

IBM System x3500 M4 tower servers feature fast 4C, 6C, and 8C Intel Xeon processors with QPI and 10 MB, 15 MB, or 20 MB cache for enhanced performance and scalability

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At a glance



IBM® System x3500 M4 servers feature:

- A 1.86 GHz/6.4 GTS-10 MB 4C Intel™ E5-2603, a 2.4 GHz/6.4 GTS-10 MB 4C E5-2609, a 2.0 GHz/7.2 GTS-15 MB 6C E5-2620, a 2.3 GHz/7.2 GTS-15 MB 6C E5-2630, a 2.5 GHz/7.2 GTS-15 MB 6C E5-2640, a 2.0 GHz/8.0 GTS-20 MB 8C E5-2650, a 2.6 GHz/8.0 GTS-20 MB 8C E5-2670, or a 2.7 GHz/8.0 GTS-20 MB 8C E5-2680 Intel Xeon™ processor data bus to the system with two QPI links.
- 4 or 8 GB of 1333 MHz DDR3 ECC system memory¹; 384 GB maximum or 768 GB maximum when 32 GB DIMMs available.
- Eight port SAS/SATA with RAID controller.
- One hot-swap 750-watt power supply fitted standard; one hot-swap 900-watt redundant power supply on G2, H2, and J2 models standard.
- Integrated management module (IMM2).
- Six PCI-Express card slots standard, two more PCI-Express card slots with dual processors, and one optional PCI-X card slot via interposer card.
- Support for up to thirty-two 2.5-inch drives plus one standard optical drive and one optional half-height tape drive or up to eight 3.5-inch drives plus one standard optical drive and one optional half-height tape drive.
- Up to 32 TB² with 1 TB 2.5-inch HS NL SFF SAS/SATA disk storage.

- Quad Intel I350AM4 integrated Gigabit Ethernet controllers.
- SVGA video with 16 MB memory shared.
- Support for optional Remote Presence function.
- 5U tower industry-standard models, rack mount via special bid or option.
- Two USB front and four USB rear ports, two USB internal port, one d-sub connector, five 10/100/1000 RJ45 ports, one serial port.

Overview

The System x3500 M4 servers include:

- Quickpath Interconnect (QPI) support for 6.4, 7.2, and 8.0 Gigabit transfers per second (GTS), two links
- Two simple-swap fans standard with single processor or three simple-swap fans standard with dual processors. Optional redundant cooling option and power supplies are available.
- Six PCI-Express card slots standard, two more PCI-Express card slots with dual processors, and one optional PCI-X card slot via interposer card.
- Integrated quad Gigabit Ethernet and standard RAID -0, -1, -10 (upgradeable), or RAID 0, -1, -1E, -5, -10, and -50, with PCI-E adapter.
- Optional RAID 6 or 60 using feature on demand.
- DDR3 ECC DIMMs, combined with an integrated ECC memory controller in core logic that corrects many soft and hard single-bit memory errors and minimizes disruption of service to LAN clients.
- Integrated management module (IMM2) with optional Remote Presence function.
- Light path diagnostics with a light path panel visible at front of chassis.

Powered and scaled for business growth

- These servers contain one of the following:
 - A 1.86 GHz/6.4 GTS-10 MB 4C Intel E5-2603, a 2.4 GHz/6.4 GTS-10 MB 4C E5-2609, a 2.0 GHz/7.2 GTS-15 MB 6C E5-2620, a 2.3 GHz/7.2 GTS-15 MB 6C E5-2630, a 2.5 GHz/7.2 GTS-15 MB 6C E5-2640, a 2.0 GHz/8.0 GTS-20 MB 8C E5-2650, a 2.6 GHz/8.0 GTS-20 MB 8C E5-2670, or a 2.7 GHz/8.0 GTS-20 MB 8C E5-2680 Intel Xeon processor data bus to the system.
- Either a 800 MHz, 1066 MHz, 1333 MHz, or 1600 MHz functional speed processor operations to memory
- 4 GB or 8 GB of high-speed, DDR3 - 1333 MHz ECC memory¹, 384 GB maximum using 16 GB memory DIMMs⁶, or 768 GB maximum using 32 GB memory DIMMs⁷
- High-speed, wide-bandwidth slots: Six PCI-Express card slots with single processor, two more PCI-Express card slots with dual processors and one optional PCI-X card slot via interposer card
- Quad port Intel I350AM4 Gigabit Ethernet ports and SAS or SATA support
- Standard SATA DVD-ROM and tape drive bay
- Eight standard SFF hot-swap drive bays and up to thirty-two 2.5-inch bays available using upgrade options with total HDD storage capacity of 32 TB, using 1 TB Near-Line SFF SAS/SATA HDD options

High availability for around-the-clock business demands

- Integrated systems management (IMM2) and support for the optional Remote Presence function
- Wake on LAN
- ECC memory to detect double-bit errors and correct single-bit errors
- Integrated memory mirroring and sparing

Service and support perfected for business needs

- ServerGuide and IBM Director
- IBM Server support and web support³
- Three-year, customer replaceable unit (CRU) and on-site service⁴, limited warranty⁵; optional warranty service upgrades available

Note: For configurations that support the RAID Battery, the RAID battery will be warranted for one year effective on its "Date of Installation." All other product warranty terms for the machine remain unchanged.

Emulex 10 GbE Virtual Fabric Adapter III for IBM System x®

The Emulex 10 GbE Virtual Fabric Adapter III for IBM System x (95Y3762) is a high-performance, dual-port network adapter for 10 Gb Ethernet (10 GbE) networks. It is available as an optional 10 GbE adapter for selected IBM System x models. The Emulex 10 GbE Virtual Fabric Adapter III offers the benefits and flexibility of I/O convergence with a single end-to-end solution.

Features and benefits:

- **10 Gb Performance:** The Emulex 10 GbE Virtual Fabric Adapter III for IBM System x achieves line rate 10 Gbps performance with support for TCP/IP stateless offloads and TCP Chimney Offload. TCP Chimney Offload reduces system processor utilization, provides increased system performance and reduces overall system power requirements.
- **Optimized for virtualization:** The Emulex 10 GbE Virtual Fabric Adapter III for IBM System x offers the benefits and flexibility of an exclusive enhanced virtual NIC (vNIC) function, which enables bidirectional bandwidth management, dynamic bandwidth allocation and I/O convergence in a single end-to-end solution in partnership with IBM's networking division. Each port on the 10 GbE Virtual Fabric Adapter III card can support up to four vNICs per physical port.
- **Integration of Emulex and IBM technology:** The Emulex 10 GbE Virtual Fabric Adapter III for IBM System x is an option adapter with integrated 10 GbE technology for an IBM System x server.
- **Greener data centers:** The Emulex OneConnect UCNA platform delivers industry-leading performance and scalability per watt, reducing requirements for power and cooling. Protocol offload enables efficient use of computing resources, supports more VMs per CPU, and reduces the number of servers required to support data center demands.

¹ DDR3 1333 RDIMM memory. DDR3 memory stands for double data rate, which means up to twice the data is transferred compared to SDRAM in the same clock cycle.

² When referring to HDD or tape backup capacity, GB stands for 1,000,000,000 bytes and TB stands for 1,000,000,000,000 bytes. User capacity may vary depending on operating environments.

³ Some programs may not be available in all countries.

⁴ With respect to on-site service, you may be asked certain diagnostic questions before a technician is sent.

⁵ For information on the IBM Statement of Limited Warranty, contact your IBM representative or reseller. Copies are available upon request.

⁶ Twenty-four DIMM slots that enable you to deploy up to 384 GB of DDR3 SDRAM Registered DIMM memory, with 24 slots populated with 16 GB DIMMs optional, 4 GB memory standard.

Key prerequisites

- Monitor

The following option requires an IBM System x supported server.

