IBM System x3500 M3 servers feature fast 6C Intel Xeon processor with QPI and 12 MB cache, delivering enhanced performance and scalability

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At a glance

The System x3500 M3 servers feature:

- Powerful 3.33 GHz Intel® Xeon® processor with 12 MB cache
- 8 GB of 1333 MHz DDR3 ECC system memory; 192 GB maximum when using 16 GB DIMMS
- Eight-port SAS/SATA RAID controller
- One hot-swap 920-watt power supply fitted standard; optional hot-swap redundant power and cooling with hot-swap upgrade
- Integrated management module
- Six PCI-Express slots, and one PCI 32-bit/33 MHz slot
- Support for up to twenty-four 2.5-inch drives (with one optional 8-bay kit) plus one standard optical drive, or up to eight 3.5-inch drives plus one slim type optical drive for special bids (no models configuration in this offering)
- A tape drive up to full-high
- Up to 12 TB with HS SFF SAS/SATA disk storage
- Dual integrated 5709C Gigabit Ethernet controllers
- SVGA video with 16 MB memory
- Support for Remote Presence function
- 5U tower industry-standard models, rack mount special bid option
Overview

The System x3500 M3 servers include:

- Quickpath Interconnect (QPI) support for 6.4 Gigabit transfer/second (GT/s)
- Three hot-swap fans standard and three additional, with redundant power and cooling optional
- Six PCI-Express card slots, and one PCI 32-bit/33 MHz card slot
- Integrated dual Gigabit Ethernet and standard RAID -0, -1, -10 (upgradeable), or RAID -0, -1, -1E, -5, -50, model dependent
- Optional RAID -6 or -60 via Advance Feature Key
- 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 with Remote Presence function standard
- Light path diagnostics with a light path panel visible at front of chassis

Powered and scaled for business growth

- This server contains
  - A 3.33 GHz/6.4 GTS-12 MB X5680 6C Intel Xeon processor
  - A 3.33 GHz/6.4 GTS data bus to the system delivering up to 10.6 Gb/s data transfer rate
- 1333 MHz functional speed processor operations to memory and PCI bus
- 8 GB of high-speed, DDR3 - 1333 MHz ECC memory, 192 GB maximum, when twelve 16 GB DIMMS installed
- High-speed, wide-bandwidth slots: Six PCI-E bus slots, and one PCI 32-bit/33 MHz bus slot
- Dual Broadcom 5709C Gigabit Ethernet ports and SAS/SATA support
- Standard SATA DVD-ROM and tape drive bay
- Eight standard SFF hot-swap drive bays and up to twenty-four 2.5-inch bays available using upgrade options with total HDD storage
  - 4.8 TB of 2.5-inch hot-swap SAS/SATA standard for 8 HDD models (600 GB x 8 drives)
  - 9.6 TB of 2.5-inch hot-swap SAS/SATA standard for 16 HDD models (600 GB x 16 drives)
  - 14.4 TB of 2.5-inch hot-swap SAS/SATA available via CTO (600 GB x 24 drives)
  - 16 TB of 3.5-inch hot-swap SAS/SATA available via CTO (2 TB x 8 drives)

High availability for around-the-clock business demands

- Integrated systems management processor and support for the Remote Presence function.
- Wake on LAN®
- ECC memory to detect double-bit errors and correct single-bit errors
- Integrated memory mirroring and online spare options

Service and support perfected for business needs

- ServerGuide and IBM Director
- IBM® Server support and Web support
- Three-year, customer replaceable unit (CRU) and on-site service, limited warranty; optional warranty service upgrades available
Notes:

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 ChipkillTM distributes information covered by error correcting code across separate memory chips. If any chip fails, the data can still be reconstructed from the remaining chips and the system can continue running.

4 Sixteen DIMM slots that enable you to deploy up to 192 GB of DDR3 SDRAM Registered DIMM memory using optional 16 GB DIMMs (12 maximum). 4 GB DIMMs are standard, 8 GB DIMMs optional.

