System x3100 M4
Product Guide (withdrawn product)

The System x3100 M4 single socket tower server is designed for small businesses and first-time server buyers looking for a solution to improve business efficiency. It delivers several innovative features with a competitive price, either in a compact mini-tower form factor or standard tower form factor with hot-swap power supplies and disk drives. The System x3100 M4 provides next-generation performance in an innovative and compact design with flexible configuration options, built-in security, and systems management capabilities. It leverages the next-generation dual-core and quad-core Intel Xeon processor technology.

Figure 1. The System x3100 M4 (compact mini-tower shown)

Did you know?

The System x3100 M4 server is a compact, cost-effective, single-processor tower or rack-mountable server that has been optimized to provide outstanding availability, manageability, and performance features to small-to-medium-sized businesses, retail stores, or distributed enterprises. It supports the latest Intel Xeon E3-1200 v2 family of processors (formerly codenamed "Ivy Bridge") for applications that require performance and stability, as well as Core i3, Pentium and Celeron processors for applications that require lower cost.

The system includes features not typically seen in this class of system, such as standard, embedded RAID-0/1, remote control capabilities even when the machine is powered off, and Predictive Failure Analysis (PFA) on processor and memory. Some models also support hot-swap redundant power supplies and hot-swap disk drives.

Key features

Often small-to-medium sized businesses (SMBs) have limited IT budget and resources, and rely on partners or multitalented employees to help manage the company's network. Business needs for efficiency improvement and retention of critical data require the use of a server that is easy to get up and running quickly and is dependable. You need to squeeze as much as possible out of your IT dollars, while saving cost on features not needed in an SMB environment. The System x3100 M4 is an ideal first server to meet those business needs. It was built for speed, yet eliminates costly design features found in general-purpose servers that are unnecessary for smaller businesses.

Scalability and performance

The x3100 M4 offers numerous features to boost performance, improve scalability, and reduce costs:

- The single-socket x3100 M4 supports the new quad-core Intel Xeon Processor E3-1200 v2 family of processors ("Ivy Bridge"), to offer impressive computing power in a space-saving mini-tower design.
- Choice of processors with up to 4 cores to enable the effective use of multi-threaded applications.
- Intel Xeon Processor E3-1200 v2 family supports Intel Hyer-Threading Technology (except the Xeon E3-1220L) and Intel Turbo Boost Technology 2.0 to maximize performance.
- Up to 32GB of high-speed DDR3 system memory with four DIMM sockets.
- Memory speeds up to 1600 MHz supported on models with Xeon Processor E3-1200 v2.
- Four available high-performance PCI Express 3.0 or 2.0 slots, depending on the processor selected.
- Up to four internal 3.5-inch simple-swap SATA II HDDs on some models offer low-cost/high-capacity storage of up to 3 TB each.
- Up to eight internal 2.5-inch hot-swap SAS/SATA HDDs on some models offers maximum scalability and performance.
- Integrated ServeRAID-C100 software RAID controller supports RAID 0, 1 and 10. Hardware RAID options available.
- Integrated dual-port Gigabit Ethernet provides increased network throughput and redundancy with efficient slot-saving integration.
- An available 5.25-inch drive bay supports either a half-high tape drive or an RDX Removable Disk Cartridge drive, for cost-effective data backup. A DVD-ROM drive is standard in a dedicated bay.
- Seven USB 2.0 ports, two on the front and four on the back. In addition, there is one internal port for use with a tape drive or RDX Removable Disk Cartridge drive.

Availability and serviceability

The x3100 M4 provides many features to simplify serviceability and increase system uptime:

- ECC memory provides error correction not available in PC-class "servers" that use parity memory. Avoiding system crashes (and data loss) due to soft memory errors can mean greater system uptime.
- Tool-less cover removal provides easy access to upgrades and serviceable parts, such as CPU, memory, and adapter cards.
- Hot-swap drive bays available on some models combined with RAID capabilities offer the potential of no downtime in the event of a drive failure.
- The Predictive Failure Analysis (PFA) detects when system components (for example, processors, memory, hard disk drives) operate outside of standard thresholds and generates pro-active alerts in advance of possible failure, therefore increasing uptime.
- Built-in Integrated Management Module Version II (IMM2) continuously monitors system health, triggers alerts, and performs recovering actions in case of failures to minimize downtime.
- Built-in diagnostics using Dynamic Systems Analysis (DSA) Preboot speeds up troubleshooting tasks to reduce service time.
- A DVD-ROM drive is standard in a dedicated bay for easy software installation.

- Redundant hot-swap power supports on some models helps keep the server always running
- Three-year customer replaceable unit and onsite limited warranty, next business day 9x5. Optional service upgrades available.

Manageability and security

Powerful systems management features simplify local and remote management of the x3100 M4:

- The server includes an Integrated Management Module II (IMM2) to monitor server availability and perform remote management (some features require optional license upgrades).
- Integrated industry-standard Unified Extensible Firmware Interface (UEFI) enables improved setup, configuration, and updates, and simplifies error handling.
- Integrated Trusted Platform Module (TPM) 1.2 support enables advanced cryptographic functionality, such as digital signatures and remote attestation.
- Intel Xeon Processor E3-1200 v2 family supports Industry-standard Advanced Encryption Standard (AES) NI support for faster, stronger encryption.
- IBM Systems Director is included for proactive systems management. It offers comprehensive systems management tools that help to increase up-time, 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.

Energy efficiency

The x3100 M4 offers the following energy-efficiency features to save energy, reduce operational costs, increase energy availability, and contribute to the green environment:

- Energy-efficient planar components help lower operational costs.
- Available 350 W power supply or 300 W 80 PLUS certified power supply.
- The Intel Xeon processor E3-1200 v2 product family offers significantly better performance over the previous generation while fitting into the same thermal design power (TDP) limits.
- Low-voltage Intel Xeon processors draw less energy to satisfy demands of power and thermally constrained data centers and telecommunication environments.
- 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.

Locations of key components

Figures 2 and 3 show the front and rear of the server.