Emulex 10 GbE Virtual Fabric Adapter III (95Y3762)

Planned availability date

- March 16, 2012: System x3500 M4 - 7383
- March 16, 2012: Emulex 10 GbE Virtual Fabric III Adapter - 95Y3762

Description

Related options

IBM memory options

- 4GB (1x4GB, 2Rx8, 1.5V) PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM (90Y3178)
- 8GB (2Rx4 2Gbit PC3L-10600R LP RDIMM 1.35V Capable (49Y1397)

IBM processor options

- Intel Xeon Processor E5-2690 8C 2.9GHz 20MB Cache 1600MHz (94Y7343) 135W
- Intel Xeon Processor E5-2680 8C 2.7GHz 20MB Cache 1600MHz (90Y5950) 130W
- Intel Xeon Processor E5-2670 8C 2.6GHz 20MB Cache 1600MHz (90Y5955) 115W
- Intel Xeon Processor E5-2667 6C 2.9GHz 15MB Cache 1600MHz (90Y5951) 130W
- Intel Xeon Processor E5-2665 8C 2.4GHz 20MB Cache 1600MHz (94Y7442) 115W
- Intel Xeon Processor E5-2660 8C 2.2GHz 20MB Cache 1600MHz (90Y5949) 95W
- Intel Xeon Processor E5-2650 8C 2.0GHz 20MB Cache 1600MHz (90Y5948) 95W
- Intel Xeon Processor E5-2643 4C 3.3GHz 10MB Cache 1600MHz (94Y7341) 130W
- Intel Xeon Processor E5-2637 2C 3.0GHz 5MB Cache 1600MHz (94Y7342) 80w
- Intel Xeon Processor E5-2640 6C 2.5GHz 15MB Cache 1333MHz (90Y5947) 95W
- Intel Xeon Processor E5-2630 6C 2.3GHz 15MB Cache 1333MHz (90Y5946) 95W
- Intel Xeon Processor E5-2620 6C 2.0GHz 15MB Cache 1333MHz (90Y5945) 95W
- Intel Xeon Processor E5-2609 4C 2.4GHz 10MB Cache 1066MHz (90Y5944) 80W
- Intel Xeon Processor E5-2603 4C 1.8GHz 10MB Cache 1066MHz (90Y5942) 80W
- Intel Xeon Processor E5-2650L 8C 1.8GHz 20MB Cache 1600MHz (90Y5954) 70W
- Intel Xeon Processor E5-2630L 6C 2.0GHz 15MB Cache 1333MHz (90Y5953) 60W

These 4C, 6C, and 8C processors are ideal for data-intensive applications that range from data mining to evolving web services. Innovative technologies deliver processing speeds of up to 2.7 GHz/8.0 GTS with performance headroom for unpredictable server workloads and escalating computing needs.

Intel Xeon processors with 10 MB, 15 MB, or 20 MB cache feature Intel Turbo Boost 2.0 Technology that provides maximum turbo mode duration and speed to improved power and thermal management. The new intelligent performance processors adapts to software workload environment, delivering more computing power when need it. The new Intel Integrated I/O integrates PCIe adaptors into the processor for lower latency and power while growing total capacity and bandwidth.

These enhancements add up to faster response times, support for more simultaneous users, and increased transaction workloads.

These Intel DP processors with Quickpath Interconnect (QPI), with two links, support SMP applications when installed in the second processor slot of all System x3500 M4 models with similar processors.

Note: DDR3 ECC DIMMs, combined with an integrated ECC memory controller, correct many soft and hard single-bit memory errors, and minimize disruption of service to LAN clients. Chipkill distributes information covered by error correction coding across separate memory chips, so if any of the chips fail, the data can still be reconstructed from the remaining chips, and the system can continue running.

Increased processor performance coupled with DDR memory enables you to retrieve and process information faster and more efficiently. DDR memory executes twice the number of operations per cycle than traditional SDRAM memory, effectively doubling the data exchange rate between memory and processors.

ServeRAID controllers supported

- 46M0907 IBM 6Gb SAS HBA Controller
- 81Y4448 ServeRAID M1115 SAS/SATA Controller for System x
- 81Y4481 ServeRAID M5110 SAS/SATA Controller for IBM System x
- 81Y4484 ServeRAID M5100 Series 512MB Cache/RAID 5 Upgrade for IBM System x
- 81Y4487 ServeRAID M5100 Series 512MB Flash/RAID 5 Upgrade for IBM System x
- 81Y4508 ServeRAID M5100 Series Battery Kit for IBM System x
- 81Y4542 ServeRAID M1100 Series Zero Cache/RAID 5 Upgrade for IBM System x
- 81Y4544 ServeRAID M5100 Series Zero Cache/RAID 5 Upgrade for IBM System x
- 81Y4546 ServeRAID M5100 Series RAID 6 Upgrade for IBM System x
- 81Y4559 ServeRAID M5100 Series 1GB Flash/RAID Upgrade for IBM System x

IBM support options

- Tower to Rack Conversion Kit (81Y7006)
- PCI-X interposer conversion kit (81Y7012)
- Additional 8 x 2.5" Hot-Swap SAS/SATA Upgrade Kit for 16 or 24 HDDs (94Y5978)
- Additional 8 x 2.5" Hot-Swap SAS/SATA Upgrade Kit for 32 HDDs (81Y7010)
- Redundant Cooling Upgrade Kit (81Y7007)
- IBM System x 900W High Efficiency Platinum AC Power Supply (94Y5973)
- IBM System x 750W High Efficiency Platinum AC Power Supply (94Y5974)
- SAS cable option for Two RAID array (RAID adapter not included) (00D2607)

IBM Redundant Power and Cooling Option

The redundant power supplies are designed to supply power for all systems.

High-performance server subsystems

System x3500 M4 servers are high-throughput, two-way, SMP-capable network servers with excellent performance scalability when you add memory and a second processor. They incorporate powerful Intel Xeon processors with 10 MB, 15 MB or 20 MB cache, model dependent. These flip-chip, land grid array 6 (FC-LGA6) processors feature advanced transfer caches integrated onto the processor core and run at the same clock speed as the processor core.

Three processor connectors are standard on the system board to support installation of a second processor. High-speed, 1333 MHz DDR3 RDIMMs are optimized for 1333 MHz processor-to-memory subsystem performance. The System x3500 M4 server uses the Intel Patsburg chipset-C600 to maximize throughput from processor to memory and system I/O buses.

Standard System x3500 M4 configurations

Model	Processor	Cache	Memory	SAS Interface	Mechanical
7383-A2x	1.8 GHz/6.4 GTS	10 MB	4 GB	HS SFF SAS/SATA	Tower
7383-B2x	2.4 GHz/6.4 GTS	10 MB	4 GB	HS SFF SAS/SATA	Tower
7383-C2x	2.0 GHz/7.2 GTS	15 MB	8 GB	HS SFF SAS/SATA	Tower
7383-C4x	2.0 GHz/7.2 GTS	15 MB	8 GB	HS LFF SATA	Tower
7383-D2x	2.3 GHz/7.2 GTS	15 MB	8 GB	HS SFF SAS/SATA	Tower
7383-F2x	2.5 GHz/7.2 GTS	15 MB	8 GB	HS SFF SAS/SATA	Tower
7383-G2x	2.0 GHz/8.0 GTS	20 MB	8 GB	HS SFF SAS/SATA	Tower
7383-H2x	2.6 GHz/8.0 GTS	20 MB	8 GB	HS SFF SAS/SATA	Tower
7383-J2x	2.7 GHz/8.0 GTS	20 MB	8 GB	HS SFF SAS/SATA	Tower

Note: For EMEA x=G

Additional features:

- Ability to upgrade to two-way processing by adding a second processor of the same speed and processor type
- System board that contains 12 DIMM connectors and CPU expansion board contains 12 DIMM connectors supporting 2 GB, 4 GB, 8 GB, 16 GB, or 32 GB 1066 MHz, 1333 MHz, or 1600 MHz DDR3 memory, model dependent
 - Up to 384 GB of system memory with 16 GB memory RDIMMs installed or up to 768 GB system memory with 32 GB memory LFF DIMMs installed (when available)
- High-speed, wide-bandwidth, PCI-E and PCI bus slots support
 - Slot 1 : PCIe2 x8 : PCI-E x8 slot with x4 lanes (Gen2, from PCH)
 - Slot 2 : PCIe3 x8 : PCI-E x8 slot with x8 lanes (Gen3, from Processor 0)
 - Slot 3 : PCIe3 x8 : PCI-E x8 slot with x8 lanes (Gen3, from Processor 0)
 - Slot 4 : PCIe3 x8 : PCI-E x8 slot with x4 lanes (Gen3, from Processor 0)
 - Slot 5 : PCIe3 x16 : PCI-E x16 slot with x16 lanes (Gen3, from Processor 0)
 - Slot 6 : PCIe3 x8 : PCI-E x8 slot with x4 lanes (Gen3, from Processor 0)
 - Slot 7 : PCIe3 x16 : PCI-E x16 slot with x16 lanes (Gen3, from Processor 1)
 - Slot 8 : PCIe3 x16 : PCI-E x16 slot with x16 lanes (Gen3, from Processor 1)
- Eight-port SAS/SATA RAID controller that supports high-speed internal storage solutions
- Quad port Gigabit Ethernet controllers that speed network communications to LAN clients

The x3500 M4 subsystems are tuned to provide solid system throughput from processor, to memory, to bus, to disk-intensive I/O. These features, combined with SMP capability, make the System x3500 M4 server an excellent choice for a stand-alone or clustered business-critical application, storage, file, and print server.

