 |
| Serial port upgrade kit | | | |
| 7Z17A02577 | AUSL | ThinkSystem COM Port Upgrade Kit | 1 |

**Configuration notes:**

- If the PCIe x16/x8/x16 Riser Card (4XH7A09902) is installed, the onboard NVMe interface cannot be used for connections to U.2 NVMe or AnyBay drive bays.
- In the configurations with 16x 2.5-inch U.2 NVMe PCIe drive bays, the PCIe 3.0 x8 Slot 3 and PCIe 3.0 x16 Slot 5 are available, and the remaining slots are occupied by the NVMe switch adapters.
  **Note:** If the additional 8-bay SAS/SATA backplane is installed, only the PCIe 3.0 x16 Slot 5 is available (the PCIe 3.0 x8 Slot 3 is occupied by an internal storage controller).
- In the configurations with 20x 2.5-inch U.2 NVMe PCIe drive bays, the PCIe 3.0 x8 Slot 3 is available, and the remaining slots are occupied by the NVMe switch adapters.
- In the configurations with 24x 2.5-inch U.2 NVMe PCIe drive bays, the PCIe 3.0 x16 Slots 3 and 5 are available, and the remaining slots are occupied by the NVMe switch adapters.
- For field upgrades to add the NVIDIA A100 GPU, the use of Riser 2 V2 riser kit (4TA7A70026) is required when the GPU is to be installed in slot 5. The older Riser 2 kit (7XH7A02679, now withdrawn) is not supported with the A100. For CTO orders, feature code BF9Y will be used for the correct Riser 2 bracket.
- The COM Port Upgrade Kit, part number 7Z17A02577, is used for mounting the external serial port on the rear of the SR650 server, and it includes the bracket and the cable. The COM Port option is mounted in place of one of the PCIe slots 1 - 6, and that PCIe slot 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)
- Data Center 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 47. Network adapters

| Part number | Feature code | Description | Max qty# | I/O slots supported |
|---|---|---|---|---|
| LOM cards - 1 Gb Ethernet | | | | |
| 7ZT7A00544 | AUKG | ThinkSystem 1Gb 2-port RJ45 LOM | 1 | LOM slot |
| 7ZT7A00545 | AUKH | ThinkSystem 1Gb 4-port RJ45 LOM | 1 | LOM slot |
| LOM cards - 10 Gb Ethernet | | | | |
| 7ZT7A00548 | AUKL | ThinkSystem 10Gb 2-port Base-T LOM | 1 | LOM slot |
| 7ZT7A00546 | AUKJ | ThinkSystem 10Gb 2-port SFP+ LOM | 1* | LOM slot |
| 7ZT7A00549 | AUKM | ThinkSystem 10Gb 4-port Base-T LOM | 1 | LOM slot |
| 7ZT7A00547 | AUKK | ThinkSystem 10Gb 4-port SFP+ LOM | 1* | LOM slot |
| ML2 adapters - 10 Gb Ethernet | | | | |
| 7ZT7A00497 | AUKQ | Broadcom NX-E ML2 10Gb 2-Port Base-T Ethernet Adapter | 1 | 3 (ML2) |
| 01CV770 | AU7Z | Emulex VFA5.2 ML2 2x10 GbE SFP+ Adapter and FCoE/iSCSI SW | 1* | 3 (ML2) |
| 00JY940 | ATRH | Intel X710-DA2 ML2 2x10GbE SFP+ Adapter | 1* | 3 (ML2) |
| ML2 adapters - 25 Gb Ethernet | | | | |
| 00MN990 | ATZR | Mellanox ConnectX-4 Lx 10/25GbE SFP28 1-port ML2 Ethernet Adapter | 1* | 3 (ML2) |
| 7ZT7A00507 | AUKU | Mellanox ConnectX-4 Lx 10/25GbE SFP28 2-port ML2 Ethernet Adapter | 1* | 3 (ML2) |
| ML2 adapters - FDR InfiniBand | | | | |
| 7ZT7A00501 | AUKR | Mellanox ConnectX-3 Pro ML2 FDR 2-Port QSFP VPI Adapter | 1* | 3 (ML2) |
| PCIe Low Profile adapters - 1 Gb Ethernet | | | | |
| 7ZT7A00482 | AUZX | Broadcom 5720 1GbE RJ45 2-Port PCIe Ethernet Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 7ZT7A00484 | AUZV | Broadcom 5719 1GbE RJ45 4-Port PCIe Ethernet Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 7ZT7A00533 | AUZZ | ThinkSystem I350-F1 PCIe 1Gb 1-Port SFP Ethernet Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 7ZT7A00534 | AUZY | ThinkSystem I350-T2 PCIe 1Gb 2-Port RJ45 Ethernet Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 7ZT7A00535 | AUZW | ThinkSystem I350-T4 PCIe 1Gb 4-Port RJ45 Ethernet Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 4XC7A62589§ | BE8A§ | SiNEAD I350-C4 PCIe 1Gb 4-Port RJ45 Ethernet Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |

| Part number | Feature code | Description | Max qty# | I/O slots supported |
|---|---|---|---|---|
| PCIe Low Profile adapters - 10 Gb Ethernet | | | | |
| 7ZT7A00496 | AUKP | Broadcom 57416 10GBASE-T 2-Port PCIe Ethernet Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 00AG570 | AT7S | Emulex VFA5.2 2x10 GbE SFP+ PCIe Adapter | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| 00AG580 | AT7T | Emulex VFA5.2 2x10 GbE SFP+ Adapter and FCoE/iSCSI SW | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| 00MM860 | ATPX | Intel X550-T2 Dual Port 10GBase-T Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 7ZT7A00537 | AUKX | Intel X710-DA2 PCIe 10Gb 2-Port SFP+ Ethernet Adapter | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| 4XC7A08225 | B31G | QLogic QL41134 PCIe 10Gb 4-Port Base-T Ethernet Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| PCIe Full Height adapters - 10 Gb Ethernet | | | | |
| 7ZT7A00493 | AUKN | Emulex OCe14104B-NX PCIe 10Gb 4-Port SFP+ Ethernet Adapter | 3 / 5* | 2, 6, 3, 5, 1 |
| PCIe Low Profile adapters - 25 Gb Ethernet | | | | |
| 7ZT7A00505 | AUKS | Broadcom 57412 10/25GbE SFP28 1-Port PCIe Ethernet Adapter | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| 4XC7A08238 | B5T0 | Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| 4XC7A08316 | BD49 | Broadcom 57454 10/25GbE SFP28 4-port PCIe Ethernet Adapter V2 | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| 4XC7A08295 | BCD6 | Intel E810-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| 7XC7A05523 | B0WY | Intel XXV710-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| 4XC7A08270 | B652 | Marvell QL41232 10/25GbE SFP28 2-Port PCIe Ethernet Adapter | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| 01GR250 | AUAJ | Mellanox ConnectX-4 Lx 10/25GbE SFP28 2-Port PCIe Ethernet Adapter | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| 4XC7A62574 | BEAP | Mellanox ConnectX-5 EN 10/25GbE SFP28 2-port PCIe Ethernet Adapter | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| 4XC7A16683 | B5XZ | Mellanox Innova-2 ConnectX-5 FPGA 25GbE 2-port Adapter | 1 / 3* | 1, 5, 6† |
| 4XC7A62580 | BE4U | Mellanox ConnectX-6 Lx 10/25GbE SFP28 2-Port PCIe Ethernet Adapter | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| 4XC7A08228 | B21R | QLogic QL41262 10/25GbE SFP28 2-Port PCIe Ethernet Adapter | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| 4XC7A62581 | BHE2 | Solarflare X2522-Plus 10/25GbE SFP28 2-Port PCIe Ethernet Adapter | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| PCIe Low Profile adapters - 40 Gb Ethernet | | | | |
| 00MM950 | ATRN | Mellanox ConnectX-4 Lx 1x40GbE QSFP+ Adapter | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| 4XC7A08229 | B31C | Mellanox ConnectX-5 Ex 25/40GbE 2-port Low-Latency Adapter | 1 / 3*^ | 1, 5, 6† |
| PCIe Low Profile adapters - FDR InfiniBand | | | | |
| 7XC7A05524 | B0WX | Mellanox ConnectX-4 PCIe FDR 1-Port QSFP VPI Adapter | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| 7ZT7A00500 | AUVG | Mellanox ConnectX-4 PCIe FDR 2-Port QSFP VPI Adapter | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| PCIe x16 Low Profile adapters - 100 Gb Ethernet | | | | |
| 00MM960 | ATRP | Mellanox ConnectX-4 2x100GbE/EDR IB QSFP28 VPI Adapter | 1 / 3* | 1, 5, 6† |
| 4XC7A08248 | B8PP | Mellanox ConnectX-6 Dx 100GbE QSFP56 2-port PCIe Ethernet Adapter | 1 / 3* | 1, 5, 6† |
| 4XC7A76757 | BLC2 | ThinkSystem Xilinx Alveo U50 Data Center Accelerator Adapter | 1 / 2* | 1, 5¤ |
| PCIe x16 Low Profile adapters - 100 Gb Ethernet / HDR100 InfiniBand | | | | |
| 4C57A14177 | B4R9 | ThinkSystem Mellanox ConnectX-6 HDR100/100GbE QSFP56 1-port PCIe VPI Adapter | 1 / 3* | 1, 5, 6† |
| 4C57A14178 | B4RA | ThinkSystem Mellanox ConnectX-6 HDR100/100GbE QSFP56 2-port PCIe VPI Adapter | 1 / 3* | 1, 5, 6† |
| PCIe x16 Low Profile adapters - 200 Gb Ethernet / HDR InfiniBand | | | | |
| 4C57A15326 | B4RC | ThinkSystem Mellanox ConnectX-6 HDR/200GbE QSFP56 1-port PCIe 4 VPI Adapter | 1 / 1* | 1†‡ |
| 4C57A14179 | B4RB | Mellanox HDR/200GbE 2x PCIe Aux Kit | 1 / 1* | 5, 6†‡ |
| PCIe Low Profile adapters - Omni-Path | | | | |
| 00WE023 | AU0A | Intel OPA 100 Series Single-port PCIe 3.0 x8 HFA | 4 / 6* | 4, 2, 6, 3, 5, 1 |
| 00WE027 | AU0B | Intel OPA 100 Series Single-port PCIe 3.0 x16 HFA | 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 product guide for the adapter.
† The adapter is supported in the PCIe x16 slots supplied by the riser cards 1 and 2.
^ The 25 GbE connectivity requires the optional Mellanox QSA 100G to 25G Cable Adapter (4G17A10853) (one per port); the supported cables include 25 GbE passive DAC and active optical cables (25 GbE transceivers not supported)
‡ The ConnectX-6 HDR adapter is supported only in the configurations with two processors, and it requires the HDR/200GbE 2x PCIe Aux Kit.
§ The SiNEAD I350-C4 adapter is only available for customers in Mainland China (PRC). Not supported installed with Intel I350 adapters.
¤ When the Xilinx Alveo U50 is installed in slot 5, slot 6 should be left empty; When the Xilinx Alveo U50 is installed in slot 1, slot 2 should be left empty and slot 3 can only be occupied by adapters of less than 25W power consumption.

