IBM System x3100, an entry-level tower server, is ideal for small businesses

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At a glance

Features of the new System x3100 server include:

- Choice of Intel® processors
  - Pentium® dual-core E2140 processor
  - Xeon® dual-core 3065 processor

- 512 MB, 1 GB, or 2 GB PC2-5300 CL5 ECC DDR2 SDRAM DIMM system memory; 8 GB\(^1\) maximum

- Integrated Serial-ATA (SATA) controller

- Four available I/O expansion slots include two PCI and two PCI Express

- Five bays: Two 5.25-inch and three 3.5-inch

- Bootable SATA DVD-ROM

- 310-watt manually selected power supply

- I/O ports
  - Six USB ports, two in front and four in rear
  - Integrated Gigabit Ethernet with RJ-45
  - One software-compatible serial port
  - One parallel port supporting devices using SSP, EPP, or ECP protocols adhering to the IEEE 1284 standard

- Integrated ATI graphics with 32 MB video memory

\(^1\) When referring to memory, HDD, or tape backup capacity, GB stands for one billion bytes. Total user capacity may vary depending on operating environments.
Overview

The System x3100 server is designed for small businesses and first-time buyers looking for a solution to improve business efficiency.

Server-class features

- Powerful Intel Pentium and Xeon processors
  - Pentium dual-core E2140 (1.6 GHz/800 MHz)
  - Xeon 3065 dual-core processor (2.33 GHz/1333 MHz)
- 512 MB or 1 GB of 677 MHz PC2-5300 CL5 ECC DDR2 SDRAM DIMM memory standard; 8 GB maximum
- Four expansion slots
  - Two PCI 32-bit/33 MHz
  - Two PCI Express x8
- Integrated Gigabit Ethernet controller
- Integrated SATA controller that supports
  - 160, 250, 500, and 750 GB SATA HDDs
  - 160 GB SATA HDD standard

At your control

Manageability and serviceability features help diagnose problems quickly.

- Monitoring of memory faults
- Preboot eXecution Environment (PXE) and support for Wake on LAN®

At your service

Valuable services, utilities, and systems management tools help improve productivity and get your server up and running quickly.

- ServerGuide™ utilities to assist loading of many popular network operating systems
- Optional Level 0 IBM® Director to manage System x3100 servers and other LAN assets
- Warranty: One-year parts, customer replaceable unit (CRU) or on-site labor, limited warranty; optional warranty service upgrades

2 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.

3 You may be asked certain diagnostic questions before a technician is sent.

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

Note: 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.
Key prerequisites

Monitor

Planned availability date

July 24, 2009

Description

Solid-performing server subsystems

This uniprocessor entry-level server delivers solid, economical performance by coupling Intel Pentium and Xeon dual-core processors, high-speed PC2-5300 CL5 ECC DDR2 SDRAM DIMM memory, and SATA storage subsystems.

The System x3100 server uses high-performance chipsets to optimize throughput from the processors to memory and I/O.

Standard System x3100 configurations

<table>
<thead>
<tr>
<th>Model</th>
<th>Processor</th>
<th>Cache</th>
<th>Memory</th>
<th>HDD/INT</th>
<th>Optical</th>
<th>Preload</th>
</tr>
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<tbody>
<tr>
<td>4348-42X</td>
<td>2.33 GHz</td>
<td>3065 DC</td>
<td>4 MB</td>
<td>1024 MB</td>
<td>160 GB SATA DVD-ROM</td>
<td>None</td>
</tr>
</tbody>
</table>

Additional features include:

- System board that supports high-speed 512 MB, 1 GB, and 2 GB PC2-5300 CL5 ECC DDR2 SDRAM DIMM memory
- Four slots: Two PCI 2.2 and two PCI Express x8
- Full-duplex, Gigabit Ethernet PCIe controller that speeds network communications to LAN clients

Expansion capacity and standard features

The System x3100 server is housed in a minitower that can economically handle expansion. This model features:

- A worldwide, manually switched 310-watt power supply with auto restart that supports maximum configurations and minimizes operator intervention after a temporary power outage
- One variable-speed system fan that cools microprocessor and I/O plus one variable-speed power supply fan
- 512 MB, 1 GB, or 2 GB of PC2-5300 CL5 ECC DDR2 SDRAM DIMM memory

Four DIMM sockets support:

- Up to 8 GB of system memory
- Mixing memory sizes

Four adapter card slots that support multiple adapters for network or data storage:

- Two PCI slots 32/33 MHz, PCI 2.2
- Two PCIe x8
• Five drive bays
  – Two accessible 5.25-inch half-high, one bay with DVD-ROM drive
  – One accessible 3.5-inch, slim high bay, supporting diskette drives
  – Two internal 3.5-inch, slim high bays, one HDD standard
• Integrated ATI RN50 (ES1000) video with 32 MB of video memory

**Systems management and control**

System x3100 servers comply with the 2000 ATX implementation guidelines. These guidelines offer better control and manageability of a network.