High-availability and serviceability features

- Redundant cooling includes:
 - Three simple-swap fans (single replaceable unit)
- One hot-swap power supply standard, and one optional redundant power supply to support robust high-availability applications
- Hot-swap HDD bays with SAS/SATA backplane
- Standard SAS controller to support up to eight internal hot-swap SATA or SAS HDD devices

- DDR3 ECC RDIMMs, combined with an integrated ECC memory controller in core logic, to correct many soft and hard single-bit memory errors (using memory mirroring), while minimizing disruption of services to LAN clients
- Memory hardware scrubbing to correct soft memory errors automatically without software intervention
- 10 MB, 15 MB, and 20 MB cache processors to improve data integrity and help reduce downtime
- PFA on processors and memory to help alert the system administrator of an imminent component failure
- Up to six simple-swap redundant system cooling fans to cool system
- Integrated management module (IMM2) that supports:
 - Fan monitoring and control
 - Power supply monitoring
 - Temperature monitoring
 - Voltage monitoring
 - Power on/off, reset sequencing
 - LED controls (light path diagnostics support)
 - IPMI capability that allows you to accept commands and send status
 - Remote firmware update
 - Automatic server restart (ASR)⁹
 - Numeric error logging
- Information LED panel to give visual indications of system health
- Light path diagnostics and onboard diagnostics for an LED map that provides error codes (which are explained in the hardware maintenance manual)
- Easy access to system board, adapter cards, processor, and memory
- CPU failure recovery in SMP configurations
 - Generates alerts error logs

⁹ The ASR function is currently supported on Microsoft[™] Windows[™] 2000 and Windows 2003.

Expandability and growth

The System x3500 M4 server is a 5U tower configuration engineered to meet the compactness of a 5U rack drawer. SVGA video, SAS/SATA, and full-duplex Gigabit Ethernet are integrated on the system board.

Features include:

- System memory expansion to 384 GB with 16 GB memory RDIMMs installed in 24 DIMM slots or 768 GB (with 32 GB Memory LRDIMMs installed in 24 DIMM slots (when 32 GB DIMMs available)
- Six PCI-E slots with single processor, two more PCI-Express slots with dual processors and one optional PCI-X card slot via interposer card
- Up to 32 drive bays plus two 5.25 inch, half-high device bays:
 - Eight 2.5-inch, hot-swap drive bays; two 5.25-inch, half-high device bays standard on the C4x model
 - Optional HDD upgrade kits available to increase the number of storage devices from eight to sixteen, to twenty-four, or to thirty-two 2.5-inch hot-swap drive bays
 - Internal support for high performance (up to 15,000 rpm) for up to eight SAS HDDs and a high-capacity half-height tape backup device
 - Up to 32 TB, using 1 TB 2.5-inch NL SFF SAS/SATA hot-swap HDDs²

These servers can handle applications for today and expand for future growth.

² When referring to HDD or tape backup capacity, GB stands for 1,000,000,000 bytes and TB stands for 1,000,000,000,000 bytes. User capacity may vary depending on operating environments.

Systems management

Integrated management module controller (IMM2)

The System x3500 M4 server includes an integrated management module controller that provides industry-standard Intelligent Platform Management Interface (IPMI) 2.0-compliant systems management. The IMM2 comes standard, and has a dedicated onboard Ethernet port for access. IMM2 can be accessed using software that is compatible with IPMI 2.0 (such as xCAT).

- Features and benefits
 - Monitoring of system and CMOS battery voltages.
 - Monitoring of system temperatures.
 - Fan speed control.
 - Fan tachometer monitor.
 - Power good signal monitor.
 - System ID and planar version detection.
 - System power control.
 - System reset control.
 - NMI and SMI detection and generation (System Interrupts).
 - Serial port text console redirection.
 - System LED control (power, HDD, activity, alerts, and heartbeat).
 - An embedded web server gives you remote control from any standard web browser. No additional software is required on the remote administrator's workstation.
 - For users who are accustomed to a command-line interface (CLI), the ability for the administrator to use the CLI from a Telnet session to perform some of the functions that can be performed from the web server.
 - Secure Sockets Layer (SSL) and Lightweight Directory Access Protocol (LDAP).
 - Built-in LAN and serial connectivity that supports virtually any network infrastructure.
 - Multiple alerting functions that warn systems administrators of potential problems through email, IPMI PETS, and SNMP.

IBM Director

x3500 M4 servers feature IBM Director, a powerful, highly integrated systems management software solution built on industry standards and designed for ease of use. Exploit your existing enterprise or workgroup management environments and use rich security features to access and manage physically dispersed IT assets more efficiently over the Internet.

Potentially reduce costs through:

- Reduced downtime
- Increased productivity of IT personnel and end users
- Reduced service and support costs

IBM Director provides integration into leading workgroup and enterprise systems management environments, via upward integration modules. The advanced management capabilities built into System x servers can be accessed from:

- Tivoli® Enterprise and Tivoli NetView®
- Computer Associates CA Unicenter TNG Framework

- NetIQ
- IMM Patrol
- Microsoft SMS
- Intel LANDesk Management Suite
- HP OpenView Network Node Manager

IT administrators can view the hardware configuration of remote systems in detail and monitor the usage and performance of critical components such as processors, HDDs, and memory.

IBM Director includes IBM Director Extensions, a portfolio of server tools that integrate into the Director framework and work with the integrated systems management processor to access environmental system information.

The processor supervises the operating system status and the following system components, and alerts the IT administrator to critical errors:

- Fan monitoring and control; status and presence are monitored. Fan speed is controlled and automatically increased to maintain system cooling if temperature thresholds are exceeded. An alert is generated if:
 - Failure occurs or is predicted.
 - Installation or removal occurs.
- Power supply condition changes for the power supply.
 - CPU temperatures are monitored. An alert is generated if (preset) temperature warning thresholds are exceeded or restored, and if critical temperature thresholds are exceeded. Soft and hard system shutdowns are automatically initiated if critical temperature thresholds are exceeded.
 - CPU and power subsystem voltage thresholds are monitored.
 - Light path diagnostics LEDs are illuminated in case of key component errors or failures to enable quick local diagnostics and servicing.
 - Flash update enables updates to the integrated systems management processor firmware.

The IT administrator has comprehensive, virtual on-site control of System x servers and can remotely:

- Access the server regardless of the status
- Inventory and often display detailed system and component information
- View server bootup during POST
- Browse and delete logs of events and errors
- Reset or power cycle the server
- Run diagnostics, SAS/SATA setup, and RAID setup during POST
- Monitor thresholds on server health, including:
 - Operating system load
 - POST time-out
 - Voltage
 - Temperature
- Set proactive alerts for critical server events, including PFA on:
 - Processors
 - Memory
- Define automated actions, such as:
 - Send email or a page to an administrator
 - Execute a command or program
 - Deliver an error message to the Director console
- Monitor flash BIOS

- Monitor and graph the utilization of server resources, such as:
 - Memory
 - Processor
 - HDDs
- Identify potential performance bottlenecks and react to prevent down time
- Monitor, manage, and configure RAID subsystems without taking them offline

Advanced Configuration and Power Interface (ACPI)

This open industry specification defines a flexible and extensible hardware interface for the system board. Software designers use this specification to integrate power management features throughout a computer system, including hardware, the operating system, and application software. This integration enables Windows to determine which applications are active, and handles all of the power management resources for computer subsystems and peripherals.

World-class support tools and programs

The System x3500 M4 server includes tools and programs designed to make ownership a positive experience. From the start, IBM programs help you purchase servers, get them running, and keep them running. IBM can help your company maintain ownership of technology leadership network servers.

- Warranty: Three years, customer replaceable unit (CRU) and on-site service, limited warranty; optional warranty service upgrades available.
- The ServerProven®¹⁰ program enables you to configure your server confidently with various devices and operating systems. This web-based program provides compatibility information from actual testing of the System x3500 M4 servers server with various adapters and devices.
- The ServerGuide CD includes utilities and drivers for assisted installation of popular network operating systems. Also included is a Broadcom Ethernet CD.
- Electronic support on the web provides additional support in an easy-to-use format.

¹⁰IBM makes no warranties, expressed or implied, regarding non-IBM products and services that are ServerProven, including but not limited to implied warranties of merchantability and fitness for a particular purpose. These products are offered and warranted solely by third parties.

Emulex 10 GbE VFA III adapter

The Emulex 10 GbE Virtual Fabric Adapter III for IBM System x is a high-performance, dual-port network adapter for 10 Gb Ethernet (10 GbE) networks. IT is available as an optional 10 GbE adapter. They are integrated 10 GbE technology for select IBM System x models.

Features:

- 10 Gb performance
- One adapter to manage all workloads
- Optimized for virtualization
- Integration of Emulex and IBM technology
- Greener data centers

Product positioning

The System x3500 M4 server is positioned above the entry, two-way x3500 M3. These servers contain additional fault tolerance through PCI-Express, and support

for PCI-X. They also feature enhanced systems-management control. As universal servers, they are offered in flexible tower models and can be rack-mounted using a tower-to-rack conversion kit.

With these servers, two segments can be combined into one departmental and mission-critical space. The System x3500 M4 server is a compact 5U, two-way, SMP-capable Xeon processor-based platform designed with integrated high-availability features for mainstream network and storage server applications.

These servers are ideal for clients who require up to two-way 2.9 GHz/8.0 GTS processing power, significant memory, high availability, and large data storage scalability. High-speed memory, up to thirty-two SAS/SATA hot-swap drive bays, and a device bay for high-capacity tape drives make these servers ideal for mainstream network and storage computing.

Emulex 10 GbE VFA III adapter supports the IBM System x3500 M4 systems.

