

IBM System x3950 X5: Workload Optimized System for Database incorporates powerful Intel Xeon processors for high performance, scalability, and flexibility

Table of contents

2 Overview	10 Publications
3 Key prerequisites	12 Technical information
3 Planned availability date	21 Terms and conditions
3 Description	27 Prices
9 Product positioning	29 Order now
10 Product number	30 Corrections

At a glance



New IBM® System x3950 X5 high-performance servers feature four 10-core Intel Xeon™ processors and:

- Up to 64 DIMM slots per system (96 DIMM slots with MAX5), delivering up to 3 TB (with MAX5 and 32 GB DIMMs) of high-speed, lower-power, PC3-10600 ECC double data rate 3 (DDR3) SDRAM system memory
- Up to 192 DIMM slots per dual node system with MAX5 and eXA scaling, delivering up to 6 TB (with 32 GB DIMMs) of high-speed, lower-power, PC3-10600 ECC double data rate 3 (DDR3) SDRAM system memory
- eXFlash for high-performance solid-state drive storage
- eXA scaling with dual node systems with MAX5 for performance scaling up to eight sockets with FlexNode partitioning and node failover
- Emulex 10 Gb Ethernet Integrated Virtual Fabric Adapter
- Seven 5.0 Gb PCIe I/O (one x16, five x8, one x4) sockets
- Serial Attached SCSI (SAS) controller
- Integrated Broadcom 5709 Dual-port 10/100/1000 Megabit Ethernet
- Up to eight 2.5-inch hot-swap bays for flexible installation of HDDs
- Up to sixteen 1.8-inch hot-swap SSDs with total 3.2 TB of internal storage
- Standard Integrated Management Module
- Up to two 1975-watt, voltage sensing, rear access, hot-swap power supplies in main x3950 X5 chassis, with additional two 675-watt, voltage sensing, rear access, hot-swap power supplies in the MAX5 expansion
- Optional UltraSlim Enhanced SATA CD-RW/DVD-ROM Combo drive

- Six USB ports (two can be used for USB keyboard and mouse), SVGA video port, one serial port, and two 1 Gb Ethernet ports per chassis

Warranty: Three years, customer replaceable unit (CRU) and on-site¹ service, limited warranty² ; optional warranty service upgrades available.

For ordering, contact your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL (Reference: SE001).

Overview

These models of the System x3950 X5 servers are powered with four 10-core Intel Xeon processors, with optional IBM MAX5 memory expansion and eFlash storage for powerful 4-socket, highly scalable systems.

IBM MAX5 for System x® is a scalable, 1U, memory expansion drawer. It delivers 32 additional DIMM slots to the x3950 X5. It has a memory controller for added performance, 192 DIMM, slots and eXA scaling. MAX5 is available as an option for x3950 X5 database workload optimized models.

The x3950 X5 servers are the fifth generation of the Enterprise X-Architecture® (eX5), delivering innovation with enhanced reliability and availability features to enable optimal performance for databases, enterprise applications, and virtualized environments.

Potential benefits include:

- Increased performance
- Greater system uptime with advanced memory RAS
- Larger virtual machines or more virtual machines per system and increased CPU utilization with MAX5
- Four processors and 64 DIMMs (96 DIMMs with MAX5) for larger databases, enterprise applications, and mission-critical workloads
- Advanced networking capabilities with Emulex 10 Gb Virtual Fabric Adapter, standard in most models
- Low-power cost-effective memory with Advanced Buffer eXecution chip
- Integrated Management Module (IMM) for enhanced systems management capabilities
- Power management savings
- Up to 10-core processing performance per socket
- Memory ProteXion with Chipkill, memory mirroring, memory sparing, Intel™ SMI lane failover, SMI packet retry, and SMI clock failover
- Up to 96 DIMM slots per system with MAX5 delivering up to 3 TB (with 32 GB DIMMs) of high-speed PC3-10600 DDR3 memory
- Up to 192 DIMM slots per dual node system with MAX5 and eXA scaling, delivering up to 6 TB (with 32 GB DIMMs) of memory
- Serial Attach SCSI (SAS) plus RAID to maximize throughput and ease installation and data protection
- Up to eight 2.5-inch SATA or SAS HDDs, or sixteen 1.8-inch SSDs with eFlash, or a combination of both; most models come standard with one HDD backplane that can hold four drives, the second backplane is optional.
- 4U server plus 1U MAX5 rack-optimized, tool-free chassis that strikes the balance between rack density and ease of maintenance
- Rear access power supplies for easy access

Fifth-generation eX5 technology features

- New, leadership memory expansion and performance scaling technology that exceeds industry standards
- eFlash for high performance solid-state drive storage

- eXA scaling with dual node systems with MAX5 for performance scaling up to eight sockets with FlexNode partitioning and node failover
- Advanced fifth-generation Chipkill ECC memory controller to help correct single-bit, 2-bit, 3-bit, and 4-bit memory errors
- High-performance PCIe Gen 2 (5 GHz) I/O slots
- Hot-swap drive bays and redundant fans to replace selected components without powering down the server
- One or two hot-swap, rear access, redundant power supplies with 220 V ac input in each system (two in the x3950 X5, and two 675 W in the MAX5)
- Predictive Failure Analysis (PFA) on processors, memory, fans, power supply, and HDD options to help warn of problems before they occur
- Innovative light path diagnostics and top access design; easy to service and configure

¹ IBM sends a technician after attempting to diagnose and resolve the problem remotely.

² For information on the IBM Statement of Limited Warranty, visit

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

Alternatively, this information is also available by contacting your IBM representative or reseller. Copies are available upon request.

Feature exchange

None

Key prerequisites

Refer to the [Hardware requirements](#) section for details.

Planned availability date

- March 14, 2013:
 - 7143D3x
 - 7143D4x
 - All features, options, and pseudo options

Description

IBM System x3950 X5 servers

High-performance server subsystems

The new x3950 X5 servers are high-throughput, scalable, SMP-capable, 10-core Intel Xeon-based servers. They deliver excellent scalability for adding memory, adapter cards, or multiple processors.

Models are powered with four 10-core Intel Xeon processors that use 64-byte cache lines. EMT64T architecture supports 64-bit extensions. Four connectors for Xeon MP processors are standard on the system board. High-speed PC3-10600 ECC SDRAM provides excellent processor-to-memory subsystem performance.

The x3950 X5 system architecture is fine tuned and engineered to optimize the powerful Xeon processors. This architecture consists of the following components:

- 10-core Xeon processors
- System memory cards with Intel Scalable Memory Buffers
- Intel host-bridge I/O controllers

These Xeon processors use Intel Quick Path Interconnect busses for external operations. Each processor supports four independent busses to the memory, for a total of 34 GB/s of potential memory bandwidth per CPU.