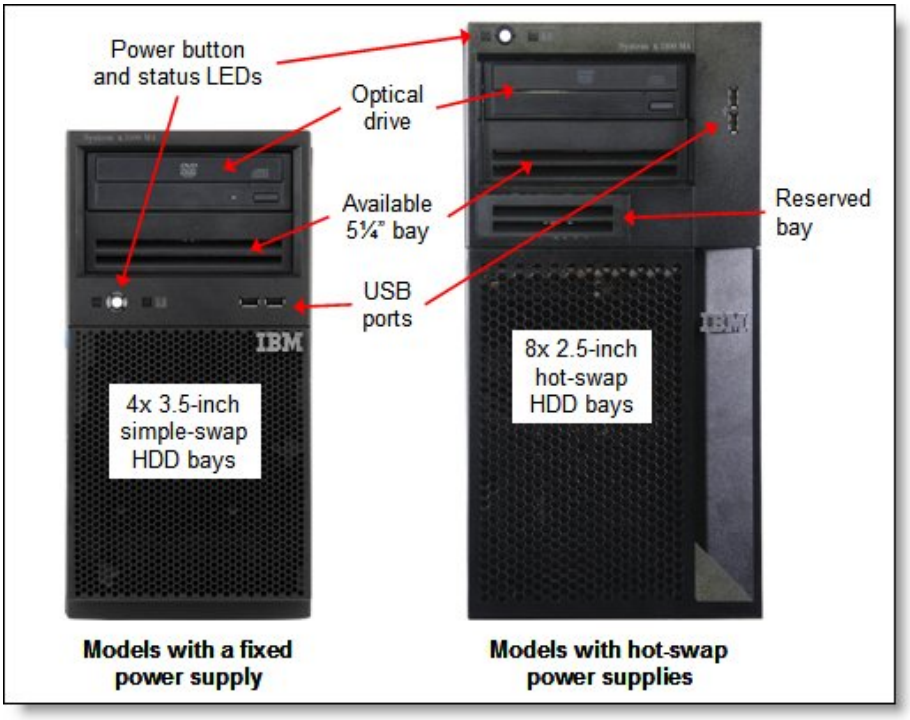

Figure 2. Front view of the System x3100 M4

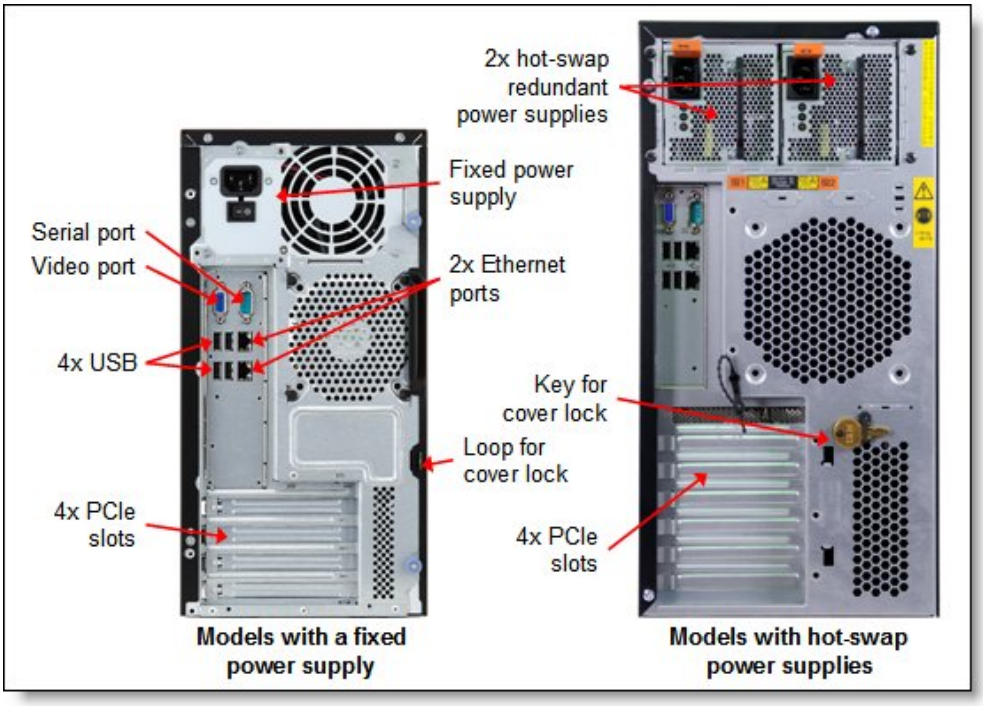

Figure 3. Rear view of the System x3100 M4

Figure 4 shows the locations of key components inside the server.

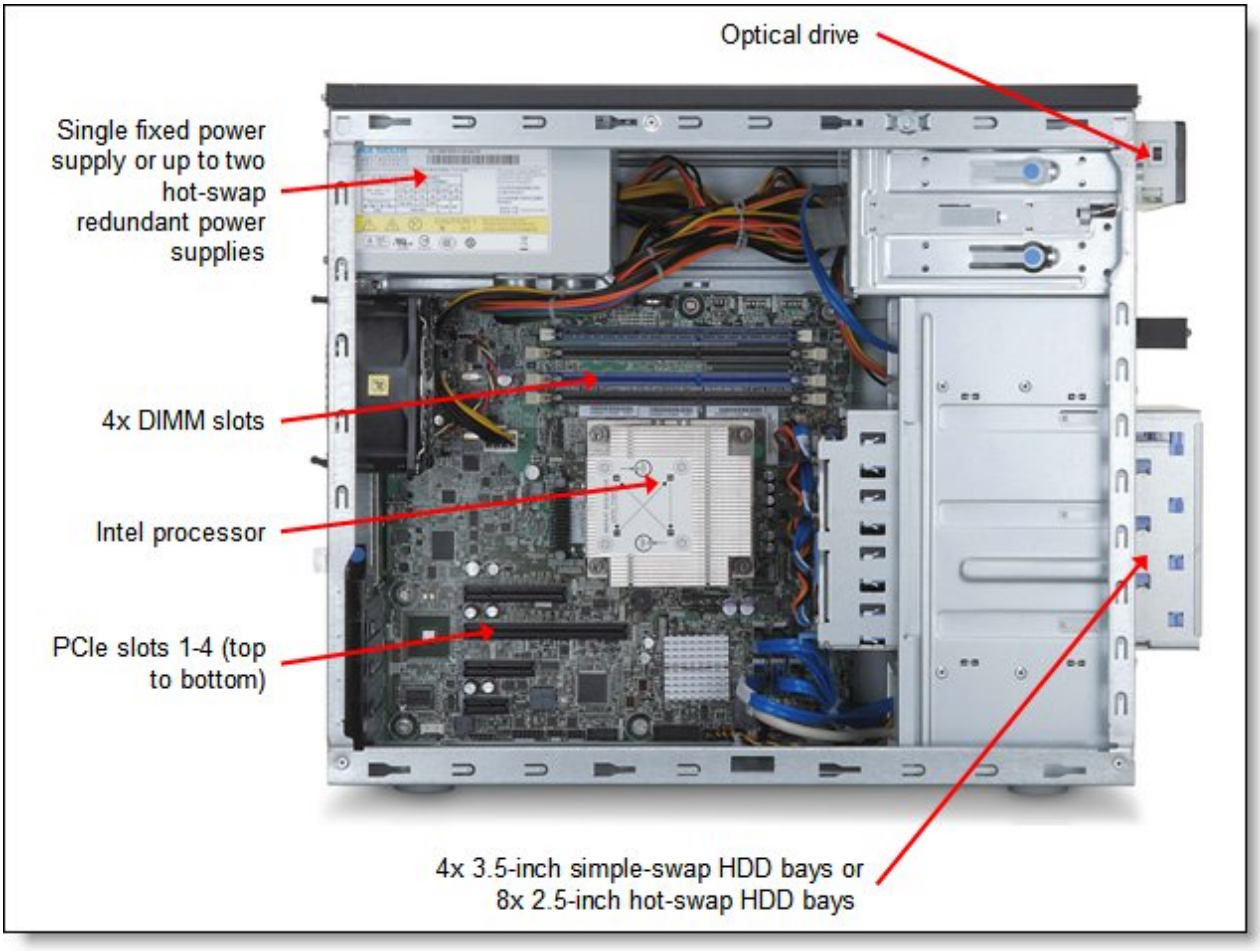

Figure 4. Inside view of System x3100 M4 (photo is of system with fixed power supplies)

Standard specifications

Table 1. Standard specifications

Components	Specification
Form factor	Compact mini-tower which can be converted to a 4U rack form factor (models with fixed power supplies) or standard tower which can be converted to a 5U form factor (models with hot-swap power supplies), using an optional Tower-to-Rack conversion kit.
Processor	One quad-core Intel Xeon E3-1200 or Xeon E3-1200 v2 series processor (up to 3.6 GHz/8 MB/1600 MHz) or one dual-core Intel Core i3 processor (up to 3.4 GHz/3 MB/1333 MHz), or one dual-core Pentium processor (up to 3.1 GHz/3 MB/1333 MHz) or one Intel Celeron (1.6 GHz/1 MB/1066 MHz)
Memory cache	Up to 8 MB L3 for Intel Xeon E3-1200 and E3-1200 v2 processors. Up to 3 MB L3 for Intel Core i3 and Pentium processors.
Chipset	Intel C202.
Memory DIMM slots	4 DDR3 DIMM slots.
Memory capacity	Up to 32 GB with 8 GB DDR3 UDIMMs and four populated DIMM slots. RDIMMs are not supported.
Memory protection	ECC.
Disk drive bays	Up to four 3.5" Simple Swap SATA HDDs.

