



IntelliStation E Pro

Types 6216 and 6226

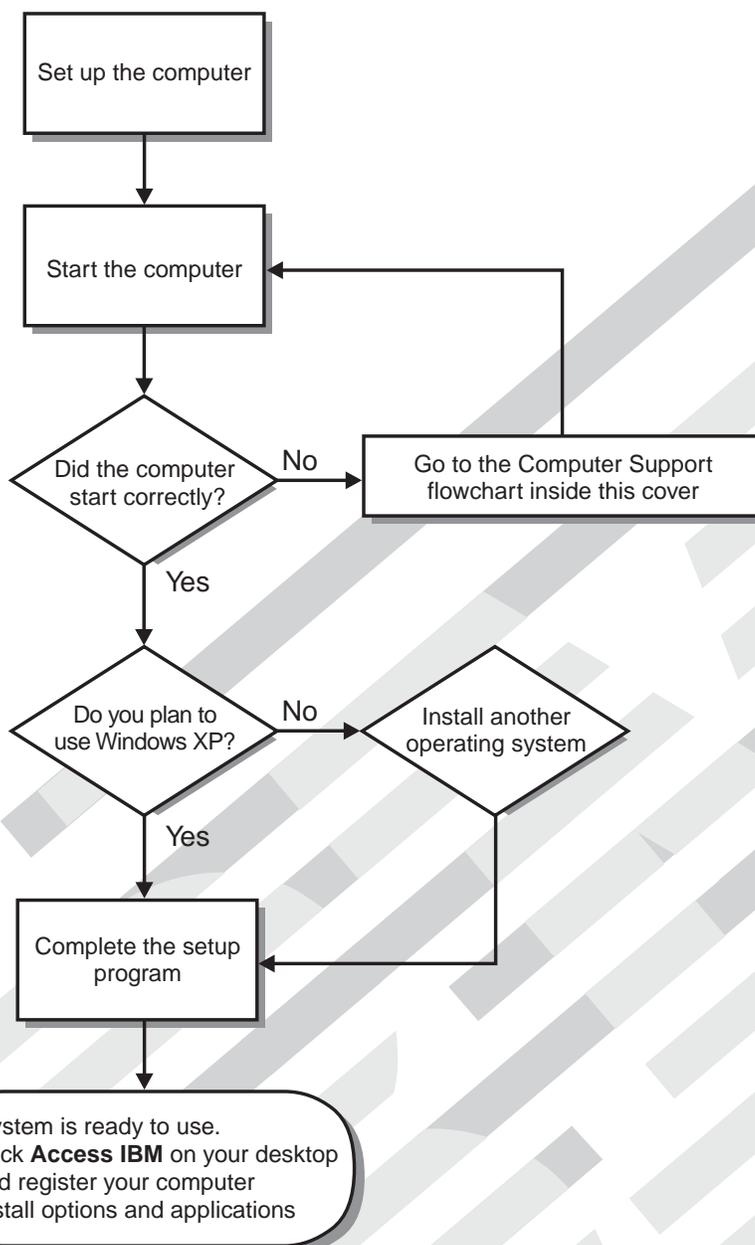
Installation Guide

Welcome...