5 Some programs may not be available in all countries.

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

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

Key prerequisites

- Monitor
- Keyboard (only in EMEA and Americas Group)
- Mouse (only in EMEA and Americas Group)

Planned availability date

July 30, 2010: System x3500 M3 - 7380

Description

Related options

IBM processor options

- Addl Intel Xeon Processor L5640 6C 2.26GHz 12MB Cache 1333MHz 60w (69Y5000)
- Addl Intel Xeon Processor L5630 4C 2.13GHz 12MB Cache 1066MHz 40w (69Y5001)
- Addl Intel Xeon Processor L5609 4C 1.86GHz 12MB Cache 1066MHz 40w (69Y5002)

IBM memory options

- 1 GB (1 x 1 GB, 1R x 8, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM (49Y1432)
- 2 GB (1 x2 GB, 2R x 8, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM (49Y1433)
- 2 GB (1 x 2 GB, 1R x 4, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM (49Y1434)
- 4 GB (1 x 4 GB, 2R x 4, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM (49Y1435)
• 8 GB (1 x 8 GB, 2R x 4, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM (49Y1436)
• 4 GB (1 x 4 GB, 2R x 4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM (49Y1397)
• 16 GB (1x16GB, 4Rx4, 1.35V) PC3L-8500 CL7 ECC DDR3 1066MHz LP RDIMM (49Y1400)
• 8 GB (1x8GB, 2Rx4, 1.35V) PC3L-8500 CL7 ECC DDR3 1066MHz LP RDIMM (49Y1938)
• 8 GB (1 x 8 GB, 2R x 8, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM (49Y1398)
• 2 GB (1 x 2 GB, 2R x 4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM (49Y1394)
• 4 GB (1 x 4 GB, 2R x 4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM (49Y1393)
• 2 GB (1 x 2 GB, 1R x 4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM (49Y1392)

The 6C processors are ideal for data-intensive applications that range from data mining to evolving Web services. Innovative technologies deliver processing speeds of up to 3.33 GHz/6.4 GT/s with performance headroom for unpredictable server workloads and escalating computing needs.

Intel Xeon processor with 12 MB cache features Intel NetBurst microarchitecture with Extended Memory 64 Technology (EM64T) that increases overall throughput via a faster system bus and enhanced cache. They also incorporate Enhanced Intel Speedstep (EIS) technology, allowing them to execute more than one thread per processor. 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) support SMP applications when installed in the second processor slot of all System x3500 M3 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.

**Note:** For additional information on CPUs and memory, refer to ZG09-0169, dated March 30, 2009.

**ServeRAID controllers supported**

- ServeRAID-BR10i SAS/SATA Controller (provides RAID-0,-1,-1E) (44E8689)
- ServeRAID-MR10i SAS/SATA Controller (provides the advanced RAID levels) (43W4296)
- ServeRAID-MR10M SAS/SATA Controller (connection to external storage devices) (44E8825)

**IBM redundant power and cooling option**

This redundant power supply is designed to supply power for entire systems. Power supply cooling is located in the fan cage.
High-performance server subsystems

System x3500 M3 servers are high-throughput, two-way, SMP-capable network servers with excellent performance scalability when you add memory and a second processor. It incorporates a powerful Intel Xeon processor with 12 MB cache. The flip-chip, land grid array 6 (FC-LGA6) processor features advanced transfer caches integrated onto the processor core and run at the same clock speed as the processor core.

Two 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 M3 server uses the Intel Tylersburg DP chipset-36D to maximize throughput from processor to memory and system I/O buses.

Standard System x3500 M3 configurations

<table>
<thead>
<tr>
<th>Model</th>
<th>Processor</th>
<th>Cache</th>
<th>Memory</th>
<th>SAS Interface</th>
<th>Mechanical</th>
</tr>
</thead>
<tbody>
<tr>
<td>7380-94x</td>
<td>3.33 GHz/6.4GTS</td>
<td>12 MB</td>
<td>8 GB</td>
<td>HS SFF SAS/SATA</td>
<td>Tower</td>
</tr>
</tbody>
</table>

Note: For EMEA x=G

Additional features:

