IBM System x3550 M4 Management Node with Software Preload includes new Intel Xeon multicore processors with next-generation microarchitecture design

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At a glance

The System x3550 M4 Management Node with Software Preload features new Intel™ multicore processors.

This 1U-high, rack-optimized server features superior power-optimized performance and leadership virtualization and systems management for business-critical workloads built on IBM® X-Architecture®.

It includes IBM Director, a powerful, highly integrated, systems-management software solution built on industry standards and designed for ease of use.

IBM System x3550 M4 server servers deliver power, scalability, control, and serviceability for dynamic high-performance computing applications:

- Ultrathin, high-availability, and rack-optimized for 1U platform
- High-speed DDR-3 SDRAM Registered DIMMs standard; 24 DIMM slots that support up to 384 GB maximum memory with 16 GB optional DIMMs, or up to 768 GB of memory with LRDIMMs with the ability to run two DIMMs per channel at 1600 MHz with supported 1600 MHz RDIMMs
- Support for up to eight hot-swap 2.5-inch SAS/SATA HDDs or SSD or up to three hot-swap SAS/SATA 3.5-inch HDDs or three 3.5-inch hot-swap SAS/SATA HDDs
- Up to two x16 PCIe 3.0 slots on two-processor servers
- 550-watt ac power supplies
- Integrated systems management processor
- Integrated quad Gigabit Ethernet ports for high I/O capacity, plus two optional embedded 10 GbE ports
- One serial port (16550A-compatible)
- Seven USB ports (two front, four back, and one internal)
Overview

This 1U-high, rack-optimized server features extreme frequency, optimized performance, and systems management for business-critical applications and cloud deployments built on IBM X-Architecture.

Optimized for performance

New, innovative, energy-smart design with powerful high-performance processors, a large capacity of high-performing DDR3 memory, and a no-compromise feature set ideal for business-critical applications and cloud deployments:

- Two eight-core powerful Intel Xeon™ E5-2600 series processors
- Twenty-four DIMM (RDIMM/UDIMM/LRDIMM) slots that enable you to deploy up to 384 GB of DDR3 SDRAM Registered DIMM memory, or up to 768 GB of memory with LRDIMMs, fast memory bandwidth with the ability to run two DIMMs per channel at 1600 MHz with supported 1600 MHz RDIMMs
- Integrated slotless 6 Gbps hardware RAID-1
- Support for up to eight hot-swap 2.5-inch SAS/SATA HDDs or SSD or up to three hot-swap SAS/SATA 3.5-inch HDDs
- Highly functional chipset optimized for better application computing for general business workloads
- Integrated Quad Gigabit Ethernet ports for high I/O capacity
- One PCIe 3.0 x16 slot plus one PCIe x8/x16 or optional PCIX slot that help provide flexibility, greater performance with long-term investment protection
- New energy-efficient design incorporating 550-watt ac power supplies, up to twelve cooling fans (six banks of counter-rotating dual fans) and energy-efficient planar components to help lower operational costs

IBM Director

The System x3550 M4 Management Node with Software Preload includes 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 to access and manage physically dispersed IT assets more efficiently over the Internet.

Manage with efficiency

High availability, manageability, and serviceability features help diagnose problems quickly, even from remote locations:

- Snoop filters to boost processor performance
- Integrated slotless SAS controller for up to eight 2.5-inch, hot-swap HDD bays
- Memory mirroring, configurable using Unified Extensible Firmware Interface (UEFI) setup
- iMM2 systems management processor with Feature on Demand (FoD) remote presence
- Monitoring and control of operating status and key server components
- PFA on selected components that warns of problems before they occur
- Fast and easy servicing through innovative light path diagnostics, improved onboard diagnostics, and LED diagnostic panel

Excellent RAS and outstanding uptime for an improved business environment

- Redundant, hot-swap components make it easy to replace failures without taking your system down.
  - Hot-swap, redundant fans with calibrated vectored cooling to keep components cool, and simplified fan replacement
- Hot-swap, redundant power supplies to help reduce downtime
- Hot-swap, RAID protection disk to help secure your data and reduce downtime

- Predictive Failure Analysis provides advanced warning on processors, memory, disks, fans, power supplies, and VRMs
- Drop-down light path diagnostics panel that gives information about a failing component without opening chassis or interrupting system operation, and expedites hardware repairs to dramatically reduce service time
- IBM Director and web support
- Three-year, customer replaceable unit (CRU) and on-site labor\(^1\), limited warranty\(^2\); optional warranty service upgrades available

\(^1\) You may be asked certain diagnostic questions before a technician is sent.

