IBM System x3620 M3 (Withdrawn)

Product Guide (withdrawn product)

The System x3620 M3 is a 2U, dual-socket rack server for single or multiple general business application hosting built on innovative IBM® X-Architecture® leveraging Intel Quick Path Interconnect (QPI) technology. Featuring power-optimized, high-performance Intel Xeon multicore processors and an energy-efficient design with balanced functionality, the x3620 M3 can help reduce cost, improve service, and allow you to manage risk easily and simply.

The x3620 M3 is suitable for mid-market and SMB rack clients looking to optimize their IT budgets, and is designed for single or multiple general business application hosting and virtualized, non-blade environments.

Suggested Uses: Departmental and file/print servers, online gaming, messaging, video/photo sharing, email, transaction processing, blog hosting, and search engines; for large enterprise, midmarket, SMBs, and emerging markets.

Figure 1. The IBM System x3620 M3

Did you know?

The System x3620 M3 server contains high levels of function and storage capacity for a 2U, 19-inch rack-drawer package. Hot-swap models feature eight 3.5" hot-swap HDD bays plus the ability to add optional media like internal optical drives or internal tape drives. Simple-swap models feature four 3.5-inch simple-swap drive bays. The server has rich reliability and availability features, including Chipkill memory and memory mirroring, redundant power supplies, redundant fans, Predictive Failure Analysis and Light Path Diagnostics, and Integrated Management Module (IMM).

Key features

The challenge of a high-performance business is to do more with less—serve more Web pages, handle more secure connections, support more email users. You need to reduce the costs of doing business and improve the service you deliver to your customers while lowering your overall risk. The dual-socket IBM System x3620 M3 can reduce your costs with its new energy-smart design. It can improve service with reduced operational complexity and increased management functionality. It will lower your IT risk with the resiliency that comes from having no single point of failure. And like all IBM servers, the x3620 M3 offers you the trust that comes from IBM global reach, service, and support.

The x3620 M3 is a high-performance rack server that uses significantly less power than previous generations, with unified systems management tools, leading reliability, availability, and serviceability features, and broad system flexibility, housed in a compact 2U mechanical package.

Performance

The x3620 M3 offers numerous features to boost performance and reduce costs:

- Up to two 6-core Xeon 5600 series processors offering superior performance. Xeon 5600 series processors offer up to 54% better performance than the previous generation 5500 series processors (workload dependent).
- 12 DIMMs of registered 1333 MHz DDR3 ECC memory provide speed, high availability, and a memory capacity of up to 192 GB with 16 GB DDR3 RDIMMs .
- High-performance 6 Gbps SAS RAID controllers and 15K RPM 6 Gbps SAS disk drives in a variety of capacities to suit your local storage requirements.

Flexibility and scalability

The x3620 M3 has the ability to grow with your application requirements with these features:

- A choice of 4-core or 6-core processors with clock rates from 1.6 GHz to 3.20 GHz.
- 12 DIMM sockets allowing memory expansion of up to 192 GB.
- A choice of power supplies including 460 W, 675 W, or energy-efficient 675 W.
- Six USB 2.0 ports available - two front, two rear, two internal (one for an embedded hypervisor and one for optional USB tape drive).
- Storage bay flexibility: Up to 8 hot-swap 3.5" drive bays for SAS or SATA HDDs with space for an internal tape drive. Available configurations with four simple-swap 3.5" HDD bays.
- Direct-attach SAS storage with the EXP2512, EXP2524, and EXP3000 storage enclosures is supported. IBM System Storage servers, including network-attached storage (NAS), and iSCSI or Fibre Channel-attached storage, can also be attached.
- The x3620 M3 provides three PCI Express (PCIe) 2.0 I/O slots for increased network or storage connectivity.

Manageability and security

Powerful systems management features simplify local and remote management of the x3620 M3:

- The server includes an Integrated Management Module (IMM) to monitor server availability, perform Predictive Failure Analysis, and trigger IBM Systems Director alerts.
- An optional Virtual Media Key enables additional systems management capabilities, including web-based out-of-band remote control (keyboard video and mouse), remote optical drive support, Windows “blue screen” error capture, and support for LDAP and SSL protocols.

- Text Console Redirection support allows the administrator to remotely view console text messages over Serial or LAN connections.
- Integrated industry-standard Unified Extensible Firmware Interface (UEFI) next-generation BIOS. New capabilities include:
    - Human readable event logs — no more beep codes
    - Complete out-of-band coverage by the Advance Settings Utility to simplify remote setup
    - A complete setup solution, allowing adapter configuration functions to be moved into UEFI
    - Consistent firmware management across an entire product line
- Integrated IPMI 2.0 support alerts IBM Systems Director to anomalous environmental factors, such as voltage and thermal conditions. It also supports highly secure remote power control using data encryption.
- IBM Systems Director is included for proactive systems management. IBM Systems Director comes with a portfolio of tools, including IBM Systems Director Active Energy Manager, IBM Service and Support Manager, and others. IBM Systems Director also offers extended systems management tools for additional server management and increased availability. When a problem is encountered, IBM Systems Director can issue administrator alerts via email, pager, and other methods.
- IBM Systems Director Active Energy Manager provides advanced power management features with actual real-time energy monitoring, reporting, and capping features.

Availability and serviceability

The System x3620 M3 provides many features to simplify serviceability and increase system uptime:

- The server offers Chipkill ECC memory protection (when using x4 DIMMs). Chipkill memory is up to 16 times better than standard ECC memory at correcting memory errors. This can help reduce downtime caused by memory errors.
- The server offers memory mirroring for redundancy in the event of a non-correctable memory failure.
- Toolless cover removal provides easy access to upgrades and serviceable parts, such as HDDs and memory. Similarly, the Virtual Media Key and the ServeRAID controller can be installed and replaced without tools. This means less time (and therefore less money) spent servicing the server.
- The server offers hot-swap and redundant power supplies and hot-swap disk drives (redundant when implemented in conjunction with a RAID controller). These features mean greater system uptime.
- Toolless slides ship with the server, together with a cable management arm (CMA), that allow the rack server to easily slide into place.
- The light path diagnostics panel and individual light path LEDs quickly lead the technician to failed (or failing) components. This simplifies servicing, speeds up problem resolution, and helps improve system availability.
- The three-year (parts and labor) limited onsite warranty provides peace of mind and greater investment protection than a one-year warranty does.

Energy efficiency

The System x3620 M3 has an energy-efficient design with features including the following:

- Low-voltage processors draw less energy and produce less waste heat than high-voltage processors, thus helping to reduce data center energy costs. Available 4-core Xeon 5600 series processors use only 40 W and 6-core processors consume as little as 60 W.
- Support for 1.35 V low-voltage DDR3 memory DIMMs that consume 20% less energy.

- Energy-efficient components, including low-voltage transistors and voltage regulator modules, and power supplies that are up to 90% efficient.
- The server uses hexagonal ventilation holes in the chassis. Hexagonal holes can be grouped more densely than round holes, providing more efficient airflow through the system chassis. This ultimately results in reduced operational costs.
- An altimeter works in conjunction with the IMM to govern fan rotation based on the readings that it delivers. This saves money under normal conditions because the fans do not have to spin at high speed.

Locations of key components

Figure 2 shows the front of the hot-swap drive model and the front of the simple-swap drive model of the x3620 M3 server.