High-availability and serviceability features

Many enterprise on demand environments run around the clock to supply information around the globe. These environments require ruggedly dependable servers designed with features that can tolerate a component failure without total shutdown. The x3950 X5 servers pack numerous fault-tolerant and high-availability features into a high-density, rack-optimized package that helps significantly reduce the space needed to support massive network computing operations.

Features include:

- Seven 5.0 Gb PCIe I/O (one x16, five x8, one x4) sockets
- Eight Serial Attach SCSI (SAS) HDD bays
- ECC DIMMs combined with an integrated advanced ECC memory controller with fourth-generation Chipkill support to correct many single-bit, 2-bit, 3-bit, and 4-bit memory errors to minimize disruption of service to LAN clients
- Memory ProteXion and memory mirroring
- Memory hardware scrubbing to correct many soft memory errors automatically without software intervention down time
- PFA on HDD options, memory, processors, power supply, and fans, in conjunction with IBM Systems Director, to help alert the system administrator of an imminent component failure
- Two 1975-watt, voltage sensing, rear access, hot-swap power supplies in the main x3950 X5 chassis, with two additional 675-watt, voltage sensing, rear access, hot-swap power supplies in the MAX5 expansion that enable individual fan replacement without powering down the server; plus one fan in each of the two hot-swap power supplies
- Standard IMM enabling diagnostic, reset, POST, and auto-recovery functions from remote locations and monitoring of temperature, voltage, and fan speed; alerts generated when thresholds are exceeded without utilizing an I/O slot
- Information LED panel, diagnostics LED panel, and component LEDs for visual indications of system well-being
- Light path diagnostics for an outside view of the potential problem without removing the cover, to help reduce down time and service costs
- Easy top access to system board, adapter cards, and memory
- CPU failure recovery in SMP configurations, allowing a failed processor to be forced offline, the server rebooted, an alert generated, and operation continued with the working processor
- Automatic node failover for increased availability in dual-node configurations

The servers include:

- Up to 8-socket (80-core) SMP operations with powerful 10-core Xeon processors
- Up to 64 DIMM slots in 4U of rack space delivering up to 3 TB (with 32 GB DIMMs) of high-speed PC3-10600 DDR3 memory
- Two worldwide, voltage-sensing, 1975-watt, hot-swap power supplies with auto-restart, standard
- Eight hot-swap drive bays, supporting up to 4 TB of internal data storage (using eight 500 GB SATA hot-swap HDDs)
- With eXFlash, up to sixteen hot-swap drive bays, supporting up to 3.2 TB of internal data storage (using sixteen 200 GB hot-swap SSDs)
- Terabytes of external data storage supporting optional storage units, ServeRAID SCSI controllers, and Fibre Channel controllers, and storage units

Configurations

XpandOnDemand scalability

- Modular building-block scalability delivers the flexibility to scale to meet your business needs, allowing you to configure your system to optimize for your application and business needs.

IBM MAX5 for System x

IBM MAX5 for System x is a scalable, 1U, memory expansion drawer. It delivers an additional 32 DIMM slots to the x3950 X5 with a memory controller for added performance.

Main features include:

- Intel QPI link topology at up to 6.4 Gbps with four QPI links for host connection
- Intel ISMI link topology at up to 6.4 Gbps with eight ISMI links
- Sixteen DDR3 busses with support for up to 32 DIMMs per node

The processors in the host systems have the following two QPI link speeds, which derive the various bus speeds throughout the system, both in the host and the IBM MAX5 for System x drawer. Refer to the following table:

IBM MAX5 for System x Bus Speeds Relationship

Processor QPI Speed	Scalability Speed	ISMI Speed	DDR3 Speed
5.86 GHz	9.6 GHz	5.86 GHz	977 MHz
6.4 GHz	10 GHz	6.4 GHz	1067 MHz

IBM MAX5 for System x base electronics

- eX5 node and memory controller
 - Four 6.4 Gbps QPI 1.0 Links, for 4 CPUs
 - Three 10 Gbps EXA5 Scalability Links
 - Eight 6.4 Gbps ISMI busses (to eight memory buffers)
- Intel memory buffer
 - Two DDR3 memory busses per memory buffer
 - Two DIMMs per bus (up to Quad Rank DIMMs)
 - Thirty-two DIMM slots total
 - 2 GB, 4 GB, 8 GB, 16 GB DIMMs
 - DDR3 bus speed up to 1067 MHz
- No CPUs
- No IO slots
- No hard drives
- Systems management
 - Host system provides iBMC control
 - Light path LEDs
- Power and packaging
 - 1U scalable rack model
 - Two 675 W power supplies
 - Five redundant hot-swap fans
 - Light path diagnostic display
- Operating systems

- Solely dependent on attached host

IBM Systems Director CD with 20 agent license proofs of entitlement includes support for the IBM System x3950 X5 servers.

Systems management

x3950 X5 servers feature IBM Systems Director, a powerful, highly integrated, systems-management software solution built on industry standards and designed for ease of use.

With IBM Systems Director, a network administrator can perform the following tasks:

- View the hardware configuration of remote systems in detail.
- Monitor the usage and performance of critical components such as microprocessors, disks, and memory.
- Centrally manage individual or large groups of IBM and non-IBM, Intel-based servers, desktop computers, workstations, and mobile computers on a variety of platforms.

IBM Systems Director provides a comprehensive entry-level workgroup hardware manager. It has the following key features:

- Advanced self-management capabilities for maximum system availability.
- Support for multiple operating systems, including certain versions of Microsoft™ Windows™ 2003 Server, Windows XP Professional, Red Hat Linux™, SUSE Linux, and Novell NetWare. For a complete list of operating systems that support IBM Systems Director, visit

http://publib.boulder.ibm.com/infocenter/eserver/v1r2/index.jsp?topic=/dirinfo_5.20/f_qm0_r_supported_operating_systems.html

The list is updated periodically.

- Support for IBM and non-IBM servers, desktop computers, workstations, and mobile computers. (Not all IBM Systems Director features are supported on non-IBM servers.)
- Support for systems-management industry standards.
- Integration into leading workgroup and enterprise systems-management environments.
- Ease of use, training, and setup.

IBM Systems Director also provides an extensible platform that supports advanced servers that are designed to help reduce the total cost of managing and supporting networked systems. By deploying IBM Systems Director, you may achieve reductions in ownership costs through the following potential benefits:

- Reduced down time.
- Increased productivity of IT personnel and users.
- Reduced service and support costs.