\(^2\) For information on IBM’s Statement of Limited Warranty, contact your IBM representative or reseller. Copies are available upon request.

### Key prerequisites

- Monitor
- USB keyboard
- USB mouse

**Note:** PS/2 style keyboard and mouse are not supported.

### Planned availability date

August 30, 2012

### Description

**System x3550 M4 Management Node with Software Preload - related options**

The System x3550 M4 Management Node with Software Preload features Intel Xeon multicore processors with a processing speed of 2.0 GHz, with processing operations to memory at 1600 MHz, and utilizing 15 MB of integrated full-speed L3 cache.

**IBM Director**

The System x3550 M4 Management Node with Software Preload includes 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 to access and manage physically dispersed IT assets more efficiently over the Internet. It can help reduce costs through potentially:

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

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 a portfolio of integrated server tools that work with the systems management monitoring functions. Typical functions and monitoring capabilities can include:
• PFA-enabled critical hardware components
• Temperature
• Voltage
• Fan speed
• Light path diagnostics

IT administrators have comprehensive, virtual on-site control of System x® servers with the ability to remotely:

• Access the server, often regardless of its status
• Inventory and 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
• Monitor and set thresholds on server health including:
  – Operating system load
  – POST time-out
  – Voltage
  – Temperature
• Set proactive alerts for critical server events including PFA on:
  – Processor
  – Memory
  – Fans
  – Voltage regulator module (VRM)
  – Power supplies
  – HDDs
• Define automated actions, such as:
  – Send email or page to an administrator
  – Execute a command or program
  – Pop up an error message to the IBM Director console
• Flash BIOS
• Monitor and graph the use of server resources, such as:
  – Memory
  – Processor
  – HDDs
• Identify potential performance bottlenecks and react to prevent downtime

High-performance server subsystems

The System x3550 M4 server expands the new server line by adding a higher level of processor power. This high-throughput, two-way multi-core network server offers excellent performance.

Additional features

• System board containing 24 DIMM (UDIMM/RDIMM/LRDIMM/HCDIMM) connectors supporting 4 GB, 8 GB, and 16 GB DDR3 PC3-12800 SDRAM ECC RDIMMs with:
  – DDR3 memory for improved performance
  – Up to 384 GB of system memory using 16 GB optional DIMMs or up to 768 GB of memory with 32 GB LRDIMMs
  – Support for two DIMMs per channel at 1600 MHz with supported 1600 MHz RDIMMs
• Up to two PCIe 3.0 slots
• On standard models, four 2.5-inch bays or three 3.5-inch bays to support optional SAS/SATA HDDs and one bay to support an optical drive for 2.5-inch models
• Intel i350-AM4 Quad-port Gbit Ethernet on board

**High-availability and serviceability features**

The System x3550 M4 server subsystem delivers excellent reliability and serviceability features:

• Support for light path diagnostics with viewable drop-down panel, Wake on LAN, and PXE
• Up to six hot-swap dual-motor cooling fans
• Up to eight 2.5-inch HS HDDs with optional upgrade kit
• Chipkill memory that basically distributes information covered by error correction coding across separate memory chips; if any of the chips fail, the data can in many cases still be reconstructed from the remaining chips, and the system can continue running
• ECC L3 cache processors to help improve data integrity and help reduce downtime
• PFA on HDD options, memory, power supply, and fans (when Remote Supervisor Adapter is installed), to help alert the system administrator of imminent component failure
• Worldwide voltage-sensing, 550-watt ac high-efficiency hot-plug power supplies
• IBM Integrated Management Module Advanced Upgrade (Feature on Demand (FoD)) to enable the remote presence and blue-screen capture features
• Integrated Management Module systems management processor that supports:
  – Automatic server restart (ASR)
  – Fan monitoring and control
  – Power supply monitoring
  – Temperature monitoring
  – Voltage monitoring
  – Power on/off, reset sequencing
  – LED controls (onboard diagnostics support with light path LED)
  – Remote power control
  – Local firmware update
  – Error logging
• Information LED panel for visual indications of system well-being
• Onboard diagnostics with an LED map to locate a failing component, helping reduce downtime and service costs
• Support for virtual floppy (with optional IBM Integrated Management Module Advanced Upgrade) which enables a user to easily direct a remote host to boot, and use standard instructions stored anywhere on the network
• Easily accessible system board, adapter cards, processor, and memory
• CPU failure recovery in configurations, which:
  – Forces the failed processor offline
  – Reboots the server automatically
  – Generates alerts
  – Continues operations with the working processor