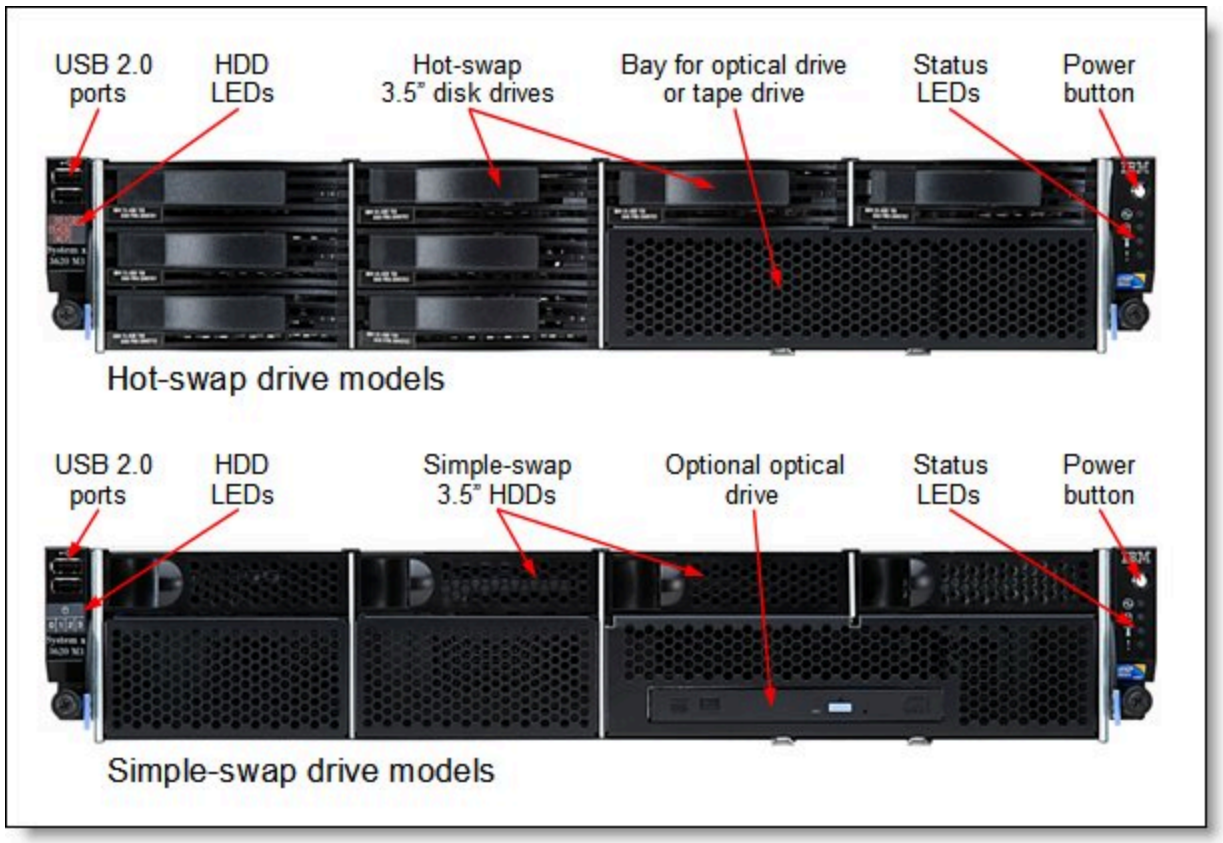

Figure 2. The System x3620 M3 - Front view

Figure 3 shows the rear of the server.