- Ability to upgrade to two-way SMP processing by adding a second processor of the same speed and processor type
- System board that contains 16 DIMM connectors supporting 1 GB, 2 GB, 4 GB, 8 GB and 16 GB DDR3 1333 MHz SDRAMs memory for improved performance
  - Up to 192 GB of system memory (with 16 GB memory RDIMMs installed in twelve DIMM sockets)
- High-speed, wide-bandwidth, PCI-E and PCI bus slots support
  - Slot 1 : PCIe2 x8 : PCI-E x8 slot with x8 lanes (Gen2, from IOH)
  - Slot 2 : PCIe2 x16 (8,1) : PCI-E x16 slot with x8 lanes (Gen2, from IOH)
  - Slot 3 : PCIe2 x8 (4,1) : PCI-E x8 slot with x4 lanes (Gen2, from IOH)
  - Slot 4 : PCIe2 x8 (4,1) : PCI-E x8 slot with x4 lanes (Gen2, from IOH)
  - Slot 5 : PCIe2 x8 : PCI-E x8 slot with x8 lanes (Gen2, from IOH)
  - Slot 6 : PCI-32 : PCI-32 slot with 32-bit/33 MHz (from ICH-10)
  - Slot 7 : PCIe x8 (4,1) : PCI-E x8 slot with x4 lanes (Gen1, from ICH-10)
- Eight-port SAS/SATA RAID controller that supports high-speed internal storage solutions
- Dual full-duplex, Gigabit Ethernet controllers that speed network communications to LAN clients

The x3500 M3 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 M3 server an excellent choice for a standalone or clustered general-business application, file, and print server.

High-availability and serviceability features

- Redundant cooling includes:
  - Three hot-swap fans (single replaceable unit) with one hot-swap 920 W power supply
- One hot-swap power supply standard, and one optional redundant power supply to support robust high-availability applications
- Hot-swap HDD bays with SAS 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
- 12 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
- Six hot-swap redundant system cooling fans to cool system and enable replacement without powering down the server
- Integrated management module 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)\(^1\)
  - Numeric error logging
- Information LED panel to give visual indications of system health
- Light path diagnostics and onboard diagnostics for an LED map provide 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

\(^1\) The ASR function is currently supported on Microsoft® Windows® 2000 and Windows 2003.

**Expandability and growth**

The System x3500 M3 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 192 GB (with 16 GB memory RDIMMs installed in twelve slots)
- Seven adapter card slots: six PCI-Express, and one 32-bit/33 MHz card slot
- Eleven or 19 drive bays:
  - Eight 2.5-inch, half-high hot-swap drive bays; three 5.25 inch, half-high device bays
  - Internal support for high performance (up to 15,000 rpm) for up to eight SAS HDDs and a high-capacity tape backup device
  - Up to 16 TB, using eight 2 TB 3.5-inch SFF SAS hot-swap HDDs\(^2\) in CTO configuration.

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

The System x3500 M3 server includes an integrated management module controller (IMM) that provides industry-standard Intelligent Platform Management Interface (IPMI) 2.0-compliant systems management. The IMM comes standard, and has a dedicated onboard Ethernet port for access. IMM can be accessed via 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 also use the CLI from a Telnet session to perform some of the functions that can be performed from the Web server. (LDAP).
  - 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 e-mail, IPMI PETs, and SNMP.

**IBM Director**

x3500 M3 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 cost of ownership 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 e-mail or a page to an administrator
  – Execute a command or program
  – Pop up 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

**Integrated System x Adapter for iSeries**

The System x3500 M3 server is the newest server to be attached to an IBM i5 or iSeries® server. A new Integrated System x Adapter (1519-200) attaches to an x3500 M3 to connect to an i5 or iSeries server. You can connect the iSeries family of servers to provide virtual storage, virtual Ethernet, and tape sharing to an attached x3500 server. You can easily integrate security, backup, and operations of a Microsoft Windows and OS/400® environment.

**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 M3 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 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 M3 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.

IBM 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.

**Product positioning**

The System x3500 M3 server is positioned above the entry, two-way x3400 M3. These x3500 M3 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 (special bids only).

