



# System x3530 M4 (E5-2400 v2) Product Guide (withdrawn product)

The System x3530 M4 server delivers dual-socket performance in a 1U compact footprint. Featuring the latest Intel Romley EN platform, the x3530 M4 is a flexible rack server positioned as a good investment value, while considering your total cost of ownership (TCO) and Lenovo commitment. It is designed to provide more affordable value and increased flexibility with performance and quality to match. Designed with redundancy, flexible subsystems, and a wider range of configuration options, the x3530 M4 also offers an innovative Feature on Demand (FoD) design for an easier upgrade path.

*Suggested use*: Business infrastructure, light databases, entry virtualization, enterprise applications, web serving, small HPC, and cloud applications.

The following figure shows the System x3530 M4.



Figure 1. The System x3530 M4

## Did you know?

The x3530 M4 offers a flexible and scalable design and a simple upgrade path to eight HDDs plus an optical drive at the same time. The flexible onboard Ethernet solution provides two standard integrated Gigabit Ethernet ports and two additional integrated Gigabit Ethernet ports with an optional software feature for an on-demand upgrade without needing to buy additional hardware. Comprehensive systems management tools with the next-generation Integrated Management Module II (IMM2) make it easy to deploy, integrate, service, and manage.

### **Key features**

The x3530 M4 delivers dual-socket performance in a compact 1U footprint and features the latest Intel Xeon processor E5-2400 v2 product family technology with greater processing, memory, and I/O capabilities. Built with a focus on a reduced TCO, the x3530 M4 provides the 80 PLUS power supply certification to help enable energy savings. With a better balance between cost and system features, the x3530 M4 is an ideal platform for general business workloads.

#### Scalability and performance

The x3530 M4 offers numerous features to boost performance, improve scalability, and reduce costs:

- The Intel Xeon processor E5-2400 v2 product family improves productivity by offering affordable dualsocket system performance with up to 10-core processors, up to 25 MB of L3 cache, and one QPI interconnect link of up to 8 GTps.
- Up to two processors, 20 cores, and 40 threads maximize the concurrent execution of multithreaded applications.
- Intelligent and adaptive system performance with Intel Turbo Boost Technology 2.0 allows processor cores to run at maximum speeds during peak workloads by temporarily going beyond processor thermal design power (TDP).
- Intel Hyper-Threading Technology boosts performance for multithreaded applications by enabling simultaneous multithreading within each processor core, up to two threads per core.
- Intel Virtualization Technology integrates hardware-level virtualization hooks that allow operating system vendors to better use the hardware for virtualization workloads.
- Intel Advanced Vector Extensions (AVT) significantly improve floating point performance for compute-intensive technical and scientific applications.
- Up to 384 GB of memory capacity via 12 DIMM slots with 32 GB LRDIMMs.
- Up to 1600 MHz memory speeds with two DIMMs per channel running at 1600 MHz to help maximize system performance.
- The server offers up to four integrated Gigabit Ethernet ports with a convenient FoD upgrade process that does not require the purchasing of additional hardware.
- The server offers PCI Express 3.0 I/O expansion capabilities that improve the theoretical maximum bandwidth by almost 100% (8 GTps per link using 128b/130b encoding) compared to the previous generation of PCI Express 2.0 (5 GTps per link using 8b/10b encoding).
- With Intel Integrated I/O Technology, the PCI Express (PCIe) controller is integrated into the Intel Xeon processor E5 family, thereby reducing I/O latency and increasing overall system performance.
- Up to eight 2.5-inch hot-swap or simple-swap drive bays or four 3.5-inch hot-swap or simple-swap drive bays provide maximum internal storage flexibility and capacity in a compact 1U form factor.

#### Availability and serviceability

The x3530 M4 provides many features to simplify serviceability and increase system uptime:

- The server offers Chipkill, memory mirroring, and memory rank sparing for redundancy in the event of a non-correctable memory failure.
- Tool-less cover removal provides easy access to upgrades and serviceable parts, such as processor, memory, and adapter cards.
- The server offers simple-swap or hot-swap drives supporting affordable software RAID and advanced hardware RAID redundancy for data protection and greater system uptime.
- The server offers two redundant hot-swap power supplies and up to six dual-motor redundant nonhot-swap fans to provide cost-efficient availability for applications.
- The power source-independent light path diagnostics panel and optional individual light path LEDs quickly lead the technician to failed (or failing) components. These features simplify servicing, speed

up problem resolution, and improves system availability.

- Predictive Failure Analysis (PFA) detects when system components (processors, memory, hard disk drives, fans, and power supplies) operate outside of standard thresholds and generates proactive alerts in advance of possible failure, therefore increasing uptime.
- Solid-state drives (SSDs) offer significantly better reliability than traditional mechanical HDDs for greater uptime.
- Built-in Integrated Management Module II (IMM2) continuously monitors system parameters, triggers alerts, and performs recovery actions in case of failure, to minimize downtime.
- Built-in diagnostics using Dynamic Systems Analysis (DSA) Preboot speeds up troubleshooting tasks to reduce service time.
- Three-year customer replaceable unit and on-site limited warranty, 9x5 next business day. Optional service upgrades are available.

#### Manageability and security

Powerful systems management features simplify local and remote management of the x3530 M4:

- The server includes an Integrated Management Module II (IMM2) to monitor server availability and perform remote management.
- An integrated industry-standard Unified Extensible Firmware Interface (UEFI) enables improved setup, configuration, and updates, and simplifies error handling.
- Integrated Trusted Platform Module (TPM) V1.2 support enables advanced cryptographic functionality, such as digital signatures and remote attestation.
- Industry-standard AES NI support provides faster and stronger encryption.
- IBM Systems Director is included for proactive systems management. It offers comprehensive systems management tools that increase uptime, reduce costs, and improve productivity through advanced server management capabilities.
- Intel Execute Disable Bit functionality can help prevent certain classes of malicious buffer overflow attacks when combined with a supporting operating system.
- Intel Trusted Execution Technology provides enhanced security through hardware-based resistance to malicious software attacks, allowing an application to run in its own isolated space protected from all other software running on a system.

#### **Energy efficiency**

The x3530 M4 offers the following energy-efficiency features to save energy, reduce operational costs, increase energy availability, and contribute to a green environment:

- Energy-efficient planar components help lower operational costs.
- 80 PLUS certified power supplies enable greater energy savings while providing flexibility to meet your business needs.
- The Intel Xeon processor E5-2400 v2 product family offers better performance over the previous generation, while fitting into the same TDP limits.
- Intel Intelligent Power Capability powers individual processor elements on and off as needed, to reduce power draw.
- Low-voltage Intel Xeon processors draw less energy to satisfy the demands of power and thermally constrained data centers and telecommunication environments.
- Low-voltage 1.35 V DDR3 memory RDIMMs consume 19% less energy compared to 1.5 V DDR3 RDIMMs.
- Solid-state drives can consume as much as 80% less power than traditional spinning HDDs.
- The server uses hexagonal ventilation holes, a part of Calibrated Vectored Cooling™ technology. Hexagonal holes can be grouped more densely than round holes, providing more efficient airflow

through the system.

• IBM Systems Director Active Energy Manager™ provides advanced data center power notification and management to help achieve lower heat output and reduced cooling needs.

#### Locations of key components and connectors

The following figure shows the front of the server with four 3.5-inch hot-swap drive bays (models with 3.5-inch simple-swap bays are also available).



Figure 2. Front view of the System x3530 M4 with four 3.5-inch hot-swap drive bays

The following figure shows the front of the server with eight 2.5-inch hot-swap drive bays (models with 2.5-inch simple-swap bays are also available).



Figure 3. Front view of the System x3530 M4 with eight 2.5-inch hot-swap drive bays

The following figures shows the rear of the server with hot-swap power supplies.



Figure 4. Rear view of the System x3530 M4 with hot-swap power supplies

The following figure shows the rear of the server with fixed power supply.



Figure 5. Rear view of the System x3530 M4 with fixed power supply

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



Figure 6. Inside view of the System x3530 M4

# **Standard specifications**

The following table lists the standard specifications.

Components	Specification
Machine type	7160
Form factor	1U rack.
Processor	Up to two Intel Xeon processor E5-2400 v2 product family processors with 10 cores (up to 2.4 GHz), eight or six cores (up to 2.5 GHz), four cores (up to 2.4 GHz), one QPI link up to 8.0 GTps, up to 1600 MHz memory speed, up to 25 MB L3 cache.
Chipset	Intel C600 series.
Memory	Up to 12 DIMM sockets (six DIMMs per processor). LRDIMMs, RDIMMs, and UDIMMs are supported, but the memory types cannot be intermixed. DIMM speeds up to 1600 MHz.
Memory maximums	With LRDIMMs: Up to 384 GB with 12x 32 GB RDIMMs and two processors. With RDIMMs: Up to 192 GB with 12x 16 GB RDIMMs and two processors. With UDIMMs: Up to 96 GB with 12x 8 GB UDIMMs and two processors.
Memory protection	ECC, Chipkill, memory mirroring, and memory rank sparing.
Disk drive bays	Up to eight 2.5-inch hot-swap SAS/SATA drive bays, up to eight 2.5-inch simple-swap drive bays, up to four 3.5-inch hot-swap SAS/SATA drive bays, or up to four 3.5-inch SATA simple-swap drive bays.
Maximum internal storage	Up to 24 TB with 6 TB 3.5-inch NL SAS/SATA HDDs, or up to 9.6 TB with 1.2 TB 2.5-inch SAS HDDs, up to 8 TB with 1 TB 2.5-inch NL SAS/SATA HDDs, up to 12.8 TB with 1.6 GB 2.5-inch SAS SSDs. Intermix of SAS/SATA is supported.
RAID support	RAID 0 and 1 with the C105. RAID 0, 1, and 10 with the H1110, M1115, or M5110. Upgrades to RAID 5 and 50 are available for the M1115. Upgrades to RAID 5 and 50 are available for the M5110 (zero-cache; 512 MB battery-backed cache; 512 MB or 1 GB flash-backed cache). Optional upgrades to RAID 6 and 60 are available for the M5110 with caches.
Optical drive bays	One, for models with 2.5" drives. Support for optional DVD-ROM or multiburner.
Tape drive bays	None.
Network interfaces	Up to four integrated Gigabit Ethernet 1000BASE-T RJ-45 ports with the onboard Intel I350-CM2 controller (two ports are enabled, and an additional two ports require the optional software FoD upgrade to enable them).
l/O expansion	<ul> <li>Up to three slots, depending on the riser cards installed. The slots are as follows:</li> <li>Slot 1: PCle 3.0 x16 (x8-wired), optional PCle 3.0 x16 (x16-wired); full-height, half-length</li> </ul>
slots	<ul> <li>Slot 2: PCle 3.0 x16 (x8-wired); low-profile, half-length (not present if an optional x16-wired slot 1 riser is used)</li> </ul>
	<ul> <li>Slot 3: PCIe 3.0 x4 (dedicated slot for ServeRAID adapter); standard on hardware RAID models, optional on software RAID models</li> </ul>
Ports	Two USB 2.0 ports and one DB-15 video port (CTO or special bid only, feature code A23Q) on the front. Four USB 2.0 ports, one DB-15 video port, one DB-9 serial port, and four RJ-45 GbE network ports on the rear. One internal USB port (for embedded hypervisor).
Cooling	Calibrated Vectored Cooling with up to six redundant non-hot-swap fans (four standard, additional two with second processor). Each fan has two motors.