**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.
- The Mellanox HDR and HDR100 InfiniBand QSFP56 adapters are supported only in the configurations with up to 16x 2.5-inch or 8x 3.5-inch drive bays and only with an ambient temperature of up to 35 °C (95 °F). Not supported in 12x 3.5-inch or 24x 2.5-inch configurations.
- In the configurations with two double-wide GPU adapters and a PCIe x16 adapter, the following adapters are supported in the PCIe 3.0 x16 slot 3 supplied by the PCIe x16/x8/x16 Riser Card (4XH7A09902):
  - Mellanox ConnectX-4 1x100GbE/EDR IB QSFP28 VPI Adapter (00KH924)
  - Mellanox ConnectX-4 2x100GbE/EDR IB QSFP28 VPI Adapter (00MM960)
  - Mellanox ConnectX-5 Ex 25/40GbE 2-port Low-Latency Adapter (4XC7A08229)
  - Intel OPA 100 Series Single-port PCIe 3.0 x16 HFA (00WE027)
- Supported transceivers or DAC cables should be purchased for the SFP+, SFP28, QSFP+, and QSFP28 adapters, and UTP Category 6 or Category 5e cables should be purchased for the 10 GbE (Cat6) or 1 GbE (Cat5e or Cat6) RJ-45 adapters. The maximum number of transceivers or cables that are supported per adapter equals the quantity of the adapter ports, and all adapter ports must have the same type of the transceiver or cable selected. See the product guide for the adapter for the list of supported transceivers and cables.

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

## SAS adapters for external storage

The following table lists SAS RAID controllers and HBAs for external storage attachments that are supported by the SR650 server.

Table 48. SAS RAID adapters and HBAs for external storage

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

| Part number | Feature code | Description | Maximum quantity* | I/O slots supported |
|---|---|---|---|---|
| 7Y37A01091 | AUNN | ThinkSystem 430-16e SAS/SATA 12Gb HBA | 4 / 5 | 4, 2, 3, 5, 1 |

* 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 730-8i 2GB, RAID 930-8i, RAID 930-16i, RAID 930-24i, and RAID 930-8e controllers in a supported combination 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 730-8i 2GB, RAID 930-8i, RAID 930-16i, RAID 930-24i, and RAID 930-8e controllers in a supported combination 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 49. 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 | SAS3516 | 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 | 240 | 1024 | 1024 |
| 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 50. Fibre Channel HBAs

| Part number | Feature code | Description | Maximum quantity* | I/O slots supported |
|---|---|---|---|---|
| 64 Gb Fibre Channel - PCIe | | | | |
| 4XC7A77485 | BLC1 | ThinkSystem Emulex LPe36002 64Gb 2-port PCIe Fibre Channel Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 32 Gb Fibre Channel - PCIe | | | | |
| 4XC7A08250 | B5SX | Emulex LPe35000 32Gb 1-port PCIe Fibre Channel Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 4XC7A08251 | B5SY | Emulex LPe35002 32Gb 2-port PCIe Fibre Channel Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 7ZT7A00519 | AUNV | Emulex LPe32002-M2-L PCIe 32Gb 2-Port SFP+ FC HBA | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 7ZT7A00516 | AUNS | QLogic QLE2740 PCIe 32Gb 1-Port SFP+ FC HBA | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 7ZT7A00518 | AUNU | QLogic QLE2742 PCIe 32Gb 2-Port SFP+ FC HBA | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 16 Gb Fibre Channel - PCIe | | | | |
| 01CV830 | ATZU | Emulex 16Gb Gen6 FC Single-port HBA | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 01CV840 | ATZV | Emulex 16Gb Gen6 FC Dual-port HBA | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 01CV750 | ATZB | QLogic 16Gb Enhanced Gen5 FC Single-port HBA | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 01CV760 | ATZC | QLogic 16Gb Enhanced Gen5 FC Dual-port HBA | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 8 Gb Fibre Channel - PCIe (available only in PRC and AP) | | | | |
| 4XC7A08221 | B0X0 | Emulex LPe12002-M8-L PCIe 8Gb 2-Port SFP+ FC HBA | 4 / 6 | 4, 2, 6, 3, 5, 1 |

* 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 51. Flash storage adapters

| Part number | Feature code | Description | Maximum quantity* | I/O slots supported |
|---|---|---|---|---|
| Mainstream Flash Adapters - PM1735 | | | | |
| 4XB7A14075 | B8JH | ThinkSystem HHHL PM1735 1.6TB Mainstream NVMe PCIe4.0 x4 Flash Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 4XB7A14076 | B8HW | ThinkSystem HHHL PM1735 3.2TB Mainstream NVMe PCIe4.0 x4 Flash Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 4XB7A14077 | B96M | ThinkSystem HHHL PM1735 6.4TB Mainstream NVMe PCIe4.0 x4 Flash Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| Mainstream Flash Adapters - CM5-V | | | | |
| 4XB7A38234 | BCGJ | CM5-V 1.6TB Mainstream NVMe PCIe 3.0 x4 Flash Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 4XB7A38237 | BCGK | CM5-V 3.2TB Mainstream NVMe PCIe 3.0 x4 Flash Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |
| 4XB7A38240 | BCGL | CM5-V 6.4TB Mainstream NVMe PCIe 3.0 x4 Flash Adapter | 4 / 6 | 4, 2, 6, 3, 5, 1 |

* 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.
- Flash storage adapters are supported only in the environments with an ambient temperature of up to 35 °C (95 °F).
- Flash storage adapters are supported only with processors of up to 165 W TDP.
- Flash storage adapters are not supported with persistent memory

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 52. GPU adapters

| Part number | Feature code | Description | Maximum quantity* | I/O slots supported |
|---|---|---|---|---|
| Single-wide PCIe x16 GPU adapters | | | | |
| 4X67A11524 | B32D | ThinkSystem NVIDIA Tesla V100 FHHL 16GB PCIe GPU | 1 / 3 | 1, 5, 6 |
| 4X67A71311 | BFTZ | ThinkSystem NVIDIA A10 24GB PCIe Gen4 Passive GPU | 1 / 4 | 1, 5, 6, 2 |
| 4X67A11584 | B31D | ThinkSystem NVIDIA Quadro P620 2GB PCIe Active GPU | 1 / 3 | 1, 5, 6 |
| 4X67A14926 | B4YB | ThinkSystem NVIDIA Tesla T4 16GB PCIe Passive GPU | 3 / 5§ | 1, 2, 3, 5, 6 |
| 4X67A14934 | B6CG | ThinkSystem NVIDIA Quadro RTX 4000 8GB PCIe Active GPU | 1 / 3 | 1, 5, 6 |
| Double-wide PCIe x16 GPU adapters | | | | |
| 4X67A13135† | BEL5 | ThinkSystem NVIDIA A100 40GB PCIe Gen4 Passive GPU | 1 / 2 | 1, 5 |
| 4X67A76581 | BJHG | ThinkSystem NVIDIA A30 24GB PCIe Gen4 Passive GPU | 1 / 2 | 1, 5 |
| 4X67A13124 | BB2E | ThinkSystem NVIDIA Tesla V100S 32GB PCIe Passive GPU | 1 / 2 | 1, 5 |
| 4X67A71310 | BFT0 | ThinkSystem NVIDIA Quadro RTX A6000 48GB PCIe Active GPU | 1 / 2 | 1, 5 |
| 4X67A65441‡ | BCGR | ThinkSystem NVIDIA Quadro RTX 8000 48GB PCIe Passive GPU | 1 / 2 | 1, 5 |
| 4X67A13125‡ | BB2D | ThinkSystem NVIDIA Quadro RTX 6000 24GB PCIe Passive GPU | 1 / 2 | 1, 5 |
| 4X67A17267 | B6CH | ThinkSystem NVIDIA Quadro RTX 5000 16GB PCIe Active GPU | 1 / 2 | 1, 5 |
| 7C57A02895 | B2V5 | ThinkSystem NVIDIA Quadro P6000 24GB GPU, PCIe (active) | 1 / 2 | 1, 5 |
| 7C57A02891 | B15V | ThinkSystem NVIDIA Tesla M10 32GB PCIe Passive GPU | 1 / 2 | 1, 5 |