Product number

Description	Part Number
Emulex 10 GbE Virtual Fabric Adapter III for IBM System x	95Y3762
4GB (1x4GB, 2Rx8, 1.5V) PC3-12800 CL11 ECC DDR3 1600MHZ LP RDIMM	90Y3178
Intel Xeon Processor E5-2690 8C 2.9GHZ 20MB Cache 1600MHZ 135W	94Y7343
Intel Xeon Processor E5-2680 8C 2.7GHZ 20MB Cache 1600MHZ 130W	90Y5950
Intel Xeon Processor E5-2670 8C 2.6GHZ 20MB Cache 1600MHZ 115W	90Y5955
Intel Xeon Processor E5-2667 6C 2.9GHZ 15MB Cache 1600MHZ 130W	90Y5951
Intel Xeon Processor E5-2665 8C 2.4GHZ 20MB Cache 1600MHZ 115W	94Y7442
Intel Xeon Processor E5-2660 8C 2.2GHZ 20MB Cache 1600MHZ 95W	90Y5949
Intel Xeon Processor E5-2650 8C 2.0GHZ 20MB Cache 1600MHZ 95W	90Y5948
Intel Xeon Processor E5-2643 4C 3.3GHZ 10MB Cache 1600MHZ 130W	94Y7341
Intel Xeon Processor E5-2637 2C 3.0GHZ 5MB Cache 1600MHZ 80W	94Y7342
Intel Xeon Processor E5-2640 6C 2.5GHZ 15MB Cache 1333MHZ 95W	90Y5947
Intel Xeon Processor E5-2630 6C 2.3GHZ 15MB Cache 1333MHZ 95W	90Y5946
Intel Xeon Processor E5-2620 6C 2.0GHZ 15MB Cache 1333MHZ 95W	90Y5945
Intel Xeon Processor E5-2609 4C 2.4GHZ 10MB Cache 1066MHZ 80W	90Y5944
Intel Xeon Processor E5-2603 4C 1.8GHZ 10MB Cache 1066MHZ 80W	90Y5942
Intel Xeon Processor E5-2650L 8C 1.8GHZ 20MB Cache 1600MHZ 70W	90Y5954
Intel Xeon Processor E5-2630L 6C 2.0GHZ 15MB Cache 1333MHZ 60W	90Y5953
Tower to Rack Conversion Kit	81Y7006
PCI-X interposer conversion kit	81Y7012
Additional 8 x 2.5" Hot-Swap SAS/SATA Upgrade Kit for 16 or 24 HDDs	94Y5978
Additional 8 x 2.5" Hot-Swap SAS/SATA Upgrade Kit for 32 HDDs	81Y7010

Redundant Cooling Upgrade Kit	81Y7007
IBM System x 900W High Efficiency Platinum AC Power Supply	94Y5973
IBM System x 750W High Efficiency Platinum AC Power Supply	94Y5974
SAS cable option for Two RAID array (RAID adapter not included)	00D2607

The following are Pseudo Options.

Emulex Dual Port 10GbE SFP+ Integrated VFA III for IBM System x	95Y3769
x3500 M4 SW GBM	94Y6419
2.5" DASD Cover	94Y6420
Label GBM	94Y6421
CFF PSU Filler	94Y6423
2.5" SFF Rack Filler (x8)	94Y6428
2.5" SFF Rack Partition Filler (x8)	94Y6429
3.5" LFF Rack Filler (x8)	94Y6430
SAS cable upgrade kit for Two RAID array (RAID adapter not included)	94Y6431
Combination DASD Cover	94Y6432
Power Converter Cable for VGA	94Y6469
Backplane cable for 2.5" and 3.5" intermix models	94Y7344
Tower Packaging - WW	94Y6416
Rack Packaging - WW	94Y6417
System Documentation and Software-US English	94Y6436
System Documentation and Software-Japanese	94Y6438
System Documentation and Software-Japan English	94Y6439
System Documentation and Software-Korean	94Y6440
System Documentation and Software-Simplified Chinese (China)	94Y6441
System Documentation and Software-Traditional Chinese (Taiwan)	94Y6442
System Documentation and Software-Korea (English)	94Y6445
System Documentation and Software-Traditional Chinese (Hong Kong)	94Y6446
Windows Storage Server 2008 R2 Std - Japanese (factory installed)	46M4999
x3500 M4 Planar	94Y6415
3.5" SATA Simple Swap	94Y6447
2.5" Hot Swap SAS/SATA for 8 and 32 HDDs	94Y6448
2.5" Hot Swap SAS/SATA for 16 and 24 HDDs	94Y6449
3.5" Hot Swap SAS/SATA	94Y6450
3.5" Hard Drive Cage Asm	94Y6451
Lightpath Diagnostic	94Y6452
2.5" Hard Drive Cage Assembly for more than 8 HDDs	94Y6453
Tower Bezel	94Y6454
Intel Xeon Processor E5-2603 4C 1.8GHz 10MB Cache 1066MHz 80W	94Y6455
Intel Xeon Processor E5-2609 4C 2.4GHz 10MB Cache 1066MHz 80W	94Y6457
Intel Xeon Processor E5-2620 6C 2.0GHz 15MB Cache 1333MHz 95W	94Y6458
Intel Xeon Processor E5-2630 6C 2.3GHz 15MB Cache 1333MHz 95W	94Y6459
Intel Xeon Processor E5-2640 6C 2.5GHz 15MB Cache 1333MHz 95W	94Y6460
Intel Xeon Processor E5-2650 8C 2.0GHz 20MB Cache 1600MHz 95W	94Y6461
Intel Xeon Processor E5-2660 8C 2.2GHz 20MB Cache 1600MHz 95W	94Y6462
Intel Xeon Processor E5-2680 8C 2.7GHz 20MB Cache 1600MHz 130W	94Y6463
Intel Xeon Processor E5-2667 6C 2.9GHz 15MB Cache 1600MHz 130W	94Y6464
Intel Xeon Processor E5-2630L 6C 2.0GHz 15MB Cache 1333MHz 60W	94Y6466
Intel Xeon Processor E5-2650L 8C 1.8GHz 20MB Cache 1600MHz 70W	94Y6467
Intel Xeon Processor E5-2670 8C 2.6GHz 20MB Cache 1600MHz 115W	94Y6468
Intel Xeon Processor E5-2643 4C 3.3GHz 10MB Cache 1600MHz 130W	94Y7345
Intel Xeon Processor E5-2637 2C 3.0GHz 5MB Cache 1600MHz 80W	94Y7346
Intel Xeon Processor E5-2690 8C 2.9GHz 20MB Cache 1600MHz 135W	94Y7347
Intel Xeon Processor E5-2665 8C 2.4GHz 20MB Cache 1600MHz 115W	94Y7443
Optical Device Filler	00D4482
Tape Device Bracket Retainer Asm	00D4483
NVIDIA Quadro 6000	00D4484
Primary Array 29 HDDs	59Y8078
Primary Array 30 HDDs	59Y8080
Primary Array 31 HDDs	59Y8082
Primary Array 32 HDDs	59Y8084
Secondary Array 27 HDDs	59Y8110
Secondary Array 28 HDDs	59Y8112

Secondary Array 29 HDDs	59Y8114
Secondary Array 30 HDDs	59Y8116
2.5" Backplane Configuration Cable	94Y6549

Notes:

- All geographies except EMEA use the combined machine type/model number as the ordering number.
- All models are GAV except some AP models.

Starting Point Models as follows:

Description	Machine	Model	Part number
IBM System x3500 M4	7383	FT1	7383FT1
Description	Machine	Model	Part number

Note: Following models are GAV

System x3500 M4	7383	A2A	7383A2A
		A2B	7383A2B
		A2E	7383A2E
		A2J	7383A2J
		A2K	7383A2K
		A2M	7383A2M
		A2R	7383A2R
		A2V	7383A2V
System x3500 M4	7383	B2A	7383B2A
		B2B	7383B2B
		B2E	7383B2E
		B2J	7383B2J
		B2K	7383B2K
		B2M	7383B2M
		B2R	7383B2R
		B2V	7383B2V
System x3500 M4	7383	C2A	7383C2A
		C2B	7383C2B
		C2E	7383C2E
		C2J	7383C2J
		C2K	7383C2K
		C2M	7383C2M
		C2R	7383C2R
		C2V	7383C2V
System x3500 M4	7383	C4A	7383C4A
		C4B	7383C4B
		C4E	7383C4E
		C4J	7383C4J
		C4K	7383C4K
		C4M	7383C4M
		C4R	7383C4R
		C4V	7383C4V
System x3500 M4	7383	D2A	7383D2A
		D2B	7383D2B
		D2E	7383D2E
		D2J	7383D2J
		D2K	7383D2K
		D2M	7383D2M
		D2R	7383D2R
		D2V	7383D2V
System x3500 M4	7383	F2A	7383F2A
		F2B	7383F2B
		F2E	7383F2E
		F2J	7383F2J
		F2K	7383F2K