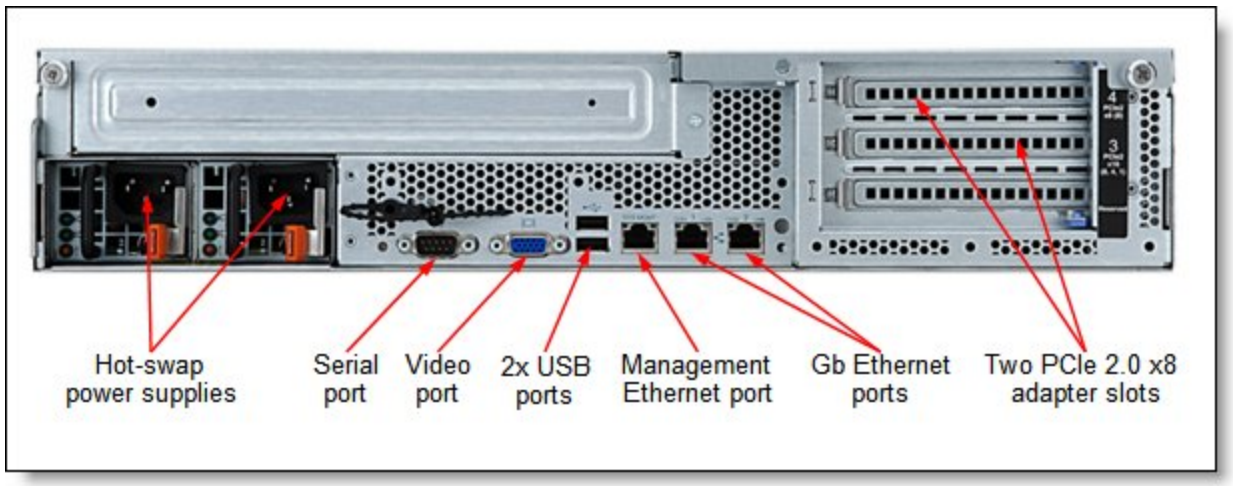

Figure 3. The System x3620 M3 - Rear view

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

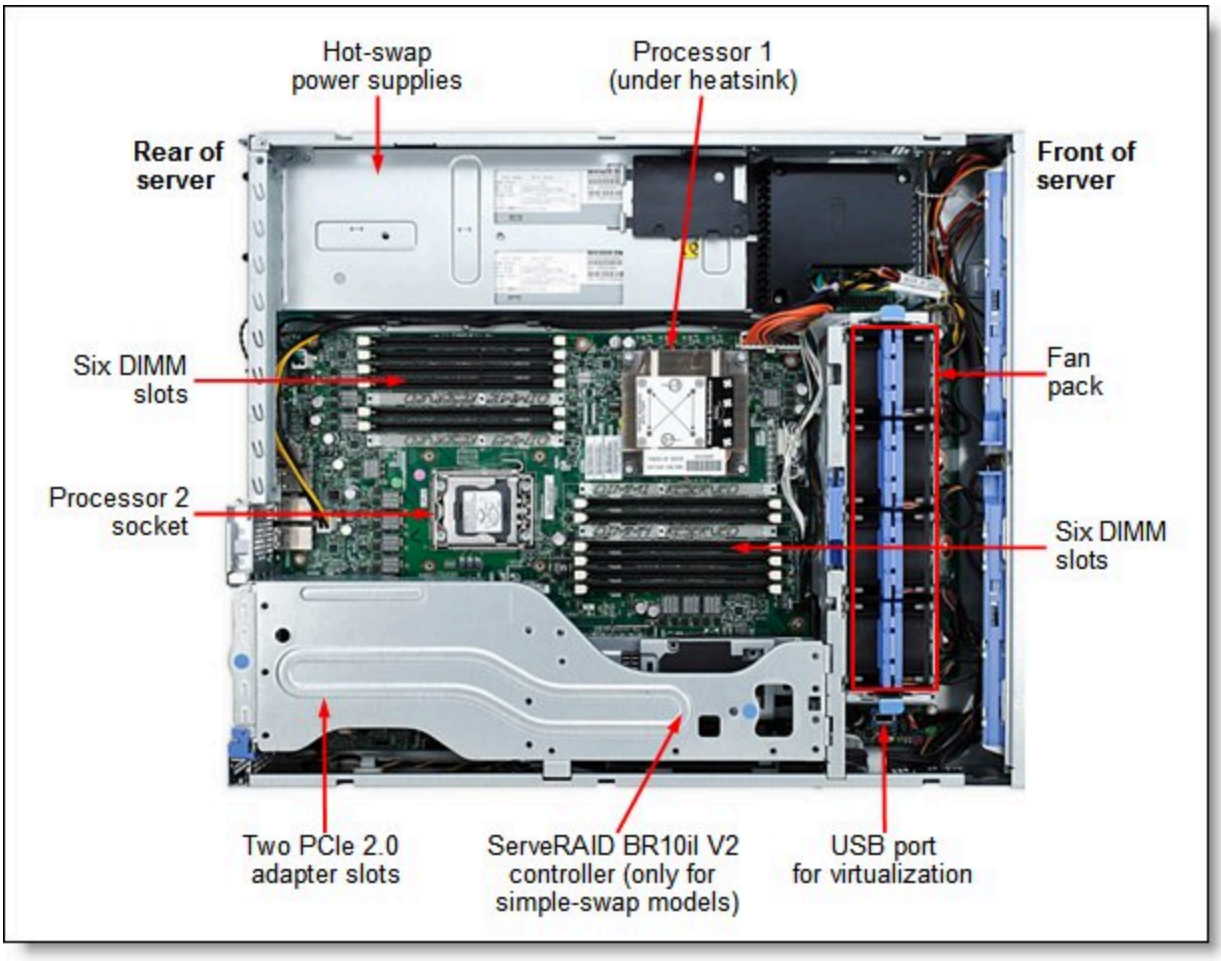

Figure 4. The System x3620 M3 - Inside view

Standard specifications

Table 1. Standard specifications

Components	Specification
Form factor	2U rack.
Processor	Up to two six-core (up to 3.06 GHz) or quad-core (up to 3.2 GHz) Intel Xeon 5600 series processors with QuickPath Interconnect technology up to 6.4 GT/s, and up to 1333 MHz memory speed. Supports basic Quad-core and Dual-core Intel Xeon 5500 series processors either in standard models or via Configure-To-Order (CTO).
Memory cache	Up to 12 MB L3 for Intel Xeon 5600 series processors. Up to 4 MB L3 for Intel Xeon 5500 series processors.
Chipset	Intel 5500.
Memory DIMM slots	12 DDR3 DIMM slots (6 per installed processor).
Memory capacity	Up to 192 GB with 16 GB DDR3 RDIMMs and 12 populated DIMM slots (up to 96 GB with 6 DIMMs per processor).
Memory protection	ECC, ChipKill (for x4-based memory DIMMs), and Memory Mirroring.
Disk drive bays	Four 3.5" simple-swap SATA HDD bays; or eight 3.5" hot-swap SAS/SATA HDD bays (model dependent).
Maximum internal storage	Up to 7.2 TB with 900 GB SAS HDDs, or up to 24 TB with 3 TB SATA HDDs. Intermix of SAS/SATA is supported.
RAID Support	Software RAID 0, 1 with integrated 6-port SATA controller. RAID 0, 1, 1E with an optional ServeRAID M1015 controller. RAID 0, 1, 5, 10, 50 with an optional ServeRAID M5014 or M5015 controller. Optional upgrade to RAID 5 is available for M1015. Optional upgrade to RAID 6, 60 is available for M5014/M5015.
Optical drive bays	Optional. Optical Disk Drive (ODD) Enablement kit is required to support internal optical drive. Support for Multiburner.
Tape drive bays	Optional. Tape Enablement Kit is required to support internal tape drive.
Network interfaces	Integrated 2-port Gigabit Ethernet (Intel 82575).
PCI Expansion slots	Three PCI Express 2.0 slots: • One PCI Express 2.0 x16 (x4 wired) (dedicated to ServeRAID BR10il v2) • One PCI Express 2.0 x16 (x8 wired), full-height, half-length • One PCI Express 2.0 x8 (x8 wired), full-height, half-length
External ports	Front: Two USB 2.0 ports. Rear: Two USB 2.0, one DB-15 video, one DB-9 serial, one RJ-45 systems management, two RJ-45 Gigabit Ethernet network ports. Internal: USB port for embedded hypervisor. USB port for internal USB tape drive.
Cooling	IBM Calibrated Vectored Cooling™ with four counter-rotating non-hot-swap fans with N+1 redundancy.
Power supply	Up to 2 redundant hot-swap 460 W AC or 675 W AC or 675 W high-efficiency () AC power supplies with 90%+ efficiency.
Hot-swap components	Hard drives, power supplies.

Systems management	UEFI, IBM Integrated Management Module (IMM), Predictive Failure Analysis, Integrated Service Processor, Light Path Diagnostics, Automatic Server Restart, IBM Systems Director* and IBM Systems Director Active Energy Manager™, and IBM ServerGuide. Optional Virtual Media Key for remote presence (graphics, keyboard and mouse, media).
Security features	Power-on password, administrator's password.

Video	Matrox G200eV with 16 MB memory integrated into the IMM. Maximum resolution is 1280x1024 at 75 Hz with 16M colors.
Operating systems supported	Microsoft Windows Server 2008 R2 and 2008, Red Hat Enterprise Linux 5 and 6, SUSE Linux Enterprise Server 10 and 11, VMware ESX 4 and VMware ESXi 4 embedded hypervisor.
Limited warranty	Three-year customer-replaceable unit and on-site limited warranty with 9x5 next-business-day response time.
Service and support	Optional service upgrades are available through IBM ServicePacs®: 24x7 with next business day or 4 hours on-site repair, 1-year or 2-year warranty extension, remote technical support for IBM hardware and selected IBM and third-party (Microsoft, Linux, VMware) software.
Dimensions	Width: 488 mm (19.2 in), depth: 749 mm (29.5 in), height: 87 mm (3.4 in)
Weight	Minimum configuration: 16.30 kg (35.94 lb); maximum configuration: 22.45 kg (49.50 lb)

* Effective October 12, 2012, or until supply is depleted, IBM will discontinue the shipment of IBM Systems Director DVDs with IBM System x servers and IBM BladeCenter chassis. IBM Systems Director Express Edition and IBM Systems Director Standard Edition, which include software subscription and support, continue to be available for IBM System x servers and IBM Blade Centers.

The x3620 M3 servers are shipped with the following items:

- Statement of Limited Warranty
- Important Notices
- Rack Installation Instructions
- Documentation CD that contains the *Installation and User's Guide*
- Slides Kit
- One 2.8 m C13 - C14 power cord

Standard models

The following table lists the standard models. Model 46x is preloaded with Microsoft Windows Storage Server 2008 R2 Standard Edition.

Table 2. Standard models

Model	Processor* (2 maximum)	Memory	RAID adapter	Disk bays	Disks	Network	Optical	Power supply
Models announced January 2012								
7376-46x†	1x Xeon E5620 2.40 GHz 4C 12 MB 1066 MHz	1x 8GB	M5015 + Battery	8x 3.5" HS	1x 500 GB 7200 3.5" HS SATA II	2x GbE	Multi-burner	1x 460 W
Models announced February 2011								
7376-A2x	1x Xeon E5603 1.60 GHz 4C 4 MB 1066 MHz	1x 2GB	Integrated SATA	4x 3.5" SS	Open	2x GbE	Optional	1x 460 W
7376-B2x	1x Xeon E5607 2.26 GHz 4C 8 MB 1066 MHz	1x 4GB	M1015	8x 3.5" HS	Open	2x GbE	Optional	1x 460 W
7376-44x	1x Xeon E5620 2.40 GHz 4C 12 MB 1066 MHz	1x 4GB	M1015	8x 3.5" HS	Open	2x GbE	Optional	1x 460 W
7376-D2x	1x Xeon E5645 2.40 GHz 6C 12 MB 1333 MHz	1x 4GB	M5014	8x 3.5" HS	Open	2x GbE	Optional	1x 460 W
7376-64x	1x Xeon X5650 2.66 GHz 6C 12 MB 1333 MHz	1x 4GB	M5015 + Battery	8x 3.5" HS	Open	2x GbE	Optional	1x 675 W

* Processor detail: Standard quantity of processors, processor model, core speed, number of cores, L3 cache, memory speed
† Model 46x is preloaded with Microsoft Windows Storage Server 2008 R2 Standard Edition

Refer to the Specifications section for information about standard features of the server.

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	Processor* (2 maximum)	Memory	RAID controller	Disk bays	Disks	Network	Optical	Power supply
NA and LA								
7376-E2U	1x Xeon E5620 2.4 GHz 4C 12 MB 1066 MHz	3x 2 GB	M5014	8x 3.5" HS	Open	2x GbE	Optional	1x 675 W
7376-E3U	1x Xeon X5650 2.66 GHz, 6C 12 MB 1333 MHz	3x 4 GB	M5015 + Battery	8x 3.5" HS	Open	2x GbE	Optional	2x 675 W
7376-E4U	1x Xeon E5606 2.13 GHz 4C 8 MB 1066 MHz	1x 4 GB	M1015	8x 3.5" HS	Open	2x GbE	Multiburner	1x 460 W
CEEMEA								
7376-K6G**	1x Xeon E5620 2.4 GHz 4C 12 MB 1066 MHz	1x 4 GB	M5014	8x 3.5" HS	Optional	2x GbE	Multiburner	1x 460 W
RCIS								
7376-K7G**	1x Xeon E5606 2.13 GHz 4C 8 MB 1066 MHz	1x 4 GB	M5015 + Battery	8x 3.5" HS	Optional	2x GbE	Multiburner	1x 675 W
7376-K8G**	1x Xeon E5620 2.4 GHz 4C 12 MB 1066 MHz	1x 4 GB	M5015 + Battery	8x 3.5" HS	Optional	2x GbE	Multiburner	1x 675 W

* In the processor column: Standard quantity of processors, processor model, core speed, number of cores, L3 cache, memory speed
** Withdrawn from marketing

Processor options

The server supports up to two processors. The following table shows which server models have each processor standard, and it lists the additional processor options supported by this server. If there is no corresponding *where-used* model for a particular processor, then that processor is only available through the configure-to-order (CTO) process.