Components	Specification
Power supply	Up to two redundant hot-swap 460 W AC or 675 W HE AC power supplies (80 PLUS certification), or one fixed 460 W AC power supply (80 PLUS certification), or up to two redundant hot-swap 675 W DC power supplies.
Hot-swap parts	Hard drives (model dependent) and power supplies (model dependent).
Systems management	UEFI, Integrated Management Module II (IMM2), Predictive Failure Analysis, light path diagnostics (basic standard, advanced optional), Automatic Server Restart, IBM Systems Director and Systems Director Active Energy Manager, and ServerGuide. Optional IMM Advanced FoD Upgrade for remote presence (graphics, keyboard and mouse, virtual media).
Security features	Power-on password, administrator's password, and TPM.
Video	Matrox G200eR2 with 16 MB memory integrated into the IMM2. Maximum resolution is 1600x1200 at 75 Hz with 16 M colors.
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, 2008 R2, and 2008 (x64), Red Hat Enterprise Linux 5 and 6, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.0, 5.1, and 5.5.
Limited warranty	Three-year customer-replaceable unit and on-site limited warranty with 9x5/NBD.
Service and support	Optional service upgrades (country-specific) are available through ServicePac® offerings: 4-hour or 2-hour response time, 8 hours fix time, one-year or two-year warranty extension, remote technical support for Lenovo hardware and selected Lenovo and third-party (Microsoft, Linux, VMware) software.
Dimensions	Height: 43 mm (1.7 in.), width: 447 mm (17.6 in.), depth: 673 mm (26.5 in.)
Weight	Minimum configuration: 10.4 kg (22.9 lb), maximum: 15.6 kg (34.3 lb)

The x3530 M4 servers are shipped with the following items:

- Registration flyer
- Statement of Limited Warranty
- Important Notices
- Rack Installation Instructions
- Documentation CD containing Installation and User's Guide
- Rail kit (static rails, non-sliding; no cable management arm included)
- One 2.8m, 10A/100-250V, C13 to IEC 320-C14 rack power cable

## **Standard models**

The following table lists the standard models.

Table 2.	Standard	models
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MTM*	Intel Xeon processors† (two maximum)	Memory	RAID controller	Drive bays (std / max)	Drives	Onboard NIC (std / max)	I/O slots (std / max)	Optical drive	Power supply (std / max)
Models	announced January 20	14							
7160- A3x	1x E5-2403 v2 4C 1.8GHz 10MB 1333MHz 80W	1x 4GB 1600MHz UDIMM§	C105	4x 3.5" SS / 4	Open bay	2x GbE / 4	2/3	None	1x 460 W Fixed
7160- A5x	1x E5-2403 v2 4C 1.8GHz 10MB 1333MHz 80W	1x 4GB 1600MHz UDIMM§	C105 8- Pack	8x 2.5" SS / 8	Open bay	2x GbE / 4	2/3	Optional	1x 460 W Fixed
7160- A7x	1x E5-2403 v2 4C 1.8GHz 10MB 1333MHz 80W	1x 4GB 1600MHz UDIMM§	C105	4x 3.5" SS / 4	Open bay	2x GbE / 4	2/3	None	1x 460 W HS / 2
7160- B3x	1x E5-2407 v2 4C 2.4GHz 10MB 1333MHz 80W	1x 4GB 1600MHz UDIMM§	C105	4x 3.5" SS / 4	Open bay	2x GbE / 4	2/3	None	1x 460 W Fixed
7160- B5x	1x E5-2407 v2 4C 2.4GHz 10MB 1333MHz 80W	1x 4GB 1600MHz UDIMM§	C105 8- Pack	8x 2.5" HS / 8	Open bay	2x GbE / 4	2/3	Optional	1x 460 W Fixed
7160- B7x	1x E5-2407 v2 4C 2.4GHz 10MB 1333MHz 80W	1x 4GB 1600MHz UDIMM§	C105	4x 3.5" SS / 4	Open bay	2x GbE / 4	2/3	None	1x 460 W HS / 2
7160- C3x	1x E5-2420 v2 6C 2.2GHz 15MB 1600MHz 80W	1x 8GB 1600MHz RDIMM	M1115	8x 2.5" HS / 8	Open bay	2x GbE / 4	3/3	Optional	1x 460 W HS / 2
7160- F3x	1x E5-2440 v2 8C 1.9GHz 20MB 1600MHz 95W	1x 4GB 1600MHz UDIMM	M5110 1GB Flash	8x 2.5" SS / 8	Open bay	2x GbE / 4	3/3	Optional	1x 460 W HS / 2
7160- G3x	1x E5-2450 v2 8C 2.5GHz 20MB 1600MHz 95W	1x 8GB 1600MHz RDIMM	M5110 512MB Flash	8x 2.5" HS / 8	Open bay	2x GbE / 4	3/3	Optional	1x 675 W HS / 2

\* x in the Machine Type Model (MTM) represents a region-specific letter (for example, the EMEA MTM is 7160-A3G, and the US MTM is 7160-A3U). Ask a Lenovo representative for specifics.

† Processor detail: Processor quantity and model, cores, core speed, L3 cache, memory speed, TDP. § The standard DIMM is rated at 1600 MHz, but operates at up to 1333 MHz to match the processor memory speed. Actual memory speed maximums depend on several factors, as described in "Memory options".

For information about standard features of the server, see the "Specifications" section.

## **Express models**

The following table lists the express models.

#### Table 3. Express models

мтм	Intel Xeon processors† (two maximum)	Memory (RDIMMs)	RAID controller	Drive bays (std / max)	Drives	Onboard NIC (std / max)	I/O slots (std / max)	Optical drive	Power supply (std / max)
Europe	9								
7160- E5G	1x E5-2420 v2 6C 2.2GHz 15MB 1600MHz 80W	1x 8GB 1600MHz	M1115	8x 2.5" HS / 8	Open bay	2x GbE / 4	3/3	Multi burner	1x 460 W HS / 2
7160- E8G	1x E5-2407 v2 4C 2.4GHz 10MB 1333MHz 80W	1x 8GB 1600MHz§	M1115	8x 2.5" HS / 8	Open bay	2x GbE / 4	3/3	Multi burner	1x 460 W HS / 2
Centra	I and Eastern Europe (CE	EE) and Midd	le East and /	Africa (MEA)	-	-	-	-	
7160- E5G	1x E5-2420 v2 6C 2.2GHz 15MB 1600MHz 80W	1x 8GB 1600MHz	M1115	8x 2.5" HS / 8	Open bay	2x GbE / 4	3/3	Multi burner	1x 460 W HS / 2
7160- E6G	1x E5-2407 v2 4C 2.4GHz 10MB 1333MHz 80W	1x 8GB 1600MHz§	M5110	4x 3.5" SS / 4	Open bay	2x GbE / 4	3/3	None	1x 460 W HS / 2
Russia	/Commonwealth of Indep	endent State	es (CIS)						
7160- E6G	1x E5-2407 v2 4C 2.4GHz 10MB 1333MHz 80W	1x 8GB 1600MHz§	M5110	4x 3.5" SS / 4	Open bay	2x GbE / 4	3/3	None	1x 460 W HS / 2
7160- E7G	1x E5-2407 v2 4C 2.4GHz 10MB 1333MHz 80W	1x 8GB 1600MHz§	M5110 512MB Flash	8x 2.5" HS / 8	Open bay	2x GbE / 4	3/3	Multi burner	1x 460 W HS / 2
United	States								
7160- EDU	1x E5-2403 v2 4C 1.8GHz 10MB 1333MHz 80W	1x 8GB 1600MHz§	C105	4x 3.5" SS / 4	Open bay	2x GbE / 4	2/3	None	1x 460 W HS / 2
7160- EEU	1x E5-2420 v2 6C 2.2GHz 15MB 1600MHz 80W	1x 8GB 1600MHz	H1110	4x 3.5" SS / 4	Open bay	2x GbE / 4	3/3	None	1x 460 W HS / 2
7160- EFU	1x E5-2440 v2 8C 1.9GHz 20MB 1600MHz 95W	1x 8GB 1600MHz	M5110	8x 2.5" HS / 8	Open bay	2x GbE / 4	3/3	Multi burner	2x 460 W HS / 2
Canad	а								
7160- EGY	1x E5-2407 v2 4C 2.4GHz 10MB 1333MHz 80W	2x 16GB 1600MHz§	M5110 1GB Flash	8x 2.5" HS / 8	Open bay	2x GbE / 4	3/3	Multi burner	2x 460 W HS / 2
Latin A	merica (Brazil only)								
7160- EQU	1x E5-2420 v2 6C 2.2GHz 15MB 1600MHz 80W	1x 8GB 1600MHz	C105	4x 3.5" SS / 4	2x 1TB 7.2K	2x GbE / 4	2/3	None	1x 460 W HS / 2
7160- ERU	1x E5-2420 v2 6C 2.2GHz 15MB 1600MHz 80W	1x 8GB 1600MHz	H1110	4x 3.5" SS / 4	2x 300GB 15K	2x GbE / 4	2/3	None	1x 460 W HS / 2
7160- ETU	1x E5-2440 v2 8C 1.9GHz 20MB 1600MHz 95W	1x 8GB 1600MHz	C105	4x 3.5" SS / 4	2x 1TB 7.2K	2x GbE / 4	2/3	None	1x 460 W HS / 2

мтм	Intel Xeon processors† (two maximum)	Memory (RDIMMs)	RAID controller	Drive bays (std / max)	Drives	Onboard NIC (std / max)	I/O slots (std / max)	Optical drive	Power supply (std / max)
7160- EUU	1x E5-2440 v2 8C 1.9GHz 20MB 1600MHz 95W	1x 8GB 1600MHz	H1110	4x 3.5" SS / 4	2x 300GB 15K	2x GbE / 4	2/3	None	1x 460 W HS / 2
Japan									
7160- EYJ	1x E5-2403 v2 4C 1.8GHz 10MB 1333MHz 80W	1x 4GB 1600MHz§	M5110 512MB Flash	8x 2.5" HS / 8	Open bay	2x GbE / 4	3/3	Optional	1x 460 W HS / 2
7160- EZJ	1x E5-2407 v2 4C 2.4GHz 10MB 1333MHz 80W	1x 4GB 1600MHz§	M5110 512MB Flash	8x 2.5" HS / 8	Open bay	2x GbE / 4	3/3	Optional	1x 460 W HS / 2

† Processor detail: Processor quantity and model, cores, core speed, L3 cache, memory speed, TDP. § The standard DIMM is rated at 1600 MHz, but operates at up to 1333 MHz to match the processor memory speed. Actual memory speed maximums depend on several factors, as described in "Memory options".

### **Processor options**

The x3530 M4 (E5-2400 v2) supports the processor options listed in the following table. The server supports up to two Intel Xeon processor E5-2400 v2 product family processors. This table shows which server models have each processor standard. If there is no corresponding *where used* model for a particular processor, then this processor is only available through CTO.

Table 4.	Processor	options
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Part number*	Feature code†	Description	Standard models where used
00J6392	A4L6 / A52P	Intel Xeon Processor E5-2403 v2 4C 1.8GHz 10MB Cache 1333MHz 80W	A3x, A5x, A7x
00J6393	A4L5 / A52Q	Intel Xeon Processor E5-2407 v2 4C 2.4GHz 10MB Cache 1333MHz 80W	B3x, B5x, B7x
00Y8103	A4LE / A52D	Intel Xeon Processor E5-2418L v2 6C 2.0GHz 15MB Cache 1333MHz 50W	-
00J6394	A4L4 / A52R	Intel Xeon Processor E5-2420 v2 6C 2.2GHz 15MB Cache 1600MHz 80W	C3x
00Y8104	A4LC / A52E	Intel Xeon Processor E5-2428L v2 8C 1.8GHz 20MB Cache 1600MHz 60W	-
00J6395	A4L3 / A52S	Intel Xeon Processor E5-2430 v2 6C 2.5GHz 15MB Cache 1600MHz 80W	-
00J6399	A4L8 / A52N	Intel Xeon Processor E5-2430L v2 6C 2.4GHz 15MB Cache 1600MHz 60W	-
00J6396	A4LB / A52T	Intel Xeon Processor E5-2440 v2 8C 1.9GHz 20MB Cache 1600MHz 95W	F3x
00Y8105	A4LD / A52F	Intel Xeon Processor E5-2448L v2 10C 1.8GHz 25MB Cache 1600MHz 70W	-
00J6397	A4L2 / A52U	Intel Xeon Processor E5-2450 v2 8C 2.5GHz 20MB Cache 1600MHz 95W	G3x
00J6400	A4L7 / A52C	Intel Xeon Processor E5-2450L v2 10C 1.7GHz 25MB Cache 1600MHz 60W	-
00J6398	A4L0 / A52B	Intel Xeon Processor E5-2470 v2 10C 2.4GHz 25MB Cache 1600MHz 95W	-

\* The option for the second processor includes two additional system fans.