Supported features include:

• Wake on LAN for legacy LAN adapters to remotely turn the server on from an off state
• Wake on LAN support on integrated Ethernet controller
• Flash EPROM write protection
• SMBus isolation: One bus section and required system components during system power-down from other buses and components to prevent current leakage into devices without power
• PXE support
• SM BIOS
• MAC address on PC box

The System x3100 server also supports Level 0 IBM Director, a powerful, highly integrated systems management software solution built on industry standards and designed for ease of use.

Level 0 refers to the ability for IBM Director to manage any machine attached to the network and running Linux® or Windows operating system. IBM Director talks to the operating system management hooks and can do some basic inventory, power control, and more.

Agentless management (Level 0) enables discovery, system attributes, power control, basic inventory, and remote session on Linux.

**World-class support tools and programs**

The System x3100 server comes with tools and programs that help you purchase your server, get it running, and keep it running smoothly. IBM can help your company maintain ownership of technology leadership servers.

• The ServerProven 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 System x3100 server with various adapters and devices.
• The ServerGuide CD library includes online publications, utilities, and drivers that assist you in loading of popular network operating systems.

5 IBM makes no warranties, expressed or implied, regarding non-IBM products and services that are ServerProven®, including but not limited to implied warranties of merchantability and fitness for a particular purpose. These products are offered and under warranty solely by third parties, including those designated as ServerProven or ClusterProven®.

**Accessibility by people with disabilities**

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

Product positioning

The System x3100 server is positioned as a System x® entry-level tower server for small- and medium-sized businesses. The System x3100 server is a confident choice for those businesses because it is built to last, easy to implement, and affordable.

The System x3100 server combines server-class security and reliability, new technologies, and proven compatibility into an attractively priced, easy-to-implement entry server, supported by IBM sales and service. This server delivers solid performance to support typical general-purpose network, e-mail, or Web-serving applications in small businesses.

Product number

<table>
<thead>
<tr>
<th>Description</th>
<th>Machine type</th>
<th>Model</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>System x3100</td>
<td>4348</td>
<td>42X</td>
<td>434842X</td>
</tr>
</tbody>
</table>

Publications

The publication *ServerGuide* contains online publications and drivers to support the System x3100 server. In addition, it includes a set of easy-to-use utilities with assisted installation via CD of several popular network operating systems. Both are shipped with the System x3100 server.

Software versions, features, and functions shipped with this system may change as new releases become available or may be discontinued at any time.

The publications *System x3100 Installation Guide* and *Problem Determination and Service Guide*, in U.S. English, are available from

http://www-304.ibm.com/jct01004c/systems/support/

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.

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**Technical information**

**Specified operating environment**

**Physical specifications**

Express model

```
4348-42X
```

- Processor (dual-core): Xeon 3065
- Internal speed: 2.33 GHz
- Number standard: 1
- Maximum: 1
- L2 cache (full-speed): 4 MB
- Memory (677 MHz SDRAM): 1 GB ECC
- DIMMs: 1 x 1 GB
- DIMM sockets: 4
- Capacity: 8 GB
- Video controller: SVGA, ATI
- Memory: 32 MB
- HDD controllers: SATA
- Channels: 1
- Connector int.: 4
- Connector ext.: 0
- Fixed disk: 160 GB SATA
- Tape backup: Optional
- Total bays: 5
  - 5.25/3.5-in half-high: 2
  - 3.5-in slim: 3
  - Hot-swap: 0
- Internal capacity: 1.5 TB (6)
- Bays available: 3
  - 5.25/3.5-in half-high: 1(7)
  - 3.5-in slim: 2
  - Hot-swap: 0
- Total slots: 4
  - PCI 2.2 (32/33 MHz): 2
  - PCI-X (64/100 MHz): 0
  - PCI-E (x8): 2
- Slots available: 4
- Management proc.: No
- Ethernet controller: 1 Gb
- Optical drive (SATA): DVD-ROM
- Diskette drive: USB option
- Power supply: 310 W
  - Number standard: 1
  - Hot-swap: No
  - Redundant power: No
  - Auto restart: Yes