Components	Specification
Maximum internal storage	Up to 16 TB with 4 TB 3.5" SATA HDDs. Up to 9.6 TB with 1.2 TB 2.5" NL SAS or NL SATA HDD. Up to 12.8 TB with 1.6 TB 2.5" SSD.
RAID support	Software RAID 0, 1, 10 with ServeRAID C100 controller; hardware RAID 0, 1, 1E with ServeRAID H1110, BR10il v2, M1015, M5014 and M5015. Optional RAID 5, 50 with ServeRAID M5014. Optional upgrade to RAID 5 is available for M1015.
Optical drive bay	One 5.25" HH bay, support for DVD-ROM or Multiburner. Half-High SATA DVD-ROM standard in standard models.
Tape drive bays	One 5.25 HH bay, support for DDS, RDX, or LTO.
Network interfaces	Integrated two-port Gigabit Ethernet (Intel 82574L) / 1 port is shared with IMM2.
PCI Expansion slots	Four PCI Express slots: • Slot 1, PCIe 3.0 x8, full-height, half-length (PCIe 2.0 in models with processors announced September 2011 - see Table 4) • Slot 2, PCIe 3.0 x16 (x8 wired), full-height, half-length (PCIe 2.0 in models with processors announced September 2011 - see Table 4) • Slot 3, PCIe 2.0 x4, full-height, half-length • Slot 4, PCIe 2.0 x1, full-height, half-length
External ports	Two USB 2.0 ports on front. Four USB 2.0, one DB-15 video, one DB-9 serial, two RJ-45 Gigabit Ethernet network ports (one is dedicated, one is shared with IMM2) on rear. One internal USB port for internal USB tape drive.
Cooling	One speed-controlled non-redundant fan.
Power supply	One fixed 350 W AC or 300 W AC 80Plus Bronze power supply or up to two 430W hot-swap 80Plus redundant power supplies (model dependent)
Hot-swap components	Some models: disk drives and power supplies. See Table 2.
Systems management	UEFI, Integrated Management Module II (IMM2), Predictive Failure Analysis, Automatic Server Restart, IBM Systems Director and IBM Systems Director Active Energy Manager™, ServerGuide. Optional IMM2 Standard and IMM2 Advanced Upgrade via Feature on Demand (FoD) for additional management capabilities including remote presence (graphics, keyboard and mouse, virtual media).
Security features	Power-on password, Administrator's password, Trusted Platform Module (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 2008 R2, 2008, 2012, 2012 R2; Red Hat Enterprise Linux 5 and 6; SUSE Linux Enterprise Server 10 and 11; VMware ESX 4.1, 5.0, 5.1, 5.5
Limited warranty	One-year customer replaceable unit and onsite limited warranty with 9x5/next business day (NBD) response time.
Service and support	Optional service upgrades are available through ServicePacs®: 24x7/NBD or four hours onsite repair, 1-year or 2-year warranty extension, remote technical support for Lenovo hardware and selected Lenovo and third-party (Microsoft, Linux, VMware) software.
Dimensions	Models with one fixed power supply: Height: 360 mm (14.2 in); width: 180 mm (7.1 in or 4U); depth: 480 mm (18.9 in) Models with hot-swap power supplies: Height: 439 mm (17.3 in), width: 217 mm (8.6 in or 5U), depth: 569 mm (22.4 in)
Weight	Models with one fixed power supply: Minimum configuration: 10 kg (22.0 lb), Maximum configuration: 13 kg (28.7 lb) Models with hot-swap power supplies: Minimum configuration: 17.3 kg (38.2 lb), Maximum configuration: 22.8 kg (50.3 lb)

The x3100 M4 servers are shipped with the following items:

- Statement of Limited Warranty.
- Important Notices.
- Documentation CD that contains the *Installation and User's Guide.*
- Country-specific models might include a line cord.

Standard models

The following table lists the standard models.

Table 2. Standard models

Model	Intel Processor* (one maximum)	Memory	RAID	HDD bays	Disks	Network	Slots	Optical	Power supply
Models announced July 2012									
2582-F4x	1x Xeon E3-1270v2 3.5GHz 4C 8 MB 1600 MHz 69W	1x 4 GB 1600 MHz	M1015	8x 2.5" HS	Open	2x GbE	4 / 4 2x PCIe 3.0	DVD	1x 430 W hot-swap
Models announced May 2012									
2582-A2x	1x Core i3-2120 3.3 GHz 2C 3 MB 1333 MHz 65W	1x 4 GB (1333 MHz)†	C100	4x 3.5" SS	Open	2x GbE	4 / 4 All PCIe 2.0	DVD	1x 350 W fixed
2582-B2x	1x E3-1220v2 3.1 GHz 4C 8 MB 1600 MHz 69W	1x 4 GB 1600 MHz	C100	4x 3.5" SS	Open	2x GbE	4 / 4 2x PCIe 3.0	DVD	1x 350 W fixed
2582-C2x	1x E3-1230v2 3.3 GHz 4C 8 MB 1600 MHz 69W	1x 4 GB 1600 MHz	C100	4x 3.5" SS	Open	2x GbE	4 / 4 2x PCIe 3.0	DVD	1x 350 W fixed
Models announced September 2011									
2582-32x	1x Pentium G850 2.9 GHz 2C 3 MB 1333 MHz 65W	1x 2 GB 1333 MHz	C100	4x 3.5" SS	Open	2x GbE	4 / 4 All PCIe 2.0	DVD	1x 350 W fixed
2582-42x	1x Corei3-2100 3.1 GHz 2C 3 MB 1333 MHz 65W	1x 2 GB 1333 MHz	C100	4x 3.5" SS	Open	2x GbE	4 / 4 All PCIe 2.0	DVD	1x 350 W fixed
2582-62x	1x E3-1220 3.1 GHz 4C 8 MB 1333 MHz 80W	1x 2 GB 1333 MHz	C100	4x 3.5" SS	Open	2x GbE	4 / 4 All PCIe 2.0	DVD	1x 350 W fixed
2582-82x	1x E3-1270 3.4 GHz 4C 8 MB 1333 MHz 80W	1x 4 GB 1333 MHz	C100	4x 3.5" SS	Open	2x GbE	4 / 4 All PCIe 2.0	DVD	1x 300 W fixed

* Processor detail: Processor quantity, processor model, core speed, number of cores, L3 cache, memory speed, thermal design power (TDP) rating
† For models A2x, the standard DIMM is rated at 1600 MHz, but operates at up to 1333 MHz to match the processor memory speed.

Express models

Express models are preconfigured with additional components such as processors, memory, and disks with the purpose of making the ordering and installation process simpler. The following table lists the Express models that are available in certain regions.

Table 3. Express models

Model	Intel Processor (one maximum)	Memory	RAID	HDD bays	Disks	Network	Slots	Optical	Power supply
Brazil									
2582-EFP	1x Xeon E3-1220 3.1 GHz 4C 8 MB 1333 MHz 80W	1x 4 GB	C100	4x 3.5" SS	1x 500 GB 7200 SATA	2x GbE	4 / 4 PCIe 2.0	Multi-burner	1x 350 W fixed
Latin America (LA)									
2582-EHU	1x Xeon E3-1220v2 3.1GHz 4C 8MB 1600 MHz	1x 4 GB	C100	4x 3.5" SS	Open	2x GbE	4 / 4 PCIe 3.0	Multi-burner	1x 350 W fixed
2582-EJU	1x Xeon E3-1230v2 3.3GHz 4C 8MB 1600 MHz	1x 4 GB	C100	4x 3.5" SS	Open	2x GbE	4 / 4 PCIe 3.0	Multi-burner	1x 350 W fixed
North America (NA)									
2582-EHU	1x Xeon E3-1220v2 3.1GHz 4C 8MB 1600 MHz	1x 4 GB	C100	4x 3.5" SS	Open	2x GbE	4 / 4 PCIe 3.0	Multi-burner	1x 350 W fixed
2582-EJU	1x Xeon E3-1230v2 3.3GHz 4C 8MB 1600 MHz	1x 4 GB	C100	4x 3.5" SS	Open	2x GbE	4 / 4 PCIe 3.0	Multi-burner	1x 350 W fixed
2582-EBU	1x Corei3-2100 3.1 GHz 2C 3 MB 1333 MHz 65W	1x 2 GB	C100	4x 3.5" SS	Open	2x GbE	4 / 4 PCIe 2.0	Multi-burner	1x 350 W fixed
2582-EDU	1x Xeon E3-1220 3.1 GHz 4C 8 MB 1333 MHz 80W	1x 2 GB	C100	4x 3.5" SS	Open	2x GbE	4 / 4 PCIe 2.0	Multi-burner	1x 350 W fixed
2582-EEU	1x Xeon E3-1230 3.2 GHz 4C 8 MB 1333 MHz 80W	1x 4 GB	C100	4x 3.5" SS	Open	2x GbE	4 / 4 PCIe 2.0	Multi-burner	1x 350 W fixed
Europe Integrated Operating Team (IOT)									
2582-K5G	1x Xeon E3-1220 3.1 GHz 4C 8 MB 1333 MHz 80W	1x 2 GB	C100	4x 3.5" SS	1x 500 GB 7200 SATA	2x GbE	4 / 4 PCIe 2.0	DVD-ROM	1x 350 W fixed
2582-K6G	1x Xeon E3-1230 3.2 GHz 4C 8 MB 1333 MHz 80W	1x 4 GB	C100	4x 3.5" SS	1x 500 GB 7200 SATA	2x GbE	4 / 4 PCIe 2.0	Multi-burner	1x 350 W fixed
2582-K7G	1x Pentium G850 2.9GHz 2C 3 MB1333 MHz 65W	1x 2 GB	C100	4x 3.5" SS	1x 500 GB 7200 SATA	2x GbE	4 / 4 PCIe 2.0	DVD-ROM	1x 350 W fixed
Central and Eastern Europe (CEE) and Middle East & Africa (MEA)									