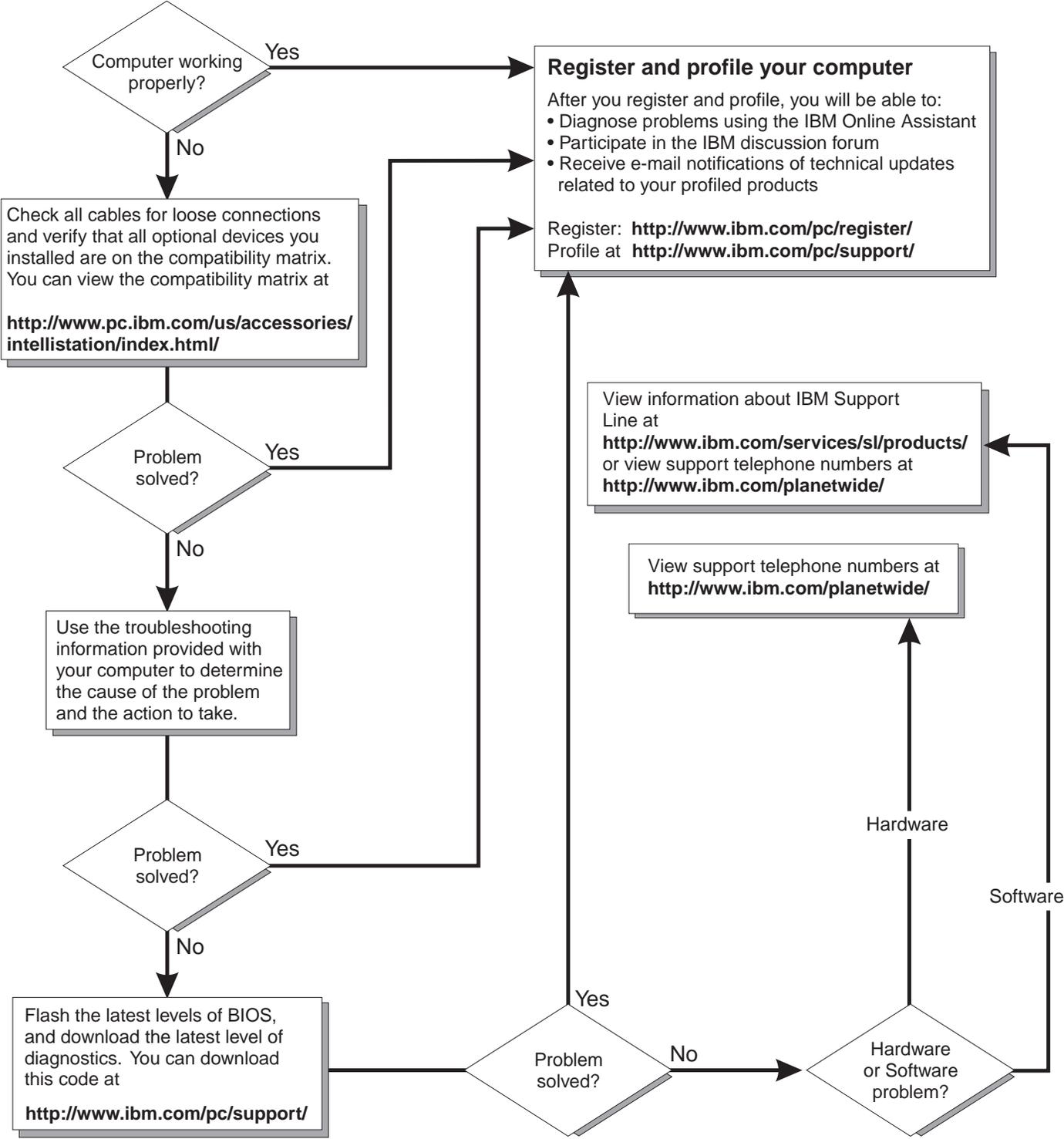
Thank you for buying an IBM IntelliStation E Pro computer.

This *Installation Guide* contains information for setting up, installing options, and preparing applications to run on your computer. This book also contains information regarding everyday use and solving problems.

You can find the most current information about your computer at <http://www.ibm.com/pc/support/> on the IBM Web site.



Computer Support



IBM IntelliStation E Pro
Types 6216 and 6226



Installation Guide

Note:

Before using this information and the product it supports, be sure to read the general information in Appendix B, "Warranty information" on page 53, and Appendix C, "Notices" on page 65.

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Safety information

Before installing this product, read the Safety Information.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الأمنية

Antes de instalar este produto, leia as Informações de Segurança.

在安装本产品之前，请仔细阅读 **Safety Information** (安全信息)。

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtete příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας (safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по технике безопасности.

Pred inštaláciou tohto zariadenia si pečítajte Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

Statement 1:



DANGER

Electrical current from power, telephone, and communication cables is hazardous.