**Expandability and growth**

The System x3550 M4 Management Node with Software Preload contains high levels of function and storage capacity for a 1U, 19-inch rack-drawer package. It supports user installation of adapters, processors, memory, and HDD options. Functions such
as SVGA video, SAS, and two Gigabit Ethernet controllers are integrated on the system board. Features include:

- A rack-optimized design for 19-inch wide, industry-standard rack cabinets supported in the NetBAY42 and NetBAY25
- Up to two PCIe 3.0 adapter card slots available; one PCIe x16 plus slot, one PCIe x8/x16 (with second processor) or PCiX slot (optional)
- System board optional upgrades (PCI slot not required)
  - IBM Integrated Management Module Advanced Upgrade. Remote presence function enabled by Feature on Demand (FoD).
- Support for up to 9 TB of internal data storage, using three 3 TB 3.5-inch SATA HDDs
- Multiburner optical drive

**Integrated Management Module (IMM)**

The System x3550 M4 Management Node with Software Preload includes an Integrated Management Module that provides industry-standard Intelligent Platform Management Interface (IPMI) 2.0-compliant systems management. The IMM comes standard, and shares one of the two onboard Ethernet ports for access. The IMM can be accessed via software that is compatible with IPMI 2.0 (xCAT, for example).

Features and benefits:

- Monitoring:
  - System voltages
  - Battery voltage
  - System temperatures
- Fan speed control.
- Fan tachometer monitor.
- Good Power signal monitor.
- System ID and planar version detection.
- System power and reset control.
- NMI detection (system interrupts).
- SMI detection and generation (system interrupts).
- Serial port text console redirection.
- System LED control (power, HDD, activity, alerts, and heartbeat).
- An embedded web server that 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.
- 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.

With video compression now built into the adapter hardware, the adapter allows the greater screen sizes and refresh rates that are common in the marketplace. This feature helps enable the user to display server activities from power-on to full operation remotely with remote user interaction at virtually any time.

**World-class support tools and programs**

The System x3550 M4 Management Node with Software Preload includes a number of 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 over the long haul. IBM can help your company maintain ownership of technology leadership network servers.

- IBM customer replaceable unit (CRU) and on-site, three-year limited warranty with next-business-day (NBD) service (same-business-day service optionally available) helps protect your investment if a problem occurs. This service also includes replacement of parts identified through Predictive Failure Analysis (PFA).
- The ServerProven® program lets you confidently configure your server with various devices and operating systems. This program provides compatibility information from actual testing of the System x3550 M4 Management Node with Software Preload with various adapters and devices.
- The web-based ServerGuide includes online publications, in addition to utilities and drivers that enable assisted loading of popular network operating systems.
- Electronic support on the web provides additional support in an easy-to-use format.
- Support is optionally available for software products included in the preload (software support is not included as part of hardware warranty). IBM Remote Technical Support ServicePac® offerings (where available) or SupportLine Contracts may be purchased from IBM or authorized Business Partners.

**Standard System x3550 M4 Management Node with Software Preload configurations**

<table>
<thead>
<tr>
<th>Model</th>
<th>Processor</th>
<th>Memory GT/s</th>
<th>Interface HDD</th>
</tr>
</thead>
<tbody>
<tr>
<td>7914-DDx</td>
<td>2 x 2.00 GHz</td>
<td>32 GB 7.20 SAS</td>
<td>2 x 600 GB 10K 6 Gbps</td>
</tr>
<tr>
<td></td>
<td>Cache: 15 MB</td>
<td></td>
<td>2.5-in SAS SFF Slim-HS HDDs</td>
</tr>
</tbody>
</table>

**Note:** The model "x" designation is geography-dependent and is spelled out explicitly in the Product number section.

**Accessibility by people with disabilities**

A US Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at


**Product positioning**

IBM's 3550 M4 is a 1U, dual-socket rack server for single or multiple business-critical application hosting built on innovative IBM X-Architecture leveraging Intel Quick Path Interconnect (QPI) technology. Featuring power-optimized, high-performance Intel Xeon multicore processors and a leadership, energy-efficient design with balanced functionality, the x3550 M4 can help reduce cost, improve service, and allow you to manage risk easily and simply.