2582-K2G	1x Xeon E3-1240 3.3 GHz 4C 8 MB 1333 MHz 80W	1x 2 GB	C100	4x 3.5" SS	2x 500 GB 7200 SATA	2x GbE	4 / 4 PCIe 2.0	Multi-burner	1x 350 W fixed
2582-K5G	1x Xeon E3-1220 3.1 GHz 4C 8 MB 1333 MHz 80W	1x 2 GB	C100	4x 3.5" SS	1x 500 GB 7200 SATA	2x GbE	4 / 4 PCIe 2.0	DVD-ROM	1x 350 W fixed
2582-K6G	1x Xeon E3-1230 3.2 GHz 4C 8 MB 1333 MHz 80W	1x 4 GB	C100	4x 3.5" SS	1x 500 GB 7200 SATA	2x GbE	4 / 4 PCIe 2.0	Multi-burner	1x 350 W fixed
2582-K7G	1x Pentium G850 2.9GHz 2C 3 MB1333 MHz 65W	1x 2 GB	C100	4x 3.5" SS	1x 500 GB 7200 SATA	2x GbE	4 / 4 PCIe 2.0	DVD-ROM	1x 350 W fixed
Russia/Commonwealth of Independent States (CIS)									
2582-K4G	1x Xeon E3-1220 3.1 GHz 4C 8 MB 1333 MHz 80W	1x 2 GB	C100	4x 3.5" SS	Open	2x GbE	4 / 4 PCIe 2.0	Multi-burner	1x 350 W fixed

Processor options

The server supports only one processor, which is already installed in all standard and Express models. No additional processor options are available. The following table lists all processors available in standard models of x3100 M4 or via configure-to-order (CTO). If there is no corresponding *where-used* model for a particular processor, then that processor is only available through the CTO process or special bid.

Table 4. Processor options

Feature code*	Description**	Standard models where used
Processors announced September 2012		
A38D	Intel Core i3-3220 3.3 GHz 2C 3 MB 1600 MHz 55W	-
A38E	Intel Core i3-3220T 2.8 GHz 2C 3 MB 1600 MHz 35W	-
A38B	Intel Core i3-3240 3.4 GHz 2C 3 MB 1600 MHz 55W	-
A38C	Intel Core i3-3240T 3.0 GHz 2C 3 MB 1600 MHz 35W	-
A38F	Intel Pentium G2120 3.0 GHz 2C 3 MB 1600 MHz 65W	-
A38G	Intel Pentium G2120T 2.8 GHz 2C 3 MB 1600 MHz 35W	-
Processors announced July 2012		
A38A	Intel Pentium G540T 2.1 GHz 2C 2 MB 1333 MHz 35W	-
A389	Intel Pentium G550 2.6 GHz 2C 2 MB 1333 MHz 65W	-
A387	Intel Pentium G640 2.8 GHz 2C 3 MB 1333 MHz 65W	-
A388	Intel Pentium G640T 2.4 GHz 2C 3 MB 1333 MHz 35W	-
A386	Intel Pentium G860T 2.6 GHz 2C 3 MB 1333 MHz 35W	-
A385	Intel Pentium G870 3.1 GHz 2C 3 MB 1333 MHz 65W	-
Processors announced May 2012		
A2UV	Intel Xeon E3-1220L v2 2.0 GHz 2C 8 MB 1600 MHz 17W	-
A2UT	Intel Xeon E3-1220 v2 3.1 GHz 4C 8 MB 1600 MHz 69W	B2x
A2US	Intel Xeon E3-1230 v2 3.3 GHz 4C 8 MB 1600 MHz 69W	C2x

Feature code*	Description**	Standard models where used
A2UR	Intel Xeon E3-1240 v2 3.4 GHz 4C 8 MB 1600 MHz 69W	-
A2UU	Intel Xeon E3-1265L v2 2.5 GHz 4C 8 MB 1600 MHz 45W	-
A2UQ	Intel Xeon E3-1270 v2 3.5 GHz 4C 8 MB 1600 MHz 69W	F4x
A2UP	Intel Xeon E3-1280 v2 3.6 GHz 4C 8 MB 1600 MHz 69W	-
A2HA	Intel Celeron G440 1.6 GHz 1C 1 MB 1066 MHz 35W	-
Processors announced September 2011		
A0W5	Intel Xeon E3-1220 3.1 GHz 4C 8 MB 1333 MHz 80W	62x
A158	Intel Xeon E3-1220L 2.2 GHz 2C 3 MB 1333 MHz 20W	-
A0W1	Intel Xeon E3-1230 3.2 GHz 4C 8 MB 1333 MHz 80W	-
A0W3	Intel Xeon E3-1240 3.3 GHz 4C 8 MB 1333 MHz 80W	-
A157	Intel Xeon E3-1260L 2.4 GHz 4C 8 MB 1333 MHz 45W	-
A0W2	Intel Xeon E3-1270 3.4 GHz 4C 8 MB 1333 MHz 80W	82x
A155	Intel Xeon E3-1280 3.5 GHz 4C 8 MB 1333 MHz 95W	-
A0W4	Intel Core i3-2100, 3.1 GHz 2C 3 MB 1333 MHz 65W	42x
A156	Intel Core i3-2120, 3.3 GHz 2C 3 MB 1333 MHz 65W	A2x
A2E5	Intel Core i3-2130 3.4 GHz 2C 3 MB 1333 MHz 65W	-
A19G	Intel Pentium G620 2.6 GHz 2C 3 MB 1066 MHz 65W	-
A2E7	Intel Pentium G630 2.7 GHz 2C 3 MB 1066 MHz 65W	-
A19F	Intel Pentium G840 2.8 GHz 2C 3 MB 1333 MHz 65W	-
A19E	Intel Pentium G850 2.9 GHz 2C 3 MB 1333 MHz 65W	32x
A2E6	Intel Pentium G860 3.0 GHz 2C 3 MB 1333 MHz 65W	-

* No additional processor options are available. The server supports only one processor, which is already included in a standard or custom configuration.
** Processor detail: Processor quantity, processor model, core speed, number of cores, L3 cache, memory speed, thermal design power (TDP) rating

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 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 x3100 M4 has four DIMM slots, and only DDR3 ECC UDIMMs are supported. The CPU has two memory channels, and there are two DIMMs per channel.

Configuration rules:

- If more than one DIMM is planned to be installed, then DIMMs must be installed in a pair, and both DIMMs in a pair must be identical in type and size.
- Models with Intel Xeon E3-1200 v2 series processors support DIMMs operating at up to 1600 MHz provided the processors support this memory speed and all DIMMs installed are rated at 1600 MHz.

The following table lists the memory options supported by the server.

Table 5. Memory options

Part number	Feature code	Description	Maximum supported	Standard models where used
1333 MHz UDIMMs				
44T1568	1915	1 GB (1x 1 GB, 1Rx8) PC3-10600 CL9 ECC 1333 LP UDIMM	4	-
49Y1403	A0QS	2 GB (1x2GB, 1Rx8, 1.35V) PC3L-10600 ECC DDR3 1333MHz LP UDIMM	4	-
44T1570	1913	2 GB (1x 2 GB, 1Rx8, 1.5 V) PC3-10600 CL9 ECC 1333 LP UDIMM	4	32x, 42x, 62x
49Y1404	8648	4 GB (1x4GB, 2Rx8, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP UDIMM	4	-
44T1571	1912	4 GB (1x 4 GB, 2Rx8) PC3-10600 CL9 ECC 1333 LP UDIMM	4	82x
90Y3165	A1MG	8 GB (4Gb, 2Rx8, 1.5V) PC3-10600 DDR3-1333 LP UDIMM	4	-
1600 MHz UDIMMs				
00D4955	A2UL	4 GB (1x4GB, 2Rx8, 1.5V) PC3-12800 CL11 ECC DDR3 1600MHz LP UDIMM	4	A2x, B2x, C2x
00D4959	A2UL	8 GB (1x8GB, 2Rx8, 1.5V) PC3-12800 CL11 ECC DDR3 1600MHz LP UDIMM	4	F4x

Internal drives

Models of the x3100 M4 with either 300W or 350W fixed power supply support up to four 3.5" simple-swap SATA hard drives. The following table lists the supported 3.5-inch hard drive options.