For more information about IBM Systems Director, refer to the CD included with the server or the IBM Systems Director documentation on the CD, or visit

<http://www-03.ibm.com/systems/software/director/index.html>

IBM Systems Director includes IBM Systems Director Extensions, a portfolio of server tools that integrates into the IBM Systems Director interface and works with the Integrated Management Module, or other systems-management monitoring functions contained in IBM System x eX5 servers. Typical functions and monitoring capabilities can include:

- PFA-enabled critical hardware components

- Temperature
- Voltage
- Fan speed
- Light path diagnostics

The IT administrator gains comprehensive, virtual on-site control of IBM System x3950 servers through the ability to remotely:

- Access the server, in many cases 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
- Run diagnostics, SCSI, 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
 - Fans
 - Power supplies
 - HDDs
- Define automated actions such as:
 - Send an email or page to an administrator
 - Execute a command or program
 - Pop up an error message to the IBM Systems Director console
- 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

Active Energy Manager tools and programs

The IBM Active Energy Manager tool is available on the System x3950 X5 servers. IBM Systems Director Active Energy Manager™ V3.1 is the next-generation product of IBM PowerExecutive™ which was previously available from IBM for x86 systems only. IBM Systems Director Active Energy Manager now supports multiple IBM platforms and provides new capabilities that build upon the functions previously available with IBM PowerExecutive V2.1. Enhancements to existing function include:

- Cross-system monitoring and management support
- Dynamic polling rate
- Discovery and monitoring of intelligent PDUs

The Active Energy Manager V3.1 offering has both no-charge (free) monitoring functions and optional chargeable (fee-based) management functions.

No-charge monitor functions

- Power Trending
- Thermal Trending
- iPDU Support

Priced Management functions

- Power Capping
- Power Savings Mode

For more information, refer to

<http://www-03.ibm.com/systems/management/director/extensions/actengmrg.html>

Memory ProteXion

- Is included at no additional cost, requires no additional hardware, and works independently of the operating system
- Is similar to the "hot-spare" of a DASD array

Memory mirroring:

- Propels Intel-based servers towards continuous operations
- Dramatically helps to increase up time and allow scheduled maintenance
- Helps provide capability and reliability approaching a mainframe
- Is operating system independent; does not require drivers or operating system support

Chipkill memory:

- Offers integrated XA-64e chipsets for using off-the-shelf DIMMs
- Increases availability by detecting and helping to correct single-bit, 2-bit, 3-bit, and 4-bit memory errors

World-class support tools and programs

x3950 X5 servers include 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.

- IBM customer replaceable unit (CRU) and on-site, three-year limited warranty with next-business-day service (same-business-day service optionally available) protects your investment if a problem occurs. This service also includes replacement of parts identified through PFA.
- The ServerProven®³ program lets you confidently configure your server with various devices and operating systems. This web-based program provides compatibility information from actual testing of the x3950 X5 servers with various adapters and devices.
- The ServerGuide⁴ CD library includes online publications and utilities and drivers that help you load popular network operating systems.
- Electronic support on the web offers additional support in an easy-to-use format.

³ IBM makes no warranties, expressed or implied, regarding non-IBM products and services that are ServerProven, including but not implied warranties and of merchantability and fitness for a particular purpose. These products are offered and warranted solely by third parties.

⁴ The Microsoft Windows Preinstallation Environment software, included as part of ServerGuide software, may be used for boot diagnostic, setup, restoration, installation, configuration, test, or disaster recovery purposes only. To download the ServerGuide, visit

<http://www-03.ibm.com/systems/management/serverguide/sub.html>

The Microsoft Windows Preinstallation Environment software contains a security feature that will cause an end user customer's system to reboot without prior notification to the end user customer after 24 hours of continuous use of the Microsoft Windows Preinstallation Environment. During routine usage of ServerGuide, which does not usually require usage of the Microsoft Windows Preinstallation Environment software for such an extended time period, this condition should not occur.

IBM ToolsCenter

The IBM ToolsCenter is a collection of server management tools to help manage your IBM System x and BladeServer environment. ToolsCenter makes managing your server environment less complicated, more productive and cost-effective.

For more information, refer to

<http://www-947.ibm.com/support/entry/portal/docdisplay?brand=5000008&Indocid=TOOL-CENTE R>

IBM System x3950 X5 model configurations

IBM System x3950 X5: workload Optimized System for Database

System Number	SE0 Processor	Cache	Memory	HDD	HDD Iface	Power Supply
7143-D3x	4 x 2.0 GHz Xeon E7-4860 10 core 130w	24 MB	32x4 GB with 1 memory card 32x4 GB on Riser	SAS	open bay	two Scalable
7143-D4x	4 x 2.26 GHz Xeon E7-4860 10 core 130w	24 MB	32x4 GB with 1 memory card 32x4 GB on Riser	SAS	open bay	two

Product positioning

These new IBM System x3950 X5: Workload Optimized System for Database models enhance the server line by providing new levels of performance and price/performance. The IBM System x3950 X5 servers with optional MAX5 have the unique capability of expanding memory beyond the limit of the processor, increasing the utilization and productivity of the system.

Equipping the IBM System x3950 X5 servers with MAX5 increases memory capacity by 50%, making them ideal for virtualized environments and handling complex, memory-intensive on-demand applications that must be supported by space-saving, rack-optimized servers.

The IBM System x3950 X5 servers provide excellent scalable processing capability supporting high-speed memory, PCIe bus architecture, and 6-core, 8-core, and 10-core Intel Xeon processors.

This makes the IBM System x3950 X5 servers an excellent fit for current and future enterprise on-demand applications.

These high-density, Intel Xeon-based servers are designed to handle complex applications requiring high-speed computing power, advanced high-availability functions, and a minimum amount of rack space.

Applications include:

- On-demand business
- Business intelligence
- Transaction processing
- Enterprise resource planning
- Collaboration applications (Microsoft Exchange and Lotus Notes®)
- Server consolidation and virtualization

- Internet or intranet front-end serving
- Web content serving
- Database storage as a SAN solution

Reference information

For information on ServicePacs, refer to Services Announcement [606-013](#), dated August 07, 2006 , and Hardware Announcement [106-670](#), dated September 19, 2006 .

Business Partner information

If you are a Direct Reseller - System Reseller acquiring products from IBM , you may link directly to Business Partner information for this announcement. A PartnerWorld® ID and password are required (use IBM ID).