With these servers, two segments can be combined into one departmental and mission-critical space. The System x3500 M3 server is a compact 5U, two-way, SMP-
capable Xeon processor-based platform designed with integrated high-availability features for mainstream network server applications.

These servers are ideal for clients who require up to two-way 3.33 GHz/6.4 GT/s processing power, significant memory, high availability, and large data storage scalability. High-speed memory, 64-bit and 32-bit PCI buses, eight SAS/SATA hot-swap plus eight optional drive bays, and a device bay for high-capacity tape drives make these servers ideal for mainstream network computing.

### Product number

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
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</thead>
<tbody>
<tr>
<td>16GB (1x16GB, 4Rx4, 1.35V) PC3L-8500 CL7 ECC DDR3 1066MHz LP RDIMM</td>
<td>49Y1400</td>
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<tr>
<td>4GB (1x4GB, 2Rx8, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP UDIMM</td>
<td>49Y1404</td>
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<tr>
<td>Addl Intel Xeon Processor L5640 6C 2.26GHz 12MB Cache 1333MHz 60w</td>
<td>69Y5000</td>
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<tr>
<td>Addl Intel Xeon Processor L5630 4C 2.13GHz 12MB Cache 1066MHz 40w</td>
<td>69Y5001</td>
</tr>
<tr>
<td>Addl Intel Xeon Processor L5609 4C 1.86GHz 12MB Cache 1066MHz 40w</td>
<td>69Y5002</td>
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</tbody>
</table>

The following are Pseudo Options:

- Select storage devices no RAID required 68Y7399
- Select storage devices for RAID - configure RAID 80Y9227
- RAID 1 - Primary Array (SSD) - 2 SSDs required 80Y9229
- RAID 5 - Primary Array (SSD) - minimum of 3 SSDs required 80Y9231
- RAID 1 - Secondary Array (SSD) - 2 SSDs required 80Y9233
- RAID 5 - Secondary Array (SSD) - minimum of 3 SSDs required 80Y9235

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
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<tr>
<td>8GB (1x8GB, 2Rx4, 1.35V) PC3L-8500 CL7 ECC DDR3 1066MHz LP DIMM</td>
<td>49Y1507</td>
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<td>8GB (1x8GB, 2Rx4, 1.35V) PC3L-8500 CL7 ECC DDR3 1066MHz LP DIMM</td>
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<td>1GB (1x1GB) Single Rank PC3-10600 CL9 ECC DDR3 1333MHz LP DIMM</td>
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<td>2GB (1x2GB) Dual Rank PC3-10600 CL9 ECC DDR3 1333MHz LP DIMM</td>
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4GB (1x4GB, Dual Rankx8) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM 49Y1461
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4GB (1x4GB, 2Rx4, 1.5V) PC3L-10600 CL9 ECC DDR3 1333MHz RDIMM 49Y1472
8GB (1x8GB, 2Rx4, 1.5V) PC3L-8500 CL7 ECC DDR3 1066MHz VLP RDIMM 49Y1474
1GB (1x1GB, 1Rx8, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM 49Y1476
2GB (1x2GB, 2Rx8, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM 49Y1477
2GB (1x2GB, 1Rx4, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM 49Y1478
4GB (1x4GB, 2Rx4, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz RDIMM 49Y1479
8GB (1x8GB, 2Rx4, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz RDIMM 49Y1480
1GB (1x1GB, 1Rx8, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM 49Y1481
2GB (1x2GB, 2Rx8, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM 49Y1482
2GB (1x2GB, 1Rx4, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM 49Y1483
4GB (1x4GB, 2Rx4, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM 49Y1484
8GB (1x8GB, 2Rx4, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM 49Y1485
4GB (1x4GB, Quad Rankx8) PC3-8500 CL7 ECC DDR3 1066MHz LP RDIMM 49Y1486
8GB (1x8GB, Dual Rankx4) PC3-10600 CL9 ECC DDR3 1333MHz VLP RDIMM 49Y1489
8GB (1x8GB, Quad Rankx8) PC3-8500 CL7 ECC DDR3 1066MHz LP RDIMM 49Y1494
16GB (1x16GB, Quad Rankx4) PC3-8500 CL7 ECC DDR3 1066MHz LP RDIMM 49Y1495
8GB (1x8GB, 4Rx8, 1.5V) PC3-8500 CL7 ECC DDR3 1066MHz VLP RDIMM 49Y1500
2GB (1x2GB, 1Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM 49Y1503
16GB (1x16GB, 2Gb, 4RX4) PC3L-8500 CL7 DDR3 1066MHz LP RDIMM 49Y1510
4GB (1x4GB, 2Gb, 2Rx8, 1.35V) PC3L-10600E-999 LP ECC UDIMM 49Y1514