Table 4. Processor options

Part number	Feature code	Description	Models where used
69Y5251	A134	Intel Xeon Processor E5503 2C 2.0GHz 4MB Cache 800MHz 80w	-
69Y1217	4612	Intel Xeon Processor E5506 4C 2.13 GHz 4 MB Cache 800 MHz 80 w	22x
69Y1356	7715	Intel Xeon Processor E5507 4C 2.26 GHz 4 MB Cache 800 MHz 80 w	32x
81Y6703	A135	Intel Xeon Processor E5603 4C 1.60GHz 4MB Cache 1066MHz 80w	A2x
81Y6704	A136	Intel Xeon Processor E5606 4C 2.13GHz 8MB Cache 1066MHz 80w	E4U
81Y6705	A137	Intel Xeon Processor E5607 4C 2.26GHz 8MB Cache 1066MHz 80w	B2x
69Y1225	4620	Intel Xeon Processor E5620 4C 2.40 GHz 12 MB Cache 1066 MHz 80 w	42x, 44x, 46x
69Y1357	7716	Intel Xeon Processor E5630 4C 2.53 GHz 12 MB Cache 1066 MHz 80 w	52x
69Y1358	7717	Intel Xeon Processor E5640 4C 2.66 GHz 12 MB Cache 1066 MHz 80 w	-
81Y6707	A139	Intel Xeon Processor E5645 6C 2.40GHz 12MB Cache 1333MHz 80w	D2x
81Y6708	A13A	Intel Xeon Processor E5649 6C 2.53GHz 12MB Cache 1333MHz 80w	-
81Y6713	A13F	Intel Xeon Processor L5609 4C 1.86GHz 12MB Cache 1066MHz 40w	-
69Y1359	7718	Intel Xeon Processor L5630 4C 2.13 GHz 12 MB Cache 1066 MHz 40 w	-
69Y1227	4622	Intel Xeon Processor L5640 6C 2.26 GHz 12 MB Cache 1333 MHz 60 w	-
69Y1229	4624	Intel Xeon Processor X5650 6C 2.66 GHz 12 MB Cache 1333 MHz 95 w	62x, 64x
81Y6710	A13C	Intel Xeon Processor X5660 6C 2.80GHz 12MB Cache 1333MHz 95w	-
69Y1231	4626	Intel Xeon Processor X5670 6C 2.93 GHz 12 MB Cache 1333 MHz 95 w	-
81Y6712	A13E	Intel Xeon Processor X5672 4C 3.20GHz 12MB Cache 1333MHz 95w	-
81Y6711	A13D	Intel Xeon Processor X5675 6C 3.06GHz 12MB Cache 1333MHz 95w	-

Memory options

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

The server supports 12 DIMM slots. When one processor is installed, then only six DIMM slots can be used. When two processors are installed, then all 12 DIMM slots can be used. The server supports single-rank, dual-rank, and quad-rank RDIMMs. The maximum amount of memory is achieved when two processors are installed and 16 GB quad-rank RDIMMs are used for a total of 192 GB (96 GB per CPU).

Each CPU has three memory channels and there are two DIMMs per channel. Maximum memory speed is limited by memory speed supported by the specific processor and by the number and type of DIMMs installed (whichever has a lower memory speed rating), as follows:

- Intel Xeon 5600 series processors:
  - 1333 MHz when one or two single-rank or dual-rank RDIMMs per channel are installed
  - 1066 MHz when one quad-rank RDIMM per channel is installed
  - 800 MHz when two quad-rank RDIMMs per channel are installed
- Quad-core and dual-core Intel Xeon 5500 series processors in x3620 M3 only support memory speed at 800 MHz.

The server supports both 1.5 V and 1.35 V DIMMs. However, mixing the DIMMs with different voltage is not supported. Only systems with Intel Xeon 5600 series processors support the 1.35 V DIMMs.

The following memory protection technologies are supported:

- ECC
- ChipKill (for x4-based RDIMMs)
- Memory Mirroring

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

The following table lists memory options available for x3620 M3 server.

Table 5. Memory options

Part number	Feature code	Description	Maximum supported*	Models where used
49Y1432	8933	1GB (1x1GB, 1Rx8, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM	12	-
49Y1433	8934	2GB (1x2GB, 2Rx8, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM	12	-
49Y1434	8935	2GB (1x2GB, 1Rx4, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM	12	-
49Y1392	3893	2GB (1x2GB, 2Rx8, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM	12	-
49Y1405	8940	2GB (1x2GB, 1Rx8, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM	12	A2x
49Y1394	3894	4GB (1x4GB, 2Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM	12	-

49Y1435	8936	4GB (1x4GB, 2Rx4, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM	12	-
49Y1406	8941	4GB (1x4GB, 1Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM	12	B2x, 44x, D2x, 64x
49Y1407	8942	4GB (1x4GB, 2Rx8, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM	12	-
49Y1436	8937	8GB (1x8GB, 2Rx4, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM	12	-
49Y1397	8923	8GB (1x8GB, 2Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM	12	46x
49Y1398	8921	8GB (1x8GB, 2Rx4, 1.35V) PC3L-8500 CL7 ECC DDR3 1066MHz LP RDIMM	12	-
49Y1400	8939	16GB (1x16GB, 4Rx4, 1.35V) PC3L-8500 CL7 ECC DDR3 1066MHz LP RDIMM	12	-

* 12 DIMMs supported with 2 processors installed. When 1 processor is installed, the maximum number of DIMMs supported is 6.

Internal disk storage options

The IBM System x3620 M3 supports the following internal disk storage configurations:

- Four 3.5" simple-swap SATA hard drive bays
- Four 3.5" simple-swap SATA hard drive bays plus an internal optical drive
- Four 3.5" simple-swap SATA hard drive bays plus an internal tape drive
- Eight 3.5" hot-swap SAS/SATA hard drive bays
- Eight 3.5" hot-swap SAS/SATA hard drive bays plus an internal optical drive
- Eight 3.5" hot-swap SAS/SATA hard drive bays plus an internal tape drive

Standard models of the x3620 M3 ship with four 3.5" simple-swap SATA hard drive bays or with eight 3.5" hot-swap SAS/SATA hard drive bays (model dependent).

The following table lists the hard drive options for the internal disk storage of server. The intermixing of SAS and SATA drives is supported.

Table 6. Disk drive options

Part number	Feature code	Description	Maximum supported
3.5" Hot-Swap SAS HDDs			
44W2244	5313	IBM 600GB 15K 6Gbps SAS 3.5" Hot-Swap HDD	8
44W2239	5312	IBM 450GB 15K 6Gbps SAS 3.5" Hot-Swap HDD	8
44W2234	5311	IBM 300GB 15K 6Gbps SAS 3.5" Hot-Swap HDD	8
3.5" Hot-Swap NL SAS HDDs			
81Y9758	A281	IBM 3TB 7.2K 6Gbps NL SAS 3.5" HS HDD	8
42D0767	5417	IBM 2TB 7.2K 6Gbps NL SAS 3.5" HS HDD	8
42D0777	5418	IBM 1TB 7.2K 6Gbps NL SAS 3.5" HS HDD	8
3.5" Hot-Swap NL SATA HDDs			
81Y9774	A27Z	IBM 3TB 7.2K 6Gbps NL SATA 3.5" HS HDD	8
42D0782	5415	IBM 2TB 7200 NL SATA 3.5" HS HDD	8
3.5" Hot-Swap SATA HDD			
None	5560	IBM 1TB 7200 SATA 3.5'' HS HDD	8
39M4530	5196	500GB 7200 RPM 3.5" Hot-Swap SATA II	8
3.5" Simple-Swap NL SATA HDDs			
81Y9778	A280	IBM 3TB 7.2K 6Gbps NL SATA 3.5" SS HDD	4
42D0787	5416	IBM 2TB 7200 NL SATA 3.5" SS HDD	4
3.5" Simple-Swap SATA HDDs			
43W7622	5559	IBM 1TB 7.2K SATA 3.5" Simple-Swap HDD	4
39M4514	5288	500GB 7200 RPM 3.5" Simple-Swap SATA II	4

* This drive cannot be ordered separately. It is only available via special bid or the Configure To Order (CTO) process.