<https://www.ibm.com/partnerworld/mem/sla.jsp?num=113-031>

Product number

IBM System x3950 X5: Workload Optimized System for Database

The Single Entity Offerings (SEO)

Description	SEO Number
IBM System x3950 X5: workload optimized System for Database	7143D3U 7143D4U

Publications

The *IBM System Types 7145, 7146, 7143, and 7191 x3850 X5 and x3950 X5 Installation and User's Guide* , and the *IBM System Types 7145, 7146, 7143, and 7191 x3850 X5 and x3950 X5 Problem Determination and Service Guide* , in US English versions, are available from our website

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

They contain 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 x3950 X5 servers.

IBM Systems 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 *IBM System Types 7145, 7146, 7143, and 7191 x3850 X5 and x3950 X5 Installation and User's Guide* , and the *IBM System Types 7145, 7146, 7143, and 7191 x3850 X5 and x3950 X5 Problem Determination and Service Guide* , in US English versions, are available from our website

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

IBM Publications Center Portal

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

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

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

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

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

System x and BladeCenter® support services

Recommended core technical support

When you buy IBM System x technology, include the support services you need -- to help keep both your hardware and software working for you, day after day, at peak performance. It is your first step toward helping to protect your investment and sustain high levels of system availability. We offer service-level and response-time options to fit your business needs. And we will help you get started with a core support package that includes:

- **Continuous system monitoring**

Electronic monitoring that helps speed up problem-solving with automated, early detection of potential problems and system errors.

- **Hardware maintenance**

World-class remote and on-site hardware problem determination and repair services.

- **Software technical support**

Access to help line calls for fast, accurate answers to your questions during installation and throughout ongoing operations.

For more information, visit

<http://www.ibm.com/servers/eserver/xseries/services.html>

Technical information

Specified operating environment

Physical specifications - IBM System x3950 X5: Workload Optimized System for Database

EMEA x=G

	7143D3x
Processor	Xeon E7-4860
Ten-core	130w
Internal speed	2.0 GHz
Memory bus speed	1066 MHz
Number standard	4
Maximum	4
Interconnect speed	6.40 GT/s
L3 cache total	24 MB
Memory (PC3-10600 DDR3)	128 GB ECC
DIMMS	32 x 4 GB
DIMM sockets standard	64
DIMM sockets maximum	64
Capacity	2048 GB ⁵
Memory expansion card	
Number standard	1
Maximum	8
MAX5	Optional
DIMMS	0
DIMM sockets maximum	32
Video	SVGA
Memory	16 MB
SAS controller	Server RAID-BR10i standard
Ports	8
Connector internal	2
Connector external	0
HDD standard	0
Bays available	4 Standard, 8 with upgrade kit
2.5-inch slim	4 Standard, 8 with upgrade kit
Hot-swap	4 Standard, 8 with upgrade kit
Internal capacity	4 TB ⁶
PCIe sockets	7
Management processor IMM	Standard
RAID 0/1	Standard
Server RAID M5015 6Gb	Optional
Dual Ethernet controller	Standard
10/100/1000 Mbps	
Emulex 10Gb Dual-port	Standard
Ethernet Adapter	
Optical disk drive	Optional
Power supply	1975 w
Number standard	2
Maximum	2
Hot-swap	Yes
Redundant power	Standard
Auto-restart	Yes
MAX5 power supply	675 w
MAX5 number standard	0
MAX5 maximum	2
Hot-swap	Yes
Redundant power	Standard
Auto-restart	Yes

EMEA x=G

	7143D4x
Processor	Xeon E7-4860
Ten-core	130w

Internal speed	2.26 GHz
Memory bus speed	1066 MHz
Number standard	4
Maximum	4
Interconnect speed	6.40 GT/s
L3 cache total	24 MB
Memory (PC3-10600 DDR3)	128 GB ECC
DIMMS	32 x 4 GB
DIMM sockets standard	64
DIMM sockets maximum	64
Capacity	2048 GB ⁵
Memory expansion card	
Number standard	2
Maximum	8
MAX5	Optional
DIMMS	0
DIMM sockets maximum	32
Video	SVGA
Memory	16 MB
SAS controller	ServerRAID-BR10i standard
Ports	8
Connector internal	2
Connector external	0
HDD standard	0
Bays available	4 Standard, 8 with upgrade kit
2.5-inch slim	4 Standard, 8 with upgrade kit
Hot-swap	4 Standard, 8 with upgrade kit
Internal capacity	4 TB ⁶
PCIe sockets	7
Management processor IMM	Standard
RAID 0/1	Standard
ServerRAID M5015 6Gb	Optional
Dual Ethernet controller	Standard
10/100/1000 Mbps	
Emulex 10Gb Dual-port	Standard
Ethernet Adapter	
Optical disk drive	Optional
Power supply	1975 w
Number standard	2
Maximum	2
Hot-swap	Yes
Redundant power	Standard
Auto-restart	Yes
MAX5 power supply	675 w
MAX5 number standard	0
MAX5 maximum	2
Hot-swap	Yes
Redundant power	Standard
Auto-restart	Yes

⁵ Capacities are based on installation of the eight memory expansion cards and eight 32 GB DIMMs installed in each card.

⁶ Capacities are based on installation of eight 500 GB 2.5-inch SFF SATA HDDs. For the latest information on supported HDD options, visit

<http://www-03.ibm.com/servers/eserver/serverproven/compat/us/indexsp.html>

Supported video mode capabilities for the SVGA PCI controller:

windows 2003 (32-bit and 64-bit) and Linux (all distributions)

Resolution	Colors	Refresh Rate (Hz)
640 x 480 x 8	256	60, 72, 75, 85, 90, 100, 120, 160, 200
640 x 480 x 16	64K	60, 72, 75, 85, 90, 100, 120, 160, 200
640 x 480 x 32	16M	60, 72, 75, 85, 90, 100, 120, 160, 200
800 x 600 x 8	256	60, 70, 72, 75, 85, 90, 100, 120, 160, 200
800 x 600 x 16	64K	60, 70, 72, 75, 85, 90, 100, 120, 160, 200
800 x 600 x 32	16M	60, 70, 72, 75, 85, 90, 100, 120, 160
1024 x 768 x 8	256	60, 70, 72, 75, 85, 90, 100, 120, 140, 150, 160, 200

1024 x 768 x 16	64K	60, 70, 72, 75, 85, 90, 100, 120, 140, 150, 160, 200
1024 x 768 x 32	16M	60, 70, 72, 75, 85, 90, 100
1280 x 1024 x 8	256	60, 72, 75
1280 x 1024 x 16	64K	60, 72, 75
1280 x 1024 x 32	16M	60, 72, 75

Dimensions

4U rack drawer

- Width: 440 mm (17.32 in.)
- Depth: 712.1 mm (28.04 in.)
- Height: 172.8 mm (6.81 in.)
- Minimum configuration: 35.4 kg (78 lb)
- Maximum configuration: 49.90 kg (110 lb)

Electrical

- 100 to 127 (nominal) V ac; 50 Hz or 60 Hz; System 20A (10A/PS)
- 200 to 208 (nominal) V ac; 50 Hz or 60 Hz; System 10A
- 200 to 240 (nominal) V ac; 50 Hz or 60 Hz; System 9A
 - Minimum configuration: 0.20 kVA (one power supply)
 - Minimum configuration: 0.26 kVA (two power supplies)
 - Typical configuration: 1.12 kVA (two power supplies)
 - Maximum configuration: 2.16 kVA (two power supplies)
- Btu output:
 - Ship configuration (1PS): 648 Btu/hr (190 watts)
 - Ship configuration (2PS): 802 Btu/hr (235 watts)
 - Typical configuration: 3,753 Btu/hr (1100 watts)
 - Full configuration: 7,336 Btu/hr (2150 watts)
- Noise level horizontal position: 6.3 bels

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.