† The first feature code is for the first processor; the second feature code is for the second processor.
 \*\* These processors only support single processor configurations and are available only through CTO or special bid.

#### **Memory options**

Lenovo DDR3 memory is compatibility tested and tuned for optimal System x® performance and throughput. Lenovo memory specifications are integrated into the light path diagnostics panel for immediate system performance feedback and optimum system uptime. From a service and support standpoint, Lenovo memory automatically assumes the system warranty, and Lenovo provides service and support worldwide.

The System x3530 M4 supports DDR3 memory. The server supports up to six DIMMs when one processor is installed, and up to 12 DIMMs when two processors are installed. Each processor has three memory channels, and there are two DIMMs per channel. The following rules apply when selecting the memory configuration:

- Mixing different types of memory (UDIMMs, RDIMMs, and LRDIMMs) is not supported.
- The maximum number of ranks supported per one channel is eight (with the exception of Load Reduced DIMMs, where more than eight ranks are supported because one quad-rank LRDIMM provides the same electrical load on a memory bus as a single-rank RDIMM).
- The maximum quantity of DIMMs that can be installed in a server depends on the number of processors (six DIMMs with one processor installed, 12 DIMMs with two processors installed)
- All DIMMs in all processor memory channels operate at the same speed, which is determined as the lowest value of:
  - The memory speed supported by the specific processor.
  - The lowest of maximum operating speeds for the selected memory configuration that depends on the rated speed, operating voltage, and quantity of DIMMs per channel, as shown under the "Maximum operating speed" section in Table 5.

The following memory protection technologies are supported:

- ECC
- Chipkill (x4-based memory DIMMs)
- Memory mirroring
- Memory rank sparing

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

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

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

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

The following table shows the characteristics of the supported DIMMs. Table cells highlighted with a gray background indicate when the combination of DIMM voltage and the number of DIMMs per channel still allows the DIMMs to operate at a rated speed.

DIMM type	UDIMM	UDIMM		RDIMM				
Specification								
Rank	Dual rank	Jual rank S		Single rank		Dual rank		
Part number	00D5012 ( 00D5016 (	00D5012 (4 GB) 00D5016 (8 GB)		00D5024 (4 GB) 00D5036 (8 GB)		00D5044 (8 GB) 46W0672 (16 GB)		
Rated speed	1600 MHz		1600 MHz	1600 MHz		1600 MHz		
Rated voltage	1.35 V	1.35 V		1.35 V		1.35 V		
Operating voltage	1.35 V	1.5 V	1.35 V	1.5 V	1.35 V	1.5 V	1.5 V	
Max quantity*	12	12	12	12	12	12	12	
Largest DIMM	8 GB	8 GB	8 GB	8 GB	16 GB	16 GB	32 GB	
Max memory capacity	96 GB	96 GB	96 GB	96 GB	192 GB	192 GB	384 GB	
Max memory at rated speed	None**	None**	None**	96 GB	None**	192 GB	None**	
Maximum operating speed (MH	z)	-		-				
1 DIMM per channel	1333 MHz	1333 MHz	1333 MHz	1600 MHz	1333 MHz	1600 MHz	1333 MHz	
2 DIMMs per channel	1066 MHz	1066 MHz	1333 MHz	1600 MHz	1333 MHz	1600 MHz	1066 MHz	

Table 5. Maximum memory speeds

\* Maximum quantity supported is shown for two processors installed. When one processor is installed, the maximum quantity supported is a half of what is shown.

\*\* Rated speed is not supported. Memory DIMMs always operate at speeds lower than rated.

The following table lists memory options available for the x3530 M4 (E5-2400 v2) server.

Table 6. Memory options

Part number	Feature code	Description	Maximum supported	Standard models where used					
UDIMMs	JDIMMs								
00D5012	A3QB	4GB (1x4GB, 2Rx8, 1.35V) PC3L-12800 CL11 ECC DDR3 1600MHz LP UDIMM	12 (6 per CPU)	A3x. A5x, A7x, B3x, B5x, B7x, F3x					
00D5016	A3QC	8GB (1x8GB, 2Rx8, 1.35V) PC3L-12800 CL11 ECC DDR3 1600MHz LP UDIMM	12 (6 per CPU)	-					
RDIMMs			•						
00D5024	A3QE	4GB (1x4GB, 1Rx4, 1.35V) PC3L-12800 CL11 ECC DDR3 1600MHz LP RDIMM	12 (6 per CPU)	-					
00D5036	A3QH	8GB (1x8GB, 1Rx4, 1.35V) PC3L-12800 CL11 ECC DDR3 1600MHz LP RDIMM	12 (6 per CPU)	-					
00D5044	A3QK	8GB (1x8GB, 2Rx8, 1.35V) PC3L-12800 CL11 ECC DDR3 1600MHz LP RDIMM	12 (6 per CPU)	C3x, G3x					
46W0672	A3QM	16GB (1x16GB, 2Rx4, 1.35V) PC3L-12800 CL11 ECC DDR3 1600MHz LP RDIMM	12 (6 per CPU)	-					
LRDIMMs	LRDIMMs								
46W0761	A47K	32GB (1x32GB, 4Rx4, 1.5V) PC3-14900 CL13 ECC DDR3 1866MHz LP LRDIMM	12 (6 per CPU)	-					

### Internal storage

System x3530 M4 server supports the following internal storage configurations:

- Four 2.5-inch Slim-SFF SAS/SATA hot-swap drive bays (CTO only)
- Eight 2.5-inch Slim-SFF SAS/SATA hot-swap drive bays
- Eight 2.5-inch SAS/SATA simple-swap drive bays
- Four 3.5-inch SAS/SATA hot-swap drive bays
- Four 3.5-inch SATA simple-swap drive bays

The following figure shows the last three of these configurations.



Figure 7. Internal drive configurations

Standard models ship with eight 2.5-inch SFF SAS/SATA hot-swap, eight 2.5-inch SAS/SATA simple-swap, four 3.5-inch SAS/SATA hot-swap, or four 3.5-inch SATA simple-swap drive bays. The following table shows the internal storage expansion options available for the x3530 M4 server (models with 2.5-inch simple-swap drive bays and 3.5-inch drive bays are not expandable).

Table 7. Internal storage expansion options

Part number	Feature code	Description	Maximum supported
94Y6386	A215	4 x 2.5" Hot-Swap SAS upgrade assembling kit	1
00D4487	A2TG	HS SAS assembling kit for ServeRAID M1100/M5100 upgrade	1
00D4488	A34G	SATA assembling kit for ServeRAID C105 upgrade	1

Options 94Y6386 (backplane and bracket) and 00D4487 (cable) are used together to upgrade custom (CTO or special bid) models with four 2.5-inch SFF hot-swap drive bays and hardware RAID (H1110, M1115, or M5110) to eight 2.5-inch SFF hot-swap drive bays. If H1110 has been installed in custom model, it must be replaced with M1115 or M5110.

Options 94Y6386 (backplane and bracket) and 00D4488 (cable) are used together to upgrade custom (CTO or special bid) models with four 2.5-inch SFF hot-swap drive bays and software RAID (C105) to eight 2.5-inch SFF hot-swap drive bays. In addition, an 8-pack SATA Enabler (90Y4349) FoD upgrade is required for ServeRAID C105 to support eight HDDs.

An optical drive can be installed internally in models with 2.5-inch hot-swap or simple-swap drive bays (no optical drive support in models with 3.5-inch drive bays).

## **Controllers for internal storage**

The following table lists the RAID controllers and HBAs and the additional options used for the internal disk storage of the x3530 M4 server.

Part number	Feature Description code		Maximum supported	Models where used
None#	A2VA	ServeRAID C105 for System x	1	A3x, A5x, A7x, B3x, B5x, B7x
90Y4349§	A2V7	8-pack SATA Enabler for System x	1	A5x, B5x
81Y4492	A1XL	ServeRAID H1110 SAS/SATA Controller for System x	1	-
81Y4448	A1MZ	ServeRAID M1115 SAS/SATA Controller for System x	1	C3x
81Y4542	A1X1	ServeRAID M1100 Series Zero Cache/RAID 5 Upgrade	1	-
81Y4481	A347	ServeRAID M5110 SAS/SATA Controller for System x	1	F3x, G3x
81Y4544	A1X2	ServeRAID M5100 Series Zero Cache/RAID 5 Upgrade	1	-
81Y4484	A1J3	ServeRAID M5100 Series 512MB Cache/RAID 5 Upgrade	1	-
81Y4487	A1J4	ServeRAID M5100 Series 512MB Flash/RAID 5 Upgrade	1	G3x
81Y4559	A1WY	ServeRAID M5100 Series 1GB Flash/RAID 5 Upgrade	1	F3x
81Y4508	A22E	ServeRAID M5100 Series Battery Kit for System x	1*	-
81Y4546	A1X3	ServeRAID M5100 Series RAID 6 Upgrade for System x	1†	-
90Y4273	A2MC	ServeRAID M5100 Series Performance Accelerator for System x	1†	-
90Y4318	A2MD	ServeRAID M5100 Series SSD Caching Enabler for System x	1†	-
46M0912	3876	6Gb Performance Optimized HBA	1	-

Table 8.	RAID	controllers	and	HBAs	for	internal	storage
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# The ServeRAID C105 is an onboard software RAID controller.

§ An FoD upgrade for ServeRAID C105 that supports eight SATA HDDs.

\* The ServeRAID M5100 Series Battery Kit (81Y4508) is supported only with ServeRAID M5100 Series 512MB Cache/RAID 5 Upgrade (81Y4484).

† The ServeRAID M5100 Series RAID 6 Upgrade (81Y4546), Performance Accelerator (90Y4273), and Caching Enabler (90Y4318) require RAID 5 Upgrade with caches (81Y4484, 81Y4487, or 81Y4559).

The hardware RAID adapter is installed into a dedicated PCIe slot (slot 3) supplied by Riser 2 (00Y7465). See Table 12 (PCI riser card options) for more details.

The following table lists drive types and internal drive bay configurations supported by the RAID controllers and HBAs (SAS HDDs include both SAS and NL SAS HDDs, and SATA HDDs include both SATA and NL SATA HDDs).

RAID controller	Drive type	4x 2.5-in. hot-swap	8x 2.5-in. hot-swap	8x 2.5-in. simple- swap	4x 3.5-in. hot-swap	4x 3.5-in. simple- swap
ServeRAID C105	SAS HDD	No support	No support	No support	No support	No support
	SATA HDD	Yes	Yes*	Yes*	Yes	Yes
	SATA SSD	No support	No support	No support	No support	No support
ServeRAID H1110	SAS HDD	Yes	No support	No support	Yes	Yes
	SATA HDD	Yes	No support	No support	Yes	Yes
	SATA SSD	Yes	No support	No support	No support	No support
ServeRAID M1115	SAS HDD	Yes	Yes	Yes	Yes	Yes
	SATA HDD	Yes	Yes	Yes	Yes	Yes
	SATA SSD	Yes	Yes	Yes	No support	No support
ServeRAID M5110	SAS HDD	Yes	Yes	Yes	Yes	No support
	SATA HDD	Yes	Yes	Yes	Yes	No support
	SATA SSD	Yes	Yes	Yes	No support	No support
6Gb Performance	SAS HDD	Yes	Yes	Yes	Yes	Yes
Optimized HBA	SATA HDD	Yes	Yes	Yes	Yes	Yes
	SATA SSD	Yes	Yes	Yes	No support	No support

Table 9. Drive types and internal drive bay configurations supported by the RAID controllers and HBAs

\* Requires an FoD upgrade for ServeRAID C105 to support eight SATA HDDs (8-pack SATA Enabler, part number 90Y4349).