To control the internal disk storage of the x3620 M3, simple-swap models use the integrated SATA controller, which offers RAID-0 or RAID-1. Simple-swap models can be upgraded to the ServeRAID BR10il v2, in which case you must also order the IBM x3620 M3 Software RAID to Hardware RAID Upgrade Kit,

69Y1360. Hot-swap models ship with either a ServeRAID M1015, M5014, or M5015 controller. See Tables 2 and 3 for model specifics.

The following table lists the RAID controllers and additional options available for the x3620 M3 server.

Table 7. RAID controllers for internal storage

Part number	Feature code	Description	Maximum supported	Standard models where used
49Y4731	9742	ServeRAID-BR10il SAS/SATA Controller v2‡	1	-
None**	3888	ServeRAID-BR10il SAS/SATA Controller v2 with bracket	1	-
81Y4492	A1XL	ServeRAID H1110 SAS/SATA Controller for IBM System x	1	-
69Y1360	6417	IBM x3620 M3 Software RAID to Hardware RAID Upgrade Kit‡	1	-
46M0831	0095	ServeRAID M1015 SAS/SATA Controller	1	32x, 42x, B2x, 44x
46M0832	9749	ServeRAID M1000 Series Advance Feature Key	1	-
46M0916	3877	ServeRAID M5014 SAS/SATA Controller	1	52x, 62x, D2x
46M0829	0093	ServeRAID M5015 SAS/SATA Controller	1	64x, 46x
46M0917*	5744	ServeRAID M5000 Series Battery Kit	1	-
46M0930	5106	ServeRAID M5000 Series Advanced Feature Key†	1	-
81Y4426	A10C	ServeRAID M5000 Series Performance Accelerator Key†	1	-

* Withdrawn from marketing.
‡ Installation of ServeRAID-BR10il v2 is only supported on simple-swap models and requires optional Software RAID to Hardware RAID Upgrade Kit (part number 69Y1360).
** This drive cannot be ordered separately. It is only available via special bid or the Configure To Order (CTO) process.
† The Advanced Feature Key and Performance Accelerator Key cannot be used at the same time. Only one key can be installed on a given RAID controller.

The BR10il v2 RAID controller is installed in a dedicated PCIe slot in the x3620 M3 and does not consume either of the two regular PCIe expansion slots. However, the M1015, M5014, or M5015 RAID controller does occupy one of the two standard PCIe 2.0 x8 slots when installed, therefore limiting the maximum number of additional I/O adapter slots to one. Only one RAID controller can be used with the server to support internal disk drives.

The ServeRAID BR10il v2 SAS/SATA Controller has the following specifications:

- One Mini-SAS internal connector
- Supports RAID levels 0, 1, and 1E
- 3 Gbps throughput per port
- Based on the LSI 1064E controller
- PCI Express 2.0 x4 host interface
- Stripe size: 64 KB (fixed)

The ServeRAID M1015 SAS/SATA Controller has the following specifications:

- Two Mini-SAS internal connectors

- Supports RAID levels 0, 1, 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 ServeRAID M5014 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 RAID on Chip (ROC) controller
- 256 MB of onboard cache
- Optional Intelligent Li-Ion-based battery backup unit with the ServeRAID M5000 Series Battery Kit

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 RAID on Chip (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 IBM Redbooks Product Guides in the RAID adapters category:
http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=raid

Internal backup units

The server supports an internal tape drive or an internal RDX drive via optional tape enablement kits. A maximum of one tape drive or one RDX drive is supported. If an internal tape drive or RDX drive is installed, then the optical drive cannot be installed. The following table lists enablement kits and supported drives for the x3620 M3 server.

Table 8. Internal tape drives, internal RDX drives and tape enablement kits

Part number	Feature code	Description	Maximum supported
69Y0798	6419	IBM x3620 M3 Tape Enablement Kit	1
39M5636	5395	IBM DDS Generation 6 USB Tape Drive	1
44E8895	5397	IBM DDS Generation 5 USB Tape Drive - USB	1
00D2786	A2VE	IBM RDX Internal USB 3.0 Dock with 320GB Cartridge	1
00D2787	A2VF	IBM RDX Internal USB 3.0 Dock with 500GB Cartridge	1
00D2788	A2VG	IBM RDX Internal USB 3.0 Dock with 1TB Cartridge	1

The x3620 Tape Enablement Kit (part number 69Y0798) is used with DDS 6 USB tape drive and the RDX drives, and the drive is connected to the USB tape port on the system board with the USB cable included in the kit.

For more information, see the list of IBM Redbooks Product Guides in the Backup units category: http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=tape

Optical drives

The server supports internal optical drive options via the optional Optical Disk Drive (ODD) Enablement Kit (part number 69Y0797). If an internal optical drive is installed in the server then internal tape drives cannot be installed. The following table lists the options required to install the internal optical drive.

Table 9. Enablement kit and optical drives

Part number	Feature code	Description	Maximum supported	Standard models where used
46M0902	4163	UltraSlim Enhanced SATA Multi-Burners	1	46x
46M0901	4161	IBM UltraSlim Enhanced SATA DVD-ROM	1	-
69Y0797	6418	IBM x3620 M3 ODD Enablement Kit	1	46x

IBM UltraSlim Enhanced SATA Multi-Burner (part number 46M0902) supports the following media and speeds for reading:

- CD-ROM 24X
- CD-DA (DAE) 20X
- CD-R 24X
- CD-RW 24X
- DVD-ROM (single layer) 8X
- DVD-ROM (dual layer) 8X
- DVD-R (4.7 GB) 6X
- DVD-R DL 4X
- DVD+R 6X
- DVD+R DL 4X
- DVD-RW (4.7 GB) 4X
- DVD+RW 4X
- DVD-RAM (4.7/9.4 GB) 4X

IBM UltraSlim Enhanced SATA Multi-Burner (part number 46M0902) supports the following media and speeds for writing:

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

- DVD-RAM 5X

I/O expansion options

The server has three PCI Express slots:

- Slot 2: PCI Express 2.0 x16 (x4 wired) low-profile slot, dedicated to the ServeRAID BR10il v2, if installed
- Slot 3: PCI Express 2.0 x16 (x8 wired) suitable for adapters that are full-height, half-length
- Slot 4: PCI Express 2.0 x8 (x8 wired) suitable for adapters that are full-height, half-length

Slot 2 is an internal slot and does not offer external port access. Slots 3 and 4 enable external port access for network adapters, HBAs, and other standard PCIe adapters.

Note: There is no slot labeled *Slot 1* in the server.

Network adapters

The x3620 M3 has two integrated Gigabit Ethernet ports. Integrated NICs have the following features:

- Intel 82575 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 10. Network adapters

Part number	Feature code	Description	Maximum supported
10 Gb Ethernet			
49Y7960	A2EC	Intel X520 Dual Port 10GbE SFP+ Adapter for IBM System x	2
49Y7970	A2ED	Intel X540-T2 Dual Port 10GBaseT Adapter for IBM System x	2
49Y7910	A18Y	Broadcom NetXtreme II Dual Port 10GBaseT Adapter for IBM System x	2
49Y4250	5749	Emulex 10GbE Virtual Fabric Adapter for IBM System x	2
49Y7950	A18Z	Emulex 10GbE Virtual Fabric Adapter II for IBM System x	2
95Y3751	A348	Emulex Dual Port VFAII Adapter & FCoE/iSCSI License for IBM System x	-
42C1800	5751	QLogic 10 Gb Dual Port CNA for IBM System x	
42C1820	1637	Brocade 10 Gb Dual-port CNA for IBM System x	
81Y9990	A1M4	Mellanox ConnectX-2 Dual Port 10GbE Adapter for IBM System x	2
Gigabit Ethernet			
42C1780	2995	NetXtreme II 1000 Express Dual Port Ethernet Adapter	2
49Y4230	5767	Intel Ethernet Dual Port Server Adapter I340-T2 for IBM System x	2
49Y4240	5768	Intel Ethernet Quad Port Server Adapter I340-T4 for IBM System x	2
39Y6126	2944	PRO/1000 PT Dual Port Server Adapter by Intel	2
39Y6136	2974	PRO/1000 PT Quad Port Server Adapter	2

For more information, see the list of IBM Redbooks Product Guides in the Networking adapters category: http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=networkadapters

Storage host bus adapters

The following table lists storage host bus adapters (HBAs) supported by the x3620 M3 server.