		F2M	7383F2M
		F2R	7383F2R
		F2V	7383F2V
System x3500 M4	7383	G2A	7383G2A
		G2B	7383G2B
		G2E	7383G2E
		G2J	7383G2J
		G2K	7383G2K
		G2M	7383G2M
		G2R	7383G2R
		G2V	7383G2V
System x3500 M4	7383	H2A	7383H2A
		H2B	7383H2B
		H2E	7383H2E
		H2J	7383H2J
		H2K	7383H2K
		H2M	7383H2M
		H2R	7383H2R
		H2V	7383H2V
System x3500 M4	7383	J2A	7383J2A
		J2B	7383J2B
		J2E	7383J2E
		J2J	7383J2J
		J2K	7383J2K
		J2M	7383J2M
		J2R	7383J2R
		J2V	7383J2V

Following models are MTM

System x3500 M4	7383	A2C	7383A2C
		A2N	7383A2N
System x3500 M4	7383	B2C	7383B2C
		B2N	7383B2N
System x3500 M4	7383	C2C	7383C2C
		C2N	7383C2N
System x3500 M4	7383	C4C	7383C4C
		C4N	7383C4N
System x3500 M4	7383	D2C	7383D2C
		D2N	7383D2N
System x3500 M4	7383	F2C	7383F2C
		F2N	7383F2N
System x3500 M4	7383	G2C	7383G2C
		G2N	7383G2N
System x3500 M4	7383	H2C	7383H2C
		H2N	7383H2N
System x3500 M4	7383	J2C	7383J2C
		J2N	7383J2N

Note: xxA = Taiwan, Thailand, Laos, Vietnam, India, Nepal,
Philippines, Hong Kong, Indonesia,
Singapore, Brunei, Cambodia,
Malaysia, Myanmar(Burma)(GAV), Sri Lanka (GAV)

xxB = Hong Kong (GAV)	xxN = China (PRC) (MTM)
xxC = China (PRC) (MTM)	xxR = Korea (GAV)
xxE = Japan (GAV)	xxV = Taiwan(GAV)
xxJ = Japan (GAV)	
xxK = Korea (GAV)	
xxM = ANZ (GAV)	

Model conversions

None

Feature conversions

None

Publications

The following publications and CD-ROMs are shipped with the x3500 M4 servers:

- The *System x3500 M4 Installation Guide* contains an introduction to the computer, installation and setup, installing options, reference information, and problem determination. The installation guide has easy-to-use text and pictorials to enable you to quickly set up the System x3500 M4 server.
- ServerGuide CD contains drivers to support the System x3500 M4 servers. In addition, it includes a set of easy-to-use utilities for assisted installation via CD of several popular network operating systems.
- Publications CD and a Broadcom Ethernet Driver CD.
- IBM Director systems management software is included.

Note: Software versions, features, and functions shipped with these systems may change as new releases become available or may be discontinued at any time.

The x3500 M4 Installation Guide and Hardware Maintenance Manual

The IBM Systems Information Center provides you with a single information center where you can access product documentation for IBM systems hardware, operating systems, and server software. Through a consistent framework, you can efficiently find information and personalize your access. The IBM Systems Information Center is at

<http://publib14.boulder.ibm.com/infocenter/systems>

IBM Publications Center Portal

<http://www.ibm.com/shop/publications/order>

The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalog of 70,000 items. Extensive search facilities are provided, as well as payment options via credit card. A large number of publications are available online in various file formats, which can currently be downloaded free of charge.

Supplemental information and publications

- System x3500 M4 Installation Guide
- Documentation CD:
 - Option Installation Guide
 - Installation Guide
 - User's Guide
 - Hardware Maintenance Manual and Troubleshooting Guide

All of these publications are available at

<http://publib14.boulder.ibm.com/infocenter/systems>

Displayable softcopy publications

The product books are offered in displayable softcopy form. The displayable manuals are part of the basic machine-readable material at no charge. The files are shipped on the CD-ROM.

These displayable manuals can be used with the BookManager® READ licensed programs in any of the supported environments. Terms and conditions for use of the machine-readable files are shipped with the files.

Source file publications

The product books are offered in source file form as a no-charge feature. The source files are shipped on the same media type as the basic machine-readable material.

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For details on education offerings related to specific products, visit

<http://www.ibm.com/services/learning/index.html>

Select your country, and then select the product as the category.

Technical information

Specified operating environment

Physical specifications

The x3500 M4

Note:

US, LA, CAN x=U

Brazil x=P

Argentina x=T

EMEA x=G

	7383-A2x	7383-B2x	7383-C2x
Processor	Xeon 4C E5-2603	Xeon 4C E5-2609	Xeon 6C E5-2620
Internal speed	1.8 GHz	2.4 GHz	2.0 GHz
External speed	6.4 GTS	6.4 GTS	7.2 GTS
Number standard	1	1	1
Maximum	2	2	2
L3 cache (full-speed)	10 MB	10 MB	15 MB
Memory (PC3-10600- DDR3-1333)	4 GB ECC 1 x 4 GB 2Gb, 2Rx8, 1.35V No Chipkill	4 GB ECC 1 x 4 GB 2Gb,2Rx8, 1.35V No Chipkill	8 GB ECC 1 x 8 GB 2Gb,2Rx4 1.35V Chipkill
DIMM sockets standard	12	12	12
DIMM sockets maximum	24	24	24
Capacity	384 GB ¹¹	384 GB ¹¹	384 GB ¹¹
Video	SVGA	SVGA	SVGA
memory	16 MB	16 MB	16 MB
SAS/SATA RAID controller	M1115	M1115	M1115
Channels	8	8	8
Connector internal	2	2	2
Connector external	0	0	0
HDD	open-bay	open bay	open bay
Total bays	10	10	10
5.25-in	2	2	2
Hot-swap	8	8	8
Internal capacity	8.0 TB ¹²	8.0 TB ¹²	8.0 TB ¹²
Bays available	9	9	9
5.25 in	1	1	1
Hot-swap	8 ¹²	8 ¹²	8 ¹²
Total PCI slots	6	6	6 ¹⁵
PCI-E Gen3 x16	1	1	1
PCI-E Gen3 x8	4	4	4 ¹⁶
PCI-E Gen2 x8	1	1	1 ¹⁷
Slots available	5	5	5
PCI-E Gen3 x16	1	1	1
PCI-E Gen3 x8	3	3	3
PCI-E Gen2 x8	1	1	1
Integrated management	Standard ¹³	Standard ¹³	Standard ¹³
Ethernet controllers	4x1GB standard	4x1GB standard	4x1GB standard
Half-height SATA DVD	1	1	1
Power supply	750 W ¹⁴	750 W ¹⁴	750 W ¹⁴
Number standard	1	1	1
Hot-swap	Yes	Yes	Yes
Redundant power	Optional	Optional	Optional
	7383-C4x	7383-D2x	7383-F2x
Processor	Xeon 6C E5-2620	Xeon 6C E5-2630	Xeon 6C E5-2640
Internal speed	2.0 GHz	2.3 GHz	2.5 GHz
External speed	7.2 GTS	7.2 GTS	7.2 GTS
Number standard	1	1	1

Maximum	2	2	2
L3 cache (full-speed)	15 MB	15 MB	15 MB
Memory (PC3-10600- VL9 DDR3 1333 MHz	8 GB ECC 1 x 8 GB 2Gb,2Rx4, 1.35V Chipkill	8 GB ECC 1 x 8 GB 2Gb,2Rx4, 1.35V Chipkill	8 GB ECC 1 x 8 GB 2Gb,2Rx4, 1.35V Chipkill
DIMM sockets standard	12	12	12
DIMM sockets maximum	24	24	24
Capacity	384 GB ¹¹	384 GB ¹¹	384 GB ¹¹
Video	SVGA	SVGA	SVGA
memory	16 MB	16 MB	16 MB
SAS/SATA RAID controller	M1115	M1115	M5110 + 512 MB Flash
Channels	8	8	8
Connector internal	2	2	2
Connector external	0	0	0
HDD	open-bay	open bay	open bay
Total bays	10	10	10
5.25-in	2	2	2
Hot-swap	8 x LFF	8	8
Internal capacity	24.0 TB ¹² Support 3.5 HDD	8.0 TB ¹²	8.0 TB ¹²
Bays available	9	9	9
5.25 in	1	1	1
Hot-swap	8 ¹²	8 ¹²	8 ¹²
Total PCI slots	6	6	6 ¹⁵
PCI-E Gen3 x16	1	1	1
PCI-E Gen3 x8	4	4	4 ¹⁶
PCI-E Gen2 x8	1	1	1 ¹⁷
Slots available	5	5	5
PCI-E Gen3 x16	1	1	1
PCI-E Gen3 x8	3	3	3
PCI-E Gen2 x8	1	1	1
Integrated management	Standard ¹³	Standard ¹³	Standard ¹³
Ethernet controllers	4x1GB standard	4x1GB standard	4x1GB standard
Half-height SATA DVD	1	1	1
Power supply	750 W ¹⁴	750 W ¹⁴	750 W ¹⁴
Number standard	1	1	1
Hot-swap	Yes	Yes	Yes
Redundant power	Optional	Optional	Optional