To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet.**
- **Connect to properly wired outlets any equipment that will be attached to this product.**
- **When possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
- **Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.**

To Connect:	To Disconnect:
1. Turn everything OFF.	1. Turn everything OFF.
2. First, attach all cables to devices.	2. First, remove power cords from outlet.
3. Attach signal cables to connectors.	3. Remove signal cables from connectors.
4. Attach power cords to outlet.	4. Remove all cables from devices.
5. Turn device ON.	

Statement 2:



CAUTION:

When replacing the lithium battery, use only IBM Part Number 33F8354 or an equivalent type battery recommended by the manufacturer. If your system has a module containing a lithium battery, replace it only with the same module type made by the same manufacturer. The battery contains lithium and can explode if not properly used, handled, or disposed of.

Do not:

- Throw or immerse into water
- Heat to more than 100°C (212°F)
- Repair or disassemble

Dispose of the battery as required by local ordinances or regulations.

Statement 3:



CAUTION:

When laser products (such as CD-ROMs, DVD drives, fiber optic devices, or transmitters) are installed, note the following:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.



DANGER

Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following.

Laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.

Statement 4:

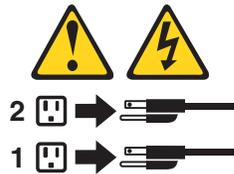


CAUTION:
Use safe practices when lifting.

Statement 5:



CAUTION:
The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.



Statement 8:



CAUTION:

Never remove the cover on a power supply or any part that has the following label attached.



Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

Chapter 1. Introduction

Thank you for purchasing an IBM® IntelliStation® E Pro Type 6216 or Type 6226 computer. This *Installation Guide* contains information that you can use to:

- Set up and cable your computer
- Start and configure your computer
- Set up your operating system

Packaged with this *Installation Guide* is the *Device Drivers and IBM Enhanced Diagnostics* CD, which contains device drivers, hardware-specific support software, and Ethernet configuration information.

Also included is an IBM *IntelliStation Documentation* CD, which contains detailed information about your computer.

If you have access to the World Wide Web, you can obtain up-to-date information about your IntelliStation E Pro model and other IBM products at <http://www.ibm.com/intellistation/> on the World Wide Web.

The computer model and serial numbers are located on labels on the bottom of the computer and on the lower-right side of the bezel.

Note: Your computer keys cannot be duplicated by locksmiths. If you lose them, order replacement keys from the key manufacturer. The key serial number and the telephone number of the manufacturer are on a tag attached to the keys.

Your computer comes with Microsoft® Windows® XP preinstalled.

To install another operating system, follow the instructions in the documentation provided with the operating system and any updates. Then, follow the instructions in the README file on the *Device Drivers and IBM Enhanced Diagnostics* CD to install the support software.

Note: If you install another operating system, you might need additional software or device drivers. Hardware-specific support software is available on the *Device Drivers and Enhanced Diagnostics* CD. If you experience problems with the device drivers installed from this CD, you can obtain the latest device drivers at <http://www.ibm.com/pc/support/> on the World Wide Web.

Before installing any operating system, be sure you obtain the latest updates. Contact the operating-system manufacturer or, if applicable, check the manufacturer's World Wide Web site to obtain the updates.

Additional information about operating systems is posted periodically at <http://www.ibm.com/pc/support/> on the World Wide Web.

Features and specifications — Type 6216

The following table provides a summary of the features and specifications of your IntelliStation E Pro Type 6216 computer. Depending on your model, some features and specifications might not apply.