(6) Capacities are based on the installation of 750 GB SATA HDDs. For the most up-to-date supported HDD options, visit

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

(7) This bay does not support HDD options. It can be used for removable media device backup.
**SATA 160 GB HDD char**
- Formatted capacity: 16bytes
- Average read seek time
- Burst transfer rate (mabs)
- Average latency: 4.2 m
- Drive rotation speed
- Sustained data transfer 61.1 MB/s
- PFA/S.M.A.R.T enabled:
  - Interface: Serial-ATA

**16x SATA DVD-ROM drive characteristics**
- Interface: SATA
- Average access time including latency: Less than 120 ms
- CD speed: 48x
- Cache size: 512 KB

**Video subsystem**
- ATI RN50 (ES1000) Graphics Controller chip
- Integrated on planar and connected to the PCI bus
- Support for DDR1 SDRAM external memory
- 128-bit graphics engine with 8, 16, and 24 bpp mode acceleration
- 32 bpp (4G colors/True Color) support
- Integrated 350 MHz RAMDAC
- DDC2B monitor communications support

Supported video mode capabilities for the SVGA PCI controller with a 200 MHz memory clock:

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Colors</th>
<th>Refresh Rate (Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>640 x 480 x 8</td>
<td>256</td>
<td>60, 72, 75, 85</td>
</tr>
<tr>
<td>640 x 480 x 16</td>
<td>64K</td>
<td>60, 72, 75, 85</td>
</tr>
<tr>
<td>640 x 480 x 32</td>
<td>16M</td>
<td>60, 72, 75, 85</td>
</tr>
<tr>
<td>800 x 600 x 8</td>
<td>256</td>
<td>60, 70, 72, 75, 85</td>
</tr>
<tr>
<td>800 x 600 x 16</td>
<td>64K</td>
<td>60, 70, 72, 75, 85</td>
</tr>
<tr>
<td>800 x 600 x 32</td>
<td>16M</td>
<td>60, 70, 72, 75, 85</td>
</tr>
<tr>
<td>1024 x 768 x 8</td>
<td>256</td>
<td>60, 70, 72, 75, 85</td>
</tr>
<tr>
<td>1024 x 768 x 16</td>
<td>64K</td>
<td>60, 70, 72, 75, 85</td>
</tr>
<tr>
<td>1024 x 768 x 32</td>
<td>16M</td>
<td>60, 70, 72, 75, 85</td>
</tr>
</tbody>
</table>

**Dimensions**
- Width: 174.8 mm (6.88 in)
- Depth: 430 mm (16.9 in)
- Height: 416 mm (16.4 in)
- Weight
  - Minimum ship configuration: 14 kg (30.86 lb)
  - Maximum ship configuration: 17 kg (37.48 lb)
Minimum clearance for cooling
- 100 mm (4 in) at the back
- 50 mm (2 in) on each side

Electrical
- 100 to 127 (nominal) V ac; 50 to 60 Hz; 8.0 A (maximum)
- 200 to 240 (nominal) V ac; 50 to 60 Hz; 4.0 A (maximum)
- Input kilovolt-amperes (kVA) (approximately)
  - Minimum configuration: 0.10 kVA
  - Maximum configuration: 0.50 kVA
- Btu output
  - Ship configuration: 548 Btu/hr (160 watts)
  - Full configuration: 853 Btu/hr (250 watts)
- Acoustical noise emission level: Sound power levels
  - 4.3 bels (idling)
  - 4.8 bels (operating)

Note: The noise emission level stated is the declared (upper limit) A-weighted sound power level, in bels, for a random sample of machines, typically configured and operating in idle mode (powered on, but no DASD read/write or other I/O activity). All measurements have been made in accordance with ANSI S12.10 and reported in conformance with ISO 9296.

The System x3100 server is shipped as a floor-standing server.

Standards
These systems support or comply with the following standards:
- Peripheral Component Interconnect (PCI) specification 2.2.
- This model is ISO 9241 capable. A supplier's declaration is available.