Table 11. Storage adapters

Part number	Feature code	Description	Maximum supported
Fibre Channel			
59Y1987	3885	Brocade 4 Gb FC Single-port HBA for IBM System x	2
59Y1993	3886	Brocade 4 Gb FC Dual-port HBA for IBM System x	2
42C2069	1698	Emulex 4 Gbps FC Single-Port PCI-e HBA for IBM System x	2
42C2071	1699	Emulex 4 Gbps FC Dual-Port PCI-e HBA for IBM System x	2
39R6525	3567	QLogic 4 Gb FC Single-Port PCIe HBA for IBM System x	2
39R6527	3568	QLogic 4 Gb FC Dual-Port PCIe HBA for IBM System x	2
46M6049	3589	Brocade 8 Gb FC Single-port HBA for IBM System x	2
46M6050	3591	Brocade 8 Gb FC Dual-port HBA for IBM System x	2
42D0485	3580	Emulex 8 Gb FC Single-port HBA for IBM System x	2
42D0494	3581	Emulex 8 Gb FC Dual-port HBA for IBM System x	2
42D0501	3578	QLogic 8 Gb FC Single-port HBA for IBM System x	2
42D0510	3579	QLogic 8 Gb FC Dual-port HBA for IBM System x	2
81Y1668	A2XU	Brocade 16Gb FC Single-port HBA for IBM System x	2
81Y1675	A2XV	Brocade 16Gb FC Dual-port HBA for IBM System x	2
81Y1655	A2W5	Emulex 16Gb FC Single-port HBA for IBM System x	2
81Y1662	A2W6	Emulex 16Gb FC Dual-port HBA for IBM System x	2
SAS			
46M0912	3876	IBM 6Gb Performance Optimized HBA	2
46M0907	5982	IBM 6Gb SAS HBA	2

For more information, see the list of IBM Redbooks Product Guides in the Host bus adapters category: http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=hba

PCIe SSD adapters

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

Table 12. SSD adapters

Part number	Feature code	Description	Maximum supported
81Y4527	A1NB	1.28TB High IOPS MLC DUO Adapter for IBM System x	-
81Y4535	A1NE	320GB High IOPS SLC Adapter for IBM System x	-
68Y7325	5996	640 GB High IOPS MLC DUO Adapter for IBM System x	-
81Y4531	A1NC	640GB High IOPS MLC Adapter for IBM System x	-
81Y4519	5985	640 GB High IOPS MLC DUO Adapter for IBM System x	-
81Y4539	A1ND	640GB High IOPS SLC DUO Adapter for IBM System x	-

For more information about these adapters, see the IBM Redbooks Product Guides in the Internal Storage category:
http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=internalstorage

Power supplies

The server supports up to two redundant power supplies, providing N+N redundancy. Standard models come with one power supply. The following table lists the power supplies for x3620 M3.

Table 13. Power supplies

Part number	Feature code	Description	Maximum supported	Models where used
69Y1213	4777	675W Redundant Power Supply	2*	64x
81Y6557	A0ZG	IBM 675 W High Efficiency Redundant AC Power Supply	2*	-
81Y6754	A13H	IBM 460 W Redundant AC Power Supply	2*	A2x, B2x, 44x, 46x, D2x

* One power supply comes standard with every model.

One 2.8 m C13 - C14 power cord is included with every power supply.

Integrated virtualization

The following table shows that the server supports VMware ESXi installed on a USB memory key. The key is installed in a USB socket inside the server.

Table 14. Virtualization options

Part number	Feature code	Description	Maximum supported
41Y8278	1776	IBM USB Memory Key for VMware ESXi 4	1
41Y8287	3033	IBM USB Memory Key for VMware ESXi 4.1	1
41Y8296	A1NP	IBM USB Memory Key for VMWare ESXi 4.1 Update 1	1
41Y8300	A2VC	IBM USB Memory Key for VMWare ESXi 5.0	1
41Y8307	A383	IBM USB Memory Key for VMWare ESXi 5.0 Update 1	1

Remote management

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

The IMM 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 virtual media key is required to enable the remote presence and blue-screen capture features. It is orderable as listed in the following table.

Table 15. Remote management options

Part number	Feature code	Description	Maximum quantity supported
46C7527	5891	IBM Virtual Media Key for Entry Systems	1

The remote presence feature provides the following functions:

- Remotely viewing video with graphics resolutions up to 1280x1024 at 75 Hz, regardless of 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.

Supported operating systems

The server supports the following operating systems:

- Microsoft Windows Essential Business Server 2008 Premium Edition
- Microsoft Windows Essential Business Server 2008 Standard Edition
- Microsoft Windows Server 2003 R2 Datacenter Edition Unlimited Virtualization
- Microsoft Windows Server 2003 R2 x64 Datacenter Edition Unlimited Virtualization
- Microsoft Windows Server 2003/2003 R2, Datacenter Edition
- Microsoft Windows Server 2003/2003 R2, Datacenter x64 Edition
- Microsoft Windows Server 2003/2003 R2, Enterprise Edition
- Microsoft Windows Server 2003/2003 R2, Enterprise x64 Edition
- Microsoft Windows Server 2003/2003 R2, Standard Edition
- Microsoft Windows Server 2003/2003 R2, Standard x64 Edition
- 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 Small Business Server 2003/2003 R2 Premium Edition
- Microsoft Windows Small Business Server 2003/2003 R2 Standard Edition
- Microsoft Windows Small Business Server 2008 Premium Edition
- Microsoft Windows Small Business Server 2008 Standard Edition
- 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
- SUSE LINUX Enterprise Server 10 for AMD64/EM64T
- 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
- VMware ESX 4.0
- VMware ESX 4.1
- VMware ESXi 4.0

- VMware ESXi 4.1
- VMware vSphere 5.0 (ESXi)
- VMware vSphere 5.1 (ESXi)

See the IBM 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:

- Width: 488 mm (19.2 in)
- Depth: 749 mm (29.5 in)
- Height: 87 mm (3.4 in)
- Weight:
  - Minimum configuration: 16.30 kg (35.94 lb)
  - Maximum configuration: 22.45 kg (49.50 lb)

Operating environment:

- Air temperature
  - Server on
    - 10 - 35 C (50 - 95 F); altitude: 0 - 915 m (3,000 ft)
    - 10 - 32 C (50 - 95 F); altitude: 915 - 2134 m (3,000 - 7,000 ft)
    - 10 - 28 C (50 - 83 F); altitude: 2134 - 3050 m (7,000 - 10,000 ft)
  - Server off: 5 - 45 C (41 F - 113 F)
  - Shipment: -40 C to +60 C (-40 F to 140 F)
- Humidity
  - Server on: 20 - 80%, maximum dew point 21 C, maximum rate of change 5 C/hr
  - Server off: 8 - 80%, maximum dew point 27 C
  - Shipment: 5 - 100%
- Electrical:
  - Models with 675 W power supplies:
    - 100 to 127 (nominal) V ac; 50 Hz or 60 Hz; 7.8 A
    - 200 to 240 (nominal) V ac; 50 Hz or 60 Hz; 3.8 A
    - Input kilovolt-amperes (kVA) (approximately):
      - Minimum configuration: 0.12 kVA
      - Maximum configuration: 0.78 kVA
  - Models with 460 W power supplies:
    - 100 to 127 (nominal) V ac; 50 Hz or 60 Hz; 5.3 A
    - 200 to 240 (nominal) V ac; 50 Hz or 60 Hz; 2.6 A
    - Input kilovolt-amperes (kVA) (approximately):
      - Minimum configuration: 0.12 kVA
      - Maximum configuration: 0.53 kVA
- BTU output
  - Minimum configuration: 307 Btu/hr (90 watts)
  - Maximum configuration: 2662 Btu/hr (780 watts)
- Acoustical noise level emission level: Sound power levels
  - 6.1 bels (idling)
  - 6.1 bels (operating)

Warranty options

The IBM System x3620 M3 has a 3-year on-site warranty with 9x5/next-business-day terms. IBM offers warranty service upgrades through IBM ServicePacs. The IBM 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.