Standards

x3950 X5 servers are intended for use as rack-drawer servers and are tested and designed to operate in a horizontal position.

These systems support or comply with the following standards:

- Multiprocessor Specification (MPS) 1.4
- Hardware-enabled to meet ISO 9241, Part 3

In addition to the above standards, they are compatible with the PCIe specification.

Equipment approvals and safety

- FCC - Verified to comply with Part 15 of the FCC Rules, Class A
- Canada ICES-003, issue 4, Class A
- IEC/UL 60950-1, 2nd Edition
- CAN/CSA - C22.2 No. 60950-1-07 2nd Edition
- NOM-019⁷

⁷ These servers are certified by the respective UL and NOM agencies.

Operating environment

- Temperature:
 - 10.0°C to 35.0°C (50°F to 95°F) at 0 to 914 m (0 to 3,000 ft)
 - 10.0°C to 32.0°C (50°F to 90°F) at 914 to 2,133 m (3,000 to 7,000 ft)
- Relative humidity: 8% to 80%

Homologation

This product is not certified for direct connection by any means whatsoever to interfaces of public telecommunications networks. Certification may be required by law prior to making any such connection. Contact an IBM representative or reseller for any questions.

Hardware requirements

For attended installation of an operating system, this server requires a compatible:

- Keyboard
- Mouse
- 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 servers require a compatible:

- Keyboard
- Mouse
- 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 have been tested for compatibility with the x3950 X5 server.

Network operating systems

- Microsoft :
 - Windows Server 2003 (64-bit)
 - Windows Server 2003 R2 (64-bit)
 - Windows Server 2008 R2 (64-bit)
 - Windows Server 2008 (64-bit)
 - Windows Server 2012 (64-bit)
- Linux :
 - Red Hat EL 5 Server for 64-bit
 - Red Hat EL 5 Server for 64-bit (with Xen)
 - Red Hat EL 6 Server for 64-bit
 - SUSE Linux ES 10 for x86-64
 - SUSE Linux ES 10 for x86-64 (with Xen)
 - SUSE Linux ES 11 for x86-64

- SUSE Linux ES 11 for x86-64 (with Xen)
- Other:
 - VMware vSphere Hypervisor 4.1 U1

The MAX5 drawer is designed to work seamlessly with the servers and operating system software, and provides a high-speed low-latency path to additional memory. The connection, enabled by the IBM-exclusive eX5 technology, is fast and wide enough to ensure that operating systems and applications see just a single, large memory space - thus no software modifications are necessary to use MAX5.

Note: For information on additional support, certification, and versions of network operating systems, visit

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

IBM makes no representation or warranty regarding third-party products, including those designated as ServerProven .

Compatibility

The IBM System x3950 X5 servers contain licensed system programs that include set configuration, set features, and test programs. IBM 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 IBM System x3950 X5 servers 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 IBM System x3950 X5 servers, visit

<http://www-03.ibm.com/servers/eserver/serverproven/compat/us/indexsp.html>

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 IBM System x3890 X5 servers. The *Sales Manual* is updated periodically as new features and options are announced that support these servers.

Limitations

Memory

The x3950 X5 servers are shipped with up to 384 GB high-speed PC3-10600 DDR3 ECC memory standard, supporting up to 3 TB (with 32 GB DIMM) of system memory per server in combination with the MAX5 5U expansion option. All supported system memory is addressable through direct memory access (DMA). This server supports 2 GB, 4 GB, 8 GB, 16 GB, and 32 GB 1.5 V, or 1.35 V, 240-pin, PC3-10600 ECC DDR3 SDRAM RDIMMs. Supported DIMMs can coexist in the same server; however, memory DIMMs of the same capacity must be installed in matched pairs. Refer to the [Planning information](#) section or the IBM System x3950 X5 server web page for memory options.

The x3950 X5 servers have RAID 0 and RAID 1 standard. The ServeRAID M5015 SAS/SATA Controller provides additional RAID levels.

ServerGuide

Use the version of *ServerGuide* available on the web to load software and drivers. Earlier versions of *ServerGuide* may not be compatible with the servers.

Versions of VMware vSphere Hypervisor prior to 4.1 do not support MAX5.

Planning information

Customer responsibilities

x3950 X5 Server and Related Options

The x3950 X5 servers and the IBM MAX5 for System x are designated as customer setup. Customer setup instructions are shipped with systems.

Configuration information

Bay configuration

The x3950 X5 servers contain eight customer-accessible drive bays on the front of the server. A lower left bay is for the slim combo drive. Eight unpopulated 2.5-inch, slim-high, hot-swap drive bays are located beneath this bay.

The UltraSlim Enhanced SATA CD-RW / DVD-ROM Combo drive is cabled directly to the SATA port.

Internal SCSI cabling

Models of the x3950 X5 servers contain a DASD backplane supporting four hot-swap, SCA-2-compliant drive bays. The x3950 X5 models with the BR-10i controller support RAID 0 and RAID 1 standard. The optional ServeRAID-5015 SAS/SATA Controller provides additional RAID levels.