	7383-G2x	7383-H2x	7383-J2x
Processor	Xeon 8C E5-2650	Xeon 8C E5-2670	Xeon 8C E5-2680
Internal speed	2.0 GHz	2.6 GHz	2.7 GHz
External speed	8.0 GTS	8.0 GTS	8.0 GTS
Number standard	1	1	1
Maximum	2	2	2
L3 cache (full-speed)	20 MB	20 MB	20 MB
Memory (PC3-10600- VL9 DDR3 1333MHz	8 GB ECC 1 x 8 GB 2Gb,2Rx4, 1.35V Chipkill	8 GB ECC 1 x 8 GB 2Gb,2Rx4, 1.35V Chipkill	8 GB ECC 1 x 8 GB 2Gb,2Rx4,1.5V Chipkill
DIMM sockets standard	12	12	12
DIMM sockets maximum	24	24	24
Capacity	384 GB ¹¹	384 ¹¹	384 GB ¹¹
Video	SVGA	SVGA	SVGA
memory	16 MB	16 MB	16 MB
SAS/SATA RAID controller	M5110 + 1GB Flash	M5110 + 1GB Flash	M5110 + 1GB Flash
Channels	8	8	8
Connector internal	2	2	2
Connector external	0	0	0
HDD	open-bay	open-bay	open-bay
Total bays	10	10	10
5.25-in	2	2	2
Hot-swap	8	8	8
Internal capacity	8.0 TB ¹²	8.0 TB ¹²	8.0 TB ¹²
Bays available	9	9	9
5.25 in	1	1	1

Hot-swap	8	8	8
Total PCI slots	6	6	6 ¹⁵
PCI-E Gen3 x16	1	1	1
PCI-E Gen3 x8	4	4	4 ¹⁶
PCI-E Gen2 x8	1	1	1 ¹⁷
Slots available	5	5	5
PCI-E Gen3 x16	1	1	1
PCI-E Gen3 x8	3	3	3
PCI-E Gen2 x8	1	1	1
Integrated management	Standard ¹³	Standard ¹³	Standard ¹³
Ethernet controllers	4x1GB standard	4x1GB standard	4x1GB standard
Half-height SATA DVD	1	1	1
Power supply	900 W ¹⁴	900 W ¹⁴	900 W ¹⁴
Number standard	1	1	1
Hot-swap	Yes	Yes	Yes
Redundant power	Optional	Optional	Optional

¹¹ Twenty-four DIMM slots that enable you to deploy up to 768 GB of DDR3 SDRAM Registered DIMM memory, with 24 slots populated with 32 GB DIMMs optional, 4 GB or 8 GB memory standard 768 GB maximum is based on 24 x 32 GB RDIMMs.

¹² Drive bays provide 8.0 TB using 1 TB SFF SAS HDD options, Special bid models support up to thirty-two 2.5-inch bays with an additional 24 TB of HDD capacity for a total of 32 TB. 32 TB total capacity using 1 TB 2.5-inch NL SFF SAS/SATA HDDs Drive bays provide 24.0 TB using 3 TB LFF SAS/SATA HDD options. For the latest information on supported HDD options, visit

<http://www.ibm.com/servers/eserver/serverproven/compat/us/>

¹³ These systems contain an integrated management module that provides a set of monitoring and alert features. Refer to the [Description](#) section for details.

¹⁴ The 750-watt redundant power supply is designed to support all systems. Some models come with a 900-watt power supply.

¹⁵ Six PCI-e slots from processor 1. When the second processor is fitted, this adds a further two PCIe Gen3 x16 slots, giving a total of eight.

¹⁶ Two PCIe Gen3 x8 slots operate at electrical x4.

¹⁷ The PCIe Gen2 x8 slot can optionally be changed to a PCI-X slot via interposer card.

SATA DVD drive characteristics¹⁸

- Formatted capacity: 650 MB
- Average access time including latency: Less than 85 ms
- Sustained data transfer rate: 3,000 to 7,200 KB/s
- Burst data transfer rate
 - ATA PIO mode 4: 16.6 MBps
 - ATA Multiword DMA Mode 2: 16.6 MBps
- Technology: Full constant angular velocity (CAV)

¹⁸ Actual playback speed varies and is often less than maximum.

Video subsystem

- Matrox G200eR2 Video Graphics Controller
- Integrated on planar and connected to the PCI bus
- SVGA compatible video controller (Matrox G200eR2)
- DDR3-528MHz SDRAM video memory controller.

- Video memory is not expandable in this system

Supported video mode capabilities for the SVGA PCI controller

Resolution	Vertical	Refresh Rate	Color Depth
1600 x 1200		60, 75,	8, 16, 24
1680 x 1050		60,	8, 16, 24
1440 x 900		60	8, 16, 24
1280 x 1024		60, 75	8, 16, 24
1024 x 768		60, 75, 85	8, 16, 24
800 x 600		60, 72, 75, 85	8, 16, 24
640 x 400		60, 72, 75, 85	8, 16, 24

Note 1: The grayed ones are supported only if the monitor contains this resolution in his EDID.

Note 2: The connector is a 15-pin D-shell; a video cable of 1.8 meters is the maximum supported length.

Dimensions

Tower

- Width: 218.0 mm (8.65 in)
- Depth: 750.0 mm (29.41 in)
- Height: 440.0 mm (17.25 in)
- Weight:
 - 25.0 kg (55.0 lb) (minimum configuration)
 - 39.80 kg (87.74 lb) (maximum configuration)

Rack

- Width: 424.0 mm (16.62 in)
- Depth: 702.0 mm (27.52 in)
- Height: 218.0 mm (8.54 in)
- Weight:
 - 24.50 kg (53.9 lb) (minimum configuration)
 - 39.3 kg (86.64 lb) (maximum configuration)

Electrical

- 100 to 240 V ac; 50 - 60 Hz; 11 - 5.5 A
- Input kilovolt-amperes (kVA) (approximately):
 - Minimum configuration: 0.60 kVA
 - Maximum configuration: 1.10 kVA
- Btu output: ship configuration - 2013 Btu/hr (590 watts)
- Btu output: full configuration - 3610 Btu/hr (1056 watts)
- Acoustical noise emission levels:
 - 5.5 bels (idling)
 - 6.0 bels (operating)

Note: The noise emission level stated is the declared (upper limit) sound power level, in bels, for a random sample of machines. All measurements made in accordance with ISO 7779 and reported in conformance with ISO 9296.

x3500 M4 configuration idling with Windows 2008

CPU	1 (standard)
PSU	1 (750-watt)
HDD	1 x 500 GB 15 K RPM
FDD	0
CD-ROM	1 (standard)
RAM	1 x 4 GB DIMMs

These servers are intended for use as floor-standing servers and are tested and designed to operate in a horizontal position. These servers can also be used as a rack model with the optional rack install kit.

Standards

These systems support or comply with the following standards:

- Multiprocessor Specification (MPS) 1.4
- Peripheral Component Interconnect (PCI) specification 2.2
- Peripheral Component Interconnect (PCI-X) specification v2.1
- PCI-Express specification 1.0
- Hardware-enabled to meet the International Organization for Standardization (ISO) 9241, Part 3

Equipment approvals and safety

- Japan VCCI, Class A
- IEC-60950-1 (CB Certificate and CB Test Report)
- Australia/New Zealand AS/NZS CISPR 22:2006, Class A
- Taiwan BSMI CNS13438, Class A ;CNS14336-1
- China CCC (GB4943-2001), GB9254-2008 class A, GB17625.1-2003
- Korea KN22, Class A; KN24

Operating environment

- Environment temperature:
 - Server on: 10°C to 35°C (50°F to 95°F); altitude: 0 to 915 m (3,000 ft)
 - Server on: 10°C to 32°C (50°F to 90°F); altitude: 915 m (3,000 ft) to 2,134 m (7,000 ft)
 - Server on: 10°C to 28°C (50°F to 83°F); altitude: 2,134 m (7,000 ft) to 3,050 m (10,000 ft)
 - Server off: 5°C to 45°C (41.0°F to 113°F)
 - Shipping: -40°C to 60°C (-40°F to 140°F)
- Humidity:
 - Server on: 20% to 80%; Max. Dew Point 21°C, Max. rate of change 5°C/hr
 - Server off: 8% to 80%; Max. Dew Point 27°C
- Maximum altitude: 2,134 m (7,000 ft)

Japan Energy Saving Standard

E5-2603, 1.8 GHz

- Product Category (2005): F 0.00151
- Product Category (2007): C 0.00151
- Product Category (2011): L 0.00151

E5-2609, 2.4 GHz

- Product Category (2005): F 0.00127
- Product Category (2007): C 0.00127
- Product Category (2011): L 0.00127

Japan Energy Saving Standard

E5-2620, 2.0 GHz

- Product Category (2005): F 0.00111
- Product Category (2007): C 0.00111
- Product Category (2011): L 0.00111

Japan Energy Saving Standard

E5-2630, 2.3 GHz

- Product Category (2005): F 0.00070
- Product Category (2007): C 0.00070
- Product Category (2011): L 0.00070

E5-2640, 2.5 GHz

- Product Category (2005): F 0.00066
- Product Category (2007): C 0.00066
- Product Category (2011): L 0.00066