Table 6. 3.5" Simple-Swap SATA disk drive options

Part number	Feature code	Description	Maximum supported
39M4514	5288	500GB 7200 RPM 3.5" Simple-Swap SATA II	4
43W7622	5559	1TB 7.2K SATA 3.5" Simple-Swap HDD	4
42D0787	5416	2TB 7200 NL SATA 3.5" SS HDD	4
81Y9778	A280	3TB 7.2K 6Gbps NL SATA 3.5" SS HDD	4
49Y6190	A3WC	4TB 7.2K 6Gbps NL SATA 3.5" SS HDD	4

Models of the x3100 M4 with hot-swap 430W power supplies support up to eight 2.5" hot-swap drives as shown in Figure 5.

Figure 5. Hot-swap drives supported in models with hot-swap power supplies

The following table lists the supported 2.5-inch drive options. Hot-swap SATA HDDs and hot-swap SAS HDDs can be intermixed but not in the same array. Hot-swap HDDs cannot be intermixed with simple-swap HDDs.

Table 7. 2.5-inch hot-swap disk drive options

Part number	Feature code	Description	Maximum supported
2.5-inch 10K SAS drives			
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 15K SAS drives			

Part number	Feature code	Description	Maximum supported
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 NL SAS drives			
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 SATA drives			
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 Hybrid drives			
00AD102	A4G7	600GB 10K 6Gbps SAS 2.5" G2HS Hybrid	8
2.5-inch Enterprise SSDs			
00W1125	A3HR	100GB SATA 2.5" MLC HS Enterprise SSD	8
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
41Y8331	A4FL	S3700 200GB SATA 2.5" MLC HS Enterprise SSD	8
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 Enterprise Value SSDs			
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 Entry SSDs			
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

Controllers for internal storage

The Integrated ServeRAID C100 disk controller offers RAID 0, 1, and 10 standard. The following table lists the RAID controller additional options supported by the server.

Table 8. RAID controllers for internal storage

Part number	Feature code	Description	Maximum supported	Standard models where used
Integrated	None	ServeRAID C100 for System x	1	Other models
81Y4492	A1XL	ServeRAID H1110 SAS/SATA Controller	1	-
46M0831	0095	ServeRAID M1015 SAS/SATA Controller	1	F4x
46M0832	9749	ServeRAID M1000 Series Advance Feature Key	1	-
46M0916	3877	ServeRAID M5014 SAS/SATA Controller	1	-
46M0829	0093	ServeRAID M5015 SAS/SATA Controller		-

The ServeRAID C100 is an integrated SATA controller with software RAID capabilities. It is a cost-effective way to provide reliability, performance, and fault-tolerant disk subsystem management to help safeguard your valuable data and enhance availability. The ServeRAID C100 has the following specifications:

- Supports RAID levels 0, 1, and 10
- Onboard SATA controller with software RAID capabilities
- Supports 3 Gbps SATA ports
- Support for up to two virtual drives
- Support for virtual drive sizes greater than 2 TB
- Fixed stripe unit size of 64 KB
- Support for MegaRAID Storage Manager management software

Note: The ServeRAID C100 is not supported with virtualization. No support for VMware ESX, vSphere, and Microsoft Hyper-V.

Some models have the ServeRAID M1015 SAS/SATA Controller standard and the onboard C100 is disabled. The M1015 has the following specifications:

- Two Mini-SAS internal connectors
- Supports RAID levels 0, 1, and 10
- Supports RAID levels 5 and 50 with optional ServeRAID M1000 Series Advanced Feature Key
- 6 Gbps throughput per port
- Based on the LSI SAS2008 6 Gbps RAID on Chip (ROC) controller
- PCI Express 2.0 x8 host interface
- Configurable stripe size up to 64 KB

The server supports an optional hardware RAID controller. When a hardware RAID controller is installed the ServeRAID C100 is disabled. Features of the supported RAID controllers are listed below.

The ServeRAID H1110 adapter has the following specifications:

- Four internal 6 Gbps SAS/SATA ports
- One x4 mini-SAS internal connector (SFF-8087)
- 6 Gbps throughput per port
- Based on LSI SAS2004 6 Gbps RAID on Chip (ROC) controller
- PCIe x4 Gen 3 host interface

- Supports RAID 0, 1, 1E, and 10
- Connects to up to four SAS or SATA drives

The ServeRAID M5014 SAS/SATA Controller has the following specifications:

- Two Mini-SAS internal connectors
- Supports RAID levels 0, 1, 5, 10, and 50
- 6 Gbps throughput per port
- PCI Express 2.0 x8 host interface
- Based on the LSI SAS2108 6 Gbps ROC controller
- 256 MB of onboard cache

The ServeRAID M5015 SAS/SATA Controller has the following specifications:

- Two Mini-SAS internal connectors
- Supports RAID levels 0, 1, 5, 10, and 50
- Supports RAID 6 and 60 with the optional M5000 Advanced Feature Key
- Performance optimization for SSD drives with optional M5000 Series Performance Accelerator Key
- 6 Gbps throughput per port
- PCI Express 2.0 x8 host interface
- Based on the LSI SAS2108 6 Gbps ROC controller
- 512 MB of onboard cache
- Standard Intelligent Li-Ion-based battery backup unit with up to 48 hours of data retention

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

Internal backup units

The server supports the internal tape drive options listed in the following table. Internal tape drives are installed in a 5.25" HH bay. A maximum of one tape drive is supported. SAS tape drives require SAS HBA to be installed in server. USB tape drives are connected to the dedicated USB tape drive connector on the system board.

Table 9. Internal tape drives

Part number	Feature code	Description	Maximum supported
46C5399*	5711*	DDS Generation 5 USB Tape Drive	1
39M5636*	5395*	DDS Generation 6 USB Tape Drive	1
43W8478*	5393*	Half High LTO Gen 3 SAS Tape Drive	1
44E8895*	5397*	Half High LTO Gen 4 SAS Tape Drive	1
49Y9898	5345	Half High LTO Gen 5 SAS Tape Drive	1
00D8924	A3S3	Half High LTO Ultrium Gen 6 Internal SAS Tape Drive	1
00D2786	A2VE	RDX Internal USB 3.0 Dock with 320GB Cartridge	1
00D2787	A2VF	RDX Internal USB 3.0 Dock with 500GB Cartridge	1
00D2788	A2VG	RDX Internal USB 3.0 Dock with 1TB Cartridge	1

* Withdrawn from marketing

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

Optical drives

The server supports the optical drive options listed in the following table.

Table 10. Optical drives

Part number	Feature code	Description	Maximum quantity supported	Standard models where used
None*	4154	Half-High SATA DVD-ROM	1	All models
81Y6404	4155	Half-High SATA Multi-Burner	1	-

* This option is only available via CTO or is already installed in standard models.

The Half-High SATA DVD-ROM supports the following media and speeds for reading:

- CD-ROM 48X
- CD-DA (DAE) 40X
- CD-R 48X
- CD-RW 40X
- DVD-ROM (single layer) 16X
- DVD-ROM (dual layer) 12X
- DVD-R (4.7 GB) 16X
- DVD-R DL 12X
- DVD+R 16X
- DVD+R DL 12X
- DVD-RW (4.7 GB) 12X
- DVD+RW 12X
- DVD-RAM (4.7/9.4 GB) 6X

The Half-High SATA Multi-Burner supports the same media and speeds for reading as HH DVD-ROM. In addition, this drive supports the following media and speeds for writing:

- CD-R 24X
- CD-RW 4X
- High Speed CD-RW 10X
- Ultra Speed CD-RW 16X
- DVD-R 8X
- DVD-R DL 8X
- DVD+R 8X
- DVD+R DL 8X
- DVD-RW 6X
- DVD+RW 8X
- DVD-RAM 3X

I/O expansion options

The server offers four PCI Express expansion slots. The form-factors of available slots are:

- Slot 1, PCIe 3.0 x8, full-height, half-length (PCIe 2.0 in models with processors announced September 2011)
- Slot 2, PCIe 3.0 x16 (x8 wired), full-height, half-length (PCIe 2.0 in models with processors announced September 2011)
- Slot 3, PCIe 2.0 x4, full-height, half-length
- Slot 4, PCIe 2.0 x1, full-height, half-length

Network adapters

The x3100 M4 offers two integrated Gigabit Ethernet ports. One port is shared with Integrated Management Module II (IMM2).