Processor upgrade

The following processor upgrade options are supported:

- Intel Xeon Processor E7-4807 - 1.86 GHz 18 MB L3 Cache 1066 MHz six-core Processor Upgrade (88Y5320)
- Intel Xeon Processor E7-4820 - 1.86 GHz 18 MB L3 Cache 1066 MHz eight-core Processor Upgrade (88Y5322)
- Intel Xeon Processor E7-4830 - 2.13 GHz 24 MB L3 Cache 1066 MHz eight-core Processor Upgrade (88Y5324)
- Intel Xeon Processor E7-4860 - 2.0 GHz 24 MB L3 Cache 1066 MHz ten-core Processor Upgrade (88Y5396)
- Intel Xeon Processor E7-4860 - 1.86 GHz 24 MB L3 Cache 1066 MHz ten-core Processor Upgrade (88Y5326)
- Intel Xeon Processor E7-4870 - 1.86 GHz 30 MB L3 Cache 1066 MHz ten-core Processor Upgrade (69Y1852)
- Intel Xeon Processor E7-8830 - 2.13 GHz 24 MB L3 Cache 1066 MHz eight-core Processor Upgrade (69Y1858)
- Intel Xeon Processor E7-8850 - 2.0 GHz 24 MB L3 Cache 1066 MHz ten-core Processor Upgrade (88Y5398)
- Intel Xeon Processor E7-8860 - 2.26 GHz 24 MB L3 Cache 1066 MHz ten-core Processor Upgrade (69Y1862)
- Intel Xeon Processor E7-8870 - 2.4 GHz 30 MB L3 Cache 1066 MHz stencore Processor Upgrade (69Y1864)

Memory support

The following memory options are supported:

- 2 GB PC3-10600 CL4 ECC DDR3 SDRAM RDIMM (44T1481)
- 4 GB PC3-8500 CL4 ECC DDR3 SDRAM RDIMM (46C7448)
- 8 GB PC3-8500 CL4 ECC DDR3 SDRAM RDIMM (46C7482)
- 16 GB PC3-8500 CL4 ECC DDR3 SDRAM RDIMM (46C7483)
- 32 GB (1x32GB, 4Rx4, 1.35V) PC3L-8500 CL7 ECC DDR3 1066MHz LP RDIMM (90Y3206)

- 4 GB (1x4GB, 2Rx8, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM (49Y1407)
- 8 GB (1x8GB, 4Rx8, 1.35V) PC3L-8500 CL7 ECC DDR3 1066MHz LP RDIMM (49Y1399)
- 16 GB (1x16GB, 4Rx4, 1.35V) PC3L-8500 CL7 ECC DDR3 1066MHz LP RDIMM (49Y1400)

Memory DIMMs should be plugged in order of size -- largest first, followed by the next size. When plug order moves to new DIMM numbers, start with the memory card with the smallest total amount.

- Example: Four CPUs, four memory cards, four 8 GB DIMMs, eight 4 GB DIMMs.
 - Card1 DIMMs 1 and 8 = 2 x 8 GB
 - Card7 DIMMs 1 and 8 = 2 x 8 GB
 - Card3 DIMMs 1 and 8 = 2 x 4 GB
 - Card5 DIMMs 1 and 8 = 2 x 4 GB
- When moving to next DIMM locations 3 and 6, start with the card with the least amount of memory.
 - Card3 DIMMs 3 and 6 = 2 x 4 GB
 - Card5 DIMMs 3 and 6 = 2 x 4 GB
- End result is four memory cards, each with 16 GB, balanced for the best performance

Note: Refer to details on the ServerProven Plan for memory supported in x3950 and memory supported in MAX5 at

<http://www-03.ibm.com/servers/eserver/serverproven/compat/us/indexsp.html>

PCIe adapter installations

The x3950 X5 servers contain PCIe architecture and seven 5.0 Gb PCIe I/O (one x16, five x8, one x4) sockets.

Rack installations

x3950 X5 4U, rack-drawer models are designed to be installed in a 19-inch rack cabinet designed for 26-inch deep devices, such as the NetBAY42 ER, NetBAY42 SR, NetBAY25 SR, or NetBAY11.

If using a non-IBM rack, the cabinet must meet the EIA-310-D standards with a depth of at least 71.1 cm (28 in). Also, adequate space (approximately 5 cm (2 in) for the front bezel and 2.5 cm (1 in) for air flow) must be maintained from the slide assembly to the front door of the rack cabinet to allow sufficient space for the door to close and provide adequate air flow.

Power considerations

These x3950 X5 models include two 1975-watt, voltage sensing, rear access, hot-swap power supplies in the main x3950 X5 chassis, with two additional 675-watt, voltage sensing, rear access, hot-swap power supplies in the MAX5 expansion option.

Cable orders

The 10/100/1000 Mbps full-duplex, Dual Ethernet PCIe controller is standard with the x3950 X5 servers. The RJ-45 connectors provide a 10BASE-T or 100/1000BASE-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 x3950 X5 server requires about 40 minutes for installation. Installation includes unpacking, setting up, and powering on the system. Additional time is required to install an operating system, additional adapters, or features.

Packaging

Product	Shipment group	Number of boxes
IBM System x3950 X5	System unit carton	1
	Contents:	
	System unit	
	IBM MAX5 for System x (if ordered)	
	Rack kits (two sets:	
	Rails	
	Cable management hardware	
IBM System x3950 X5	Country kit carton	1
	Contents:	
	Four 2.8m 220 V intra-rack cables	
	Safety booklet	
	CD-ROM Packages	
	IBM Systems Director	
	CD-ROM Packages	
	Active Energy Manager	
	On/off switch cover	

The x3950 X5 systems are shipped as a single package. The country kit carton is contained inside the top portion of the system unit carton, while the rack components are contained in the system unit carton.

The following publications will be available on the support website and on the Documentation CD.

The *IBM System Types 7145, 7146, 7143, and 7191 x3850 X5 and x3950 X5 Installation and User's Guide*, and the *IBM System Types 7145, 7146, 7143, and 7191 x3850 X5 and x3950 X5 Problem Determination and Service Guide*, in US English versions, are available from our website.

The *Warranty Information* publication will be available as a hardcopy publication at

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

Related options

Processor upgrades

- Xeon processor
- Installation publications/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.
- These servers are Winbond Trusted Platform Module V1.2, Trusted Computing Group (TCG) compliant.

Limitations

The x3950 X5 servers have no security intrusion detection; therefore, they should be installed in a rack environment that provides security through lockable doors or other security measures. It is a customer's responsibility to ensure that the server is secure to protect sensitive data.

The system supports integrity measurements. The TPM is TCG V1.2-compliant, and is ready for use with software purchased from third-party TPM Ecosystem partners in compliance with the TPM V1.2 specification.

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

IBM Electronic Services

Electronic Service Agent™ and the IBM Electronic Support web portal are dedicated to providing fast, exceptional support to IBM Systems customers. The IBM Electronic Service Agent tool is a no-additional-charge tool that proactively monitors and reports hardware events, such as system errors, performance issues, and inventory. The Electronic Service Agent tool can help you stay focused on your company's strategic business initiatives, save time, and spend less effort managing day-to-day IT maintenance issues. Servers enabled with this tool can be monitored remotely around the clock by IBM Support all at no additional cost to you.