IBM ServicePac offerings are country-specific. That is, each country can 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 IBM ServicePac offerings available in your country, see the IBM ServicePac Product Selector at:
https://www-304.ibm.com/sales/gss/download/spst/servicepac

In general, the types of IBM ServicePacs are:

- Warranty and maintenance service upgrades
  - One, 2, 3, 4, or 5 years of 9x5 or 24x7 service coverage
  - On-site repair from next business day to 4 or 2 hours (selected areas)
  - One or 2 years of warranty extension
- Remote technical support services
  - One or 3 years with 24x7 coverage (severity 1) or 9x5/next-business-day 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 16. Warranty service definitions

Term	Description
IBM on-site repair (IOR)	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 IBM 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 IBM 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 IBM holidays. If after 1:00 p.m. it is determined that on-site 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 IBM holidays.

Regulatory compliance

The servers conform 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. 69950-1-03
- 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
- 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 51317.3.3-99
- 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 external disk storage expansion enclosures listed in the following table are available.

Table 17. External storage expansion

Part number	Description	Maximum quantity supported per one M5025
172701X	IBM System Storage® EXP3000	18 (9 per port)
1746A2D	IBM System Storage DS3512 Express Dual Controller Storage System	-
1746A2S	IBM System Storage DS3512 Express Single Controller Storage System	-
1746A4D	IBM System Storage DS3524 Express Dual Controller Storage System	-
1746A4S	IBM System Storage DS3524 Express Single Controller Storage System	-

External disk storage systems

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

Table 18. External disk storage systems

Part number	Description
1746A2D	IBM System Storage DS3512 Express Dual Controller Storage System
1746A2S	IBM System Storage DS3512 Express Single Controller Storage System
1746A4D	IBM System Storage DS3524 Express Dual Controller Storage System
1746A4S	IBM System Storage DS3524 Express Single Controller Storage System
181494H	IBM System Storage DS3950 Model 94
181498H	IBM System Storage DS3950 Model 98
181492H	IBM System Storage EXP395 Expansion Unit
1746A2E	IBM System Storage EXP3512 Express Storage™ Expansion Unit
1746A4E	IBM System Storage EXP3524 Express Storage Expansion Unit

For more information, see the list of IBM Redbooks Product Guides in the Storage Systems category: http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=externalstorage

The hard disk drives listed in the following table are supported with external expansion enclosures.

Table 19. Hard drive options for external expansion enclosures

Part number	Description	Maximum quantity supported per one enclosure
EXP3000 Hot-Swap SATA 3.5" Hard Drives		
43W7630	1000 GB Dual Port Hot Swap SATA	12
49Y1940	IBM 2 TB 7200 Dual Port SATA 3.5'' HS HDD	12
EXP3000 Hot-Swap SAS 3.5" Hard Drives		
44W2234	IBM 300 GB 15K 6 Gbps SAS 3.5" Hot-Swap HDD	12
44W2239	IBM 450 GB 15K 6 Gbps SAS 3.5" Hot-Swap HDD	12
44W2244	IBM 600 GB 15K 6 Gbps SAS 3.5" Hot-Swap HDD	12

The RAID controllers listed in the following table are supported with external expansion enclosures.

Table 20. RAID controllers for external storage expansion enclosures

Part number	Description	Maximum quantity supported
46M0830	ServeRAID M5025 SAS/SATA Controller	1
46M0930	ServeRAID M5000 Series Advance Feature Key†	1 per one M5025
81Y4426	ServeRAID M5000 Series Performance Accelerator Key†	1 per one M5025

† Only one key is supported in each controller, either the Advance Feature Key or the Performance Accelerator Key.

The ServeRAID M5025 SAS/SATA Controller 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
- Supports connectivity to the EXP3000, EXP2512, and EXP2524 storage expansion enclosures

For more information, see the *ServeRAID M5025 SAS/SATA Controller for IBM System x* Product Guide: http://www.redbooks.ibm.com/abstracts/tips0739.html?Open

The external SAS cables listed in the following table are supported with external expansion enclosures and M5025 RAID controllers.

Table 21. External SAS cables for external storage expansion enclosures

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

* Note: The EXP3000 series can be chained with each other. In such a case, one cable is used to connect first EXP3000 to the RAID controller, and every consecutive EXP unit is connected to previous one by one cable.

External backup units

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

Table 22. External backup options

Part number	Description
External tape expansion enclosures for internal tape drives	
87651UX	1U Tape Drive Enclosure
8767HHX	Half High Tape Drive Enclosure
87651NX	1U Tape Drive Enclosure (with Nema 5-15P LineCord)
8767HNX	Half High 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	
46C5364	IBM RDX Removable Hard Disk Storage System - Internal USB 160 GB Bundle
46C5387	IBM RDX Removable Hard Disk Storage System - Internal USB 320 GB Bundle
46C5388	IBM RDX Removable Hard Disk Storage System - Internal USB 500 GB Bundle
46C5399	IBM DDS Generation 5 USB Tape Drive
39M5636	IBM DDS Generation 6 USB Tape Drive
43W8478	IBM Half High LTO Gen 3 SAS Tape Drive
44E8895	IBM Half High LTO Gen 4 SAS Tape Drive
49Y9898	IBM Half High LTO Gen 5 Internal SAS Tape Drive

External backup units*	
362516X	IBM RDX Removable Hard Disk Storage System - External USB 160 GB Bundle
362532X	IBM RDX Removable Hard Disk Storage System - External USB 320 GB Bundle
362550X	IBM RDX Removable Hard Disk Storage System - External USB 500 GB Bundle
3628L3X	IBM Half High LTO Gen 3 External SAS Tape Drive (with US line cord)
3628L4X	IBM Half High LTO Gen 4 External SAS Tape Drive (with US line cord)
3628L5X	IBM Half High LTO Gen 5 External SAS Tape Drive (with US line cord)
3628N3X	IBM Half High LTO Gen 3 External SAS Tape Drive (without line cord)
3628N4X	IBM Half High LTO Gen 4 External SAS Tape Drive (without line cord)
3628N5X	IBM Half High LTO Gen 5 External SAS Tape Drive (without line cord)
3580S3V	System Storage TS2230 Tape Drive Express Model H3V
3580S4V	System Storage TS2240 Tape Drive Express Model H4V
3580S5E	System Storage TS2250 Tape Drive Express Model H5S
3580S5X	System Storage TS2350 Tape Drive Express Model S53
3572S4R	TS2900 Tape Library with LTO4 HH SAS drive & rack mount kit
3572S5R	TS2900 Tape Library with LTO5 HH SAS drive & rack mount kit
35732UL	TS3100 Tape Library Model L2U Driveless
35734UL	TS3200 Tape Library Model L4U Driveless
46X2682†	LTO Ultrium 5 Fibre Channel Drive
46X2683†	LTO Ultrium 5 SAS Drive Sled

46X2684†	LTO Ultrium 5 Half High Fibre Drive Sled
46X2685†	LTO Ultrium 5 Half High SAS Drive Sled
46X6912†	LTO Ultrium 4 Half High Fibre Channel Drive Sled
46X7117†	LTO Ultrium 4 Half High SAS DriveV2 Sled
46X7122†	LTO Ultrium 3 Half High SAS DriveV2 Sled

* Note: The external tape drives listed can be ordered through System x sales channel. Server may support other IBM tape drives that are not listed in this table. Refer to IBM System Storage Interoperability Center for information.
† Note: These part numbers are the tape drives options for 35732UL and 35734UL.

For more information, see the list of IBM Redbooks Product Guides in the Backup units category: http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=tape

Internal tape drives are installed in a Half High Tape Drive Enclosure (up to one tape drive per enclosure) or in a 1U Tape Drive Enclosure (up to two tape drives). One USB Enclosure Adapter Kit is required per tape drive (x3620 M3 only supports USB connections for internal USB or SATA tape drives in external tape enclosures). The USB Enclosure Kit include external 3 m cable and a SATA-to-USB dongle to connect the enclosure to the server's USB port.