The ServeRAID C105 onboard controller has the following specifications:

- Eight internal 3 Gbps SATA ports
- Up to 3 Gbps throughput per port
- Supports up to eight (up to four standard, with an additional four with optional 8-pack enabler, 90Y4349) SATA HDDs (SAS not supported)
- Supports hot-swap and simple-swap drives
- Supports RAID 0, 1, and 10
- Support for up to eight volumes
- Support for virtual drive sizes greater than 2 TB
- Fixed stripe unit size of 64 KB
- Support for MegaRAID Storage Manager management software

The ServeRAID H1110 adapter has the following specifications:

- Four internal 6 Gbps SAS/SATA ports
- Up to 6 Gbps throughput per port
- One x4 mini-SAS internal connector (SFF-8087)
- Based on the LSI SAS2004 6 Gbps RAID on Chip (ROC) controller
- PCIe 2.0 x4 host interface
- Supports RAID 0, 1, 1E, and 10
- Connects to up to four SAS or SATA drives (SAS expanders are not supported.)

The ServeRAID M1115 SAS/SATA Controller has the following specifications:

- Eight internal 6 Gbps SAS/SATA ports
- Up to 6 Gbps throughput per port
- Two x4 mini-SAS internal connectors (SFF-8087)
- Supports connections to SAS/SATA drives and SAS Expanders
- Supports RAID levels 0, 1, and 10
- Supports RAID levels 5 and 50 with optional M1100 Series RAID 5 upgrades
- PCIe 2.0 x8 host interface
- Based on the LSI SAS2008 6 Gbps ROC controller

The ServeRAID M5110 SAS/SATA Controller has the following specifications:

- Eight internal 6 Gbps SAS/SATA ports
- Up to 6 Gbps throughput per port
- Two x4 mini-SAS internal connectors (SFF-8087)
- Supports connections to SAS/SATA drives and SAS Expanders
- Supports RAID levels 0, 1, and 10
- Supports RAID levels 5 and 50 with optional M5100 Series RAID 5 upgrades
- Supports RAID 6 and 60 with the optional M5100 Series RAID 6 Upgrade
- Supports 512 MB battery-backed cache or 512 MB or 1 GB flash-backed cache
- Support for SSD performance optimization with the optional M5100 Series Performance Accelerator and SSD Caching Enabler
- PCIe 3.0 x8 host interface
- Based on the LSI SAS2208 6 Gbps ROC controller

The 6Gb Performance Optimized HBA has the following specifications:

- Eight internal 6 Gbps SAS/SATA ports
- Up to 6 Gbps throughput per port
- Two x4 mini-SAS internal connectors (SFF-8087)
- Supports connections to SAS/SATA HDDs and SATA SSDs
- Optimized for SSD performance
- No RAID support
- PCIe 2.0 x8 host interface
- Based on the LSI SAS2008 6 Gbps ROC controller

For more information, see the list of Lenovo Press Product Guides in the RAID adapters category: http://lenovopress.com/systemx/raid

### Internal drive options

The following table lists hard drive options for the internal disk storage of the x3530 M4 server.

Part number	Feature code	Description	Maximum supported			
2.5-inch NL SA	S Hot-Swap HD	DS				
90Y8953	A2XE	500GB 7.2K 6Gbps NL SAS 2.5" SFF G2HS HDD	8			
81Y9690	A1P3	1TB 7.2K 6Gbps NL SAS 2.5" SFF HS HDD	8			
2.5-inch NL SA	2.5-inch NL SATA Hot-Swap HDDs					
81Y9722	A1NX	250GB 7.2K 6Gbps NL SATA 2.5" SFF HS HDD	8			
81Y9726	A1NZ	500GB 7.2K 6Gbps NL SATA 2.5" SFF HS HDD	8			
81Y9730	A1AV	1TB 7.2K 6Gbps NL SATA 2.5" SFF HS HDD	8			
2.5-inch NL SA	TA Simple-Swa	p HDDs				
81Y9734	A1NY	250GB 7.2K 6Gbps NL SATA 2.5" SFF SS HDD	8			
81Y9738	A1P0	500GB 7.2K 6Gbps NL SATA 2.5" SFF SS HDD	8			
81Y9742	A1P2	1TB 7.2K 6Gbps NL SATA 2.5" SFF SS HDD	8			
2.5-inch 15K S	AS Hot-Swap H	DDs				
90Y8926	A2XB	146GB 15K 6Gbps SAS 2.5" SFF G2HS HDD	8			
81Y9670	A283	300GB 15K 6Gbps SAS 2.5" SFF HS HDD	8			
00AJ300	A4VB	600GB 15K 6Gbps SAS 2.5" G2HS HDD	8			
2.5-inch 10K S	AS Hot-Swap H	DDs				
90Y8877	A2XC	300GB 10K 6Gbps SAS 2.5" SFF G2HS HDD	8			
90Y8872	A2XD	600GB 10K 6Gbps SAS 2.5" SFF G2HS HDD	8			
81Y9650	A282	900GB 10K 6Gbps SAS 2.5" SFF HS HDD	8			
00AD075	A48S	1.2TB 10K 6Gbps SAS 2.5" G2HS HDD	8			
2.5-inch SAS H	lot-Swap Self-er	ncrypting drives (SEDs)				
90Y8944	A2ZK	146GB 15K 6Gbps SAS 2.5" SFF G2HS SED	8			
90Y8913	A2XF	300GB 10K 6Gbps SAS 2.5" SFF G2HS SED	8			
90Y8908	A3EF	600GB 10K 6Gbps SAS 2.5" SFF G2HS SED	8			
00AD085	A48T	1.2TB 10K 6Gbps SAS 2.5" G2HS SED	8			
2.5-inch SAS H	Hybrid HDDs					
00AD102	A4G7	600GB 10K 6Gbps SAS 2.5" G2HS Hybrid	8			
00AD107	A4G8	600GB 10K 6Gbps SAS 2.5" G2SS Hybrid	8			
2.5-inch SAS S	Simple-Swap HD	Ds				
90Y8935	A2ZG	146GB 15K 6Gbps SAS 2.5" SFF G2SS HDD	8			
90Y8895	A2ZH	300GB 10K 6Gbps SAS 2.5" SFF G2SS HDD	8			
81Y9674	A24J	300GB 15K 6Gbps SAS 2.5" SFF SS HDD	8			
90Y8890	A2ZJ	600GB 10K 6Gbps SAS 2.5" SFF G2SS HDD	8			
81Y9654	A24H	900GB 10K 6Gbps SAS 2.5" SFF SS HDD	8			
00AD080	A4CG	1.2TB 10K 6Gbps SAS 2.5" SS HDD	8			
2.5-inch SATA	Hot-Swap SSDs	s - Enterprise				
41Y8331	A4FL	S3700 200GB SATA 2.5" MLC HS Enterprise SSD	8			

Table 10. Drive options for internal storage

Part number	Feature code	Description	Maximum supported
41Y8336	A4FN	S3700 400GB SATA 2.5" MLC HS Enterprise SSD	8
41Y8341	A4FQ	S3700 800GB SATA 2.5" MLC HS Enterprise SSD	8
2.5-inch SATA	Hot-Swap SSD	s - Enterprise Value	
00AJ355	A56Z	120GB SATA 2.5" MLC HS Enterprise Value SSD	8
00AJ360	A570	240GB SATA 2.5" MLC HS Enterprise Value SSD	8
00AJ365	A571	480GB SATA 2.5" MLC HS Enterprise Value SSD	8
00AJ370	A572	800GB SATA 2.5" MLC HS Enterprise Value SSD	8
00AJ000	A4KM	S3500 120GB SATA 2.5" MLC HS Enterprise Value SSD	8
00AJ005	A4KN	S3500 240GB SATA 2.5" MLC HS Enterprise Value SSD	8
00AJ010	A4KP	S3500 480GB SATA 2.5" MLC HS Enterprise Value SSD	8
00AJ015	A4KQ	S3500 800GB SATA 2.5" MLC HS Enterprise Value SSD	8
00FN268	A5U4	S3500 1.6TB SATA 2.5" MLC HS Enterprise Value SSD	8
2.5-inch SAS H	Hot-Swap SSDs	- Enterprise	
49Y6134	A3EY	400GB SAS 2.5" MLC HS Enterprise SSD	8
49Y6139	A3F0	800GB SAS 2.5" MLC HS Enterprise SSD	8
49Y6195	A4GH	1.6TB SAS 2.5" MLC HS Enterprise SSD	8
2.5-inch SATA	Hot-Swap SSD	s - Entry	
00FN298	AS0D	240GB SATA 2.5" MLC HS Entry SSD	8
00FN327	AS0E	480GB SATA 2.5" MLC HS Entry SSD	8
00FN332	AS0F	960GB SATA 2.5" MLC HS Entry SSD	8
2.5-inch SATA	Simple-Swap E	nterprise SSDs	
00W1130	A3HS	100GB SATA 2.5" MLC SS Enterprise SSD	8
41Y8351	A4FM	S3700 200GB SATA 2.5" MLC SS Enterprise SSD	8
41Y8356	A4FP	S3700 400GB SATA 2.5" MLC SS Enterprise SSD	8
41Y8361	A4FR	S3700 800GB SATA 2.5" MLC SS Enterprise SSD	8
2.5-inch SAS S	Simple-Swap En	terprise SSDs	
49Y6149	A3EZ	400GB SAS 2.5" MLC SS Enterprise SSD	8
49Y6154	A3F1	800GB SAS 2.5" MLC SS Enterprise SSD	8
49Y6200	A4GJ	1.6TB SAS 2.5" MLC SS Enterprise SSD	8
2.5-inch SATA	Simple-Swap E	nterprise Value SSDs	
00AJ375	A573	120GB SATA 2.5" MLC SS Enterprise Value SSD	8
00AJ380	A574	240GB SATA 2.5" MLC SS Enterprise Value SSD	8
00AJ385	A575	480GB SATA 2.5" MLC SS Enterprise Value SSD	8
00AJ390	A576	800GB SATA 2.5" MLC SS Enterprise Value SSD	8
00AJ020	A4KR	S3500 120GB SATA 2.5" MLC SS Enterprise Value SSD	8
00AJ025	A4KS	S3500 240GB SATA 2.5" MLC SS Enterprise Value SSD	8
00AJ030	A4KT	S3500 480GB SATA 2.5" MLC SS Enterprise Value SSD	8
00AJ035	A4KU	S3500 800GB SATA 2.5" MLC SS Enterprise Value SSD	8
00FN273	A5U5	S3500 1.6TB SATA 2.5" MLC SS Enterprise Value SSD	8
3.5-inch SAS H	Hot-Swap HDDs		
49Y6092	A3DV	300GB 15K 6Gbps SAS 3.5" G2HS HDD	4