Table 1. Features and specifications

<p>Microprocessor: Supports one Intel® Pentium™ 4 with 256 KB or 512 KB Level-2 cache and 400 or 533 MHz front-side bus (FSB)</p> <p>Memory:</p> <ul style="list-style-type: none"> • Minimum: 256 MB • Maximum: 2.0 GB • Type: PC2100 DIMMs • Slots: Two dual inline <p>Drives: (depending on your model)</p> <ul style="list-style-type: none"> • Diskette: 1.44 MB (3 mode) • Hard disk drive (IDE or SCSI) • One of the following: <ul style="list-style-type: none"> – CD-ROM: IDE – DVD-ROM: IDE – CD-RW: IDE <p>Expansion bays: (depending on your model)</p> <ul style="list-style-type: none"> • One 5.25-in. bay (one CD-ROM drive installed) • Two 3.5-in. bays (one diskette drive and one hard disk drive installed) <p>PCI expansion slots: Three 33 MHz/32-bit on the system board (some models come with a SCSI adapter installed)</p> <p>Power supply: One 160 watt (90-240 V ac) Video adapter: (depending on your model)</p> <ul style="list-style-type: none"> • Matrox Millennium G450 (DVI-I) with 32 MB DDR SDRAM video memory and a single DVI-I or dual analog connectors • NVIDIA Quadro4 200NVS (LFH-60) with 64 MB DDR SDRAM video memory and dual analog connectors (or dual digital monitor capability with the purchase of an additional pigtail cable) 	<p>Size:</p> <ul style="list-style-type: none"> • Height: 104 mm (4.1 in.) • Depth: 412 mm (16.2 in.) • Width: 360 mm (14.2 in.) • Weight: approximately 9.1 kg (20 lb) when fully configured or 6.8 kg (15 lb) minimum <p>Integrated functions:</p> <ul style="list-style-type: none"> • One 10/100/1000 Ethernet controller on the system board with RJ-45 Ethernet connector • Two serial ports • Parallel port • Four USB ports • Keyboard port • Mouse port • Audio ports <ul style="list-style-type: none"> – Line out – Line in – Mic • Dual-channel bus mastering IDE controller <p>Acoustical noise emissions:</p> <ul style="list-style-type: none"> • Sound power, idling: 4.9 bel maximum • Sound power, operating: 5.2 bel maximum <p>Environment:</p> <ul style="list-style-type: none"> • Air temperature: <ul style="list-style-type: none"> – Computer on: 10°C to 35°C (50.0°F to 95.0°F). Altitude: 0 to 2133 m (6998.0 ft) – Computer off: 10°C to 43°C (50.0°F to 109.4°F). Maximum altitude: 2133 m (6998.0 ft) • Humidity: <ul style="list-style-type: none"> – Computer on: 8% to 80% – Computer off: 8% to 80% 	<p>Heat output: Approximate heat output in British thermal units (Btu) per hour</p> <ul style="list-style-type: none"> • Minimum configuration: 257 Btu (75 watts) • Maximum configuration: 686 Btu (200 watts) <p>Airflow: Approximately 0.68 cubic meters every three minutes (24 cubic feet every 3 minutes) Electrical input:</p> <ul style="list-style-type: none"> • Sine-wave input (50-60 Hz) required • Input voltage low range: <ul style="list-style-type: none"> – Minimum: 90 V ac – Maximum: 137 V ac • Input voltage high range: <ul style="list-style-type: none"> – Minimum: 180 V ac – Maximum: 265 V ac • Input kilovolt-amperes (kVA) approximately: <ul style="list-style-type: none"> – Minimum: 0.095 kVA – Maximum: 0.470 kVA <p>Notes:</p> <ol style="list-style-type: none"> 1. Power consumption and heat output vary depending on the number and type of optional features installed and the power-management optional features in use. 2. These levels were measured in controlled acoustical environments according to the procedures specified by the American National Standards Institute (ANSI) S12.10 and ISO 7779 and are reported in accordance with ISO 9296. Actual sound-pressure levels in a given location might exceed the average values stated because of room reflections and other nearby noise sources. The declared sound-power levels indicate an upper limit, below which a large number of computers will operate.
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Features and specifications — Type 6226

The following table provides a summary of the features and specifications of your IntelliStation E Pro Type 6226 computer. Depending on your model, some features and specifications might not apply.