* The maximum quantity shown is with one processor / two processors.
† The NVIDIA A100 requires UEFI firmware 2.80 or later, and XClarity Controller firmware 5.40 or higher.
‡ The RTX 6000 and RTX 8000 GPUs are only available via Special Bid.
§ SR650 with 1st Gen Xeon processors supports up to 4x NVIDIA T4 GPUs

**Configuration notes:**

- All GPU adapters in the server must be of the same model; mixing different GPU adapter models is not supported.
- The GPU adapters require the PCIe x16 riser cards (except NVIDIA T4 GPU adapters, which are also supported in x8 slots with physical x16 connectors).
- NVIDIA T4 is a PCIe x16 adapter, however in the SR650, the GPU is also supported in PCIe riser x8 slots with x16 physical connectors. Note, however, that a x8 host connection may result in a performance decrease of approximately 5%.
- For field upgrades to add the NVIDIA A100 GPU, the use of Riser 2 V2 riser kit (4TA7A70026) is required when the GPU is to be installed in slot 5. The older Riser 2 kit (7XH7A02679, now withdrawn) is not supported with the A100. For CTO orders, feature code BF9Y will be used for the correct Riser 2 bracket.
- The T4 GPU adapters are supported only in the specific I/O slots, as follows:
  - 1x T4 GPU adapter (one or two processors):
    - PCIe 3.0 x16 Slot 1 on the x16/x8 Riser Card 1 (7XH7A02678); or
    - PCIe 3.0 x8 Slot 1 on the x8/x8/x8 Riser Card 1 (7XH7A02677).
  - 2x T4 GPU adapters:
    - One processor: PCIe 3.0 x8 Slots 1 and 2 on the x8/x8/x8 Riser Card 1 (7XH7A02677).
    - Two processors:
      - PCIe 3.0 x16 or x8 Slot 1 on one of the following riser cards:
        - PCIe 3.0 x16 Slot 1 on the x16/x8 Riser Card 1 (7XH7A02678); or
        - PCIe 3.0 x8 Slot 1 on the x8/x8/x8 Riser Card 1 (7XH7A02677).
      - PCIe 3.0 x16 Slot 5 on the x16/x16 Riser Card 2 (4TA7A70026 ).
    - **Note:** Slot 6 must remain unoccupied in the configurations with two T4 GPU adapters.
  - 3x T4 GPU adapters:

        - One processor: PCIe 3.0 x8 Slots 1, 2, and 3 on the x8/x8/x8 Riser Card 1 (7XH7A02677).
        - Two processors:
            - PCIe 3.0 x16 or x8 Slot 1 on one of the following riser cards:
                - PCIe 3.0 x16 Slot 1 on the x16/x8 Riser Card 1 (7XH7A02678); or
                - PCIe 3.0 x8 Slot 1 on the x8/x8/x8 Riser Card 1 (7XH7A02677).
            - PCIe 3.0 x16 Slots 5 and 6 on the x16/x16 Riser Card 2 (4TA7A70026 ).
    - 4x T4 GPU adapters (require two processors):
        - PCIe 3.0 x8 or x16 Slot 1 and PCIe 3.0 x8 Slot 2 on one of the following riser cards:
            - x8/x8/x8 Riser Card 1 (7XH7A02677); or
            - x16/x8/x16 Riser Card 1 (4XH7A09902).
        - PCIe 3.0 x16 Slots 5 and 6 on the x16/x16 Riser Card 2 (4TA7A70026 ).
    - 5x T4 GPU adapters (require two processors) (2nd Gen Xeon processors only):
        - PCIe 3.0 x8 or x16 Slots 1 and 3, and PCIe 3.0 x8 Slot 2 on one of the following riser cards:
            - x8/x8/x8 Riser Card 1 (7XH7A02677); or
            - x16/x8/x16 Riser Card 1 (4XH7A09902).
        - PCIe 3.0 x16 Slots 5 and 6 on the x16/x16 Riser Card 2 (4TA7A70026 ).
- The GPU adapters are supported with the following drive bay configurations:
    - Processors of up to 150 W TDP:
        - 8x or 16x 2.5-inch SAS/SATA & AnyBay drive bays (support for up to 4x or 8x NVMe SSDs).
        - 8x 3.5-inch SAS/SATA drive bays.
    - Processors of more than 150 W and up to 205 W TDP with up to four T4 GPU adapters, or processors of more than 150 W and up to 165 W TDP:
        - 8x 2.5-inch SAS/SATA drive bays (no support for NVMe SSDs) in the environments with the ambient temperature of up to 30 °C (86 °F).
    - **Note:** The P620, P4000, P6000, V100 FHHL, and V340 GPU adapters are supported only with the processors of up to 150 W TDP.
- If a double-wide GPU adapter is installed in the PCIe slot 5, the PCIe slot 6 cannot be used.
- The P620 GPU adapters do not require any thermal kits. The GPU adapters other than P620 may require one of the optional GPU Thermal Kits (see Cooling for details).
- GPU adapters are supported only with the 1100 W or 1600 W power supplies.
- GPU adapters (except V100 FHHL and T4 GPU adapters) are supported only in the ASHRAE A2 environments (up to 35 °C [95 °F]); the V100 FHHL and T4 GPU adapters are supported only in the environments with the ambient temperature of up to 30 °C (86 °F).
- Configurations with two double-wide GPU adapters and a PCIe x16 adapter are supported only in the environments with the ambient temperature of up to 30 °C (86 °F), and with SAS/SATA drive bays only (no AnyBay or U.2 NVMe support).
- If the GPU adapters are installed, the server performance might be impacted in case of a system fan failure.
- The GPU adapters are not supported with the T-suffix processors.
- The GPU adapters are not supported with the persistent memory modules.
- The GPU adapters are not supported with the PCIe flash storage adapters.
- The GPU adapters are not supported with the Rear HDD Kit.
- The maximum server memory that can be installed with the NVIDIA Tesla M10 GPU is 1 TB.

### Auxiliary power cables

For CTO orders, the necessary GPU auxiliary power cable is derived by the configurator.

For field upgrades, some Lenovo GPU adapter options come with the necessary power cables for internal cabling. For all others, you will need to order the cable separately using the SR650 GPU cable kit. Details in the following table.

Table 53. SR650 GPU cable kit option

| Part number | Description |
|---|---|
| 4XH7A08794 | ThinkSystem SR650 GPU Cable Kit<br>• SBB7A00293 - 300mm PCIe 6pin (2x3) + PCIe 8pin (2x4)<br>  ◦ For use with NVIDIA M10, RTX 5000, P6000 and AMD MI25<br>  ◦ Also included in Lenovo GPU option part numbers<br>• SBB7A00299 - 300mm 8pin (2x4) cable<br>  ◦ For use with NVIDIA V100S, V100, P40, RTX 8000, A100, RTX 6000, RTX A6000<br>  ◦ Also included in Lenovo GPU option part numbers for V100S, V100, P40, and RTX 8000<br>• SBB7A05971 - 300mm 2x 8pin (2x4) cable<br>  ◦ For use with NVIDIA V100 FHHL, RTX 4000<br>• SBB7A05946 - 300mm 2x PCIe 6pin (2x3)<br>  ◦ For use with NVIDIA P4000 |

## Cooling

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

In the case of a system fan failure, performance might be impacted with any of the following server configurations:

- Gen 2 processors with 200 W or 205 W TDP, or Gold 6230N, 6240Y, 6244, or 6250 are installed.
- Gen 1 processors Intel Xeon 6137, 6144, 6146, 6154, 8168, 8180, and 8180M are installed.
- Persistent memory modules are installed.
- GPU adapters are installed.
- 16/20/24x 2.5" U.2 NVMe PCIe drive bays at the ambient temperature of more than 30 °C (86 °F).

The following table shows additional cooling options.