The x3550 M4 is suitable for large enterprise, mid-market, and SMB rack clients looking to optimize their IT budgets, and is designed for single or multiple business-critical application hosting and virtualized, nonblade environments.

**Optimized for speed**

The new System x3550 M4 Management Node with Software Preload offers new levels of fast Intel Xeon multicore processors with up to 7.2 GT/s and lower power for datacenter environments and collaboration applications. This server is uniquely optimized for better application computing with a highly functional chipset and 24 DIMM slots for a maximum of 384 GB of DDR3 SDRAM Registered DIMM memory.

Intel Turbo Boost Technology is one of the many exciting new features that Intel has built into the latest-generation Intel microarchitecture. It automatically allows processor cores to run faster than the base operating frequency if they are operating below power, current, and temperature specification limits.
Innovation comes standard

• Boost application efficiency with snoop filters that free up cache and improve processor performance.
• Supercharged TOE optimizes system performance by offloading protocol processing.
• A drop-down light path diagnostics panel improves in-rack manageability and allows easy problem identification.

Ultimate fault tolerant protection

• Memory mirroring feature enables you to increase memory reliability.
• Integrated SAS controller with RAID-0, -1, and -10 on hot-swap SAS models helps safeguard your data at no additional cost.
• Simple-swap SATA models support Just A Bunch of Disks (JBOD) and major distributions of Linux™ operating systems.

These powerful servers also meet traditional enterprise network server requirements, but with an added benefit of requiring less space.

Product number

<table>
<thead>
<tr>
<th>GAV Models</th>
<th>Description</th>
<th>Machine</th>
<th>Model</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IBM System x3550 M4</td>
<td>7914</td>
<td>DDG</td>
<td>7914DDG</td>
</tr>
</tbody>
</table>

Note: System x3550 M4 Management Node with Software Preload includes Microsoft™ Windows™ Server 2008 R2 with the 7914DDx.

Publications

The following publications and CD-ROMs are shipped with the System x3550 M4 Management Node with Software Preload.

• IBM System x3550 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 illustrations to enable you to quickly set up your System x3550 M4 Management Node with Software Preload.
• ServerGuide contains online publications and drivers to support the System x3550 M4 Management Node with Software Preload. In addition, it includes a set of easy-to-use utilities to help you install the system using CDs of several popular network operating systems.

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 System x3550 M4 Management Node with Software Preload Quick Start Guide and Problem Determination and Service Guide (PDSG), in US English versions, are available from

http://www.ibm.com/systems/support/

Under Product Support, select System x.
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

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

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

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Select your country, and then select the product as the category.
Hot-swap (2.5-in)  2
Total PCI slots (6)  2
PCI_E (x8)  1 (standard)
PCI_E (x16)  1 (standard)
System management Standard
Ethernet controller Four 1 Gb
Optical drive (SATA) Multiburner
Power supply 550 W
  Number standard 2
  Maximum 2
  Hot-swap Yes
  Redundant power Yes
  Auto restart Yes

4 Maximum of 768 GB by using twenty-four 32 GB optional LRDIMMs.

5 The standard system can hold eight 2.5-inch HS HDDs. Maximum capacities are based on installation of eight 1 TB SAS HDDs or three 3 TB 3.5-inch SATA HDDs.

6 PCIe is the standard feature for PCI or you may replace it with the PCI Riser Card PCI-X Option for PCI/PCI-X 133 MHz/100 MHz 64-bit, or 66/33 MHz/32 bit slots.