The integrated NICs have the following features:

- Intel 82574L chip
- TCP/UDP, IPv4, and IPv6 checksum offloads
- TCP Segmentation/Transmit Segmentation Offloading (TSO)
- Wake on LAN support
- 802.1Q VLAN tagging support
- Support for jumbo frames up to 9 KBytes
- NIC Teaming (Load Balancing and Failover) with Intel PROSet software

The following table lists additional supported network adapters.

Table 11. Network adapters

Part number	Feature code	Description	Maximum supported
Gigabit Ethernet			
90Y9352	A2V3	Broadcom NetXtreme I Quad Port GbE Adapter for System x	3
90Y9370	A2V4	Broadcom NetXtreme I Dual Port GbE Adapter for System x	3
42C1780	2995	NetXtreme II 1000 Express Dual Port Ethernet Adapter	3
00AG500	A56K	Intel I350-F1 1xGbE Fiber Adapter for System x	3
00AG510	A56L	Intel I350-T2 2xGbE BaseT Adapter for System x	3
00AG520	A56M	Intel I350-T4 4xGbE BaseT Adapter for System x	3
49Y4230	5767	Intel Ethernet Dual Port Server Adapter I340-T2 for System x	3
49Y4240	5768	Intel Ethernet Quad Port Server Adapter I340-T4 for System x	3
10 Gigabit Ethernet			
49Y7910	A18Y	Broadcom NetXtreme II Dual Port 10GBaseT 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
81Y9990	A1M4	Mellanox ConnectX-2 Dual Port 10GbE Adapter for System x	2
42C1800	5751	QLogic 10Gb CNA for System x	2

For more information, see the list of Lenovo Press Product Guides in the Networking adapters category: https://lenovopress.com/servers/options/ethernet

Storage host bus adapters

The following table lists the storage host bus adapters (HBAs) supported by x3100 M4 server.

Table 12. Storage adapters

Part number	Feature code	Description	Maximum supported
Fibre Channel - 16 Gb			
81Y1655	A2W5	Emulex 16Gb FC Single-port HBA for System x	2
81Y1662	A2W6	Emulex 16Gb FC Dual-port HBA for System x	2
81Y1668	A2XU	Brocade 16Gb FC Single-port HBA for System x	2
81Y1675	A2XV	Brocade 16Gb FC Dual-port HBA for System x	2
00Y3337	A3KW	QLogic 16Gb FC Single-port HBA for System x	2
00Y3341	A3KX	QLogic 16Gb FC Dual-port HBA for System x	2
Fibre Channel - 8 Gb			
42D0485	3580	Emulex 8 Gb FC Single-port HBA for System x	2
42D0494	3581	Emulex 8 Gb FC Dual-port HBA for System x	2
42D0501	3578	QLogic 8 Gb FC Single-port HBA for System x	2
42D0510	3579	QLogic 8 Gb FC Dual-port HBA for System x	2
46M6049	3589	Brocade 8 Gb FC Single-port HBA for System x	2
46M6050	3591	Brocade 8 Gb FC Dual-port HBA for System x	2
SAS			
46M0907	5982	6 Gb SAS HBA Controller	2
46M0912	3876	6Gb Performance Optimized HBA	2

* Note: 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 Host bus adapters category: https://lenovopress.com/servers/options/hba

PCIe SSD adapters

The server does not support High IOPS SSD adapters.

Power supplies

For models with a fixed 350 W AC power supply or one fixed 300 W AC *80 Plus Bronze* power supply, as listed in Tables 2 and 3, there are no additional power supply options. For models with a hot-swap 430 W AC power supply, the part number to order a second power supply is listed in the following table.

Table 13. Power supply option

Part number	Feature code	Description	Maximum supported
00D3821	A2Z0	430W Redundant Power Supply	1

Integrated virtualization

The x3100 M4 does not support VMware ESXi embedded 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. The server includes IMM2 Basic and can be upgraded to IMM2 Standard and IMM2 Advanced with FoD licenses, however, you may need to upgrade system firmware to the latest levels (at least level 28n) to support these upgrades.

IMM2 Basic has the following features:

- Industry-standard interfaces and protocols
- Intelligent Platform Management Interface (IPMI) Version 2.0
- Common Information Model (CIM)
- Advanced Predictive Failure Analysis (PFA) support
- Continuous health monitoring
- Shared Ethernet connection
- Domain Name System (DNS) server support
- Dynamic Host Configuration Protocol (DHCP) support
- Embedded Dynamic System Analysis (DSA)
- LAN over USB for in-band communications to the IMM
- Serial over LAN
- Server console serial redirection

IMM2 Standard (as enabled using the Feature on Demand software license key using part number 90Y3900) has the following features in addition to the IMM2 Basic features

- Remote access via a secure Web console
- Access to server vital product data (VPD)
- Automatic notification and alerts
- Continuous health monitoring and control
- E-mail alerts
- Syslog logging support
- Enhanced user authority levels
- Event logs that are time stamped, saved on the IMM, and that can be attached to e-mail alerts
- OS watchdogs
- Remote configuration through Advanced Settings Utility (ASU)
- Remote firmware updating
- Remote power control
- User authentication using a secure connection to a Lightweight Directory Access Protocol (LDAP) server

IMM2 Advanced (as enabled using the Feature on Demand software license key using part number 90Y3901) adds the following features on top of those of IMM Standard:

- Remotely viewing video with graphics resolutions up to 1600x1200 at 75 Hz with up to 23 bits per pixel color depths, 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.

Note: The IMM2 Advanced upgrade requires the IMM2 Standard upgrade.

Table 14. Remote management option

Part number	Feature codes	Description	Maximum supported
90Y3900	A1MK	Integrated Management Module Standard Upgrade	1
90Y3901	A1ML	Integrated Management Module Advanced Upgrade (requires Standard Upgrade, 90Y3900)	1

Supported operating systems

The server supports the following operating systems:

- Microsoft Windows Server 2008 Foundation
- Microsoft Windows Server 2008 R2
- 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 5 Server Edition with Xen
- Red Hat Enterprise Linux 5 Server with Xen x64 Edition
- Red Hat Enterprise Linux 5 Server x64 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 10 for AMD64/EM64T
- SUSE LINUX Enterprise Server 10 for x86
- SUSE LINUX Enterprise Server 10 with Xen for AMD64/EM64T
- 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
- Toshiba 4690 Operating System V6
- VMware ESX 4.1
- VMware vSphere 5.0 (ESXi)
- VMware vSphere 5.1 (ESXi)
- VMware vSphere 5.5 (ESXi)

Note: The ServeRAID C100 is not supported with virtualization. No support for VMware ESX, vSphere, and Microsoft Hyper-V.