The following Pseudo Options are also being released in this announcement.

Addl Intel Xeon Processor L5630 4C 2.13GHz 12M Cache 1066MHz 59Y8024 40w
Addl Intel Xeon Processor E5620 4C 2.40GHz 12M Cache 1066MHz 59Y8025 80w
Addl Intel Xeon Processor L5640 6C 2.26GHz 12M Cache 1333MHz 59Y8026 60w
Addl Intel Xeon Processor E5630 4C 2.53GHz 12M Cache 1066MHz 59Y8027 80w
Addl Intel Xeon Processor E5640 4C 2.66GHz 12M Cache 1066MHz 59Y8028 80w
Addl Intel Xeon Processor X5650 6C 2.66GHz 12M Cache 1333MHz 59Y8029 95w
Addl Intel Xeon Processor X5660 6C 2.80GHz 12M Cache 1333MHz 59Y8030 95w
Addl Intel Xeon Processor X5670 6C 2.93GHz 12M Cache 1333MHz 59Y8031 95w
Addl Intel Xeon Processor X5667 4C 3.06GHz 12M Cache 1333MHz 59Y8032 95w
Addl Intel Xeon Processor X5680 6C 3.33GHz 12M Cache 1333MHz 59Y8033 130w
Addl Intel Xeon Processor X5677 4C 3.46GHz 12M Cache 1333MHz 59Y8034 130w

ServeRAID Battery - RAID adapter on Primary array 69Y4664
ServeRAID Battery - RAID adapter on Secondary array 69Y4665
ServeRAID Advance Feature Key on Primary array RAID 69Y4666
ServeRAID Advance Feature Key on Secondary array RAID 69Y4667

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Machine type</th>
<th>Model number</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM System x3500 M3</td>
<td>7380</td>
<td>94G</td>
<td>738094G</td>
</tr>
</tbody>
</table>

**Model conversions**

None

**Feature conversions**

None

**Publications**

The following publications and CD-ROMs are shipped with the x3500 M3 servers:

- The *System x3500 M3 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 M3 server.
- ServerGuide CD contains drivers to support the System x3500 M3 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 M3 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


**IBM Publications Center Portal**

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.

http://www.ibm.com/shop/publications/order
Supplemental information and publications

- System x3500 M3 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


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.

These files can be used with the BookMaster® and DCF-licensed programs to create unmodified printed copies of the manuals. The source files can also be used with the BookManager BUILD licensed program to create unmodified displayable softcopy manuals. Terms and conditions for use of the machine-readable files are shipped with the files.

Services

Global Technology Services

IBM services include business consulting, outsourcing, hosting services, applications, and other technology management.

These services help you learn about, plan, install, manage, or optimize your IT infrastructure to be an On Demand Business. They can help you integrate your high-speed networks, storage systems, application servers, wireless protocols, and an array of platforms, middleware, and communications software for IBM and many non-IBM offerings. IBM is your one-stop shop for IT support needs.