Multi-Burner Plus Drive

- Specifications
  - DVD-ROM (6.6x-16x CAV, 4.7 GB DVD-ROM read): 9.17 - 22.16 Mbps
  - DVD-ROM (5.0x-126x CAV, 8.5 GB Dual-layer read): 6.8 - 16.62 Mbps
  - DVD-R/+R (3.3x-8X CAV, 4.7 GB DVD-R/+R read): 5.73 - 13.85 Mbps
  - DVD-R/+R (3.3x-8X CAV, 8.5 GB DVD-R/+R read): 4.58 - 11.08 Mbps
  - DVD-RW/+RW (3.3x-8X CAV, 4.7 GB DVD-RW/+RW read): 4.58 to 11.08 Mbps
  - DVD-RAM (6x-12x PCAV, 4.7 GB DVD-RAM read): 8.31 - 16.62 Mbps
  - CD-R/RW-ROM (17-40x CAV, read): 2.6 - 6.0 Mbps
  - DVD-R+R (1x-16X PCAV, 4.7 GB DVD-R+R write): 9.9 - 22.16 Mbps
  - DVD-R/+R (2x-8X CLV, 8.5 GB DVD-R/+R Dual-layer write): 5.54 Mbps
  - DVD-RW (2x-6X CLV, 4.7 GB DVD-RW write): 8.31 Mbps
  - DVD+RW (3.3x-8X ZCLV, 4.7 GB DVD+RW write): 4.57 - 11.08 Mbps
  - DVD-RAM (6x-16x PCAV, 4.7 GB DVD-RAM write): 8.31 - 16.62 Mbps
  - CD-RW (8-32x ZCLV, write): 4.8 Mbps
- Max burst data transfer rate: Ultra DMA Mode 4: 66.6 Mbps
- Average access times:
  - DVD-ROM including latency and error correction: 145 ms
  - DVD-RAM including latency and error correction: 175 ms
  - CD-ROM including latency and error correction: 125 ms

Video subsystem

- SVGA compatible video controller (Matrox G200eR2).
- Integrated on Integrated Management Module (iMMv2).
- Integrated on planar and connected to the PCI bus.
- DDR3 528 or 504 MHz SDRAM video memory controller.
- Video memory is not expandable.
- One DVI (Digital Video Interface) is not used.
- Avocent Digital Video Compression (with IBM Integrated Management Module Advanced Upgrade option).
Supported video modes

<table>
<thead>
<tr>
<th>Width</th>
<th>Height</th>
<th>Refresh</th>
<th>Bpp</th>
</tr>
</thead>
<tbody>
<tr>
<td>640</td>
<td>400</td>
<td>60, 72, 75, 85</td>
<td>8, 16, 32</td>
</tr>
<tr>
<td>800</td>
<td>600</td>
<td>56, 60, 72, 75, 85</td>
<td>8, 16, 32</td>
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<tr>
<td>1024</td>
<td>768</td>
<td>60, 70, 75, 85</td>
<td>8, 16, 32</td>
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<tr>
<td>1152</td>
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<td>75, 85</td>
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<td>8, 16, 32</td>
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<tr>
<td>1600</td>
<td>1200</td>
<td>60, 65, 70, 75, 85</td>
<td>8, 16</td>
</tr>
<tr>
<td>1680</td>
<td>1050</td>
<td>60, 75, 85</td>
<td>8, 16</td>
</tr>
</tbody>
</table>

The maximum resolution of the video controller is 1600 x 1200³ at 75.

¹ The maximum screen resolution is not supported for all Bits per Pixel (color depth) and refresh rates. The maximum Bits per Pixel (color depth) is not supported for all resolutions and refresh rates.

Dimensions

1U Rack Drawer

- Width: 429 mm (16.9 in)
- Depth: 734 mm (28.9 in)
- Height: 43 mm (1.7 in)

Rack

- Weight (minimum configuration): 12.7 kg (28 lb)
- Weight (maximum configuration): 15.9 kg (35 lb)

Electrical

Models with 550 W power supplies:

- 100 to 127 (nominal) V ac; 50 Hz or 60 Hz; 6.5 A
- 200 to 240 (nominal) V ac; 50 Hz or 60 Hz; 3.3 A
- Input kilovolt-amperes (kVA) (approximately):
  - Minimum configuration: 0.12 kVA
  - Maximum configuration: 0.66 kVA

Btu output:

- Minimum configuration: 406.03 Btu/hr (AC 119 watts)
- Maximum configuration: 2900.2 Btu/hr (AC 850 watts)

Noise level:

- Noise level (horizontal position): 6.5 bels (operating)
- Noise level (horizontal position): 6.3 bels (idle)

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

System x3550 M4 Management Node with Software Preload servers are intended for use as rack-drawer servers and are tested and designed to operate in a horizontal position.
• Russia/GOST ME01, IEC-60950-1, GOST R 51318.22, GOST R 51318.24, GOST R 51317.3.2, GOST R 51317.3.3
• IEC 60950-1 (CB Certificate and CB Test Report)
• CE Mark (EN55022 Class A, EN60950-1, EN55024, EN61000-3-2, EN61000-3-3)
• CISPR 22, Class A
• TUV-GS (EN60950-1 /IEC60950-1,EK1-ITB2000)

**Operating environment**

**Air temperature:**
- Server on: 10°C to 35°C (50.0°F to 95.0°F); altitude: 0 to 914.4 m (3,000 ft). Decrease system temperature by 0.75°C for every 1,000-foot increase in altitude.
- Server off: 5°C to 45°C (41.0°F to 113°F).
- Shipment: -40°C to +60°C (-40°F to 140°F).

**Humidity:**
- Server on: 20% to 80%, maximum dew point 21°C, maximum rate of change 5°C/hr
- Server off: 8% to 80%, maximum dew point 27°C

**Hardware requirements**

For attended installation of an operating system, this server requires a compatible:
- USB keyboard
- USB mouse
- HDD
- Display

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:
- USB keyboard
- USB mouse
- HDD
- Display

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

**Software requirements**

The following software products have been tested by IBM and software publishers in the latest available versions, and where appropriate, are or will soon be certified by the publisher to be compatible with the System x3550 M4 Management Node with Software Preload.

**Operating systems**
- Microsoft Windows Server 2008 R2 (license included)

**Note:** For information on additional support, certification, version information, or network operating systems, visit

Compatibility

The System x3550 M4 Management Node with Software Preload contains licensed system programs that include set configuration, set features, and test programs. System UEFI is loaded from a “flash” EEPROM into system memory. This BIOS provides instructions and interfaces designed to support the standard features of the System x3550 M4 Management Node with Software Preload and to maintain compatibility with many current software programs.

For detailed information about IBM and non-IBM devices, adapters, software, and network operating systems supported with xSeries® servers, visit

http://www-03.ibm.com/servers/eserver/serverproven/compat/us/

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

Limitations

• The System x3550 M4 Management Node with Software Preload contains a single, configurable serial port. It can be configured to be operating-system-controlled, service-processor-controlled, or shared between the two. You can set the configuration by altering the BIOS. The default configuration from the factory is in the shared position. In the shared position, the service processor controls the port until the operating system is running, then the operating system takes control. The service processor can regain control of the port for user-configured dial-out situations or if the operating system is not available, but operating system control cannot be reestablished without resetting the server.

• System x3550 M4 Management Node with Software Preload can address a maximum of 384 GB of system memory. All supported system memory is addressable through direct memory access. The System x3550 M4 Management Node with Software Preload supports 2 GB, 4 GB, 8 GB, and optional 16 GB DDR3 SDRAM Registered DIMM memory. Different types of DIMMs can not coexist in the same system. Refer to the Planning information section for supported memory options.

• To ensure proper air flow for cooling, the System x3550 M4 Management Node with Software Preload requires a rack with a perforated door, such as the NetBAY42 SR or NetBAY25 SR. An alternative is to remove the front door of rack cabinets where the door panel is of solid construction.

• Microprocessor upgrades must be of the same Quick Path Interconnect (QPI) link speed, Integrated Memory Controller frequency, core frequency, power segment, internal cache size, and type. Mixing processors of different stepping levels but same model (as per CPUID instruction) is supported. Mixing microprocessors of different QPI, core speed, cache size, core quantity, and power segment is not supported.

• Use the version of ServerGuide that is shipped with the system, or a later version, to load software and drivers. Earlier versions of ServerGuide may not be compatible with the server.