See the ServerProven® website for the latest information about the specific versions and service levels supported and any other prerequisites:
http://www.ibm.com/systems/info/x86servers/serverproven/compat/us/nos/matrix.shtml

Physical and electrical specifications

Dimensions and weight - systems with a fixed power supply:

- Height: 360 mm (14.2 in)
- Width: 180 mm (7.1 in)
- Depth: 480 mm (18.9 in)
- Weight::
  - Minimum ship configuration: 10 kg (22.0 lb)
  - Maximum ship configuration: 13 kg (28.7 lb)

Dimensions and weight - systems with redundant hot-swap power supplies:

- Height: 438.60 mm (17.27 in)
- Width: 217.25 mm (8.56 in)
- Depth: 569.11 mm (22.41 in)
- Weight
  - Minimum ship configuration: 17.33 kg (38.21 lb)
  - Maximum ship configuration: 22.82 kg (50.31 lb)

Supported environment:

- Temperature
  - Server on
    - 10.0° to 35.0° C (50° to 95° F); altitude: 0 to 914.4 m (3,000 ft)
    - 10.0° to 32.0° C (50° to 89.6° F); altitude: 914.4 m (3,000 ft) to 2,133.6 m (7,000 ft)
  - Server off
    - 10.0° to 43.0° C (50° to 109.4° F); maximum altitude: 2,133.6 m (7,000 ft)
  - Shipping
    - -40° to 60° C (-40° to 140° F)
- Relative humidity: 8 to 80%
- Maximum altitude: 2,133.6 m (7,000 ft)

Electrical:

430 watt power supply:

- 100 - 127 (nominal) V ac; 50 - 60 Hz; 6.0 A (maximum)
- 200 - 240 (nominal) V ac; 50 - 60 Hz; 3.0 A (maximum)
- Input kilovolt-amperes (kVA) (approximately)
  - Minimum configuration: 0.100 kVA
  - Maximum configuration: 0.506 kVA

350 watt power supply:

- 100 - 127 (nominal) V ac; 50 - 60 Hz; 7.0 A (maximum)
- 200 - 240 (nominal) V ac; 50 - 60 Hz; 3.5 A (maximum)
- Input kilovolt-amperes:
  - Minimum configuration: 0.035 kVA
  - Maximum configuration: 0.350 kVA

300 watt power supply:

- 100 - 127 (nominal) V ac; 50 - 60 Hz; 6.0 A (maximum)
- 200 - 240 (nominal) V ac; 50 - 60 Hz; 3.0 A (maximum)
- Input kilovolt-amperes:
  - Minimum configuration: 0.035 kVA

    - Maximum configuration: 0.350 kVA

Environmental data:

- BTU output
    - Ship configuration: 341 Btu/hr (35 watts)
    - Full configuration: 1726 Btu/hr (350 watts)
- Noise level
    - Models with fixed power supply: 4.5 bels (idle), 4.8 bels (operating)
    - Models with hot-swap power supply: 5.0 bels (idle), 5.3 bels (operating)

Warranty options

The x3100 M4 has a 1-year onsite warranty with 9x5/NBD terms. Lenovo offers warranty service upgrades through ServicePacs. The ServicePac is a series of prepackaged 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.

ServicePac offerings are country-specific. That is, each country might have its own service types, service levels, response times, and terms and conditions. Not all covered types of ServicePacs might be available in a particular country. For more information about ServicePac offerings available in your country, see the ServicePac Product Selector at:
https://www-304.ibm.com/sales/gss/download/spst/servicepac

In general, the types of ServicePacs are:

- Warranty and maintenance service upgrades
  - One, 2, 3, 4, or 5 years of 9x5 or 24x7 service coverage
  - Onsite repair from next business day to 4 or 2 hours (selected areas)
  - One or two years of warranty extension
- Remote technical support services
  - One or three years with 24x7 coverage (severity 1) or 9x5/NBD for all severities
  - Installation and startup support for System x® servers
  - Remote technical support for System x servers
  - Software support - Support Line
    - Microsoft or Linux software
    - VMware
    - IBM Systems Director

The following table explains warranty service definitions in more detail.

Table 15. Warranty service definitions

Term	Description
Onsite repair	A service technician will come to the server's location for equipment repair.
24x7x2 hour	A service technician is scheduled to arrive at your customer’s location within two hours after remote problem determination is completed. We provide service around the clock, every day, including holidays.
24x7x4 hour	A service technician is scheduled to arrive at your customer’s location within four hours after remote problem determination is completed. We provide service around the clock, every day, including holidays.
9x5x4 hour	A service technician is scheduled to arrive at your customer’s location within four business hours after remote problem determination is completed. We provide service from 8:00 a.m. to 5:00 p.m. in the customer's local time zone, Monday through Friday, excluding holidays. If after 1:00 p.m. it is determined that onsite service is required, the customer can expect the service technician to arrive the morning of the following business day. For noncritical service requests, a service technician will arrive by the end of the following business day.
9x5 next business day	A service technician is scheduled to arrive at your customer’s location on the business day after we receive your call, following remote problem determination. We provide service from 8:00 a.m. to 5:00 p.m. in the customer's local time zone, Monday through Friday, excluding holidays.

Regulatory compliance

The server conforms to the following international standards:

- 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. 69950-1-07
- NOM-019
- Argentina IEC60950-1
- Japan VCCI, Class A
- Australia/New Zealand AS/NZS CISPR 22:2009, Class A
- IEC-60950-1:2001 (CB Certificate and CB Test Report)
- Taiwan BSMI CNS 13438, Class A; CNS 14336-1
- China CCC (4943-2001), GB 9254-2008 Class A, GB 17625.1:2003
- Korea KN22, Class A; KN24
- Russia/GOST ME01, IEC-60950-1, GOST R 51318.22-99, GOST R 51318.24-99, GOST R 51317.3.2-2006, GOST R 51317.3.3-2008
- IEC 60950-1 (CB Certificate and CB Test Report)
- 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 server supports attachment to external storage expansion enclosures using the ServeRAID M5025 SAS/SATA Controller. The server can also be attached to supported external storage systems as described in the next section below.

The ServeRAID M5025 has the following specifications:

- Two Mini-SAS external connectors
- Supports RAID levels 0, 1, 5, 10, and 50
- Supports RAID 6 and 60 with the optional M5000 Advanced Feature Key
- Performance optimization for SSD drives with optional M5000 Series Performance Accelerator Key
- 6 Gbps throughput per port
- PCI Express 2.0 x8 host interface
- Based on the LSI SAS2108 6 Gbps ROC controller
- 512 MB of onboard cache
- Intelligent Li-Ion-based battery backup unit with up to 48 hours of data retention

The controller 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 16. External expansion enclosures

Part number	Description	Maximum quantity supported per one controller
610012X	EXP2512 Storage Enclosure	17
610024X	EXP2524 Storage Enclosure	9

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

Table 17. External SAS cables for external storage expansion enclosures

Part number	Description	Maximum quantity supported per one enclosure
39R6531	3 m SAS Cable	1
39R6529	1 m SAS Cable	1

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

Table 18. 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 19. 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

The following table lists the external storage systems that are supported by the server and can be ordered through the System x sales channel. The server may support other disk systems that are not listed in this table. For further information, refer to the IBM System Storage Interoperation Center at: http://www.ibm.com/systems/support/storage/ssic

Table 20. External disk storage systems

Part number	Description
2071CU2	IBM Storwize V3500 LFF Dual Control Enclosure
2071CU3	IBM Storwize V3500 SFF Dual Control Enclosure
6099L2C	IBM Storwize V3700 3.5-inch Storage Controller Unit
6099S2C	IBM Storwize V3700 2.5-inch Storage Controller Unit
6099T2C	IBM Storwize V3700 2.5-inch DC Storage Controller Unit
6194L2C	IBM Storwize V5000 LFF Control Enclosure
6194LEU	IBM Storwize V5000 LFF Expansion Enclosure
6194S2C	IBM Storwize V5000 SFF Control Enclosure
6194SEU	IBM Storwize V5000 SFF Expansion Enclosure
6195SC5	IBM Storwize V7000 2.5-inch Storage Controller Unit
6195LEF	IBM Storwize V7000 3.5-inch Storage Expansion Unit
6195SEF	IBM Storwize V7000 2.5-inch Storage Expansion Unit

External backup units

The server supports the external backup attachment options listed in the following table.

Table 21. External backup options

Part number	Description
External tape expansion enclosures for internal tape drives	
87651UX	1U Tape Drive Enclosure
87651NX	1U Tape Drive Enclosure (with Nema 5-15P LineCord)
Tape enclosure adapters (with cables)	
44E8869	USB Enclosure Adapter Kit
40K2599	SAS Enclosure Adapter Kit
Internal backup drives supported by external tape enclosures	
00D2786	RDX Internal USB 3.0 Dock with 320GB Cartridge
00D2787	RDX Internal USB 3.0 Dock with 500GB Cartridge
00D2788	RDX Internal USB 3.0 Dock with 1TB Cartridge
49Y9898	Half High LTO Gen 5 Internal SAS Tape Drive
00D8924	Half High LTO Ultrium Gen 6 Internal SAS Tape Drive
External backup units*	
362532Y	RDX External USB 3.0 Dock with 320GB Cartridge
362550Y	RDX External USB 3.0 Dock with 500GB Cartridge
36251TY	RDX External USB 3.0 Dock with 1TB Cartridge
3628L5X	Half High LTO Gen 5 External SAS Tape Drive (with US line cord)
3628N5X	Half High LTO Gen 5 External SAS Tape Drive (without line cord)

* These external tape drives can be ordered through the System x sales channel. The server might support other tape drives that are not listed in this table. See the IBM System Storage Interoperation Center (SSIC) for further information.