For details on available services, contact your IBM representative or visit

http://www.ibm.com/services/

For details on available IBM Business Continuity and Recovery Services, contact your IBM representative or visit

http://www.ibm.com/services/continuity

For details on education offerings related to specific products, visit


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

Specified operating environment

Physical specifications

The x3500 M3

7380-94x

Processor Xeon 6C X5680 130w
Internal speed 3.33 GHz
External speed 6.4 GTS
Number standard 1
Maximum 2
L3 cache (full-speed) 12 MB
Memory (DDR3 1333) 8 GB ECC
FBD 2 x 4 GB
Chipkill
DIMM sockets 16
Capacity 192 GB
Video SVGA
memory 16 MB
SAS/SATA controller 1 (ServeRAID M5015+battery)
Channels 8+8
Connector internal 2+2
Connector external 0
RAID controller 1
HDD open-bay
Total bays 19
5.25-in 3
Hot-swap 8+8
Internal capacity 9.6 TB
Bays available 18
5.25 in 2
Hot-swap 8+8
Total PCI slots 7
64-bit/133 MHz 0
64-bit/100 MHz 0
PCI-E slots 6
32-bit/33 MHz 1
Slots available 5
Integrated management Standard
ServeRAID M5015+battery
Controller Standard
Ethernet controllers 10/100/1000 Mb
SATA DVD 1
Power supply 920 w
Number standard 1
Hot-swap Yes
Redundant power Optional

Notes:

• EMEA x=G

Sixteen DIMM slots that enable you to deploy up to 192 GB of DDR3 SDRAM
Registered DIMM memory using optional 16 GB DIMMs (12 maximum). 4 GB DIMMs
are standard, 8 GB DIMMs optional.

Drive bays provide 4.8 TB using 600 GB SFF SAS HDD options, Special bid models
support up to twenty-four 2.5-inch bays for an additional 9.6 TB of HDD capacity for
a total of 14.4 TB.

16 TB of 3.5-inch hot-swap SAS/SATA available via CTO (2 TB x 8 drives).

For the latest information on supported HDD options, visit
These systems contain an integrated management module that provides a set of monitoring and alert features. Refer to the Description section for details.

The 920-watt redundant power supply is designed to support fully configured system.

**SATA DVD drive characteristics**
- 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 MB/sec
  - ATA Multiword DMA Mode 2: 16.6 MB/sec
- Technology: Full constant angular velocity (CAV)

Actual playback speed varies and is often less than maximum.

**Video subsystem**
- Matrox G200 Video Graphics Controller
- Integrated on planar and connected to the PCI bus
- SVGA compatible video controller (Matrox G200)
- DDR2-250MHz SDRAM video memory controller.
- Video memory is not expandable in this system
- One DVI (Digital Video Interface) is not used

Supported video mode capabilities for the SVGA PCI controller

<table>
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<tr>
<th>Resolution Vertical</th>
<th>Refresh Rate</th>
<th>Color Depth</th>
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<td>1600 x 1200</td>
<td>60, 65, 70, 75, 85</td>
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<td>8, 16</td>
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<td>1440 x 900</td>
<td>75, 85</td>
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<tr>
<td>1280 x 1024</td>
<td>75, 85</td>
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<td>1024 x 768</td>
<td>60, 70, 75, 85</td>
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<tr>
<td>800 x 600</td>
<td>56, 60, 72, 75, 85</td>
<td>8, 16, 32</td>
</tr>
<tr>
<td>640 x 400</td>
<td>60, 72, 75, 85</td>
<td>8, 16, 32</td>
</tr>
</tbody>
</table>

**Dimensions**

**Tower**
- Width: 218.0 mm (8.6 in)
- Depth: 767.0 mm (30.2 in)
- Height: 440.0 mm (17.3 in)
- Weight: 27.40 kg (60.4 lb) (minimum configuration)
- Weight: 38.90 kg (85.6 lb) (maximum configuration)

**Rack**
- Width: 424.0 mm (16.7 in)
- Depth: 702.0 mm (27.6 in)
- Height: 218.0 mm (8.6 in)
• Weight: 26.20 kg (57.7 lb) (minimum configuration)
• Weight: 37.20 kg (82.0 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.

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**

• CE Mark (EN55022 Class A, EN60950-1, EN55024, EN61000-3-2, and EN61000-3-3)
• CISPR 22, Class A
• TUV-GS EN60950-1 /IEC60950-1,EK1-ITB2000)
• Russia/GOST ME01, IEC-60950-1, GOST R 51318.22-99, GOST R 51318.24-99, GOST R 51317.3.2-99, GOST R 51317.3.3-99
• IEC 60950-1 (CB Certificate and CB Test Report)

**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)

**Hardware requirements**
For attended installation of an operating system, this server requires a compatible:
- Keyboard (only in EMEA and AG)
- Mouse (only in EMEA and AG)
- HDD
- Display (C117, T115, T117 or equivalent)

Unattended or remote installation may be performed without requiring some or all of these components. Review your unattended software installation program information for specific hardware configuration requirements.