• Solid-state memory cells have an intrinsic, finite number of write cycles that each cell can incur. As a result, each solid-state device has a maximum amount of write cycles it can be subjected to, documented as TBW (Total Bytes Written). IBM is not responsible for replacement of hardware that has reached the maximum guaranteed number of write cycles. This limit may be revealed as the device failing to respond to system generated commands or becoming incapable of being written to. Additional information is available at

http://www-03.ibm.com/systems/x/options/storage/solidstate/index.html

Refer to the Software requirements section for operating system limitations.
Planning information

Customer responsibilities

System x3550 M4 Management Node with Software Preload and related options

The System x3550 M4 Management Node with Software Preload and related options are designated as customer setup. Customer setup instructions are shipped with system and options.

Configuration information

Bay configuration

The System x3550 M4 Management Node with Software Preload supports up to eight 2.5-inch SAS/SATA HDDs. All models are open bay models.

System x3550 M4 Management Node with Software Preload hot-swap models contain a DASD backplane supporting up to four hot-swap, SAS compliant drive bays. An additional DASD backplane option can be selected to support up to eight hot-swap, SAS compliant drive bays. The backplane is connected to the internal connector of the integrated SAS controller through a SAS cable.

Cabling - Standard RAID configurations

Additional cabling alternatives

Rack installations

System x3550 M4 Management Node with Software Preload 1U rack-drawer models are designed to be installed in a 19-inch rack cabinet designed for 711.1 mm (28 in) deep devices, such as the NetBAY42U ER and NetBAY42U SR. Installation into some of the older Netfinity® racks (9306900, 9306910, 9306200) will require a rack extension kit for proper cable bend radius and cooling.

If an System x3550 M4 Management Node with Software Preload is mounted in a non-IBM rack, the rack must satisfy the following specifications:

- The rack must meet EIA-310-D standards for mounting flanges and hole locations.
- The front to rear distance of the mounting flanges must be 635 - 788 mm (25 - 31 in) if not using a cable management arm.
- The front to rear distance of the mounting flanges must be 716 - 744 mm (28 - 29 in) if using a cable management arm.
- The thickness of the mounting flanges must be 1.9 - 3.3 mm (0.08 - 0.13 in).
- The mounting flanges must have either 7.1 mm (0.28 in) diameter holes or 9.6 mm (0.38 in) square holes on the standard EIA hole spacing.
- The rack must have a minimum depth of 50 mm (1.97 in) between the front mounting flange and inside of the front door for appropriate cooling.
- The rack must have a minimum depth of 166 mm (6.53 in) between the rear mounting flange and inside of the rear door to install the server and provide cable management space.
- The minimum side-to-side clearance in the rack between the front and rear mounting flanges must be 467 mm (18.2 in) to accommodate the width of the server and the slide mounting brackets.
- The minimum side-to-side clearance in the rack between each door and the mounting flanges must be 484 mm (19.1 in) to accommodate the slide mounting brackets.
- The rack must 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 must be able to support the maximum rack configuration, including all servers, external cables, power distribution units, and so on.
• The rack must provide proper stabilization so that the rack does not become unstable when servers are pulled out for service.

**Processor options**

The System x3550 M4 Management Node with Software Preload is an Intel Xeon processor system that supports internal processing speeds of 2.00 GHz and processing operations to memory up to 1333 MHz. It contains an integrated, full-speed 15 MB advanced transfer L2 cache. This dual-socket system supports a second processor with the same Quick Path Interconnect (QPI) link speed, Integrated Memory Controller frequency, core frequency, power segment, internal cache size, and type of processor as the first.

**Power considerations**

The System x3550 M4 Management Node with Software Preload includes a standard 550-watt power supply. This power supply is capable of providing sufficient power to run the server fully configured with supported devices.

**Supported power options**

The following power options are supported:

• 550 W redundant power supply

**Cable orders**

Four 10/100/1000 Mbps, full-duplex Ethernet PCI controllers, standard with the System x3550 M4 server, are connected directly to an independent RJ-45 connector. The RJ-45 connector provides a 10BASET, 100BASE-TX, and 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 Mbps, or higher, Category 5e, 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 x3550 M4 Management Node with Software Preload 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**

One box

• System unit carton: System unit
• Country kit carton
  – System x3550 M4 Installation Guide
  – Rack Installation Guide

The System x3550 M4 Management Node with Software Preload is shipped in a single package. The country kit carton is contained inside the top portion of the system unit carton.