Top-of-rack Ethernet switches

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

Table 23. IBM System Networking - Top-of-rack switches

Part number	Description
IBM System Networking - 1 Gb top-of-rack switches	
0446013	IBM System Networking RackSwitch G8000R
7309CFC	IBM System Networking RackSwitch G8000F
7309CD8	IBM System Networking RackSwitch G8000DC
7309G52	IBM System Networking RackSwitch G8052R
730952F	IBM System Networking RackSwitch G8052F
427348E	IBM Ethernet Switch J48E
6630010	Juniper Networks EX2200 24 Port
6630011	Juniper Networks EX2200 24 Port with PoE
6630012	Juniper Networks EX2200 48 Port
6630013	Juniper Networks EX2200 48 Port with PoE
IBM System Networking - 10 Gb top-of-rack switches	
7309DRX	IBM System Networking RackSwitch G8264CS (Rear to Front)
7309DFX	IBM System Networking RackSwitch G8264CS (Front to Rear)
7309BD5	IBM System Networking RackSwitch G8124DC
7309BR6	IBM System Networking RackSwitch G8124ER
7309BF7	IBM System Networking RackSwitch G8124EF
7309G64	IBM System Networking RackSwitch G8264R
730964F	IBM System Networking RackSwitch G8264F
7309CR9	IBM System Networking RackSwitch G8264TR
7309CF9	IBM System Networking RackSwitch G8264TF
0719410	Juniper Networks EX4500 - Front to Back Airflow
0719420	Juniper Networks EX4500 - Back to Front Airflow
IBM System Networking - 40 Gb top-of-rack switches	
8036ARX	IBM System Networking RackSwitch G8316R
8036AFX	IBM System Networking RackSwitch G8316F

For more information, see the list of IBM Redbooks Product Guides in the Top-of-rack switches category: http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=tor

Uninterruptible power supply units

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

Table 24. Uninterruptible power supply units

Part number	Description
Rack-mounted UPS	
21304RX	IBM UPS 10000XHV
53951AX	IBM 1500VA LCD 2U Rack UPS (100V/120V)
53951KX	IBM 1500VA LCD 2U Rack UPS (230V)
53952AX	IBM 2200VA LCD 2U Rack UPS (100V/120V)
53952KX	IBM 2200VA LCD 2U Rack UPS (230V)
53953AX	IBM 3000VA LCD 3U Rack UPS (100 V/120 V)
53953JX	IBM 3000VA LCD 3U Rack UPS (200 V/208 V)
53956AX	IBM 6000VA LCD 4U Rack UPS (200 V/208 V)
53956KX	IBM 6000VA LCD 4U Rack UPS (230 V)

For more information, see the list of IBM Redbooks Product Guides in the Power infrastructure category: http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=power

Power distribution units

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

Table 25. Power distribution units

Part number	Description
Switched and Monitored PDUs	
46M4002	IBM 1U 9 C19/3 C13 Active Energy Manager DPI® PDU
46M4003	IBM 1U 9 C19/3 C13 Active Energy Manager 60A 3 Phase PDU
46M4004	IBM 1U 12 C13 Active Energy Manager DPI PDU
46M4005	IBM 1U 12 C13 Active Energy Manager 60A 3 Phase PDU
46M4167	IBM 1U 9 C19/3 C13 Switched and Monitored 30A 3 Phase PDU
46M4116	IBM 0U 24 C13 Switched and Monitored 30A PDU
46M4119	IBM 0U 24 C13 Switched and Monitored 32A PDU
46M4134	IBM 0U 12 C19/12 C13 Switched and Monitored 50A 3 Phase PDU
46M4137	IBM 0U 12 C19/12 C13 Switched and Monitored 32A 3 Phase PDU
Enterprise PDUs	
71762MX	IBM Ultra Density Enterprise PDU C19 PDU+ (WW)
71762NX	IBM Ultra Density Enterprise PDU C19 PDU (WW)
71763MU	IBM Ultra Density Enterprise PDU C19 3 phase 60A PDU+ (NA)
71763NU	IBM Ultra Density Enterprise PDU C19 3 phase 60A PDU (NA)
39M2816	IBM 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	IBM 0U 24 C13 16A 3 Phase PDU
46M4125	IBM 0U 24 C13 30A 3 Phase PDU
46M4128	IBM 0U 24 C13 30A PDU
46M4131	IBM 0U 24 C13 32A PDU
46M4140	IBM 0U 12 C19/12 C13 60A 3 Phase PDU
46M4143	IBM 0U 12 C19/12 C13 32A 3 Phase PDU

For more information, see the list of IBM Redbooks Product Guides in the Power infrastructure category:
http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=power

Rack cabinets

The server supports the rack cabinets listed in the following table. Tower-to-Rack Conversion Kit (part number 42C8923, 5Ux20" Tower to Rack Conversion Kit for x3200) is required for the server to be installed in the rack.

Table 26. Rack cabinets

Part number	Description
201886X	IBM 11U Office Enablement Kit
93072PX	IBM 25U Static S2 Standard Rack
93072RX	IBM 25U Standard Rack
14102RX	IBM 25RU standard rack
14104RX	IBM Linux Cluster Rack
93074RX	IBM 42U Standard Rack
93074XX	IBM 42U Standard Rack Extension
93084EX	IBM 42U Enterprise Expansion Rack
93084PX	IBM 42U Enterprise Rack
93604EX	IBM 42U 1200 mm Deep Dynamic Expansion Rack
93604PX	IBM 42U 1200 mm Deep Dynamic Rack
93614EX	IBM 42U 1200 mm Deep Static Expansion Rack
93614PX	IBM 42U 1200 mm Deep Static Rack
93624EX	IBM 47U 1200 mm Deep Static Expansion Rack
93624PX	IBM 47U 1200 mm Deep Static Rack

For more information, see the list of IBM Redbooks Product Guides in the Rack cabinets and options category:
http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=rack

Rack options

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

Table 27. Rack options

Part number	Description
Monitor kits and keyboard trays	
172319X	19" 1U Flat Panel Console Kit
17231RX	IBM 1U 17" Flat Panel Console Kit with Optical Drive Bay
172317X	17" 1U Flat Panel Console Kit
17233RX	IBM 1U 15" Flat Panel Console Kit
40K5372	IBM Rack Mountable Keyboard & Pointing Device - 3m Cable - Black - USB - US English 103P
40K9584	IBM Preferred Pro Keyboard- Full Width - 2m Cable - Black - USB - US English 103P
40K9200	IBM 2 Button Optical Wheel Mouse - Black - USB
17235RX	IBM Rack Keyboard Tray
Console switches	
1754D2X	IBM Global 4x2x32 Console Manager (GCM32)
1754D1X	IBM Global 2x2x16 Console Manager (GCM16)
1754A2X	IBM Local 2x16 Console Manager (LCM16)
17352GX	IBM Global 2x16 Console Manager
1754A1X	IBM Local 1x8 Console Manager (LCM8)
Console cables	
43V6147	IBM Single Cable USB Conversion Option (UCO)
39M2895	IBM USB Conversion Option (UCO) - 4 Pack
39M2897	IBM Long KVM Conversion Option (KCO) - 4 Pack
46M5383	IBM Virtual Media Conversion Option Gen2 (VCO2)

For more information, see the list of IBM Redbooks Product Guides in the Rack cabinets and options category:
http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=rack

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Related publications and links

For more information see the following documents:

- IBM System x3620 M3 product page
  http://www.ibm.com/systems/x/hardware/rack/x3620m3/index.html
- *Installation and User's Guide - IBM System x3620 M3 (7376)*
  http://ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5084233
- *Problem Determination and Service Guide - IBM System x3620 M3 (7376)*
  http://ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5084234
- ServerProven hardware compatibility page for the x3620 M3
  http://www.ibm.com/systems/info/x86servers/serverproven/compat/us/xseries/7376.html
- Product Guides for IBM System x options
  http://www.redbooks.ibm.com/portals/systemx?Open&page=pg
- *IBM System x® Configuration and Options Guide*
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Related product families

Product families related to this document are the following:

- 2-Socket Rack Servers

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