Japan Energy Saving Standard

E5-2650, 2.0 GHz

- Product Category (2005): F 0.00065
- Product Category (2007): C 0.00065
- Product Category (2011): L 0.00065

E5-2670, 2.6 GHz

- Product Category (2005): F 0.00089
- Product Category (2007): C 0.00089
- Product Category (2011): L 0.00089

E5-2680, 2.7 GHz

- Product Category (2005): F 0.00059
- Product Category (2007): C 0.00059
- Product Category (2011): L 0.00059

Software requirements

Programming requirements

The following network operating systems are supported in the x3500 M4 servers:

- Microsoft
 - Windows Server 2008, (32 bit and EM64T)
 - Windows Server 2008, R2
 - Windows Small Business Server 2008 (Premium and Standard)

- VMware
 - VMware ESX Server 4.1
 - VMware ESXi Server 4.1
 - VMware vSphere 5
 - VMware ESXi 5.0
- Linux
 - SUSE Linux™ Enterprise Server 10 for AMD64/EM64T
 - SUSE Linux Enterprise Server 10 with Xen for AMD64/EM64T
 - SUSE Linux Enterprise Server 10 for x86 SP4
 - SUSE Linux Enterprise Server 11 SP1 for x86-64
 - SUSE Linux Enterprise Server 11 for AMD64/EM64T
 - SUSE Linux Enterprise Server 11 with Xen AMD64/ EM64T
 - SUSE Linux Enterprise Server 11 64-bit (includes KVM)
 - Red Hat Enterprise Linux 5 Server Edition
 - Red Hat Enterprise Linux 5 x64 Edition includes KVM
 - Red Hat Enterprise Linux 5.7 SE x64
 - Red Hat Enterprise Linux 5 Server with Xen x64 Edition
 - Red Hat Enterprise Linux 6 Server Edition
 - Red Hat Enterprise Linux 6 Server x64 Edition includes KVM
 - Red Hat Enterprise Linux 6.1 SE x64

Note: Certification is planned for these operating systems. For additional information on support, certification, and versions on network operating systems, visit

<http://www.ibm.com/us/compat>

Emulex 10 GbE VFA III adapter works on supported operating systems (OS's). Refer to the ServerProven Plan.

Compatibility

The System x3500 M4 server systems contain licensed system programs that include set configuration, set features, and test programs. System BIOS is loaded from a "flash" EEPROM into system memory. This BIOS provides instructions and interfaces designed to support the standard features of the x3500 server and to maintain compatibility with many current software programs.

To view detailed information on the Internet about IBM and non-IBM devices, adapters, software, and network operating systems supported with x3500 servers, visit

<http://www.ibm.com/servers/eserver/serverproven/compat/us/>

Contact your IBM representative, IBM Business Partner, or refer to the *IBM Sales Manual* for information on the compatibility of hardware and software for x3500 servers. The *Sales Manual* is updated periodically as new features and options are announced that support these servers.

Limitations

- The System x3500 M4 servers support 384 GB¹¹ of system memory when you add a 16 GB memory RDIMMs in each of 24 DIMM slots. Using 32 GB LRDIMMS in each of the 24 DIMM slots, x3500 M4's supports maximum system memory of 768 GB (when 32 GB DIMMs are available). All supported system memory is addressable through direct memory access (DMA). The x3500 M4 server supports 2 GB, 4 GB, 8 GB, 16 GB, and 32 GB memory synchronized with

processor FSB bandwidth. DIMMs must be installed in matched pairs. Refer to the [Planning information](#) section for supported memory options.

- Mixing microprocessors of different speeds or cache size is not supported.
- Use the version of ServerGuide shipped with the system, or a later version, to load software and drivers. Earlier versions of ServerGuide may not be compatible with the server.

x3500 M4 is shipped standard with one processor which only have twelve DIMM sockets attached. To have all 24 DIMM sockets available, second processor upgrade kit is required.

Refer to the **Software requirements** section for operating system limitations.

¹¹ Twenty-four DIMM slots that enable you to deploy up to 768 GB of DDR3 SDRAM Registered DIMM memory, with 24 slots populated with 32 GB DIMMs optional, 4 GB or 8 GB memory standard 768 GB maximum is based on 24 x 32 GB RDIMMs.

User group requirements

This announcement satisfies or partially satisfies requirements from one or more of the worldwide user group communities. Groups include COMMON, COMMON Europe, Guide Share Europe (GSE), InterAction (Australia/New Zealand), Japan Guide Share (JGS), and SHARE Inc.

Planning information

Customer responsibilities

Customer setup

The x3500 M4 servers are designated as customer setup. Customer setup instructions are shipped with systems and options.

Bay configuration

The server contains 10 drive bays. The eight 3.5-inch hot-swap or simple-swap bays or the eight 2.5-inch hot-swap bays are located on the lower half of System x3500 tower models. These bays are ready for various supported hot-swap HDD drive option installation. The two bays on the top portion of tower models are designed primarily for removable media devices. One bay contains the DVD-ROM drive, while the remaining one 5.25-inch half-high bays can support tape backup or other devices.

SAS cabling considerations

The x3500 M4 server contains one backplane. This backplane supports eight 2.5-inch SAS/SATA drives and is connected with ServeRAID controller through two minSAS cables. The x3500 M4 system can contain four backplanes maximum, two are with expander.

The DVD is SATA attached.

External SAS attachment

In the configurations where an external SAS device attachment is required, a support SAS adapter is required.

External serial attachment

To attach an external serial cable RS-232, use the serial connector at the rear of the system.

Processor upgrades

The following processor upgrades are supported:

Supported memory options

The following memory options are supported:

- 2GB (2Gb, 1Rx8, 1.35V) PC3L-10600R ECC LP RDIMM (49Y1405)
- 4GB (2Gb, 1Rx4, 1.35V) PC3L-10600R ECC LP RDIMM (49Y1406)
- 4GB (2Gb, 2Rx8, 1.35V) PC3L-10600R ECC LP RDIMM (49Y1407)
- 8GB 2Rx4 2Gbit PC3L-10600R LP RDIMM 1.35V Capable (49Y1397)
- 16GB (4Gb,2Rx4,1.35V) PC3-10600 DDR3-1333 LP RDIMM (49Y1563)
- 2GB (2Gb,1Rx8,1.35V) DDR3-1333 LP UDIMM (49Y1403)
- 32 GB (1x32Gb, 4Rx4, 1.35V) PC 3L-10600 CL9 ECC DDR3 (90Y3105) DDR3 1333 MHz LP LR-DIMM (available late 2012)
- 16GB (2Gb, 4Rx4, 1.35V) PC3L-8500R LP RDIMM (49Y1400)
- 4GB (1x4GB, 2Rx8, 1.5V) PC3-12800 CL11 ECC DDR3 1600MHz (90Y3178) LP RDIMM

Power supply requirements

These models contain either one 750-watt or one 900-watt power supply, model dependent, which is a hot-swap capable supply. When not using redundancy, one hot-swap supply has enough power to supply a fully loaded box. If redundancy is required, you should install additional power supplies to ensure sufficient power will be available. A fault light illuminates when a power supplies fails.

Optional rack installations

These models are optionally installable as rack units and are designed so they can be installed in an industry-standard 19-inch rack cabinet such as the NetBAY42 or NetBAY25. The x3500 M4 server system requires a rack mount kit for rack installation. In addition, it can also be installed in the deeper NetBAY42 ER.

If you choose not to use an IBM rack, the cabinet must meet EIA-310-D standards for mounting flanges and hole clearances with front to rear mounting of 70 - 73 cm (27.5 - 28.5 in). The rack must provide sufficient room in front of the forward EIA flange to allow for bezel attachment. The standard for 310-D suggests 49 mm (1.9 in) clearance. It must also provide adequate room at the rear of the rack, behind the rear flange for cable management; the System x3500 M4 server requires approximately 16.6 cm (6.5 in) in this space.

The rack should include perforated front and rear doors and must not prevent the flow of cool air into or out of the rack. The weight handling capacity of the rack is 22.7 kg (50 lb). Finally, the rack must provide proper stabilization so that the rack does not become unstable when servers are pulled out of service.

Cable orders

Quad 10/100/1000 Mbps, full-duplex Ethernet PCI controllers, standard with the x3500 M4 server, are connected directly to independent RJ-45 connectors. The RJ-45 connectors provide a 10BaseT, 100Base-TX, or 1000Base-TX interface for connecting twisted-pair cable to the Ethernet network. Cabling is not included with the server. To connect the Ethernet controller to a repeater or switch, use a UTP cable with RJ-45 connectors at both ends. For 100/1000 Mbps operation, Category 5 cabling must be used. For 10 Mbps operation, Category 3, or better, cabling must be used.

There are no additional cabling requirements, other than for system power, keyboard, mouse, and monitor connections.

Installability

The System x3500 M4 server requires about 30 minutes for installation. Installation includes unpacking, setting up, and powering on the system. Additional time is required to install an operating system, additional adapters, or features.