Table 54. Cooling options

| Part number | Feature code | Description | Maximum quantity |
|---|---|---|---|
| 4F17A12349 | AUSG | ThinkSystem SR650 Fan Option Kit (for 2nd Gen processors only) | 1 |
| 4XH7A08791 | B31F | ThinkSystem M.2 SSD Thermal Kit | 1 |
| 7XH7A05897 | None | ThinkSystem SR650 GPU Thermal Kit | 1 |
| 7XH7A05899 | AURU | ThinkSystem SR650 2nd GPU Upgrade Kit | 1 |
| 7XH7A05898 | None | ThinkSystem SR650 GPU 1U Heatsink Option Kit | 1 |
| 4XH7A08792 | B37F | ThinkSystem SR650 V100 FHHL Air Duct Companion Kit | 2 |

**Configuration notes:**

- The installation of a 2nd processor requires an extra cooling fan be installed. For CTO orders, fans are derived by the configurator. For field upgrades, 1st Gen processor option part numbers include this fan however 2nd Gen processor options do not included the fan and it must be ordered separately using SR650 Fan Option Kit (4F17A12349).
- The M.2 SSD Thermal Kit (4XH7A08791) is required when at least one M.2 5100 or 5300 SSD is installed in the server; however, the SSD Thermal Kit is not required in the server configurations with the GPU Thermal Kit (7XH7A05897) (factory-installed or field upgrade). If required, the M.2 SSD Thermal Kit is derived by the configurator for initial server configurations, or it should be purchased for M.2 5100 or 5300 SSDs for field upgrades.
- The P620 GPU adapters do not require any thermal kits.

- The full-length PCIe adapters and GPU adapters other than  P620 require one of the following thermal kits depending on the configuration:
    - The GPU Thermal Kit (7XH7A05897) is required when adding GPUs or full-length PCIe adapters to the SR650 server models without factory-installed GPUs or factory-enabled full-length support. The kit provides support for up to three GPUs or full-length adapters in the PCIe x16 slots 1, 5, and 6, and it contains an air duct, two low-profile heatsinks, and two full-length card holders.
    - The 2nd GPU Upgrade Kit (7XH7A05899) is required when adding more GPUs or full-length adapters to the SR650 server models with one riser card and the factory-enabled full-length support or factory-installed GPUs. The kit provides support for the additional GPUs or full-length adapters, and it contains a full-length card holder (the second riser card is not included in the kit).
    - The GPU 1U Heatsink Option Kit (7XH7A05898) is required when adding the second processor to the SR650 server models with one processor and the factory-enabled full-length support or factory-installed GPUs. The kit contains a low-profile heatsink for the second processor option.
- The V100 FHHL GPU adapters require the following quantities of the V100 FHHL Air Duct Companion Kit (4XH7A08792) in addition to one of the thermal kits described above:
    - 1x V100 FHHL GPU adapter: 1x Air Duct Companion Kit.
    - 2x or 3x V100 FHHL GPU adapters: 2x Air Duct Companion Kits.

## 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 55. Power supplies

| Part number | Feature code | Description | Maximum quantity |
|---|---|---|---|
| 7N67A00882 | AVWC | ThinkSystem 550W (230V/115V) Platinum Hot-Swap Power Supply | 2 |
| 7N67A00883 | AVWD | ThinkSystem 750W (230/115V) Platinum Hot-Swap Power Supply | 2 |
| 7N67A00884 | AVWE | ThinkSystem 750W (230V) Titanium Hot-Swap Power Supply | 2 |
| 7N67A00885 | AVWF | ThinkSystem 1100W (230V/115V) Platinum Hot-Swap Power Supply | 2 |
| 7N67A00886 | AVWG | ThinkSystem 1600W (230V) Platinum Hot-Swap Power Supply | 2 |
| 4P57A15363‡ | B4Z5‡ | ThinkSystem 1100W -48V DC Power Supply | 2 |

‡ Special bid only

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

**Configuration notes:**

- Minimum of 1 and maximum of 2 power supplies per system.
- If 2 are installed, power supplies must be identical.
- AC power supplies support AC (Worldwide) and HVDC (PRC only) power sources
- AC power supplies have a C14 connector. The -48V DC power supply has a Weidmuller TOP 4GS/3 7.6 terminal.

**Important:** The Standalone Solution Configuration Tool (SSCT) and Lenovo Data Center Solution Configurator (DCSC) power supply selection rules allow a subset of possible configurations due to power restrictions. Configurations that cannot be built in SSCT or DCSC due to power restrictions may still be supported. To verify support and ensure that the right power supply is chosen for optimal performance, you should always validate your server configuration using the latest version of the Lenovo Capacity Planner:
http://datacentersupport.lenovo.com/us/en/solutions/lnvo-lcp

### Power cords

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

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

Table 56. Power cords

| Part number | Feature code | Description |
|---|---|---|
| Rack cables | | |
| 00Y3043 | A4VP | 1.0m, 10A/100-250V, C13 to C14 Jumper Cord |
| 39Y7937 | 6201 | 1.5m, 10A/100-250V, C13 to C14 Jumper Cord |
| 4L67A08369 | 6570 | 2.0m, 13A/100-250V, C13 to C14 Jumper Cord |
| 4L67A08366 | 6311 | 2.8m, 10A/100-250V, C13 to C14 Jumper Cord |
| 4L67A08370 | 6400 | 2.8m, 13A/100-250V, C13 to C14 Jumper Cord |
| 39Y7932 | 6263 | 4.3m, 10A/100-250V, C13 to C14 Jumper Cord |
| 4L67A08371 | 6583 | 4.3m, 13A/100-250V, C13 to C14 Jumper Cord |
| Line cords | | |
| 39Y7930 | 6222 | 2.8m, 10A/250V, C13 to IRAM 2073 (Argentina) Line Cord |
| 81Y2384 | 6492 | 4.3m, 10A/250V, C13 to IRAM 2073 (Argentina) Line Cord |
| 39Y7924 | 6211 | 2.8m, 10A/250V, C13 to AS/NZS 3112 (Australia/NZ) Line Cord |
| 81Y2383 | 6574 | 4.3m, 10A/250V, C13 to AS/NZS 3112 (Australia/NZ) Line Cord |
| 69Y1988 | 6532 | 2.8m, 10A/250V, C13 to NBR 14136 (Brazil) Line Cord |
| 81Y2387 | 6404 | 4.3m, 10A/250V, C13 to NBR 14136 (Brazil) Line Cord |
| 39Y7928 | 6210 | 2.8m, 10A/220V, C13 to GB 2099.1 (China) Line Cord |
| 81Y2378 | 6580 | 4.3m, 10A/250V, C13 to GB 2099.1 (China) Line Cord |
| 39Y7918 | 6213 | 2.8m, 10A/250V, C13 to DK2-5a (Denmark) Line Cord |
| 81Y2382 | 6575 | 4.3m, 10A/250V, C13 to DK2-5a (Denmark) Line Cord |
| 39Y7917 | 6212 | 2.8m, 10A/250V, C13 to CEE 7/7 (Europe) Line Cord |
| 81Y2376 | 6572 | 4.3m, 10A/250V, C13 to CEE 7/7 (Europe) Line Cord |
| 39Y7927 | 6269 | 2.8m, 10A/250V, C13 to IS 6538 (India) Line Cord |
| 81Y2386 | 6567 | 4.3m, 10A/250V, C13 to IS 6538 (India) Line Cord |
| 39Y7920 | 6218 | 2.8m, 10A/250V, C13 to SI 32 (Israel) Line Cord |
| 81Y2381 | 6579 | 4.3m, 10A/250V, C13 to SI 32 (Israel) Line Cord |
| 39Y7921 | 6217 | 2.8m, 10A/250V, C13 to CEI 23-16 (Italy) Line Cord |
| 81Y2380 | 6493 | 4.3m, 10A/250V, C13 to CEI 23-16 (Italy) Line Cord |
| 4L67A08362 | 6495 | 4.3m, 12A/200V, C13 to JIS C-8303 (Japan) Line Cord |
| 39Y7922 | 6214 | 2.8m, 10A/250V, C13 to SABS 164-1 (South Africa) Line Cord |
| 81Y2379 | 6576 | 4.3m, 10A/250V, C13 to SANS 164-1 (South Africa) Line Cord |
| 39Y7926 | 6335 | 4.3m, 12A/100V, C13 to JIS C-8303 (Japan) Line Cord |
| 39Y7925 | 6219 | 2.8m, 12A/220V, C13 to KSC 8305 (S. Korea) Line Cord |
| 81Y2385 | 6494 | 4.3m, 12A/250V, C13 to KSC 8305 (S. Korea) Line Cord |
| 39Y7919 | 6216 | 2.8m, 10A/250V, C13 to SEV 1011-S24507 (Swiss) Line Cord |
| 81Y2390 | 6578 | 4.3m, 10A/250V, C13 to SEV 1011-S24507 (Swiss) Line Cord |
| 23R7158 | 6386 | 2.8m, 10A/125V, C13 to CNS 10917 (Taiwan) Line Cord |
| 81Y2375 | 6317 | 2.8m, 10A/250V, C13 to CNS 10917 (Taiwan) Line Cord |

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

For the -48V DC Power Supply, the following power cable is supported.

Table 57. -48V DC power cable

| Part number | Feature code | Description |
|---|---|---|
| CTO only | B93F | ThinkSystem 2.5m,DC Cable |

## 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 Integrators
- Lenovo XClarity Energy Manager
- Lenovo Capacity Planner

### 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 the following graphics resolutions:
  - Up to 1600x1200 with up to 23 bits per pixel; or
  - Up to 1920x1200 with up to 15 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 58. XClarity Controller FoD upgrades

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

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

### Lenovo XClarity Administrator

Lenovo XClarity is a centralized systems management solution that helps administrators deliver infrastructure faster. This solution integrates easily with Lenovo x86 servers, RackSwitch switches, and DS Series storage, providing automated agent-less discovery, monitoring, firmware updates, configuration management, and bare metal deployment of operating systems and hypervisors across multiple servers.