Equipment approvals and safety
- Russia/GOST ME01, IEC-60950-1, GOST R 51318.22-99, GOST R 51318.24-99, GOST R 51317.3.2-99, GOST R 51317.3.3-99
- IEC 60950-1 (CB Certificate and CB Test Report)
- CE Mark (EN55022 Class A, EN60950-1, EN55024, EN61000-3-2, and EN61000-3-3)
- CISPR 22, Class A

Physical specifications
Approximate Shipping dimensions and weight

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Pack Dimensions</td>
<td>557 x 500 x 330 mm</td>
</tr>
<tr>
<td></td>
<td>(21.93 x 19.66 x 12.99 in)</td>
</tr>
<tr>
<td>Single Pack Weight</td>
<td>12.87 kgs (28.37 lbs)</td>
</tr>
<tr>
<td>Quantity per Pallet</td>
<td>8</td>
</tr>
<tr>
<td>Pallet Load Dimensions</td>
<td>1200 x 1000 x 1140 mm</td>
</tr>
<tr>
<td></td>
<td>(47.24 x 39.37 x 44.88 in)</td>
</tr>
<tr>
<td>Pallet Load Weight</td>
<td>167.65 kgs (369.60 lbs)</td>
</tr>
<tr>
<td>Estimated Safe Stacking</td>
<td>3 high</td>
</tr>
</tbody>
</table>
Operating environment

Temperature

- Server on: 10.0 to 35.0 degrees C (50.0 to 95.0 F), altitude: 0 to 914.4 m (3000 ft)
- Server on: 10.0 to 32.0 degrees C (50.0 to 89.6 F), altitude: 914.4 m (3000 ft) to 2133.6 m (7000 ft)
- Server off: 10.0 to 43.0 degrees C (50.0 to 109.4 F), maximum altitude: 2133.6 m (7000.0 ft)
- Shipping: -40.0 to 60.0 degrees C (-40.0 to 140.0 F)
- Humidity: Server on: 8% to 80%, Server off: 8% to 80%

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:

- Keyboard
- Mouse
- HDD
- Display

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

Programming requirements

The following network operating systems are supported in the System x3100:

- Microsoft
  - Windows Server 2003 R2 Standard Edition
  - Windows Server 2003 R2 Standard 64 Edition
  - Windows 2003 R2 Enterprise Edition
  - Windows 2003 R2 Enterprise 64 Edition
- Linux
  - Red Hat Enterprise Linux 4 AS for x86
  - Red Hat Enterprise Linux 4 ES for x86
  - Red Hat Enterprise Linux 4 WS for x86
  - SUSE LINUX Enterprise Server 10 for AMD64/EM64T
  - SUSE LINUX Enterprise Server 10 for x86
  - Red Hat Enterprise Linux 5 Server Edition
  - Red Hat Enterprise Linux 5 Server x64 Edition
Note: For additional support, certification, and version information on network operating systems, visit

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

Compatibility
The System x3100 systems contain licensed system programs that include set configuration, set features, and test programs. System BIOS (flash BIOS modified to IBM specifications) is loaded from a "flash" EEPROM into system memory. This BIOS provides instructions and interfaces designed to support the standard features of the server and to maintain compatibility with many current software programs.

To view detailed information about IBM and non-IBM devices, adapters, software, and network operating systems supported with System x servers, visit

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

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

Limitations
• The open 5.25-inch bay supports removable media devices, such as tape backup devices. It does not support HDD options.
• 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.

Refer to the Software requirements section for operating system limitations.

Planning information

Customer responsibilities

System x3100 customer setup
The System x3100 server is designated as customer setup. Customer setup instructions are shipped with systems.

Standard SATA configurations
A two-drop SATA cable is used to attach up to two SATA HDDs.

The System x3100 server uses the SATA interface for the DVD-ROM drive.

Supported memory options
The following memory options are supported:

• 512 (1X512MB) PC2-5300 CL5 ECC DDR2 SDRAM DIMM (41Y2726)
• 2 GB (2X1GB) PC2-5300) CL5 ECC DDR2 SDRAM DIMM Kit (41Y2729)
• 4 GB (2X2GB) PC2-5300) CL5 ECC DDR2 SDRAM DIMM Kit (41Y2732)

Cable orders
The Gigabit full duplex, Ethernet controller, standard with the server, is connected directly to a RJ-45 connector. The RJ-45 connector provides a 10/100/1000Base-T 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 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 x3100 server requires about 30 minutes for installation. Installation includes unpacking, setting up, and powering on the system. Additional time is required to install an operating system, additional adapters, or features.

Packaging

One box

- System unit carton: System unit
- Country kit carton
  - Two-button mouse with attached cable
  - System unit power cord
  - Safety flyer
  - ServerGuide

The System x3100 server is shipped as a single package. The country kit carton is contained inside the top portion of the system unit carton.

Supplies

None

Security, auditability, and control

Security and auditability features include:

- Power-on password (secured boot).
- A mechanical lock allows you to lock the system cover to prevent unauthorized personnel access to internal components of the server.
- Tie-down capability is available by using a common U bolt attached to the back frame.
- Operation without a keyboard and display is supported after the server is configured with the appropriate network operating system. This minimizes the risk of unauthorized people tampering with the system software and configuration.