For service, the server requires a compatible:
- Keyboard (only in EMEA and AG)
- Mouse (only in EMEA and AG)
- HDD
- Display

When having the unit serviced, plan to have these components attached to your server either directly or indirectly via a console switch.

**Software requirements**

**Programming requirements**
The following network operating systems are supported in the x3500 server:
- Microsoft
  - Windows Server 2003, Standard Edition
  - Windows Server 2003, Enterprise Edition
  - Windows Server 2008, (32-bit and EM64T)

*Note:* The ASR function is currently supported on Microsoft Windows 2000 and Windows 2003.

- VMware
  - VMware ESX Server 3.5
- Linux®
  - Red Hat Enterprise Linux 4 AS for x86
  - Red Hat Enterprise Linux 4 AS for AMD64/EM64T
  - Red Hat Enterprise Linux 4 ES for x86
  - Red Hat Enterprise Linux 4 ES for AMD64/EM64T
  - Red Hat Enterprise Linux 4 WS for x86
  - Red Hat Enterprise Linux 4 WS for AMD64/EM64T
  - SUSE Linux Enterprise Server 10 for x86
  - SUSE Linux Enterprise Server 10 for AMD64/EM64T
- Red Hat Enterprise Linux 5 Server Edition
- Red Hat Enterprise Linux 5 Server x64 Edition
- Red Hat Enterprise Linux 5 Server Edition with Xen
- Red Hat Enterprise Linux 5 Server with Xen x64 Edition
- SUSE Linux Enterprise Server 10 with Xen for x86
- SUSE Linux Enterprise Server 10 without Xen

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


Compatibility

The System x3500 M3 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


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 M3 servers support a maximum of 192 GB\(^4\) of system memory when you add a 16 GB memory RDIMMs in twelve of the 16 DIMM slots. All supported system memory is addressable through direct memory access (DMA). The x3500 M3 server supports 1 GB, 2 GB, 4 GB, 8 GB and 16 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.

Refer to the Software requirements section for operating system limitations.

\(^4\) Sixteen DIMM slots that enable you to deploy up to 192 GB of DDR3 SDRAM Registered DIMM memory using optional 16 GB DIMMs (12 maximum). 4 GB DIMMs are standard, 8 GB DIMMs optional.

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 M3 servers are designated as customer setup. Customer setup instructions are shipped with systems and options.

Bay configuration
The server contains 19 drive bays. The four 3.5-inch hot-swap bays or the eight 2.5-inch 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 three 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 two 5.25-inch half-high bays can support tape backup or other devices.

SAS cabling considerations
The x3500 M3 server contains two backplanes. One backplane supports eight 2.5-inch SAS/SATA drives. One backplane is connected with ServeRAID-BR10i controller through two miniSAS cables.

ServeRAID-BR10i is standard offering on system.

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:

- Addl Intel Xeon Processor L5640 6C 2.26GHz 12MB Cache 1333MHz 60w (69Y5000)
- Addl Intel Xeon Processor L5630 4C 2.13GHz 12MB Cache 1066MHz 40w (69Y5001)
- Addl Intel Xeon Processor L5609 4C 1.86GHz 12MB Cache 1066MHz 40w (69Y5002)
- Addl Intel Xeon Processor X5680 6C 3.33GHz 12MB Cache 1333MHz 130w (69Y0857)

Supported memory options
The following memory options are supported:

- 1GB (1x1GB, 1Rx8, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP (49Y1432) RDIMM
- 2GB (1x2GB, 2Rx8, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP (49Y1433) RDIMM
- 2GB (1x2GB, 1Rx4, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP (49Y1434) RDIMM
- 4GB (1x4GB, 2Rx4, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP (49Y1435) RDIMM
• 8GB (1x8GB, 2Rx4, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz LP (49Y1436) RDIMM
• 2GB (1x2GB, 2Rx8, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP (49Y1392) RDIMM
• 2GB (1x2GB, 1Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP (49Y1393) RDIMM
• 4GB (1x4GB, 2Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP (49Y1394) RDIMM
• 8GB (1x8GB, 2Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM (49Y1397)
• 8GB (1x8GB, 2Rx4, 1.35V) PC3L-8500 CL7 ECC DDR3 1066MHz LP RDIMM (49Y1398)
• 16GB (1x16GB, 4Rx4, 1.35V) PC3L-8500 CL7 ECC DDR3 1066MHz LP RDIMM (49Y1400)
• 4GB (1x4GB, 2Rx8, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP UDIMM (49Y1404)

Power supply requirements
This model contains one 920-watt power supply, 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 M3 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 M3 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
Dual Broadcom 5716C 10/100/1000 Mbps, full-duplex Ethernet PCI controllers, standard with the x3500 M3 server, are connected directly to two 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 M3 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**

<table>
<thead>
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<th>Product</th>
<th>Package Description</th>
<th>Boxes</th>
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<td>- Ethernet V T4.6.13 CD</td>
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</tbody>
</table>

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 M3 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.

**Global Technology Services**

Contact your IBM representative for the list of selected services available in your country, either as standard or customized offerings, for the efficient installation, implementation, and/or integration of this product.

**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 7380 - Three years
- Optional features - One year

Optional IBM features initially installed in an IBM machine carry the same warranty period as the machine. If installed after the initial machine installation, they carry the balance of the machine warranty or the optional feature warranty, whichever is greater.

The following has been designated as a consumable or supply item and is, therefore, not covered by this warranty:

- Battery

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 Web site. 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 are designated as Tier 1 CRUs:

- System foot kit (rear)
- System foot kit (front)
- Blank filler
- EMC shield kit
- SS EMC plate kit
- EMC shield 4x3.5
- 3.5-inch HS EMC kit
- Cable bracket asm
- Hard disk drive
- Hot-swap fan cage asm
- Hot-swap power supply
- Fan cage/guide arm asm
- Lift handle kit
- Opt wheel USB
- Cover Top/side
- Side cover asm
- Bottom cover
- Front bezel asm
- 120 mm fan asm
- DDR3-1333 Memory
- Memory expansion card
- Optical drive
- PCI adapter
- PCI divider
- Power cord
- Service label
- Service processor
- Rack bezel asm
- Air duct
- Key card asm
- W2008 CDs
- Keyboards
- USB/Lightpath cable bracket asm

**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**

International Warranty Service (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-304.ibm.com/jct01004c/systems/support/supportsite.wss/
  warrantyform?brandind=5000008

For more information on IWS, refer to Services Announcement ZS01-0168, dated

**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**

Two

**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.

**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


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 Web
site.
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.

Prices

For all local charges, contact your IBM representative.

**ServicePac® service upgrades**

The announced products are also eligible for ServicePac warranty upgrades. ServicePacs provide a higher level of service than that provided under the base IBM Machine Warranty.

These ServicePacs can be purchased through your IBM Business Partner and are specific to the machines/products listed.

<table>
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<tr>
<th>System x3500</th>
<th>ServicePac Offering</th>
<th>ServicePac Number</th>
<th>Ordering Part Number</th>
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<td>7380</td>
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<td>3yr On-site Repair</td>
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<td>5 days x 9hr x 4hr Resp Target</td>
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<td>68Y5335</td>
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Announcement is restricted to the following countries:

e-ServicePac

Austria, Belgium, Bulgaria, Croatia, Czech Rep, Denmark, Finland, France*, Germany, Greece, Hungary, Ireland, Israel, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, South Africa, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, UK**.

* Except overseas Territories
** UK mainland only

Refer to IBM Announcement ZG06-0243, dated April 04, 2006. Refer to final section for details of availability and limitations, if applicable.

**Maintenance**

The products in this document are also covered by Maintenance Agreements and ServiceSuite™ contracts.

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Announcement countries

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