Electronic Service Agent is designed to automatically and electronically report system failures and utilization issues to IBM, which can result in faster problem resolution and increased availability. System configuration and inventory information collected by the Electronic Service Agent tool also can be viewed on the secure Electronic Support web portal, and used to improve problem determination and resolution by you and the IBM support team. To access the tool main menu, simply type "smitty esa_main", and select "Configure Electronic Service Agent ." In addition, ESA now includes a powerful web user interface, giving the administrator easy access to status, tool settings, problem information, and filters. For more information and documentation on how to configure and use Electronic Service Agent, refer to

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

The IBM Electronic Support portal is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. This portal enables you to gain easier access to IBM resources for assistance in resolving technical problems. The My Systems and Premium Search functions make it even easier for Electronic Service Agent tool-enabled customers to track system inventory and find pertinent fixes.

Benefits

Increased uptime: The Electronic Service Agent tool is designed to enhance the Warranty or Maintenance Agreement by providing faster hardware error reporting and uploading system information to IBM Support. This can translate to less wasted time monitoring the "symptoms," diagnosing the error, and manually calling IBM

Support to open a problem record. Its 24 x 7 monitoring and reporting mean no more dependence on human intervention or off-hours customer personnel when errors are encountered in the middle of the night.

Security: The Electronic Service Agent tool is designed to be secure in monitoring, reporting, and storing the data at IBM . The Electronic Service Agent tool securely transmits either via the Internet (HTTPS or VPN) or modem, and can be configured to communicate securely through gateways to provide customers a single point of exit from their site. Communication is one way. Activating Electronic Service Agent does not enable IBM to call into a customer's system. System inventory information is stored in a secure database, which is protected behind IBM firewalls. It is viewable only by the customer and IBM . The customer's business applications or business data is never transmitted to IBM .

More accurate reporting: Since system information and error logs are automatically uploaded to the IBM Support center in conjunction with the service request, customers are not required to find and send system information, decreasing the risk of misreported or misdiagnosed errors. Once inside IBM , problem error data is run through a data knowledge management system and knowledge articles are appended to the problem record.

Customized support: Using the IBM ID entered during activation, customers can view system and support information in the "My Systems" and "Premium Search" sections of the Electronic Support website at

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

My Systems provides valuable reports of installed hardware and software using information collected from the systems by Electronic Service Agent . Reports are available for any system associated with the customer's IBM ID. Premium Search combines the function of search and the value of Electronic Service Agent information, providing advanced search of the technical support knowledgebase. Using Premium Search and the Electronic Service Agent information that has been collected from your system, customers are able to see search results that apply specifically to their systems.

For more information on how to utilize the power of IBM Electronic Services, contact your IBM Systems Services Representative, or visit

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

Terms and conditions

IBM Global Financing

Yes

IBM System x3950 X5

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

In the United States, call 800-IBM-SERV (426-7378), or write to:

Warranty Information
P.O. Box 12195
Research Triangle Park, NC 27709
Attn: Dept JDJA/B203

Warranty period

- Three years
- Optional features - One year

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

Note: For configurations that support the RAID Battery, the RAID battery will be warranted for 1 year effective on its "Date of Installation." All other product warranty terms for the machine remain unchanged.

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

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

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

Customer Replaceable Unit (CRU) Service

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

- Battery 3.0 Volt CMOS
- Op panel card
- 1975W PS
- PDU power cord
- 60 mm fan
- 120 mm fan

- Top cover
- Top bckt asm
- Sys bezel
- Rail kit
- Shipping brkt
- Cable management arm
- Filler kit
- Label kit
- SAS data cable
- Memory DIMMs
- Hard disk drives
- Ethernet adapter
- RAID card
- MAX5 fans
- MAX5 675W PS

On-site Service

At IBM's discretion 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 is provided, 9 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.

Call IBM at 1-800-IBM-SERV (426-7378) to assist with problem isolation for hardware to determine if warranty service is required. Telephone support may be subject to additional charges, even during the limited warranty period.

Calls must be received by 5:00 p.m. local time in order to qualify for NBD service.

International Warranty Service (IWS)

IWS is available in selected countries or regions.

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

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

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

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

For more information on IWS, refer to Services Announcement [601-034](#), 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.

Maintenance services

ServicePac® , ServiceSuite® , ServiceElect, and ServiceElite

ServicePac , ServiceSuite , ServiceElect, and ServiceElite provide hardware warranty service upgrades, maintenance, and selected support services in one agreement.

Warranty service upgrade

During the warranty period, a warranty service upgrade provides an enhanced level of On-site Service for an additional charge. A warranty service upgrade must be purchased during the warranty period and is for a fixed term (duration). It is not refundable or transferable and may not be prorated. If required, IBM will provide the warranty service upgrade enhanced level of On-site Service acquired by the customer. Service levels are response-time objectives and are not guaranteed.

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.

CRUs will be provided as part of the machine's standard warranty CRU Service except that you may install a Tier 1 CRU yourself or request IBM installation, at no additional charge, under one of the On-site Service levels specified below.

IBM 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.

Maintenance service

If required, IBM provides repair or exchange service, depending on the type of maintenance 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.

CRU Service

If your problem can be resolved with a CRU (for example, keyboard, mouse, speaker, memory, or hard disk drive), IBM will ship the 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.

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.

On-site Service

IBM 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.

Maintenance service (ICA)

Maintenance services are available for ICA legacy contracts.

Alternative service (warranty service upgrades)

During the warranty period, a warranty service upgrade provides an enhanced level of On-site Service for an additional charge. A warranty service upgrade must be purchased during the warranty period and is for a fixed term (duration). It is not refundable or transferable and may not be prorated. If required, IBM will provide the warranty service upgrade enhanced level of On-site Service acquired by the customer. Service levels are response-time objectives and are not guaranteed.

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.

A CRU will be provided as part of the machine's standard warranty CRU Service except that you may install a Tier 1 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service designated for your machine.

IBM 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.

Maintenance service

If required, IBM provides repair or exchange service, depending on the type of maintenance 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.

CRU Service

If your problem can be resolved with a CRU (for example, keyboard, mouse, speaker, memory, or hard disk drive), IBM will ship the 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.

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.

On-site Service

IBM 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.

Non-IBM parts support

Warranty service

IBM is now shipping machines with selected non-IBM parts that contain an IBM field replaceable unit (FRU) part number label. These parts are to be serviced during the IBM machine warranty period. IBM is covering the service on these selected non-IBM parts as an accommodation to its customers, and normal warranty service procedures for the IBM machine apply.