Lenovo XClarity Administrator is an optional software component for the 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 59. Lenovo XClarity software options

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

* NA = North America; AP = Asia Pacific
** EMEA = Europe, Middle East, Africa; LA = Latin America

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

- Auto-discovery and monitoring of Lenovo x86 servers, RackSwitch switches, Flex System chassis, and DS Series storage systems
- Firmware updates and compliance enforcement
- External alerts and notifications via SNMP traps, syslog remote logging, and e-mail
- Secure connections to managed endpoints
- NIST 800-131A or FIPS 140-2 compliant cryptographic standards between the management solution and managed endpoints
- Integration into existing higher-level management systems such as cloud automation and orchestration tools through REST APIs, providing extensive external visibility and control over hardware resources
- An intuitive, easy-to-use GUI
- Scripting with Windows PowerShell, providing command-line visibility and control over hardware resources

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

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

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

### Lenovo XClarity Integrators

Lenovo offers at no charge (if software support is required, a Lenovo XClarity Pro software subscription license should be ordered) two software plug-in modules, Lenovo XClarity Integrators, to manage physical infrastructure from leading external virtualization management software tools from Microsoft and VMware:

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

Lenovo XClarity Integrators offer the following additional features:

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

For more information about XClarity Integrators, refer to the Lenovo Systems Management web page:
https://www.lenovo.com/us/en/data-center/software/management/

### Lenovo XClarity Energy Manager

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

Lenovo XClarity Energy Manager offers the following capabilities:

- Monitors room, row, rack, and device levels in the data center
- Reports vital 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 1-node Energy Manager license is included in the XClarity Controller Enterprise upgrade.

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

Table 60. 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 |

* NA = North America; AP = Asia Pacific.
** EMEA = Europe, Middle East, Africa; LA = Latin America.

For more information, refer to the Lenovo XClarity Energy Manager web page:
http://datacentersupport.lenovo.com/us/en/solutions/lnvo-lxem

### Lenovo Capacity Planner

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

For more information, refer to the Capacity Planner web page:
http://datacentersupport.lenovo.com/us/en/solutions/lnvo-lcp

## Security

The ThinkSystem 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; PRC only)
- Nationz Trusted Platform Module v2.0 (optional; PRC only)
- Lockable front bezel (optional)
- Self-encrypting drives (SEDs) with support for enterprise key managers - see the SED encryption key management section
- Lenovo Business Vantage security software (optional; PRC only)

The server is NIST SP 800-147B compliant.

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

Table 61. Security options

| Part number | Feature code | Description | Maximum quantity |
|---|---|---|---|
| Lockable front bezel | | | |
| 7Z17A02580 | AURX | ThinkSystem 2U Security Bezel | 1 |
| Trusted Cryptographic Module (PRC only) | | | |
| None* | AVKE | ThinkSystem Trusted Cryptographic Module | 1 |
| Trusted Platform Module (PRC only) | | | |
| None* | B22N | ThinkSystem Nationz Trusted Platform Module v2.0 | 1 |

* Factory-installed only; no field upgrade.

Lenovo Business Vantage is a security software tool suite (available only in PRC) designed to work with the TCM or Nationz TPM for enhanced security, to keep user data safe, and to erase confidential data completely from a drive.

Lenovo Business Vantage provides the following features:

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

For more information, refer to the Lenovo Business Vantage web page:
http://support.lenovo.com.cn/lenovo/wsi/es/es.html

### Intel Transparent Supply Chain

Add a layer of protection in your data center and have peace of mind that the server hardware you bring into it is safe authentic and with documented, testable, and provable origin.

Lenovo has one of the world's best supply chains, as ranked by Gartner Group, backed by extensive and mature supply chain security programs that exceed industry norms and US Government standards. Now we are the first Tier 1 manufacturer to offer Intel® Transparent Supply Chain in partnership with Intel, offering you an unprecedented degree of supply chain transparency and assurance.

To enable Intel Transparent Supply Chain for the Intel-based servers in your order, add the following feature code in the DCSC configurator, under the Security tab.

Table 62. Intel Transparent Supply Chain ordering information

| Feature code | Description |
|---|---|
| BB0P | Intel Transparent Supply Chain |

For more information on this offering, see the paper *Introduction to Intel Transparent Supply Chain on Lenovo ThinkSystem Servers*, available from https://lenovopress.com/lp1434-introduction-to-intel-transparent-supply-chain-on-thinksystem-servers.

## Rack installation

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

Table 63. Rack installation options

| Part number | Feature code | Description | Maximum quantity |
|---|---|---|---|
| 4-post rail kits | | | |
| 7M27A05702 | AXCA | ThinkSystem Tool-less Slide Rail | 1 |
| 7M27A05700 | AXCH | ThinkSystem Tool-less Slide Rail Kit with 2U CMA | 1 |
| 4M17A07274 | AXFN | ThinkSystem Screw-in Slide Rail | 1 |
| 4M17A07280 | B0TD | ThinkSystem Screw-in Slide Rail Kit with 2U CMA | 1 |
| 4M17A07273 | BK7W | ThinkSystem Toolless Friction Rail v2 | 1 |
| Cable management arm (CMA) upgrade | | | |
| 7M27A05698 | None^ | ThinkSystem 2U CMA Upgrade Kit for Tool-less Slide Rail | 1* |
| 4M17A07275 | AXFU | ThinkSystem 2U CMA Upgrade Kit for Screw-in Slide Rail | 1** |
| Front VGA port | | | |
| 7Z17A02578 | AUS8 | ThinkSystem SR550/SR590/SR650 EIA Latch w/ VGA Upgrade Kit | 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 64. 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 |

| Feature | Tool-less Slide Rail | | Screw-in Slide Rail | | Tool-less Friction Rail |
|---|---|---|---|---|---|
| | Without CMA | With CMA | Without CMA | With CMA | |
| 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 with 2nd Gen Intel Xeon SP processors supports the following operating systems:

- Microsoft Windows Server 2016
- Microsoft Windows Server 2019
- Microsoft Windows Server 2022
- Red Hat Enterprise Linux 7.6
- Red Hat Enterprise Linux 7.7
- Red Hat Enterprise Linux 7.8
- Red Hat Enterprise Linux 7.9
- Red Hat Enterprise Linux 8.0
- Red Hat Enterprise Linux 8.1
- Red Hat Enterprise Linux 8.2
- Red Hat Enterprise Linux 8.3
- Red Hat Enterprise Linux 8.4
- SUSE Linux Enterprise Server 12 SP4
- SUSE Linux Enterprise Server 12 SP5
- SUSE Linux Enterprise Server 12 Xen SP4
- SUSE Linux Enterprise Server 12 Xen SP5
- SUSE Linux Enterprise Server 15
- SUSE Linux Enterprise Server 15 SP1
- SUSE Linux Enterprise Server 15 SP2
- SUSE Linux Enterprise Server 15 SP3
- SUSE Linux Enterprise Server 15 Xen
- SUSE Linux Enterprise Server 15 Xen SP1
- SUSE Linux Enterprise Server 15 Xen SP2
- SUSE Linux Enterprise Server 15 Xen SP3
- VMware ESXi 6.5 U2
- VMware ESXi 6.5 U3
- VMware ESXi 6.7 U1
- VMware ESXi 6.7 U2
- VMware ESXi 6.7 U3
- VMware ESXi 7.0
- VMware ESXi 7.0 U1
- VMware ESXi 7.0 U2

The SR650 server with 1st Gen Intel Xeon SP processors supports the following operating systems:

- Microsoft Windows Server 2012 R2
- Microsoft Windows Server 2016
- Microsoft Windows Server 2019
- Microsoft Windows Server 2022
- Microsoft Windows Server, version 1709
- Microsoft Windows Server, version 1803
- Red Hat Enterprise Linux 6.10 x64
- Red Hat Enterprise Linux 6.9 x64
- Red Hat Enterprise Linux 7.3