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

Top-of-rack Ethernet switches

The server supports the top-of-rack Ethernet switches from Lenovo listed in the following table.

Table 22. Top-of-rack switches

Part number	Description
1 Gb top-of-rack switches	
7309BAX	RackSwitch G7028 (24 ports)
7309CAX	RackSwitch G7028 (48 ports)
0446013	RackSwitch G8000R
7309CFC	RackSwitch G8000F
7309G52	RackSwitch G8052R
730952F	RackSwitch G8052F
10 Gb top-of-rack switches	
7309DRX	RackSwitch G8264CS (Rear to Front)
7309DFX	RackSwitch G8264CS (Front to Rear)
7309BR6	RackSwitch G8124ER
7309BF7	RackSwitch G8124EF
7309G64	RackSwitch G8264R
730964F	RackSwitch G8264F
7309CR9	RackSwitch G8264TR
7309CF9	RackSwitch G8264TF
40 Gb top-of-rack switches	
8036BRX	RackSwitch G8332 (Rear to Front)
8036BFX	RackSwitch G8332 (Front to Rear)
8036ARX	RackSwitch G8316R
8036AFX	RackSwitch G8316F

For more information, see the list of Lenovo Press Product Guides in the Top-of-rack switches category: https://lenovopress.com/servers/options/switches

Uninterruptible power supply units

The server supports attachment to the uninterruptible power supply (UPS) units listed in the following table.

Table 23. Uninterruptible power supply units

Part number	Description
Rack-mounted or tower UPS units	
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)
Rack-mounted UPS units	
53951AX	1500VA LCD 2U Rack UPS (100V/120V)
53951KX	1500VA LCD 2U Rack UPS (230V)
53952AX	2200VA LCD 2U Rack UPS (100V/120V)
53952KX	2200VA LCD 2U Rack UPS (230V)
53953AX	3000VA LCD 3U Rack UPS (100 V/120 V)
53953JX	3000VA LCD 3U Rack UPS (200 V/208 V)
53956AX	6000VA LCD 4U Rack UPS (200 V/208 V)
53956KX	6000VA LCD 4U Rack UPS (230 V)
53959KX	11000VA LCD 5U Rack UPS (200V/208V/230V)

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

Power distribution units

The server supports attachments to the power distribution units (PDUs) listed in the following table.

Table 24. Power distribution units

Part number	Description
Switched and Monitored PDUs	
46M4002	1U 9 C19/3 C13 Active Energy Manager DPI® PDU
46M4003	1U 9 C19/3 C13 Active Energy Manager 60A 3 Phase PDU
46M4004	1U 12 C13 Active Energy Manager DPI PDU
46M4005	1U 12 C13 Active Energy Manager 60A 3 Phase PDU
46M4167	1U 9 C19/3 C13 Switched and Monitored 30A 3 Phase PDU
46M4116	0U 24 C13 Switched and Monitored 30A PDU

Part number	Description
46M4119	0U 24 C13 Switched and Monitored 32A PDU
46M4134	0U 12 C19/12 C13 Switched and Monitored 50A 3 Phase PDU
46M4137	0U 12 C19/12 C13 Switched and Monitored 32A 3 Phase PDU
Enterprise PDUs	
71762MX	Ultra Density Enterprise PDU C19 PDU+ (WW)
71762NX	Ultra Density Enterprise PDU C19 PDU (WW)
71763MU	Ultra Density Enterprise PDU C19 3 phase 60A PDU+ (NA)
71763NU	Ultra Density Enterprise PDU C19 3 phase 60A PDU (NA)
39M2816	DPI C13 Enterprise PDU without linecord
39Y8923	DPI 60A Three Phase C19 Enterprise PDU with IEC309 3P+G (208 V) fixed line cord
39Y8941	DPI Single Phase C13 Enterprise PDU without line cord
39Y8948	DPI Single Phase C19 Enterprise PDU without line cord
Front-End PDUs	
39Y8934	DPI 32amp/250V Front-end PDU with IEC 309 2P+Gnd connector
39Y8935	DPI 63amp/250V Front-end PDU with IEC 309 2P+Gnd connector
39Y8938	30amp/125V Front-end PDU with NEMA L5-30P connector
39Y8939	30amp/250V Front-end PDU with NEMA L6-30P connector
39Y8940	60amp/250V Front-end PDU with IEC 309 60A 2P+N+Gnd connector
Universal PDUs	
39Y8951	DPI Universal Rack PDU w/ US LV and HV line cords
39Y8952	DPI Universal Rack PDU w/ CEE7-VII Europe LC
39Y8953	DPI Universal Rack PDU w/ Denmark LC
39Y8954	DPI Universal Rack PDU w/ Israel LC
39Y8955	DPI Universal Rack PDU w/Italy LC
39Y8956	DPI Universal Rack PDU w/South Africa LC
39Y8957	DPI Universal Rack PDU w/UK LC
39Y8958	DPI Universal Rack PDU with AS/NZ LC
39Y8959	DPI Universal Rack PDU w/China LC
39Y8962	DPI Universal Rack PDU (Argentina)
39Y8960	DPI Universal Rack PDU (Brazil)
39Y8961	DPI Universal Rack PDU (India)
0U Basic PDUs	
46M4122	0U 24 C13 16A 3 Phase PDU
46M4125	0U 24 C13 30A 3 Phase PDU
46M4128	0U 24 C13 30A PDU
46M4131	0U 24 C13 32A PDU
46M4140	0U 12 C19/12 C13 60A 3 Phase PDU
46M4143	0U 12 C19/12 C13 32A 3 Phase PDU

For more information, see the list of Lenovo Press Product Guides in the Power infrastructure category: https://lenovopress.com/servers/options/pdu

Racks cabinets

The server supports the rack cabinets listed in the following table. One of the tower-to-rack conversion kit is required for the server to be installed in the rack.

Table 25. Rack cabinets

Part number	Description
42C8923	Tower to 5U Rack Conversion Kit for System x3100 M4 (for systems with hot-swap power supplies)
69Y5182	Tower to 4U Rack Conversion Kit for System x3100 M4 (for systems with fixed power supplies)
93072PX	25U Static S2 Standard Rack
93072RX	25U Standard Rack
93074RX	42U Standard Rack
93074XX	42U Standard Rack Extension
93084EX	42U Enterprise Expansion Rack
93084PX	42U Enterprise Rack
93604EX	42U 1200 mm Deep Dynamic Expansion Rack
93604PX	42U 1200 mm Deep Dynamic Rack
93614EX	42U 1200 mm Deep Static Expansion Rack
93614PX	42U 1200 mm Deep Static Rack
93624EX	47U 1200 mm Deep Static Expansion Rack
93624PX	47U 1200 mm Deep Static Rack

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

Rack options

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

Table 26. Rack options

Part number	Feature code	Description
Monitor kits and keyboard 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	1U 19in Flat Panel Console Kit
Console switches		
3858D3X	3858HC1 fc A4X1	Avocent Universal Management Gateway 6000
1754D2X	1754HC2 fc 6695	Global 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	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 KVM Switches & Consoles category: https://lenovopress.com/servers/options/kvm

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Related publications and links

For more information see the following documents:

- System x3100 M4 product page
  http://www.ibm.com/systems/x/hardware/tower/x3100m4
- *System x3100 M4 Installation and User's Guide*
  http://ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5088765
- *System x3100 M4 Problem Determination and Service Guide*
  http://ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5088766
- ServerProven® hardware compatibility page for the x3100 M4
  http://www.lenovo.com/us/en/serverproven/xseries/2582.shtml
- *Configuration and Option Guide*
  https://support.lenovo.com/documents/SCOD-3ZVQ5W
- 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_x3100_M4

Related product families

Product families related to this document are the following:

- 1-Socket Tower Servers

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