Part number	Feature code	Description	Maximum supported
49Y6097	A3DW	450GB 15K 6Gbps SAS 3.5" G2HS HDD	4
49Y6102	A3DX	600GB 15K 6Gbps SAS 3.5" G2HS HDD	4
3.5-inch NL SA	AS Hot-Swap HD	DS	
90Y8567	A26M	1TB 7.2K 6Gbps NL SAS 3.5" G2HS HDD	4
90Y8572	A2U0	2TB 7.2K 6Gbps NL SAS 3.5" G2HS HDD	4
90Y8577	A2R2	3TB 7.2K 6Gbps NL SAS 3.5" G2HS HDD	4
49Y6210	A4AF	4TB 7.2K 6Gbps NL SAS 3.5" G2HS HDD	4
00ML203	AS76	2TB 7.2K 6Gbps NL SAS 3.5" G2HS 512e HDD	4
00ML208	AS77	4TB 7.2K 6Gbps NL SAS 3.5" G2HS 512e HDD	4
00ML213	AS78	6TB 7.2K 6Gbps NL SAS 3.5" G2HS 512e HDD	4
3.5-inch NL SA	AS Hot-Swap SE	D HDDs	
00ML218	AS79	2TB 7.2K 6Gbps NL SAS 3.5" G2HS 512e SED	4
00ML223	AS7A	4TB 7.2K 6Gbps NL SAS 3.5" G2HS 512e SED	4
00ML228	AS7B	6TB 7.2K 6Gbps NL SAS 3.5" G2HS 512e SED	4
3.5-inch NL SA	ATA Hot-Swap H	DDs	
81Y9786	A22Y	500GB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	4
81Y9790	A22P	1TB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	4
81Y9794	A22T	2TB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	4
81Y9798	A22S	3TB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	4
49Y6002	A3W9	4TB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	4
00FN113	A5VD	2TB 7.2K 6Gbps NL SATA 3.5" G2HS 512e HDD	4
00FN128	A5VF	3TB 7.2K 6Gbps NL SATA 3.5" G2HS 512e HDD	4
00FN143	A5VH	4TB 7.2K 6Gbps NL SATA 3.5" G2HS 512e HDD	4
00FN158	A5VK	5TB 7.2K 6Gbps NL SATA 3.5" G2HS 512e HDD	4
00FN173	A5VM	6TB 7.2K 6Gbps NL SATA 3.5" G2HS 512e HDD	4
3.5-inch NL SA	ATA Simple-Swa	p HDDs	
81Y9802	A22U	500GB 7.2K 6Gbps NL SATA 3.5" G2SS HDD	4
81Y9806	A22X	1TB 7.2K 6Gbps NL SATA 3.5" G2SS HDD	4
81Y9810	A22W	2TB 7.2K 6Gbps NL SATA 3.5" G2SS HDD	4
81Y9814	A22V	3TB 7.2K 6Gbps NL SATA 3.5" G2SS HDD	4
49Y6012	A3WA	4TB 7.2K 6Gbps NL SATA 3.5" G2SS HDD	4
00FN118	A5VE	2TB 7.2K 6Gbps NL SATA 3.5" G2SS 512e HDD	4
00FN133	A5VG	3TB 7.2K 6Gbps NL SATA 3.5" G2SS 512e HDD	4
00FN148	A5VJ	4TB 7.2K 6Gbps NL SATA 3.5" G2SS 512e HDD	4
00FN163	A5VL	5TB 7.2K 6Gbps NL SATA 3.5" G2SS 512e HDD	4
00FN178	A5VN	6TB 7.2K 6Gbps NL SATA 3.5" G2SS 512e HDD	4
3.5-inch NL SA	AS Hot-Swap Se	If-encrypting drives (SEDs)	
00W1533	A4AH	2TB 7.2K 6Gbps NL SAS 3.5" G2HS SED	4
00W1543	A4AJ	4TB 7.2K 6Gbps NL SAS 3.5" G2HS SED	4

### Internal backup units

The server does not support internal tape drive options or other internal backup units. However, it can be attached to the external tape drives using SAS or Fibre Channel connectivity (see Table 29).

### **Optical drives**

The server supports the optical drive options listed in the following table. Server models with 3.5-inch HDDs do not support an internal optical drive.

Part number	Feature code	Description	Maximum supported	Standard models where used
46M0901	4161	UltraSlim Enhanced SATA DVD- ROM	1	-
46M0902	4163	UltraSlim Enhanced SATA Multi- Burner	1	-

UltraSlim Enhanced SATA DVD-ROM (part number 46M0901) supports the following media and speeds for reading:

- CD-ROM 24X
- CD-R 24X
- CD-RW 24X
- DVD-ROM (4.7 GB) 8X
- DVD-ROM (dual layer, 8.5 GB) 8X
- DVD-R (4.7 GB) 8X
- DVD-R (dual layer, 8.5 GB) 8X
- DVD+R (4.7 GB) 8X
- DVD+R (dual layer, 8.5 GB) 8X
- DVD-RW (4.7 GB) 8X
- DVD+RW (4.7 GB) 8X
- DVD-RAM (4.7 GB) 5X

UltraSlim Enhanced SATA Multi-Burner (46M0902) supports the same media and speeds for reading as DVD-ROM (46M0901). This drive also supports the following media and speeds for writing:

- CD-R 24X
- CD-RW 24X
- DVD-R (4.7 GB) 8X
- DVD-R (dual layer, 8.5 GB) 6X
- DVD+R (4.7 GB) 8X
- DVD+R (dual layer, 8.5 GB) 6X
- DVD-RW (4.7 GB) 6X
- DVD+RW (4.7 GB) 8X
- DVD-RAM (4.7 GB) 5X

## I/O expansion options

The server supports up to three PCIe slots with different riser cards installed into two riser sockets on the system planar (one riser socket supports the installation of one riser card). The slot form factors are as follows:

- Slot 1: PCIe 3.0 x16 (x8-wired), optional PCIe 3.0 x16 (x16-wired); full-height, half-length
- Slot 2: PCle 3.0 x16 (x8-wired); low-profile, half-length (not present if an optional x16-wired slot 1 riser is used)
- Slot 3: PCIe 3.0 x4 (dedicated slot for ServeRAID adapter); standard on hardware RAID models, optional on software RAID models

Riser 1 supplies slots 1 and 2, and riser 2 supplies slot 3. Standard models have one (00AL678 in models with ServeRAID C105) or two (00AL678 and 00AL680 in models with hardware RAID adapters) riser cards installed.

You can replace the first riser card with a riser with one PCIe 3.0 x16 (x16-wired) slot (or configure a custom model with the first riser card with one PCIe 3.0 x16 slot using special bid or CTO).

The following table lists the PCI riser card options.

Table 1	2. PCI	riser	card	options
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Part number	Feature code	Description	Maximum supported	Standard models where used	
Riser 1 (sup	Riser 1 (supplies slots 1 and 2) options				
00AL678	A53N	PCIe Riser Card for slot 1 (1 x8 FH/HL + 1 x8 LP Slots) v2	1	A3x, A5x, A7x, B3x, B5x, B7x, C3x, F3x, G3x	
00AL679	A53P	PCIe Riser Card 1 (1 x16 FH/HL Slot) for Graphic card v2	1	-	
Riser 2 (sup					
00AL680	A53Q	PCIe Riser Card 2 (1 x4 LP for Slotless RAID) v2	1	C3x, F3x, G3x	

#### **Network adapters**

The x3530 M4 supports up to four integrated Gigabit Ethernet 1000BASE-T RJ-45 ports (two enabled standard, and two enabled optionally with the FoD upgrade).

Integrated NIC has the following features:

- An Intel I350-CM2 chip
- Up to four Gigabit Ethernet ports (two enabled standard, and two enabled optionally with the 90Y9314 FoD upgrade)
- NIC Teaming (load balancing and failover)
- Ethernet Features:
  - 1 Gb Ethernet IEEE 802.3, 802.3u, and 802.3ab PHY specifications compliant
  - Integrated PHY for 10/100/1000 Mbps for multispeed, full, and half-duplex auto-negotiation
  - IEEE 802.3x and 802.3z compliant flow control support with software-controllable Rx thresholds and Tx pause frames
  - Automatic cross-over detection function (MDI/MDI-X)
  - IEEE 1588 protocol and 802.1AS implementation
  - IEEE802.3az Energy Efficient Ethernet (EEE)
  - Full wake up support
    - Advanced Power Management (APM) support

- Advanced Configuration and Power Interface (ACPI) specification v2.0c
- Magic packet wake-up enable
- I/O Virtualization Features:
  - Eight transmit (Tx) and receive (Rx) queue pairs per port
  - Flexible port partitioning: 32 virtual functions (VF) with four ports or 16 VFs with two ports
  - Rx/Tx round-robin scheduling
  - Traffic isolation and traffic steering
  - Virtual machine (VM) to VM packet forwarding (packet loopback)
  - MAC and VLAN anti-spoofing
  - Malicious driver detection
  - Storm control
  - Per-pool statistics, off loads, and jumbo support
  - · Independent Function Level Reset (FLR) for physical and virtual functions
  - IEEE 802.1q Virtual Local Area Network (VLAN) support with VLAN tag insertion, stripping, and packet filtering for up to 4096 VLAN tags
  - IEEE 802.1q advanced packet filtering
  - Mirroring rules
  - Support for simple VEPA
  - VF promiscuous modes
- Stateless offload and performance features:
  - TCP/UDP, IPv4 checksum offloads (Rx/ Tx/Large-send); extended Tx descriptors
  - IPv6 support for IP/TCP and IP/UDP receive checksum offload
  - Tx TCP segmentation offload (IPv4, IPv6)
  - Transmit Segmentation Offloading (TSO)
  - Interrupt throttling control
  - Legacy and Message Signal Interrupt (MSI)
  - Message Signal Interrupt Extension (MSI-X)
  - Receive Side Scaling (RSS) for Windows
  - Scalable I/O for Linux environments (IPv4, IPv6, TCP/UDP)
  - Support for packets up to 9.5 KB (jumbo frames)

The following table lists additional supported network adapters.

Part number	Feature code	Description	Maximum supported	
40 Gb Ethern	net / FDR InfiniE	Band		
00D9550	A3PN	Mellanox ConnectX-3 FDR VPI IB/E Adapter for System x	2	
10 Gb Ethern	net			
44T1370	A5GZ	Broadcom NetXtreme 2x10GbE BaseT Adapter	2	
94Y5180	A4Z6	Broadcom NetXtreme Dual Port 10GbE SFP+ Adapter	2*	
49Y7910	A18Y	Broadcom NetXtreme II Dual Port 10GBaseT Adapter	2	
95Y3762	A2U1	Emulex Dual Port 10GbE SFP+ VFA III for System x	2*	
00JY830	A5UU	Emulex VFA5 2x10 GbE SFP+ Adapter and FCoE/iSCSI SW	2*	
None	AS3M	Emulex VFA5 2x10 GbE SFP+ Integrated Adapter for System x	2*	
00JY820	A5UT	Emulex VFA5 2x10 GbE SFP+ PCIe Adapter for System x	2*	
00JY824	A5UV	Emulex VFA5 FCoE/iSCSI SW for PCIe Adapter for System x (FoD) (Features on Demand upgrade for 00JY820 and feature A5UT)	2	
00AG500	A56K	Intel I350-F1 1xGbE Fiber Adapter for System x	2*	
00AG510	A56L	Intel I350-T2 2xGbE BaseT Adapter for System x	2*	
00AG520	A56M	Intel I350-T4 4xGbE BaseT Adapter for System x	2*	
49Y7960	A2EC	Intel X520 Dual Port 10GbE SFP+ Adapter for System x	2*	
49Y7970	A2ED	Intel X540-T2 Dual Port 10GBaseT Adapter for System x	2	
81Y3520	AS73	Intel X710 2x10GbE SFP+ Adapter for System x	2*	
00D9690	АЗРМ	Mellanox ConnectX-3 10 GbE Adapter for System x	2*	
42C1800	5751	QLogic 10Gb CNA for System x	2*	
90Y4600	A3MR	QLogic 8200 Dual Port 10GbE SFP+ VFA for System x	2*	
00Y5624	A3MT	QLogic 8200 VFA FCoE/iSCSI License for System x (FoD) One FCoE/iSCSI license per 90Y4600.	2	
47C9952	A47H	Solarflare SFN5162F 2x10GbE SFP+ Performant Adapter	2*	
47C9960	A47J	Solarflare SFN6122F 2x10GbE SFP+ Onload Adapter	2*	
Integrated NI	C upgrades			
90Y9314	A2GT	Intel I-350 Embedded Dual Port GbE Activation for System x (FoD)	1	
Gigabit Ether	net			
42C1780	2995	Broadcom NetXtreme 2xGbE BaseT Adapter for System x	2	
90Y9370	A2V4	Broadcom NetXtreme I Dual Port GbE Adapter for System x	2	
90Y9352	A2V3	Broadcom NetXtreme I Quad Port GbE Adapter for System x	2	
49Y4230	5767	Intel Ethernet Dual Port Server Adapter I340-T2 for System x	2	
49Y4240	5768	Intel Ethernet Quad Port Server Adapter I340-T4 for System x	2	
42C1750	2975	PRO/1000 PF Server Adapter 2		

Table	13.	Network	adapters
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\* Virtual Fabric Adapters and Converged Network Adapters require SFP+ optical transceivers or DAC cables that must be purchased separately.