- Red Hat Enterprise Linux 7.4
- Red Hat Enterprise Linux 7.5
- Red Hat Enterprise Linux 7.6
- Red Hat Enterprise Linux 7.7
- Red Hat Enterprise Linux 7.8
- Red Hat Enterprise Linux 7.9
- Red Hat Enterprise Linux 8.0
- Red Hat Enterprise Linux 8.1
- Red Hat Enterprise Linux 8.2
- Red Hat Enterprise Linux 8.3
- Red Hat Enterprise Linux 8.4
- SUSE Linux Enterprise Server 11 Xen x64 SP4
- SUSE Linux Enterprise Server 11 x64 SP4
- SUSE Linux Enterprise Server 12 SP2
- SUSE Linux Enterprise Server 12 SP3
- SUSE Linux Enterprise Server 12 SP4
- SUSE Linux Enterprise Server 12 SP5
- SUSE Linux Enterprise Server 12 Xen SP2
- SUSE Linux Enterprise Server 12 Xen SP3
- SUSE Linux Enterprise Server 12 Xen SP4
- SUSE Linux Enterprise Server 12 Xen SP5
- SUSE Linux Enterprise Server 15
- SUSE Linux Enterprise Server 15 SP1
- SUSE Linux Enterprise Server 15 SP2
- SUSE Linux Enterprise Server 15 SP3
- SUSE Linux Enterprise Server 15 Xen
- SUSE Linux Enterprise Server 15 Xen SP1
- SUSE Linux Enterprise Server 15 Xen SP2
- SUSE Linux Enterprise Server 15 Xen SP3
- VMware ESXi 6.0 U3
- VMware ESXi 6.5
- VMware ESXi 6.5 U1
- VMware ESXi 6.5 U2
- VMware ESXi 6.5 U3
- VMware ESXi 6.7
- VMware ESXi 6.7 U1
- VMware ESXi 6.7 U2
- VMware ESXi 6.7 U3
- VMware ESXi 7.0
- VMware ESXi 7.0 U1
- VMware ESXi 7.0 U2

For a complete list of supported, certified and tested operating systems, plus additional details and links to relevant web sites, see the Operating System Interoperability Guide: https://lenovopress.com/osig#servers=sr650-7x05-7x06-sp-gen-2

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

Table 65. VMware ESXi preload

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

## Physical and electrical specifications

The SR650 has the following overall physical dimensions, excluding components that extend outside the standard chassis, such as EIA flanges, front security bezel (if any), and power supply handles:

- Width: 445 mm (17.5 inches)
- Height: 87 mm (3.4 inches)
- Depth: 764 mm (30.1 inches)

The following table lists the detailed dimensions. See the figure below for the definition of each dimension.

Table 66. Detailed dimensions

| Dimension | Description |
|---|---|
| 482 mm | $X_a$ = Width, to the outsides of the front EIA flanges |
| 435 mm | $X_b$ = Width, to the rack rail mating surfaces |
| 445 mm | $X_c$ = Width, to the outer most chassis body feature |
| 87 mm | $Y_a$ = Height, from the bottom of chassis to the top of the chassis |
| 698 mm | $Z_a$ = Depth, from the rack flange mating surface to the rearmost I/O port surface |
| 730 mm | $Z_b$ = Depth, from the rack flange mating surface to the rearmost feature of the chassis body |
| 727 mm | $Z_c$ = Depth, from the rack flange mating surface to the rearmost feature such as power supply handle |
| 34 mm | $Z_d$ = Depth, from the forwardmost feature on front of EIA flange to the rack flange mating surface |
| 47 mm | $Z_e$ = Depth, from the front of security bezel (if applicable) or forwardmost feature to the rack flange mating surface |

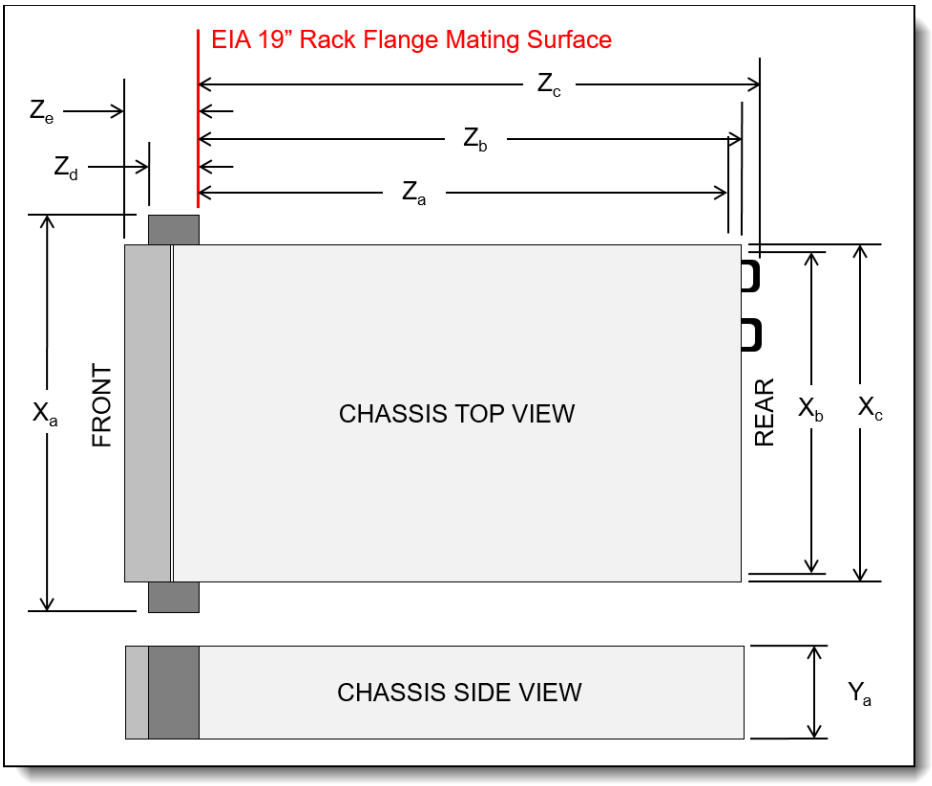



Figure 12. Server dimensions

The shipping dimensions (cardboard packaging) of the SR650 are as follows:

- Width: 592 mm (23.3 inches)
- Height: 282 mm (11.1 inches)
- Depth: 992 mm (39.1 inches)

The server has the following weight:

- Minimum configuration: 19 kg (41.9 lb)
- Maximum configuration: 32 kg (70.5 lb)

Electrical specifications for AC power supplies:

- 100 - 127 (nominal) V AC; 50 Hz / 60 Hz
- 200 - 240 (nominal) V AC; 50 Hz / 60 Hz
- 180 - 300 V DC (HVDC; supported in PRC only)

**Power load and inlet current**

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 67. 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 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 |
| 750 W 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 |
| 750 W 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 |
| 1100 W 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 |
| 1600 W Platinum | 200 - 240 V AC | 2068 W | 8.7 A | 7056 BTU/hour |
| | 180 - 300 V DC | 2024 W | 7.3 A | 6906 BTU/hour |

## 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
- M.2 5100 or 5300 SSDs not installed
- QLogic QL41134 PCIe 10Gb 4-Port Base-T Ethernet Adapter not installed
- Mellanox ConnectX-6 and Innova-2 FPGA adapters not installed
- PCIe flash adapters not installed
- Persistent memory modules not installed
- Graphic processing units (GPUs) not installed
- Processors with TDP more than or equal to 150 W, or Gold 6230N processors not installed

**Temperature and humidity**

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)

**Acoustical noise emissions**

The server has the following acoustic noise emissions declaration:

- Minimum configuration:
  - Operating: 5.1 bels
  - Idle: 4.9 bels
- Maximum configuration:
  - Operating: 6.2 bels
  - Idle: 6.1 bels

**Shock and vibration**

The server has the following vibration and shock limits:

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

**Particulate contamination**

Airborne particulates (including metal flakes or particles) and reactive gases acting alone or in combination with other environmental factors such as humidity or temperature might damage the system that might cause the system to malfunction or stop working altogether. The following specifications indicate the limits of particulates that the system can tolerate:

- Reactive gases:
  - The reactivity rate of copper coupons shall be less than 200 Angstroms per month (Å/month)
  - The reactivity rate of silver coupons shall be less than 200 Å/month
- Airborne particulates:
  - The room air should be continuously filtered with MERV 8 filters.
  - Air entering a data center should be filtered with MERV 11 or preferably MERV 13 filters.
  - The deliquescent relative humidity of the particulate contamination should be more than 60% RH
  - Data centers must be free of zinc whiskers

For additional information, see the Specifications section of the Setup Guide for the server, available from the Lenovo ThinkSystem Information Center, https://thinksystem.lenovofiles.com/help/index.jsp

## Warranty and support

The SR650 server has a one-year (7X05) or three-year (Machine Type 7X06) warranty.

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

Lenovo's additional support services provide a sophisticated, unified support structure for your data center, with an experience consistently ranked number one in customer satisfaction worldwide. Available offerings include:

- **Premier Support**

  Premier Support provides a Lenovo-owned customer experience and delivers direct access to technicians skilled in hardware, software, and advanced troubleshooting, in addition to the following:

  - Direct technician-to-technician access through a dedicated phone line
  - 24x7x365 remote support
  - Single point of contact service
  - End to end case management
  - Third-party collaborative software support
  - Online case tools and live chat support
  - On-demand remote system analysis

- **Warranty Upgrade (Preconfigured Support)**

  Services are available to meet the on-site response time targets that match the criticality of your systems.

  - 3, 4, or 5 years of service coverage
  - 1-year or 2-year post-warranty extensions
  - **Foundation Service**: 9x5 service coverage with next business day onsite response. YourDrive YourData is an optional extra (see below).
  - **Essential Service:** 24x7 service coverage with 4-hour onsite response or 24-hour committed repair (available only in select countries). Bundled with YourDrive YourData.
  - **Advanced Service:** 24x7 service coverage with 2-hour onsite response or 6-hour committed repair (available only in select countries). Bundled with YourDrive YourData.