Packaging

Product	Package Description	Boxes
System x3500 M4	System Ship Group	1
	Contents:	
	System Unit	
System x3500 M4	Country Kit Ship Group	
	Contents:	
	M/T 7383 x3500 M4 Ship Group	
	- Important Notices Flyer	
	- M/T 7383 x3500 M4 Doc Browser CD	
	- Director CD	
	- Warranty Flyer	
	- CD Documentation (Installation and User Guide)	
	- Ethernet V T4.6.13 CD	

The system is shipped as a single package. The country kit carton is contained inside the top portion of the system unit carton.

Supplies

For end users: IBM System x3500 M4 servers can be purchased through the dealers around the world.

Security, auditability, and control

Security and auditability features include:

- Power-on and remote-control password functions provide controls of who has access to the data and server setup program on the server.

It is a customer's responsibility to ensure that the server is secure to prevent sensitive data from being removed.

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communications facilities.

IBM Electronic Services

IBM has transformed its delivery of hardware and software support services to help you achieve higher system availability. Electronic Services is a web-enabled solution that offers an exclusive, no-additional-charge enhancement to the service and support available for IBM servers. These services are designed to provide the opportunity for greater system availability with faster problem resolution and preemptive monitoring. Electronic Services comprises two separate, but complementary, elements: Electronic Services news page and Electronic Services Agent.

The Electronic Services news page is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support.

The news page enables you to gain easier access to IBM resources for assistance in resolving technical problems.

The Electronic Service Agent™ is no-additional-charge software that resides on your server. It monitors events and transmits system inventory information to IBM on a periodic, client-defined timetable. The Electronic Service Agent automatically reports hardware problems to IBM. Early knowledge about potential problems enables IBM to deliver proactive service that may result in higher system availability and performance. In addition, information collected through the Service Agent is made available to IBM service support representatives when they help answer your questions or diagnose problems. Installation and use of IBM Electronic Service Agent for problem reporting enables IBM to provide better support and service for your IBM server.

To learn how Electronic Services can work for you, visit

<http://www.ibm.com/support/electronic>

Terms and conditions

To obtain copies of the IBM Statement of Limited Warranty, contact your reseller or IBM.

Warranty period

- System x3500 7383 - Three years
- Optional features - One year

Note: For configurations that support the RAID Battery, the RAID battery will be warranted for one year effective on its "Date of Installation." All other product warranty terms for the machine remain unchanged.

An IBM part or feature installed during the initial installation of an IBM machine is subject to a full warranty effective on the date of installation of the machine. An IBM part or feature which replaces a previously installed part or feature assumes the remainder of the warranty period for the replaced part or feature. An IBM part or feature added to a machine without replacing a previously installed part or feature is subject to a full warranty effective on its date of installation. Unless specified otherwise, the warranty period, type of warranty service and service level of a part or feature is the same as the machine it is installed in.

Warranty service

If required, IBM provides repair or exchange service, depending on the type of warranty service specified below for the machine. IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM website. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines On-site Service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts. Service levels are response-time objectives and are not guaranteed. The specified level of warranty service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country- and location-specific information.

The type of service is Customer Replaceable Unit (for example, keyboard, mouse, speaker, memory, or hard disk drive) Service and On-site Service.

Customer Replaceable Unit (CRU) Service

IBM provides a replacement CRU to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM at any time on your request. A CRU is designated as being either a Tier 1 (mandatory) or a Tier 2 (optional) CRU. Installation of Tier 1 CRUs, as specified in this announcement, is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation. You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service specified below, On-site Service.

Based upon availability, a CRU will be shipped for next-business-day (NBD) delivery. IBM specifies in the materials shipped with a replacement CRU whether a defective CRU must be returned to IBM. When return is required, return instructions and a container are shipped with the replacement CRU, and you may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

The following parts have been designated as Tier 1 CRUs:

- DDR3-1333 Memory
- Memory expansion card
- Hard disk drive
- Hot-swap power supply
- Service processor
- Optical drive
- PCI adapter
- PCI divider
- CMOS battery

The following parts are designated as structural:

- Bezel, tower
- Bezel, rack
- Filler, 2.5-inch hot-swap hard disk drive bay
- Filler, 3.5-inch hot-swap hard disk drive bay
- Filler, 3.5-inch simple-swap hard disk drive bay
- Filler, 5.25-inch drive bay
- Filler, 2.5-inch cage filler
- Filler, 3.5-inch cage filler
- Filler, rack kit
- Filler, power supply bay
- Filler, fan
- Air baffle
- Cover, left-side
- Cover, right-side
- Cover, top
- Foot kit, rear
- Foot kit, stabilizer, front
- Keylock assembly, universal
- Keylock assembly
- Remote RAID battery tray

Structural parts: Purchase and replacement of structural parts (components, such as chassis assembly, top cover, and bezel) is customer responsibility. If IBM acquires or installs a structural component at your request, you will be charged for the service.

On-site Service

This provides On-site Repair, 9 hours per day, Monday through Friday excluding holidays, NBD response. IBM or your reseller will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose. On-site Service is not available in all countries, and some countries have kilometer or mileage limitations from an IBM service center. In those locations where On-site Service is not available, the normal in-country service delivery is used.

International Warranty Service (IWS)

IWS is available in selected countries or regions.

The warranty service type and the service level provided in the servicing country may be different from that provided in the country in which the machine was purchased.

Under IWS, warranty service will be provided with the prevailing warranty service type and service level available for the IWS-eligible machine type in the servicing country, and the warranty period observed will be that of the country in which the machine was purchased.

To determine the eligibility of your machine and to view a list of countries where service is available, visit

<http://www-947.ibm.com/support/entry/portal/docdisplay?Indocid=GCOR-3FBJK2>

For more information on IWS, refer to Services Announcement [AA01-3100](#), dated September 28, 2001.

Licensing

Programs included with this product are licensed under the terms and conditions of the License Agreements that are shipped with the system.

IBM hourly service rate classification

One

Field-installable features

Yes

Model conversions

No

Machine installation

Customer setup. Customers are responsible for installation according to the instructions IBM provides with the machine.

Graduated program license charges apply

No

Licensed Machine Code

IBM Machine Code is licensed for use by a customer on the IBM machine for which it was provided by IBM under the terms and conditions of the IBM License Agreement for Machine Code, to enable the machine to function in accordance with its specifications, and only for the capacity authorized by IBM and acquired by the customer. You can obtain the agreement by contacting your IBM representative or visiting

http://www.ibm.com/servers/support/machine_warranties/machine_code.html

IBM may release changes to the Machine Code. IBM plans to make the Machine Code changes available for download from the IBM System x technical support website.

<http://www-304.ibm.com/systems/support>

If the machine does not function as warranted and your problem can be resolved through your application of downloadable Machine Code, you are responsible for downloading and installing these designated Machine Code changes as IBM specifies. If you would prefer, you may request IBM to install downloadable Machine Code changes; however, you may be charged for that service.

Educational allowance

None

Prices

For all local charges, contact your IBM representative.

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<http://www.ibm.com/financing>

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AP distribution

Country/Region	Announce	Announce date
AP IOT ASEAN*	Yes	March 6, 2012

India/South Asia**	Yes	March 6, 2012
Australia	Yes	March 6, 2012
People's Republic of China	Yes	March 6, 2012
Hong Kong S.A.R of the PRC	Yes	March 6, 2012
Macao S.A.R of the PRC	Yes	March 6, 2012
Taiwan	Yes	March 6, 2012
Korea	Yes	March 6, 2012
New Zealand	Yes	March 6, 2012
Japan IOT		
Japan	Yes	March 7, 2012

* Brunei Darussalam, Indonesia, Cambodia, Lao People's Democratic Republic, Malaysia, Philippines, Singapore, Thailand, and Vietnam

** Bangladesh, Bhutan, India, Sri Lanka, Maldives, Nepal, and Afghanistan

Statement of Direction

Statement of Direction - Emulex VFA III FCoE/iSCSI License for IBM System x (FOD)⁸

IBM System x is issuing this statement of direction regarding the Emulex VFA III FCoE/iSCSI License. This software feature is targeting a mid-year 2012 general availability. This software license will activate the FCoE and iSCSI HW Offload Engine on the Emulex 10GbE Virtual Fabric Adapter III for IBM System x (PN 95Y3762) and the Emulex 10GbE Integrated Virtual Fabric Adapter III for IBM System x (PN 95Y3768).

Emulex VFA III FCoE/iSCSI License for IBM System x enables the convergence of Ethernet, FCoE, and a powerful iSCSI Hardware Offload Engine. This amazing flexibility will allow IBM clients to simplify their I/O infrastructure, improve their network performance, while also reducing their overall hardware capital costs.

IBM System x provides end to end testing for select iSCSI and FCoE configurations. For a list of these configurations and to reference all supported configurations, visit

<http://www-03.ibm.com/systems/support/storage/ssic/interoperability.wss>

⁸ Information being released in this Statement of Direction represents IBM's current intent, is subject to change or withdrawal, and represents only goals and objectives.

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For the most current information regarding IBM products, consult your IBM representative or reseller, or visit the IBM worldwide contacts page

<http://www.ibm.com/planetwide/>

Corrections

(Corrected on March 22, 2012)

Terms and conditions (Customer Replaceable Unit Service) section revised.