For more information, see the list of Lenovo Press Product Guides in the Ethernet and IB adapters category: http://lenovopress.com/systemx/networkadapters

### Storage host bus adapters

### **PCIe SSD adapters**

The server supports the High IOPS SSD adapters listed in the following table.

Table 14. SSD adapters

Part number	Feature code	Description	Maximum supported
46C9078	A3J3	365GB High IOPS MLC Mono Adapter	2
46C9081	A3J4	785GB High IOPS MLC Mono Adapter	2
90Y4377	A3DY	1.2TB High IOPS MLC Mono Adapter	2

### **GPU** adapters

The server supports graphics processing units (GPUs) provided riser card 00AL679 is installed. The following table lists the supported GPUs.

Table 15. GPU adapters

Part number	Feature code	Description	Maximum supported
None*	A3WH	NVIDIA Quadro K600	1

\* This adapter can only be ordered through CTO or special bid.

The use of GPU adapters requires installation of one or two 675 W power supplies. 460 W power supplies are not supported. If the NVIDIA Quadro K600 is installed, the maximum memory that can be installed is 128 GB.

### **Power supplies**

The server supports one 460 W AC fixed power supply or up to two redundant 460 W or 675 W HE hot-swap power supplies. These power supplies are 80 PLUS certified. The server also supports up to two redundant hot-swap 675 W -48 V DC power supplies. Standard models come either with one fixed or one hot-swap power supply (model dependent). The following table lists the power supplies. An AC hot-swap power supply option ships standard with one 2.8m, 10A/100-250V, C13 to IEC 320-C14 rack power cable.

Part Description Maximum Standard models Feature number supported where used code None\* A223 460W Fixed Power Supply A3x, A5x, B3x, B5x 1 2 00D4413 A2ZS 460W Power Supply (Redundant) A7x, B7x, C3x F3x 00D4412 2 A2ZR 675W Power Supply - HE (Redundant) G3x 00.16451 A3KV 675W -48V Redundant DC PSU 2

Table 16. Power supplies

\* Fixed power supply comes either with standard or custom (special bid or CTO) models.

**Note:** If you plan to use GPU adapters, refer to the "GPU adapters" section for the additional power supply selection guidelines.

### Integrated virtualization

### **Remote management**

The server contains Integrated Management Module II (IMM2), which provides advanced service-processor control, monitoring, and an alerting function. If an environmental condition exceeds a threshold or if a system component fails, the IMM2 lights LEDs to help you diagnose the problem, records the error in the event log, and alerts you to the problem. Optionally, the IMM2 also provides a virtual presence capability for remote server management capabilities.

The IMM2 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)
- Web browser

The optional Integrated Management Module Advanced Upgrade is required to enable the remote presence and blue-screen capture features. The remote presence feature provides the following functions:

- Remotely viewing video with graphics resolutions up to 1600x1200 at 75 Hz with up to 23 bits per pixel, regardless of the system state
- Remotely accessing the server using the keyboard and mouse from a remote client
- Mapping the CD or DVD drive, diskette drive, and USB flash drive on a remote client, and mapping ISO and diskette image files as virtual drives that are available for use by the server
- Uploading a diskette image to the IMM memory and mapping it to the server as a virtual drive

The blue-screen capture feature captures the video display contents before the IMM restarts the server when the IMM detects an operating system hang condition. A system administrator can use the blue-screen capture to assist in determining the cause of the hang condition. The following table lists the remote management option.

Table 17. Remote management option

Part number	Feature code	Description	Maximum supported
90Y3901	A1ML	Integrated Management Module Advanced Upgrade	1

In the default UEFI configuration, Ethernet port 2 is configured to be dedicated to remote access to the IMM2. If preferred, you can change the UEFI setting so that remote access to the IMM2 is via Port 1 and also accessible to the operating system. This setting is also useful if you do not have a dedicated management network. The following table shows this setting and its effect on the Ethernet ports.

**Note**: The IMM2 network must operate 100 Mbps full duplex. The IMM2 network connection does not support Gigabit Ethernet. In shared mode, the production Ethernet network on that port still operates at Gigabit speeds.

Table 18. UEFI settings for remote access to the IMM

UEFI mode	Ethernet Port 1	Ethernet Port 2	Ethernet Port 3 (optional)	Ethernet Port 4 (optional)
IMM network interface port dedicated (default)	Production Ethernet	IMM2 dedicated*	Production Ethernet	Production Ethernet
IMM network interface port shared	Shared - Production Gb Ethernet and IMM2*	Production Ethernet	Production Ethernet	Production Ethernet

\* The IMM network is limited to 100 Mbps full duplex

## Light path diagnostics panel

The light path diagnostics panel allows system engineers and administrators to easily and quickly diagnose hardware problems on System x servers. If a failure occurs, a light is illuminated on the front panel of the server (level 1 light path) to alert the systems administrator that there is a problem. The light path diagnostics panel (light path level 2) will have a light next to the LED for the failed subsystem. This light directs the engineer or administrator to the failed component, also shows an illuminated LED near it (light path level 3) (for example, the DIMM error LED on the system board).

x3530 M4 offers two variants of light path diagnostics: basic and advanced. All standard x3530 M4 models include basic functionality that provides light path levels 1 and 3. Advanced functionality is optional; it contains a pop-out panel that adds light path level 2.

The following figures show the basic (level 1) and advanced (level 2) light path levels.



Figure 8. Basic (level 1) light path



Figure 9. Advanced (level 2) light path

The following table lists the advanced light path kit.

Table 19. Advanced light path kit

Part number	Feature code	Description	Maximum supported
90Y6533	A2U6	Lightpath Upgrade kit	1

### Supported operating systems

The server supports the following operating systems:

- Microsoft Windows Server 2008 R2
- Microsoft Windows Server 2008, Datacenter x64 Edition
- Microsoft Windows Server 2008, Datacenter x86 Edition
- Microsoft Windows Server 2008, Enterprise x64 Edition
- Microsoft Windows Server 2008, Enterprise x86 Edition
- Microsoft Windows Server 2008, Standard x64 Edition
- Microsoft Windows Server 2008, Standard x86 Edition
- Microsoft Windows Server 2008, Web x64 Edition
- Microsoft Windows Server 2008, Web x86 Edition
- Microsoft Windows Server 2012
- Microsoft Windows Server 2012 R2
- Red Hat Enterprise Linux 5 Server Edition
- Red Hat Enterprise Linux 6 Server Edition
- Red Hat Enterprise Linux 6 Server x64 Edition
- Red Hat Enterprise Linux 7
- SUSE LINUX Enterprise Server 11 for AMD64/EM64T
- SUSE LINUX Enterprise Server 11 for x86
- SUSE LINUX Enterprise Server 11 with Xen for AMD64/EM64T
- SUSE Linux Enterprise Server 12
- SUSE Linux Enterprise Server 12 with XEN
- VMware vSphere 5.0 (ESXi)
- VMware vSphere 5.1 (ESXi)
- VMware vSphere 5.5 (ESXi)

For the latest information about the specific versions and service levels supported and any other prerequisites, see the ServerProven® website at:

http://www.ibm.com/systems/info/x86servers/serverproven/compat/us/nos/matrix.shtml

### Physical and electrical specifications

Dimensions and weight:

- Height: 43 mm (1.7 in.)
- Width: 447 mm (17.6 in.)
- Depth: 673 mm (26.5 in.)
- Weight:
  - Minimum configuration: 10.4 kg (22.9 lb).
  - Maximum configuration: 15.6 kg (34.3 lb).

Supported environment:

- Air temperature
  - Server on: 5 °C 40 °C (41.0 °F 104 °F); altitude: 0 915 m (3,000 ft).
  - Server on: 5 °C 32 °C (41.0 °F 89.6 °F); altitude: 915 2,134 m (7,000 ft).

- Server on: 5 °C 28 °C (41.0 °F 82.4 °F); altitude: 2,134 3,050 m (10,000 ft).
- Server off: 5 °C 45 °C (41.0 °F 113 °F).
- Shipment: -40 °C 60 °C (-40 °F 140 °F).
- Humidity
  - Server on: 8% 85%, maximum dew point 24 °C, maximum rate of change 5 °C/hr.
  - Server off: 8% 80%, maximum dew point 27 °C.
  - Shipment: 5% 100%.
- Design to ASHRAE Class A3, ambient of 35 °C 40 °C, with relaxed support
  - Supports a cloud like workload with no acceptable performance degradation (Turbo-Off).
  - Under no circumstance can any combination of worst case workload and configuration result in system shutdown or design exposure at 40 °C.
- Electrical
  - Models with 675 W AC hot-swap power supplies:
    - 100 127 (nominal) V AC; 50 Hz or 60 Hz; 7.8 A
    - 200 240 (nominal) V AC; 50 Hz or 60 Hz; 3.8 A
    - Input kilovolt-amperes (kVA) (approximately):
      - Minimum configuration: 0.14 kVA
      - Maximum configuration: 0.77 kVA
  - Models with 460 W AC hot-swap power supplies:
    - 100 127 (nominal) V AC; 50 Hz or 60 Hz; 5.6 A
    - 200 240 (nominal) V AC; 50 Hz or 60 Hz; 2.8 A
    - Input kilovolt-amperes (kVA) (approximately):
      - Minimum configuration: 0.12 kVA
      - Maximum configuration: 0.53 kVA
  - Models with 460 W AC fixed power supplies:
    - 100 127 (nominal) V AC; 50 Hz or 60 Hz; 6.0 A
    - 200 240 (nominal) V AC; 50 Hz or 60 Hz; 3.0 A
    - Input kilovolt-amperes (kVA) (approximately):
      - Minimum configuration: 0.13 kVA
      - Maximum configuration: 0.57 kVA
  - Models with 675 W DC hot-swap power supplies:
    - -40 to -75 (nominal) V DC; 18.34 A
    - Input kilovolt-amperes (kVA) (approximately):
      - Minimum configuration: 0.14 kVA
      - Maximum configuration: 0.77 kVA
- BTU output
  - Minimum configuration: 406 Btu/hr (119 watts)
  - Maximum configuration: 2627 Btu/hr (770 watts)
- Noise level
  - 6.5 bels (operating)
  - 6.3 bels (idle)

#### Warranty options

The system has a three-year warranty with 24x7 standard call center support and 9x5 Next Business Day onsite coverage. Also available are Lenovo Services warranty maintenance upgrades and post-warranty maintenance agreements, with a well-defined scope of services, including service hours, response time, term of service, and service agreement terms and conditions.

Lenovo warranty service upgrade offerings are region-specific. Not all warranty service upgrades are available in every region. For more information about Lenovo warranty service upgrade offerings that are available in your region, go to the Data Center Advisor and Configurator website <a href="http://dcsc.lenovo.com">http://dcsc.lenovo.com</a>, then do the following:

- 1. In the Customize a Model box in the middle of the page, select the **Services** option in the Customization Option dropdown menu
- 2. Enter in the machine type & model of the system
- 3. From the search results, you can click either **Deployment Services** or **Support Services** to view the offerings

The following table explains warranty service definitions in more detail.