- **Managed Services**

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

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

- **Technical Account Management (TAM)**

  A Lenovo Technical Account Manager helps you optimize the operation of your data center based on a deep understanding of your business. You gain direct access to your Lenovo TAM, who serves as your single point of contact to expedite service requests, provide status updates, and furnish reports to track incidents over time. In addition, your TAM will help proactively make service recommendations and manage your service relationship with Lenovo to make certain your needs are met.

- **Enterprise Server Software Support**

  Enterprise Software Support is an additional support service providing customers with software support on Microsoft, Red Hat, SUSE, and VMware applications and systems. Around the clock availability for critical problems plus unlimited calls and incidents helps customers address challenges fast, without incremental costs. Support staff can answer troubleshooting and diagnostic questions, address product comparability and interoperability issues, isolate causes of problems, report defects to software vendors, and more.

- **YourDrive YourData**

  Lenovo's YourDrive YourData 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 and is optional with Foundation Service. It is bundled with Essential Service and Advanced Service.

- **Health Check**

  Having a trusted partner who can perform regular and detailed health checks is central to maintaining efficiency and ensuring that your systems and business are always running at their best. Health Check supports Lenovo-branded server, storage, and networking devices, as well as select Lenovo-supported products from other vendors that are sold by Lenovo or a Lenovo-Authorized Reseller.

Examples of region-specific warranty terms are second or longer business day parts delivery or parts-only base warranty.

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

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

Lenovo Service offerings are region-specific. Not all preconfigured support and upgrade options are available in every region. For information about Lenovo service upgrade offerings that are available in your region, refer to the following resources:

- Service part numbers in Lenovo Data Center Solution Configurator (DCSC):
  http://dcsc.lenovo.com/#/services
- Lenovo Services Availability Locator
  http://lenovolocator.com/

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

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

## Services

Lenovo Services is a dedicated partner to your success. Our goal is to reduce your capital outlays, mitigate your IT risks, and accelerate your time to productivity.

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

Here's a more in-depth look at what we can do for you:

- **Asset Recovery Services**

  Asset Recovery Services (ARS) helps customers recover the maximum value from their end-of-life equipment in a cost-effective and secure way. On top of simplifying the transition from old to new equipment, ARS mitigates environmental and data security risks associated with data center equipment disposal. Lenovo ARS is a cash-back solution for equipment based on its remaining market value, yielding maximum value from aging assets and lowering total cost of ownership for your customers. For more information, see the ARS page, https://lenovopress.com/lp1266-reduce-e-waste-and-grow-your-bottom-line-with-lenovo-ars.

- **Assessment Services**

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

- **Design Services**

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

- **Basic Hardware Installation**

  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.

- **Deployment Services**

  When investing in new IT infrastructures, you need to ensure your business will see quick time to value with little to no disruption. Lenovo deployments are designed by development and engineering teams who know our Products & Solutions better than anyone else, and our technicians own the process from delivery to completion. Lenovo will conduct remote preparation and planning, configure & integrate systems, validate systems, verify and update appliance firmware, train on administrative tasks, and provide post-deployment documentation. Customer’s IT teams leverage our skills to enable IT staff to transform with higher level roles and tasks.

- **Integration, Migration, and Expansion Services**

  Move existing physical & virtual workloads easily, or determine technical requirements to support increased workloads while maximizing performance. Includes tuning, validation, and documenting ongoing run processes. Leverage migration assessment planning documents to perform necessary migrations.

## Regulatory compliance

The ThinkSystem SR650 server conforms to the following regulations:

- United States: FCC Part 15, Class A; UL 60950-1
- Canada: ICES-003/NMB-03, Class A; CAN/CSA-C22.2 60950-1
- Mexico: NOM-19
- Argentina: IEC60950-1
- European Union: CE Mark (EN55022 Class A, IEC/EN60950-1, EN55024, EN61000-3-2, EN61000-3-3)
- Germany: TUV-GS (IEC/EN 60950-1, EK1-ITB2000)
- Russia, Kazakhstan, Belarus: EAC (TR CU 004/2011, TR CU 020/2011)
- China: CCC GB4943.1, GB9254 Class A, GB17625.1
- India: BIS
- Japan: VCCI, Class A
- Taiwan: BSMI CNS13438, Class A; CNS14336-1
- Korea: KN22, Class A; KN24
- Australia/New Zealand: AS/NZS CISPR 22 Class A
- Reduction of Hazardous Substances (ROHS)
- Energy Star 3.0 (excluding configurations with Bronze 3204, Gold 5222, or Platinum 8256 processors)

**Note:** For more information on the Energy Star 3.0 certification, refer to the *Energy Star 3.0 Certifications for ThinkSystem Servers* publication:
http://lenovopress.com/lp1230

## External drive enclosures

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

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

Table 68. External drive enclosures

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

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

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

## External storage systems

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

- ThinkSystem DE Series Storage

https://lenovopress.com/storage/thinksystem/de-series#rt=product-guide

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

## External backup units

The following table lists the external backup options that are offered by Lenovo.

Table 69. External backup options

| Part number | Description |
|---|---|
| External RDX USB drives | |
| 4T27A10725 | ThinkSystem RDX External USB 3.0 Dock |
| External SAS tape backup drives | |
| 6160S6E | IBM TS2260 Tape Drive Model H6S |
| 6160S7E | IBM TS2270 Tape Drive Model H7S |
| 6160S8E | IBM TS2280 Tape Drive Model H8S |
| External SAS tape backup autoloaders | |
| 6171S5R | IBM TS2900 Tape Autoloader w/LTO5 HH SAS |
| 6171S6R | IBM TS2900 Tape Autoloader w/LTO6 HH SAS |
| 6171S7R | IBM TS2900 Tape Autoloader w/LTO7 HH SAS |
| External tape backup libraries | |
| 6741A1F | IBM TS4300 3U Tape Library-Base Unit |
| 6741A3F | IBM TS4300 3U Tape Library-Expansion Unit |
| Full High 8 Gb Fibre Channel for TS4300 | |
| 01KP954 | LTO 8 FH Fibre Channel Drive |
| 01KP938 | LTO 7 FH Fibre Channel Drive |
| 01KP935 | LTO 6 FH Fibre Channel Drive |
| Half High 8 Gb Fibre Channel for TS4300 | |
| 01KP952 | LTO 8 HH Fibre Channel Drive |
| 01KP936 | LTO 7 HH Fibre Channel Drive |
| 01KP933 | LTO 6 HH Fibre Channel Drive |
| Half High 6 Gb SAS for TS4300 | |
| 01KP953 | LTO 8 HH SAS Drive |
| 01KP937 | LTO 7 HH SAS Drive |
| 01KP934 | LTO 6 HH SAS Drive |

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

## Fibre Channel SAN switches

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

- ThinkSystem DB Series SAN Switches:
  https://lenovopress.com/storage/switches/rack#rt=product-guide

## Rack cabinets

The following table lists the supported rack cabinets.

Table 70. Rack cabinets

| Part number | Description |
|---|---|
| 7D2B0001WW / 7D2N0001WW | 12U 1200mm Deep Micro Datacenter Rack |
| 7D2C0001WW / 7D2P0001WW | 18U 1200mm Deep Micro Datacenter Rack |
| 93072RX | 25U Standard Rack |
| 93072PX | 25U Static S2 Standard Rack |
| 93634PX | 42U 1100mm Dynamic Rack |
| 93634EX | 42U 1100mm Dynamic Expansion Rack |
| 93604PX | 42U 1200mm Deep Dynamic Rack |
| 93614PX | 42U 1200mm Deep Static Rack |
| 93084EX | 42U Enterprise Expansion Rack |
| 93084PX | 42U Enterprise Rack |
| 93074RX | 42U Standard Rack |

For specifications about these racks, see the Lenovo Rack Cabinet Reference, available from:
https://lenovopress.com/lp1287-lenovo-rack-cabinet-reference

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

## KVM switches and consoles

The following table lists the supported KVM consoles.

Table 71. KVM console

| Part number | Description |
|---|---|
| 4XF7A73009 | ThinkSystem 18.5" LCD Console (with English keyboard) |

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

Table 73. KVM switches and options

| Part number | Description |
|---|---|
| KVM Console switches | |
| 1754D1T | ThinkSystem Digital 2x1x16 KVM Switch (DVI video output port) |
| 1754A1T | ThinkSystem Analog 1x8 KVM Switch (DVI video output port) |
| 1754D2X | Global 4x2x32 Console Manager (GCM32) |
| 1754D1X | Global 2x2x16 Console Manager (GCM16) |
| 1754A2X | Local 2x16 Console Manager (LCM16) |
| 1754A1X | Local 1x8 Console Manager (LCM8) |
| Cables for ThinkSystem Digital and Analog KVM Console switches | |
| 4X97A11108 | ThinkSystem VGA to DVI Conversion Cable |
| 4X97A11109 | ThinkSystem Single-USB Conversion Cable for Digital KVM |
| 4X97A11107 | ThinkSystem Dual-USB Conversion Cable for Digital KVM |
| 4X97A11106 | ThinkSystem USB Conversion Cable for Analog KVM |
| Cables for GCM and LCM Console switches | |
| 46M5383 | Virtual Media Conversion Option Gen2 (VCO2) |
| 46M5382 | Serial Conversion Option (SCO) |