Warranty service upgrades and maintenance services

Under certain conditions, IBM Integrated Technology Services repairs selected non-IBM parts at no additional charge for machines that are covered under warranty service upgrades or maintenance services.

IBM Service provides hardware problem determination on non-IBM parts (for example, adapter cards, PCMCIA cards, disk drives, or memory) installed within IBM machines covered under warranty service upgrades or maintenance services and provides the labor to replace the failing parts at no additional charge.

If IBM has a Technical Service Agreement with the manufacturer of the failing part, or if the failing part is an accommodations part (a part with an IBM FRU label), IBM may also source and replace the failing part at no additional charge. For all other non-IBM parts, customers are responsible for sourcing the parts. Installation labor is provided at no additional charge, if the machine is covered under a warranty service upgrade or a maintenance service.

IBM hourly service rate classification

One

Field-installable features

Yes

Model conversions

No

Machine installation

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

Graduated program license charges apply

No

Licensed Machine Code

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

http://www-304.ibm.com/systems/support/machine_warranties/machine_code.html

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

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

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

Prices

For current prices, contact IBM at 888-Shop-IBM (746-7426) or visit

<http://www-03.ibm.com/systems/x/>

To locate the web price, search on the feature number in the Search field.

IBM System x3950 X5: workload Optimized System for Database

Description	SEO Numbers	Initial/ MES/ Both/ Support	CSU
x3950 X5 - 4x2.0 GHz/24 MB, 128 GB Xeon E7-4860 10-core 130w	7143D3U	Both	Yes
x3950 X5 - 4x2.26 GHz/24 MB, 128 GB Xeon E7-4860 10-core 130w	7143D4U	Both	Yes

Maintenance charges

For additional information on maintenance and pricing, please contact your IBM Sales Representative or your IBM Business Partner, or call 1-800-IBM-CALL (1-800-426-2255).

For ServiceElect (ESA) maintenance service charges, contact IBM Global Services at 888-IBM-4343 (426-4343).

IBM System x3950 X5 - 7143

Hardware models announcing with this release will utilize existing US ServicePacs.

Refer to the following IBM website for applicable US ServicePac information

http://www-935.ibm.com/services/us/its/html/servicepac_americas.html

ServicePac for Warranty and Maintenance

Machine Type/Model	Description	ServicePac Part Number
7143-XXX	3 YR onsite repair 9x5x4 hour average response	10N3058
7143-XXX	3 YR onsite repair 24x7x4 hour average response	10N3059
7143-XXX	3 YR onsite repair 24x7x2 hour average response	10N3060
7143-XXX	4 YR onsite repair 9x5/next day average response	10N3061
7143-XXX	4 YR onsite repair 9x5x4 hour average response	10N3062

7143-XXX	4 YR onsite repair 24x7x4 hour average response	10N3063
7143-XXX	4 YR onsite repair 24x7x2 hour average response	10N3064
7143-XXX	5 YR onsite repair 9x5/next day average response	10N3065
7143-XXX	5 YR onsite repair 9x5x4 hour average response	10N3066
7143-XXX	5 YR onsite repair 24x7x4 hour average response	10N3067
7143-XXX	5 YR onsite repair 24x7x2 hour average response	10N3068

Machine Type/Model	Description	ServicePac Part Number
7143-XXX	1-year MA IOR 9 x 5 Next Business Day average response	10N3069
7143-XXX	1-year MA IOR 9 x 5 4-hour average response	10N3070
7143-XXX	1-year MA IOR 24 x 7 4-hour average response	10N3071
7143-XXX	1-year MA IOR 24 x 7 2-hour average response	10N3072
7143-XXX	2-year MA IOR 9 x 5 Next Business Day average response	10N3073
7143-XXX	2-year MA IOR 9 x 5 4-hour average response	10N3074
7143-XXX	2-year MA IOR 24 x 7 4-hour average response	10N3075
7143-XXX	2-year MA IOR 24 x 7 4-hour average response	10N3076

These ServicePac offerings are valid for models announced in the United States.

IBM Global Financing

IBM Global Financing offers competitive financing to credit-qualified customers to assist them in acquiring IT solutions. Offerings include financing for IT acquisition, including hardware, software, and services, from both IBM and other manufacturers or vendors. Offerings (for all customer segments: small, medium, and large enterprise), rates, terms, and availability can vary by country. Contact your local IBM Global Financing organization or visit

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

IBM Global Financing offerings are provided through IBM Credit LLC in the United States, and other IBM subsidiaries and divisions worldwide to qualified commercial and government customers. Rates are based on a customer's credit rating, financing terms, offering type, equipment type, and options, and may vary by country. Other restrictions may apply. Rates and offerings are subject to change, extension, or withdrawal without notice.

Financing solutions from IBM Global Financing can help you stretch your budget and affordably acquire the new product. But beyond the initial acquisition, our end-to-end approach to IT management can also help keep your technologies current,

reduce costs, minimize risk, and preserve your ability to make flexible equipment decisions throughout the entire technology lifecycle.

Order now

To order, contact the Americas Call Centers or your local IBM representative, or your IBM Business Partner.

To identify your local IBM representative or IBM Business Partner, call 800-IBM-4YOU (426-4968).

Phone: 800-IBM-CALL (426-2255)
Fax: 800-2IBM-FAX (242-6329)
Internet: callserv@ca.ibm.com
Mail: IBM Teleweb Customer Support
ibm.com® Sales Execution Center, Americas North
3500 Steeles Ave. East, Tower 3/4
Markham, Ontario
Canada
L3R 2Z1

Reference: SE001

The Americas Call Centers, our national direct marketing organization, can add your name to the mailing list for catalogs of IBM products.

Note: Shipments will begin after the planned availability date.

Trademarks

IBM Systems Director Active Energy Manager, PowerExecutive and Electronic Service Agent are trademarks of IBM Corporation in the United States, other countries, or both.

IBM, System x, X-Architecture, ServerProven, Lotus Notes, PartnerWorld, Global Technology Services, BladeCenter, ServicePac, ServiceSuite and ibm.com are registered trademarks of IBM Corporation in the United States, other countries, or both.

Intel Xeon and Intel are trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries, or both.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Other company, product, and service names may be trademarks or service marks of others.

Terms of use

IBM products and services which are announced and available in your country can be ordered under the applicable standard agreements, terms, conditions, and prices in effect at the time. IBM reserves the right to modify or withdraw this announcement at any time without notice. This announcement is provided for your information only. Additional terms of use are located at

<http://www.ibm.com/legal/us/en/>

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

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

Corrections

(Corrected on July 10, 2013)

Revision to Planning information section.

(Corrected on March 26, 2013)

Revisions to Description, Technical information, and Prices sections.