Term	Description
On-site service	A service technician will arrive at the client's location for equipment service.
24x7x2 hour	A service technician is scheduled to arrive at the client's location within two hours after remote problem determination is completed. Lenovo provides service around the clock, every day, including Lenovo holidays.
24x7x4 hour	A service technician is scheduled to arrive at the client's location within four hours after remote problem determination is completed. Lenovo provides service around the clock, every day, including Lenovo holidays.
9x5x4 hour	A service technician is scheduled to arrive at the client's location within four business hours after remote problem determination is completed. Lenovo provides service 8:00 am - 5:00 pm in the client's local time zone, Monday-Friday, excluding Lenovo holidays. For example, if a customer reports an incident at 3:00 pm on Friday, the technician will arrive by 10:00 am the following Monday.
9x5 next business day	A service technician is scheduled to arrive at the client's location on the business day after remote problem determination is completed. Lenovo provides service 8:00 am - 5:00 pm in the client's local time zone, Monday - Friday, excluding Lenovo holidays. Calls received after 4:00 pm local time require an extra business day for service dispatch. Next business day service is not guaranteed.
Committed Repair	Problems receive priority handling so that repairs are completed within the committed time of 6, 8, or 24 hours. Lenovo provides service 24 hours/day, every day, including Lenovo holidays.

#### Table 20. Warranty service definitions

The following Lenovo warranty service upgrades are available:

- Warranty and maintenance service upgrades:
  - Three, four, or five years of 9x5 or 24x7 service coverage
  - Onsite response from next business day to 2 or 4 hours
  - Committed repair service
  - Warranty extension of up to 5 years
  - Post warranty extensions
- Committed Repair Service

Committed Repair Services enhances the level of Warranty Service Upgrade or Post Warranty/Maintenance Service offering associated with the selected systems. Offerings vary and are available in select countries.

- Priority handling to meet defined time frames to restore the failing machine to good working condition
- Committed repair service levels are measured within the following coverage hours:
  - 24x7x6: Service performed 24 hours per day, 7 days per week, within 6 hours
  - 24x7x8: Service performed 24 hours per day, 7 days per week, within 8 hours
  - 24x7x24: Service performed 24 hours per day, 7 days per week, within 24 hours

• Hard Disk Drive Retention

Lenovo's Hard Disk Drive Retention (HDDR) service is a multi-drive hard drive retention offering that ensures your data is always under your control, regardless of the number of hard drives that are installed in your Lenovo server. In the unlikely event of a hard drive failure, you retain possession of your hard drive while Lenovo replaces the failed drive part. Your data stays safely on your premises, in your hands. The Hard Drive Retention service can be purchased in convenient bundles with our warranty upgrades and extensions.

Microcode Support

Keeping microcode current helps prevent hardware failures and security exposure. There are two levels of service: analysis of the installed base and analysis and update where required. Offerings vary by region and can be bundled with other warranty upgrades and extensions.

• Remote Technical Support Services (RTS)

RTS provides comprehensive technical call center support for covered servers, storage, operating systems, and applications. Providing a single source for support of hardware and software issues, RTS can reduce problem resolution time, decreasing the cost to address technical problems and increasing uptime. Offerings are available for Windows, Linux, IBM Systems Director, VMware, Microsoft business applications, and Lenovo System x storage devices, and IBM OEM storage devices.

#### **Regulatory compliance**

The server conforms to the following regulations:

- FCC Verified to comply with Part 15 of the FCC Rules, Class A
- Canada ICES-003, issue 4, Class A
- UL/IEC 60950-1
- CSA C22.2 No. 60950-1
- NOM-019
- Argentina IEC60950-1
- Japan VCCI, Class A
- Australia/New Zealand AS/NZS CISPR 22, Class A
- IEC 60950-1(CB Certificate and CB Test Report)
- China CCC (GB4943), GB9254 Class A, GB17625.1
- Taiwan BSMI CNS13438, Class A; CNS14336-1
- Korea KN22, Class A; KN24
- Russia, Belorussia and Kazakhstan, TR CU 020/2011 (for EMC) and TR CU 004/2011 (for safety)
- CE Mark (EN55022 Class A, EN60950-1, EN55024, EN61000-3-2, EN61000-3-3)
- CISPR 22, Class A
- TUV-GS (EN60950-1 /IEC60950-1, EK1-ITB2000)

#### External disk storage expansion

The x3530 M4 supports attachment to external storage expansion enclosures, such as the EXP2500 series, by using the ServeRAID M5120 SAS/SATA Controller or the ServeRAID M5225-2GB SAS/SATA Controller. The x3530 M4 can also be attached to supported external storage systems, using the supported HBAs listed in Table 14.

The following table provides the ordering part numbers for the ServeRAID M5120 SAS/SATA Controller.

Table 21. Ordering part numbers and feature codes

Part number	Feature code	Description	Maximum supported
Adapters			
81Y4478	A1WX	ServeRAID M5120 SAS/SATA Controller for System x	2
00AE938	A5ND	ServeRAID M5225-2GB SAS/SATA Controller for System x	2
ServeRAID M5120 Upgrades			
81Y4484	A1J3	ServeRAID M5100 Series 512MB Cache/RAID 5 Upgrade for System x	2
81Y4487	A1J4	ServeRAID M5100 Series 512MB Flash/RAID 5 Upgrade for System x	2
81Y4559	A1WY	ServeRAID M5100 Series 1GB Flash/RAID 5 Upgrade for System x	2
81Y4508	A22E	ServeRAID M5100 Series Battery Kit for System x	2
81Y4546	A1X3	ServeRAID M5100 Series RAID 6 Upgrade for System x	1*
90Y4273	A2MC	ServeRAID M5100 Series SSD Performance Accelerator for System x	1*
90Y4318	A2MD	ServeRAID M5100 Series SSD Caching Enabler for System x	1*

\* Only one M5100 Series FoD license is required and covers all M5100 adapters installed in the server.

The ServeRAID M5120 SAS/SATA Controller has the following specifications:

- Eight external 6 Gbps SAS/SATA ports
- Up to 6 Gbps throughput per port
- Two external x4 mini-SAS connectors (SFF-8088)
- Supports RAID levels 0, 1, and 10
- Supports RAID levels 5 and 50 with optional M5100 Series RAID 5 upgrades
- Supports RAID 6 and 60 with the optional M5100 Series RAID 6 Upgrade
- Supports 512 MB battery-backed cache or 512 MB or 1 GB flash-backed cache
- PCIe 3.0 x8 host interface
- Based on the LSI SAS2208 6 Gbps ROC controller
- Supports connectivity to the EXP2512 and EXP2524 storage expansion enclosures

**Cache upgrade required:** The ServeRAID M5120 SAS/SATA Controller ships standard without a cache. One of the available cache upgrades (81Y4484, 81Y4487, or 81Y4559) is required for the M5120 adapter operations, and it must be purchased together with the controller.

For more information, see the Lenovo Press Product Guide *ServeRAID M5120 SAS/SATA Controller for System x* at:

http://lenovopress.com/tips0858

The ServeRAID M5225 SAS/SATA Controller has the following specifications:

- Eight external 12 Gbps SAS/SATA ports
- Supports 12, 6, and 3 Gbps SAS and 6 and 3 Gbps SATA data transfer rates
- Two external x4 mini-SAS HD connectors (SFF-8644)
- Supports 2 GB flash-backed cache (standard)
- Supports RAID levels 0, 1, 5, 10, and 50 (standard)
- Supports RAID 6 and 60 with the optional M5200 Series RAID 6 Upgrade
- Supports optional M5200 Series Performance Accelerator and SSD Caching upgrades
- PCIe x8 Gen 3 host interface
- Based on the LSI SAS3108 12 Gbps ROC controller

• Supports connectivity to the EXP2512 and EXP2524 storage expansion enclosures

For more information, see the Lenovo Press Product Guide *ServeRAID M5225-2GB SAS/SATA Controller* at:

http://lenovopress.com/tips1258

The controllers supports connectivity to the external expansion enclosures that are listed in the following table. Up to nine expansion enclosures can be daisy-chained per one adapter port. For better performance, distribute expansion enclosures evenly across both adapter ports.

Table 22. External expansion enclosures

Part number	Description	Maximum quantity supported per controller
70F0 / 70F1	Lenovo ThinkServer SA120	8
610012X	EXP2512 Storage Enclosure	17
610024X	EXP2524 Storage Enclosure	9

#### Lenovo ThinkServer SA120 support

For details about supported drives and cables for the Lenovo ThinkServer SA120, see the Lenovo Press Product Guide:

http://lenovopress.com/tips1234

#### EXP2512 and EXP2524 support

The external SAS cables listed in the following table support connectivity between external expansion enclosures and the controller.

Table 23. External SAS cables for external storage expansion enclosures

Part number	Description	Maximum quantity supported per one enclosure		
ServeRAID M5	ServeRAID M5120 - Server to Expansion enclosure connectivity (Mini-SAS x4 to Mini-SAS x4)			
39R6531	3 m SAS Cable	1		
39R6529	1 m SAS Cable	1		
ServeRAID M5225 - Server to Expansion enclosure connectivity (Mini-SAS HD x4 to Mini-SAS x4)				
00MJ162	0.6m SAS Cable (mSAS HD to mSAS)	1		
00MJ163	1.5m SAS Cable (mSAS HD to mSAS)	1		
00MJ166	3m SAS Cable (mSAS HD to mSAS)	1		
Expansion enclosure to Expansion enclosure connectivity (Mini-SAS x4 to Mini-SAS x4)				
39R6529	1 m SAS Cable	1		
39R6531	3 m SAS Cable	1		

The following table lists the drives that are supported by EXP2512 external expansion enclosures.

Table 24. Drive options for EXP2512 external expansion enclosures

Part number	Description	Maximum quantity supported per one enclosure
3.5" NL SAS HS HDDs		
00NC555	2TB 7,200 rpm 6Gb SAS NL 3.5" HDD	12
00NC557	3TB 7,200 rpm 6Gb SAS NL 3.5" HDD	12
00NC559	4TB 7,200 rpm 6Gb SAS NL 3.5" HDD	12

The following table lists the hard disk drives that are supported by EXP2524 external expansion enclosures.

Table 25. Drive options for EXP2524 external expansion enclosures

Part number	Description	Maximum quantity supported per one enclosure
2.5" NL SAS HS HDDs		
00NC571	1TB 7,200 rpm 6Gb SAS NL 2.5" HDD	24
2.5" SAS HS HDDs		
00NC561	146GB 15,000 rpm 6Gb SAS 2.5" HDD	24
00NC563	300GB 15,000 rpm 6Gb SAS 2.5" HDD	24
00NC565	600GB 10,000 rpm 6Gb SAS 2.5" HDD	24
00NC567	900GB 10,000 rpm 6Gb SAS 2.5" HDD	24
00NC569	1.2TB 10,000 rpm 6Gb SAS 2.5" HDD	24
2.5" SAS HS SSDs		
00NC573	200GB 6Gb SAS 2.5" SSD	24
00NC575	400GB 6Gb SAS 2.5" SSD	24

### External disk storage systems

Lenovo offers the ThinkSystem DE Series and ThinkSystem DM Series external storage systems for highperformance 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
- ThinkSystem DG Series Storage https://lenovopress.com/storage/thinksystem/dg-series#rt=product-guide

## **External backup units**

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

Part number	Description		
External RDX USB drives			
4T27A10725	ThinkSystem RDX External USB 3.0 Dock		
External SAS tap	be backup drives		
6160S7E	IBM TS2270 Tape Drive Model H7S		
6160S8E	IBM TS2280 Tape Drive Model H8S		
6160S9E	IBM TS2290 Tape Drive Model H9S		
External SAS tap	be backup autoloaders		
6171S7R	IBM TS2900 Tape Autoloader w/LTO7 HH SAS		
6171S8R	IBM TS2900 Tape Autoloader w/LTO8 HH SAS		
6171S9R	IBM TS2900 Tape Autoloader w/LTO9 HH SAS		
External tape bac	ckup libraries		
6741A1F	IBM TS4300 3U Tape Library-Base Unit		
6741A3F	IBM TS4300 3U Tape Library-Expansion Unit		
Full High 8 Gb Fi	ibre Channel for TS4300		
01KP938	LTO 7 FH Fibre Channel Drive		
01KP954	LTO 8 FH Fibre Channel Drive		
02JH837	LTO 9 FH Fibre Channel Drive		
Half High 8 Gb F	ibre Channel for TS4300		
01KP936	LTO 7 HH Fibre Channel Drive		
01KP952	LTO 8 HH Fibre Channel Drive		
02JH835	LTO 9 HH Fibre Channel Drive		
Half High 6 Gb S	AS for TS4300		
01KP937	LTO 7 HH SAS Drive		
01KP953	LTO 8 HH SAS Drive		
02JH836	LTO 9 HH SAS Drive		

Table 26. External backup options

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

## **Top-of-rack Ethernet switches**

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

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

Table 27. Ethernet LAN switches

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

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

## Uninterruptible power supply units

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

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)

Table 28. Uninterruptible power supply units

† Only available in China and the Asia Pacific market.