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.

General product/System description

The System x3100 system is an entry network server using industry-standard architectures.

This mini-tower platform offers Intel Pentium and Xeon dual-core processors. These new systems include integrated SATA support, an SVGA video controller with 32 MB of video memory, an integrated 10/100/1000 Mbps Ethernet controller, and a SATA DVD-ROM.

The System x3100 systems include a 160 GB 7200 rpm SATA HDD and support:

- Two fixed SATA HDDs
- 160, 250, 500, or 750 GB SATA HDDs
Standard System x3100 configurations

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<td>None</td>
</tr>
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</table>

System x3100 model provides memory expansion, five storage expansion bays, and four expansion slots. A 310-watt manually-switched power supply with auto restart capability.

- System memory can be expanded to 8 GB by installing a 2 GB DIMM option in each of the four memory DIMM sockets.
- The five drive bays
  - Two 5.25/3.5-inch half-high bays - one bay consumed by SATA DVD-ROM drive the other for supported removable media devices
  - Three 3.5-inch slim high bays supporting two SATA HDDs
- Four, three full-length, one half-length supporting:
  - Two PCI slots 32/33 MHz, PCI 2.2
  - Two PCI-E x8

The System x3100 standard features include:

- Memory subsystem consists of PC2-5300 CL5 ECC DDR2 SDRAM DIMM unbuffered DIMMs with an ECC memory controller on the processor card for error correction of single bit memory errors
- An SVGA controller with 32 MB video memory
- Integrated Gigabit Ethernet controller
- A 16x SATA DVD-ROM
- Time Of Day clock and battery
- Standard Device Ports/Connectors:
  - Keyboard
  - Pointing Device (mouse port)
  - Video port
  - Gigabit Ethernet port using RJ-45 connector
  - One high speed serial/asynchronous port, NS16550 compatible
  - One high speed (up to 2 MB/s data transfer speed) bi-directional, parallel port supports devices using ECP/EPP/SPP protocols adhering to the IEEE 1284 standard
- Six USB ports

Europe considerations

The NLS support includes national language keyboard support, multi-lingual nomenclature, and translated documentation as required by the individual countries.

Terms and conditions

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

Warranty period

- Machine type 4348 - One year

Optional IBM features initially installed in an IBM machine carry the same warranty period as the machine. If installed after the initial machine installation, they carry the balance of the machine warranty or the optional feature warranty, whichever is greater.
The following has been designated as consumables or supply items; therefore, not covered by this warranty.

- Battery

**Warranty service**

If required, IBM provides repair or exchange service depending on the type of warranty service specified below for the machine. IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM Web site. You must follow the problem determination and resolution procedures that IBM specifies. Scheduling of service will depend upon the time of your call and is subject to parts availability. 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 or a Tier 2 CRU. Installation of a Tier 1 CRU is your responsibility. If IBM installs a Tier 1 CRU, at your request, you will be charged for the installation. You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service specified below, On-site Service.

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

The following have been designated as a Tier 1 CRU:

- Blank filler
- Hard disk drive
- Memory DIMM
- Optical drive
- PCI adapter
- Power cord
- Service label
- System label
- Top cover

**On-site Service**

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

**Licensing**

Programs included with this product are licensed under the terms and conditions of the License Agreements that are shipped with the system.
Terms and conditions for Express Seller products

The designated products are available only as part of the IBM Express Seller program. For full details of the terms and conditions, refer to the Express Seller Program Terms and Conditions applicable to a specific Business Partner.

Note: Copies of the Express Seller Program Terms and Conditions are available locally.

In summary:

- Orders for Express Seller Products must be placed on an order specifically identified as ‘Express Seller’ and should not contain any other (non-Express Seller) product.
- Orders may only be placed for currently eligible Express Seller products.
- IBM will undertake to deliver products purchased under the terms of the Express Seller program within a specified number of days. For full details of the delivery terms for your country, refer to the Express Seller Program Terms and Conditions.
- Products purchased under this program are eligible for 15 days price protection from the date of shipment. For full details, refer to the program Terms and Conditions.
- There is no accommodation for the return to IBM of any products ordered under the terms of this program.
- Products purchased under the terms of this offering are not available to be sold as part of a Special Bid.

IBM hourly service rate classification

Two

Field-installable features

Yes

Model conversions

No

Machine installation

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Graduated program license charges apply

No

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**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.

**Graduated program license charges apply**
No

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