**Processor upgrade options**

• Intel Xeon processor
• Safety instructions and warranty
Supplies
None

Security, auditability, and control

Security and auditability features include:

- Power-on and privileged-access password functions provide controls of who has access to the data and server setup program on the server.
- A set unattended boot mode allows the system keyboard to be locked to all entries except the password and at the same time allows other computers on the network to access the system disk drive.
- A selectable boot sequence can be used to prevent unauthorized installation of software or removal of data from the diskette drive.
- An integrated Winbond Trusted Platform Module (TPM) version 1.2 (WPCT201BA0WG) security chip performs cryptographic functions and stores private and public security keys. It provides the hardware support for the Trusted Computing Group (TCG) specification. Users can download the software to support the TCG specification when the software is available. The TPM firmware can be upgraded in the field.

These servers are intended to be installed and secured in a rack. It is a customer's responsibility to ensure that the server and rack installation 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.

Terms and conditions

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

Warranty period

- System - 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 that 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 are the same as those for the machine in which it is installed.
The following have been designated as consumables, supply items, or structural parts and therefore not covered by this warranty:

- Tape filler
- EMC blank filler
- EIA sET kit
- Safety cover
- Airflow baffle
- Gen-III slide kit
- Gen-III 1U CMA kit
- DVD blank filler
- Blank fan filler
- MISC part kit
- Battery holder
- PSU filler
- CMA Assembly Kit
- CMA, 2U/4U kit
- Remote battery tray
- Gen-III 2U CMA Kit
- Slide kit
- Hard Drive cage

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 normal IBM 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 designated for your machine.

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 or features have been designated as Tier 2 CRUs:

- System Planar Board
- Processors (CPUs)/Heatsink

Other parts, including the following, have been designated as Tier 1 CRUs:

- CMOS batteries
- Hard disk drives
- System fan
- Power supply
- Memory DIMM
- Optical drive
- PCI adapter
- Power cord
- Service label
- System label
- Hypervisor USB key
- PCI riser
- RAID card without Battery
- Tape drive
- Ethernet daughter card
- Backplanes/backplate

**On-site Service**

At the discretion of IBM, you will receive CRU service or IBM or your reseller will repair the failing machine at your location and verify its operation. If required, On-site Repair can be provided for Tier 2 CRU parts. Two or more persons are required to remove this machine from the rack to a flat surface before IBM can provide on-site service. If you require IBM to remove the machine from the rack, you can purchase a warranty upgrade which will allow IBM to send two service technicians onsite to remove the machine from the rack for you. On-site Repair is provided, nine hours per day, Monday through Friday excluding holidays, NBD response. 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

For more information on IWS, refer to Services Announcement ZS01-0168, dated September 25, 2001.

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

**Warranty service upgrades**

**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 website


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.

**Pricing**

For all local charges, contact your IBM representative.

**ServicePac service upgrades**
The announced hardware products may also be eligible for ServicePac warranty upgrades. ServicePac provides a higher level of service to enhance the base IBM Machine Warranty and a selection of software support services.
ServicePacs can be purchased from your IBM Business Partner and are specific to the machines/products listed.

The upgrade level of service is dependant on country.

For a full list of ServicePac offerings and prices, refer to the IBM ServicePac Product Selector Tool at


**Announcement countries for ServicePac**

Announcement is restricted to the following countries:

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- Angola
- Austria
- Bahrain
- Belgium
- Botswana
- Bulgaria
- Croatia
- Czech Republic
- Denmark
- Egypt
- Estonia
- Finland
- France (Except overseas territories)
- Germany
- Greece
- Hungary
- Ireland
- Israel
- Italy
- Jordan
- Kazakhstan
- Kenya
- Kuwait
- Latvia
- Lebanon
- Lithuania
- Libya
- Luxembourg
- Mauritius
- Morocco
- Mozambique
- Netherlands
- Nigeria
- Norway
- Oman
- Pakistan
- Poland
- Portugal
- Qatar
- Romania
- Russia
- Saudi Arabia
- Serbia
- Slovakia
- Slovenia
- S. Africa
- Spain
- Sweden
- Switzerland
- Tanzania
- Tunisia
- Turkey
- UK (Mainland only)
- Ukraine
- United Arab Emirates

Order and registration via Finland

**Maintenance**

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

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**Announcement countries**

All European, Middle Eastern, and African countries.

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