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

## Power distribution units

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

Table 29. Power distribution units

Part number	Feature code	Description	ANZ	ASEAN	Brazil	EET	MEA	RUCIS	WE	НТК	INDIA	JAPAN	LA	NA	PRC
0U Basic PDI	Js														
00YJ776	ATZY	0U 36 C13/6 C19 24A 1 Phase PDU	Ν	Υ	Υ	Ν	Ν	Ν	Ν	Ν	Ν	Υ	Υ	Y	Ν
00YJ779	ATZX	0U 21 C13/12 C19 48A 3 Phase PDU	Ν	Ν	Υ	Ν	Ν	Ν	Υ	Ν	Ν	Υ	Υ	Υ	Ν
00YJ777	ATZZ	0U 36 C13/6 C19 32A 1 Phase PDU		Υ	Ν	Υ	Υ	Υ	Υ	Υ	Υ	Ν	Ν	Y	Υ
00YJ778	AU00	0U 21 C13/12 C19 32A 3 Phase PDU	Υ	Υ	Ν	Υ	Υ	Υ	Υ	Υ	Υ	Ν	Ν	Y	Υ
0U Switched	and Moni	tored PDUs													
00YJ783	AU04	0U 12 C13/12 C19 Switched and Monitored 48A 3 Phase PDU	Ν	Ν	Y	Ν	Ν	Ν	Y	Ν	Ν	Y	Y	Y	N

				AN	ii.			S			A	AN			
Part number	Feature code	Description	ANZ	ASE	Braz	EET	MEA	RUC	МE	HTK	INDI	JAP,	۲A	٩N	PRC
00YJ781	AU03	0U 20 C13/4 C19 Switched and Monitored 24A 1 Phase PDU	N	N	Y	N	Y	N	Y	N	N	Y	Y	Y	N
00YJ782	AU02	0U 18 C13/6 C19 Switched and Monitored 32A 3 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Ν	Y	Ν	Y
00YJ780	AU01	0U 20 C13/4 C19 Switched and Monitored 32A 1 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Ν	Y	Ν	Y
1U Switched	1U Switched and Monitored PDUs														
4PU7A90808	C0D4	1U 18 C19/C13 Switched and monitored 48A 3P WYE PDU V2 ETL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A81117	BNDV	1U 18 C19/C13 switched and monitored 48A 3P WYE PDU - ETL	N	N	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Y	Ν
4PU7A90809	CODE	1U 18 C19/C13 Switched and monitored 48A 3P WYE PDU V2 CE	N	N	Ν	Ν	Ν	Y	Y	Ν	Ν	Ν	Ν	Ν	Ν
4PU7A81118	BNDW	1U 18 C19/C13 switched and monitored 48A 3P WYE PDU - CE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Ν	Y	Ν	Y
4PU7A90810	CODD	1U 18 C19/C13 Switched and monitored 80A 3P Delta PDU V2		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4PU7A77467	BLC4	1U 18 C19/C13 Switched and Monitored 80A 3P Delta PDU		N	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Y	Ν	Y	Ν
4PU7A90811	CODC	1U 12 C19/C13 Switched and monitored 32A 3P WYE PDU V2		N	Ν	Ν	Ν	Y	Y	Ν	Ν	Ν	Ν	Ν	Ν
4PU7A77468	BLC5	1U 12 C19/C13 switched and monitored 32A 3P WYE PDU		Y	Y	Y	Y	Y	Y	Y	Y	Ν	Y	Y	Y
4PU7A90812	CODB	1U 12 C19/C13 Switched and monitored 60A 3P Delta PDU V2		N	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Y	Ν	Ν	Ν
4PU7A77469	BLC6	1U 12 C19/C13 switched and monitored 60A 3P Delta PDU		N	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Y	Ν
46M4002	5896	1U 9 C19/3 C13 Switched and Monitored DPI PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
46M4004	5894	1U 12 C13 Switched and Monitored DPI PDU	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ
46M4003	5897	1U 9 C19/3 C13 Switched and Monitored 60A 3 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
46M4005	5895	1U 12 C13 Switched and Monitored 60A 3 Phase PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1U Ultra Dens	sity Enter	prise PDUs (9x IEC 320 C13 + 3x IEC 320 C19	ou	tlet	s)										
71763NU	6051	Ultra Density Enterprise C19/C13 PDU 60A/208V/3PH	N	N	Y	Ν	Ν	Ν	Ν	Ν	Ν	Y	Y	Y	Ν
71762NX	6091	Ultra Density Enterprise C19/C13 PDU Y Y Y Y Y Y Y Y					Y	Y	Y	Y	Y	Y	Y	Y	
1U C13 Enter	prise PDI	Js (12x IEC 320 C13 outlets)													
39M2816	6030	DPI C13 Enterprise PDU Plus Module (WW)	Υ	Υ	Υ	Υ	Y	Υ	Y	Υ	Υ	Υ	Υ	Υ	Υ
39Y8941	6010	DPI C13 Enterprise PDU Module (WW)	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ
1U C19 Enter	prise PDI	Js (6x IEC 320 C19 outlets)													
39Y8948	6060	DPI C19 Enterprise PDU Module (WW)	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ

Part	Feature	Description		ASEAN	Brazil	ET	ИЕА	RUCIS	VE	НТК	NDIA	IAPAN	Α-	٩A	PRC
39Y8923	6061	DPI Three-phase 60A/208V C19 Enterprise PDU (US)		N	Y	N	N	N	Y	N	N	N	Y	Y	N
1U Front-end	PDUs (3)	k IEC 320 C19 outlets)					_				_				
39Y8938	6002	DPI Single-phase 30A/120V Front-end PDU (US)		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8939	6003	DPI Single-phase 30A/208V Front-end PDU (US)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8934	6005	DPI Single-phase 32A/230V Front-end PDU (International)		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8940	6004	DPI Single-phase 60A/208V Front-end PDU (US)		Ν	Y	Y	Y	Y	Y	Ν	Ν	Y	Y	Y	Ν
39Y8935	6006	DPI Single-phase 63A/230V Front-end PDU (International)		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1U NEMA PD	Us (6x NE	EMA 5-15R outlets)													
39Y8905	5900	DPI 100-127V NEMA PDU	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Y
Line cords for	or 1U PDU	s that ship without a line cord													
40K9611	6504	4.3m, 32A/380-415V, EPDU/IEC 309 3P+N+G 3ph wye (non-US) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9612	6502	4.3m, 32A/230V, EPDU to IEC 309 P+N+G (non-US) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9613	6503	4.3m, 63A/230V, EPDU to IEC 309 P+N+G (non-US) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9614	6500	4.3m, 30A/208V, EPDU to NEMA L6-30P (US) Line Cord		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9615	6501	4.3m, 60A/208V, EPDU to IEC 309 2P+G (US) Line Cord		N	Y	Ν	Ν	N	Y	Ν	Ν	Y	Y	Y	Ν
40K9617	6505	4.3m, 32A/230V, Souriau UTG Female to AS/NZ 3112 (Aus/NZ) Line Cord		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9618	6506	4.3m, 32A/250V, Souriau UTG Female to KSC 8305 (S. Korea) Line Cord		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

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

## **Rack cabinets**

The server supports the rail kits and rack cabinets listed in the following table.

Table 30. Rack cabinets

Part number	Description						
201886X	11U Office Enablement Kit						
93072RX	U Standard Rack						
93072PX	25U Static S2 Standard Rack						
93634EX	2U 1100mm Dynamic Expansion Rack						
93634PX	42U 1100mm Dynamic Rack						
93604EX	42U 1200mm Deep Dynamic Expansion Rack						
93604PX	42U 1200mm Deep Dynamic Rack						
93614EX	42U 1200mm Deep Static Expansion Rack						
93614PX	42U 1200mm Deep Static Rack						
93084EX	42U Enterprise Expansion Rack						
93084PX	42U Enterprise Rack						
93074RX	42U Standard Rack						
93074XX	42U Standard Rack Extension						
93624EX	47U 1200mm Deep Static Expansion Rack						
93624PX	47U 1200mm Deep Static Rack						
93634DX	PureFlex™ System 42U Expansion Rack						
93634CX	PureFlex System 42U Rack						
99564XX	S2 42U Dynamic Standard Expansion Rack						
99564RX	S2 42U Dynamic Standard Rack						

For more information, see the list of Lenovo Press Product Guides in the Rack cabinets and options category:

http://lenovopress.com/systemx/rack

## **Rack options**

The server supports the rack console switches and monitor kits listed in the following table.

Table 31. Rack options

Part number	Feature code	Description							
Monitor kits and key	yboard trays								
17238BX	1723HC1 fc A3EK	1U 18.5" Standard Console							
17238EX 1723HC1 fc A3EL 1U 18.5" Enhanced Media Console									
172317X 1723HC1 fc 0051 1U 17in Flat Panel Console Kit									
172319X	1723HC1 fc 0052	fc 0052 1U 19in Flat Panel Console Kit							
Console switches									
3858D3X         3858HC1 fc A4X1         Avocent Universal Management Gateway 6000									
1754D2X1754HC2 fc 6695Global 4x2x32 Console Manager (GCM32)									
1754D1X     1754HC1 fc 6694     Global 2x2x16 Console Manager (GCM16)									
1754A2X 1754HC4 fc 0726 Local 2x16 Console Manager (LCM16)									
1754A1X	1754HC3 fc 0725	Local 1x8 Console Manager (LCM8)							
Console cables									
00AK142	A4X4	UM KVM Module VGA+SD Dual RJ45							
43V6147	3757	Single Cable USB Conversion Option (UCO)							
39M2895 3756 USB Conversion Option (4 Pack UCO)									
39M2897	39M2897 3754 Long KVM Conversion Option (4 Pack Long KCO)								
46M5383	5341	Virtual Media Conversion Option Gen2 (VCO2)							
46M5382	5340	Serial Conversion Option (SCO)							

For more information, see the list of Lenovo Press Product Guides in the Rack cabinets and options category:

http://lenovopress.com/systemx/rack

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

#### **Related publications and links**

For more information, see these resources:

- US Announcement Letter System x3530 M4 (E5-2400 v2): http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS114-020
- Lenovo Press Product Guides for System x servers and options: http://lenovopress.com/systemx
- System x3530 M4 product page: http://www.ibm.com/systems/x/hardware/rack/x3530m4/index.html
- System x3530 M4 Installation and Service Guide: http://ibm.com/support/entry/portal/docdisplay?Indocid=MIGR-5090215
- ServerProven hardware compatibility page for the x3530 M4: http://www.ibm.com/systems/info/x86servers/serverproven/compat/us/xseries/7160.html
- Configuration and Option Guide: http://www.ibm.com/systems/xbc/cog/
- xREF: System x Reference http://lenovopress.com/xref
- System x Support Portal: http://ibm.com/support/entry/portal/ http://ibm.com/support/entry/portal/Downloads/Hardware/Systems/System\_x/System\_x3530\_M4
- IBM System Storage Interoperation Center: http://www.ibm.com/systems/support/storage/ssic

# **Related product families**

Product families related to this document are the following:

• 2-Socket Rack Servers

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