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

## Power distribution units

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

Table 74. Power distribution units

| Part number | Description |
|---|---|
| 0U Basic PDUs | |
| 00YJ776 | 0U 36 C13/6 C19 24A/200-240V 1 Phase PDU with NEMA L6-30P line cord |
| 00YJ777 | 0U 36 C13/6 C19 32A/200-240V 1 Phase PDU with IEC60309 332P6 line cord |
| 00YJ778 | 0U 21 C13/12 C19 32A/200-240V/346-415V 3 Phase PDU with IEC60309 532P6 line cord |
| 00YJ779 | 0U 21 C13/12 C19 48A/200-240V 3 Phase PDU with IEC60309 460P9 line cord |
| Switched and Monitored PDUs | |
| 00YJ780 | 0U 20 C13/4 C19 Switched and Monitored 32A/200-240V/1Ph PDU w/ IEC60309 332P6 line cord |
| 00YJ781 | 0U 20 C13/4 C19 Switched and Monitored 24A/200-240V/1Ph PDU w/ NEMA L6-30P line cord |
| 00YJ782 | 0U 18 C13/6 C19 Switched / Monitored 32A/200-240V/346-415V/3Ph PDU w/ IEC60309 532P6 cord |
| 00YJ783 | 0U 12 C13/12 C19 Switched and Monitored 48A/200-240V/3Ph PDU w/ IEC60309 460P9 line cord |
| 46M4003 | 1U 9 C19/3 C13 Switched and Monitored 60A 3 Phase PDU with IEC 309 3P+Gnd line cord |
| 46M4004 | 1U 12 C13 Switched and Monitored DPI PDU (without line cord) |
| 46M4005 | 1U 12 C13 Switched and Monitored 60A 3 Phase PDU with IEC 309 3P+Gnd line cord |
| Ultra Density Enterprise PDUs (9x IEC 320 C13 + 3x IEC 320 C19 outlets) | |
| 71762NX | Ultra Density Enterprise C19/C13 PDU Module (without line cord) |
| 71763NU | Ultra Density Enterprise C19/C13 PDU 60A/208V/3ph with IEC 309 3P+Gnd line cord |
| C13 Enterprise PDUs (12x IEC 320 C13 outlets) | |
| 39M2816 | DPI C13 Enterprise PDU+ (without line cord) |
| 39Y8941 | DPI Single Phase C13 Enterprise PDU (without line cord) |

| Part number | Description |
|---|---|
| C19 Enterprise PDUs (6x IEC 320 C19 outlets) | |
| 39Y8948 | DPI Single Phase C19 Enterprise PDU (without line cord) |
| 39Y8923 | DPI 60A 3 Phase C19 Enterprise PDU with IEC 309 3P+G (208 V) fixed line cord |
| Front-end PDUs (3x IEC 320 C19 outlets) | |
| 39Y8938 | DPI 30amp/125V Front-end PDU with NEMA L5-30P line cord |
| 39Y8939 | DPI 30amp/250V Front-end PDU with NEMA L6-30P line cord |
| 39Y8934 | DPI 32amp/250V Front-end PDU with IEC 309 2P+Gnd line cord |
| 39Y8940 | DPI 60amp/250V Front-end PDU with IEC 309 2P+Gnd line cord |
| 39Y8935 | DPI 63amp/250V Front-end PDU with IEC 309 2P+Gnd line cord |
| NEMA PDUs (6x NEMA 5-15R outlets) | |
| 39Y8905 | DPI 100-127V PDU with Fixed NEMA L5-15P line cord |
| Line cords for PDUs that ship without a line cord | |
| 40K9611 | DPI 32a Line Cord (IEC 309 3P+N+G) |
| 40K9612 | DPI 32a Line Cord (IEC 309 P+N+G) |
| 40K9613 | DPI 63a Cord (IEC 309 P+N+G) |
| 40K9614 | DPI 30a Line Cord (NEMA L6-30P) |
| 40K9615 | DPI 60a Cord (IEC 309 2P+G) |
| 40K9617 | DPI Australian/NZ 3112 Line Cord |
| 40K9618 | DPI  Korean 8305 Line Cord |

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

## Uninterruptible power supply units

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

Table 75. Uninterruptible power supply units

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

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

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

## Lenovo Financial Services

Lenovo Financial Services reinforces Lenovo's commitment to deliver pioneering products and services that are recognized for their quality, excellence, and trustworthiness. Lenovo Financial Services offers financing solutions and services that complement your technology solution anywhere in the world.

We are dedicated to delivering a positive finance experience for customers like you who want to maximize your purchase power by obtaining the technology you need today, protect against technology obsolescence, and preserve your capital for other uses.

We work with businesses, non-profit organizations, governments and educational institutions to finance their entire technology solution. We focus on making it easy to do business with us. Our highly experienced team of finance professionals operates in a work culture that emphasizes the importance of providing outstanding customer service. Our systems, processes and flexible policies support our goal of providing customers with a positive experience.

We finance your entire solution. Unlike others, we allow you to bundle everything you need from hardware and software to service contracts, installation costs, training fees, and sales tax. If you decide weeks or months later to add to your solution, we can consolidate everything into a single invoice.

Our Premier Client services provide large accounts with special handling services to ensure these complex transactions are serviced properly. As a premier client, you have a dedicated finance specialist who manages your account through its life, from first invoice through asset return or purchase. This specialist develops an in-depth understanding of your invoice and payment requirements. For you, this dedication provides a high-quality, easy, and positive financing experience.

For your region-specific offers, please ask your Lenovo sales representative or your technology provider about the use of Lenovo Financial Services. For more information, see the following Lenovo website:

https://www.lenovo.com/us/en/landingpage/lenovo-financial-services/

## Related publications and links

For more information, see these resources:

- ThinkSystem SR650 product page
  https://www.lenovo.com/us/en/data-center/servers/racks/ThinkSystem-SR650/p/77XX7SRSR65
- Datasheet for the ThinkSystem SR650:
  https://lenovopress.com/ds0032-lenovo-thinksystem-sr650
- 3D Interactive Tour of the ThinkSystem SR650:
  https://lenovopress.com/lp0673-3d-tour-thinksystem-sr650
- Walkthrough Video for the ThinkSystem SR650:
  https://lenovopress.com/lp0700-thinksystem-sr650-server-video-walkthrough
- User Manuals for the ThinkSystem SR650:
  https://thinksystem.lenovofiles.com/help/topic/7X05/introduction.html?cp=4_9
  - Quick Start Guide
  - Setup Guide
  - Rack Installation Guides
  - Maintenance Manual
  - Messages and Codes Reference
  - UEFI Manual
- Lenovo Data Center Support Downloads - ThinkSystem SR650:
  http://datacentersupport.lenovo.com/products/servers/thinksystem/sr650/7x05/downloads
  http://datacentersupport.lenovo.com/products/servers/thinksystem/sr650/7x06/downloads
- Lenovo Hardware Installation & Removal Videos on the ThinkSystem SR650:
  - YouTube: https://www.youtube.com/playlist?list=PLYV5R7hVcs-A25P7vBoGa_wn7D7XTgDS_
  - Youku: https://list.youku.com/albumlist/show/id_50483444
- Lenovo Data Center Solution Configurator (DCSC):
  http://dcsc.lenovo.com

## Related product families

Product families related to this document are the following:

- 2-Socket Rack Servers
- ThinkSystem SR650 Server

## Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area. Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service. Lenovo may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

Lenovo (United States), Inc.
8001 Development Drive
Morrisville, NC 27560
U.S.A.
Attention: Lenovo Director of Licensing

LENOVO PROVIDES THIS PUBLICATION ”AS IS” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. Lenovo may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

The products described in this document are not intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. The information contained in this document does not affect or change Lenovo product specifications or warranties. Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Lenovo or third parties. All information contained in this document was obtained in specific environments and is presented as an illustration. The result obtained in other operating environments may vary. Lenovo may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any references in this publication to non-Lenovo Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this Lenovo product, and use of those Web sites is at your own risk. Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

**© Copyright Lenovo 2021. All rights reserved.**

This document, LP1050, was created or updated on September 10, 2021.

Send us your comments in one of the following ways:

- Use the online Contact us review form found at:
  https://lenovopress.com/LP1050
- Send your comments in an e-mail to:
  comments@lenovopress.com

This document is available online at https://lenovopress.com/LP1050.

## Trademarks

Lenovo and the Lenovo logo are trademarks or registered trademarks of Lenovo in the United States, other countries, or both. A current list of Lenovo trademarks is available on the Web at https://www.lenovo.com/us/en/legal/copytrade/.

The following terms are trademarks of Lenovo in the United States, other countries, or both:
Lenovo®
AnyBay®
Bootable Media Creator
Flex System
Lenovo Services
RackSwitch
System x®
ThinkServer®
ThinkSystem
TopSeller
TruDDR4
UpdateXpress System Packs
XClarity®

The following terms are trademarks of other companies:

Intel®, Intel Optane™, and Xeon® are trademarks of Intel Corporation or its subsidiaries.

Linux® is the trademark of Linus Torvalds in the U.S. and other countries.

Hyper-V®, Microsoft®, PowerShell, Surface®, Windows PowerShell®, Windows Server®, and Windows® are trademarks of Microsoft Corporation in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.