Table 2. Features and specifications

<p>Microprocessor: Supports one Intel® Pentium™ 4 with 256 KB or 512 KB Level-2 cache and 400 or 533 MHz front-side bus (FSB)</p> <p>Memory:</p> <ul style="list-style-type: none"> • Minimum: 256 MB • Maximum: 2.0 GB • Type: PC2100 DIMMs • Slots: Two dual inline <p>Drives: (depending on your model)</p> <ul style="list-style-type: none"> • Diskette: 1.44 MB (3 mode) • Hard disk drive (IDE or SCSI) • One of the following: <ul style="list-style-type: none"> – CD-ROM: IDE – DVD-ROM: IDE – CD-RW: IDE <p>Expansion bays: (depending on your model)</p> <ul style="list-style-type: none"> • Two 5.25-in. bay (one CD-ROM drive installed) • Two 3.5-in. bays (one diskette drive and one hard disk drive installed) <p>PCI expansion slots: Three 33 MHz/32-bit on the system board (some models come with a SCSI adapter installed)</p> <p>Power supply: One 200 watt (90-240 V ac) Video adapter: (depending on your model)</p> <ul style="list-style-type: none"> • Matrox Millennium G450 (DVI-I) with 32 MB DDR SDRAM video memory and a single DVI-I or dual analog connectors • NVIDIA Quadro4 200NVS (LFH-60) with 64 MB SDR SDRAM video memory and dual analog connectors (or dual digital monitor capability with the purchase of an additional pigtail cable) • ATI Fire GL8800 (DVI-I and SVGA) with 128 MB DDR SDRAM video memory, one DVI-I connector and one SVGA connector 	<p>Size:</p> <ul style="list-style-type: none"> • Height: 140 mm (5.5 in.) • Depth: 425 mm (16.7 in.) • Width: 425 mm (16.7 in.) • Weight: approximately 11.4 kg (25 lb) when fully configured or 10.0 kg (22 lb) minimum <p>Integrated functions:</p> <ul style="list-style-type: none"> • One 10/100/1000 Ethernet controller on the system board with RJ-45 Ethernet connector • Two serial ports • Parallel port • Four USB ports • Keyboard port • Mouse port • Audio ports <ul style="list-style-type: none"> – Line out – Line in – Mic • Dual-channel bus mastering IDE controller <p>Acoustical noise emissions:</p> <ul style="list-style-type: none"> • Sound power, idling: 5.0 bel maximum • Sound power, operating: 5.2 bel maximum <p>Environment:</p> <ul style="list-style-type: none"> • Air temperature: <ul style="list-style-type: none"> – Computer on: 10°C to 35°C (50.0°F to 95.0°F). Altitude: 0 to 2133 m (6998.0 ft) – Computer off: 10°C to 43°C (50.0°F to 109.4°F). Maximum altitude: 2133 m (6998.0 ft) • Humidity: <ul style="list-style-type: none"> – Computer on: 8% to 80% – Computer off: 8% to 80% 	<p>Heat output: Approximate heat output in British thermal units (Btu) per hour</p> <ul style="list-style-type: none"> • Minimum configuration: 257 Btu (75 watts) • Maximum configuration: 686 Btu (200 watts) <p>Airflow: Approximately 0.68 cubic meters every three minutes (24 cubic feet every 3 minutes)</p> <p>Electrical input:</p> <ul style="list-style-type: none"> • Sine-wave input (50-60 Hz) required • Input voltage low range: <ul style="list-style-type: none"> – Minimum: 90 V ac – Maximum: 137 V ac • Input voltage high range: <ul style="list-style-type: none"> – Minimum: 180 V ac – Maximum: 265 V ac • Input kilovolt-amperes (kVA) approximately: <ul style="list-style-type: none"> – Minimum: 0.080 kVA – Maximum: 0.300 kVA <p>Notes:</p> <ol style="list-style-type: none"> 1. Power consumption and heat output vary depending on the number and type of optional features installed and the power-management optional features in use. 2. These levels were measured in controlled acoustical environments according to the procedures specified by the American National Standards Institute (ANSI) S12.10 and ISO 7779 and are reported in accordance with ISO 9296. Actual sound-pressure levels in a given location might exceed the average values stated because of room reflections and other nearby noise sources. The declared sound-power levels indicate an upper limit, below which a large number of computers will operate.
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Inventory checklist

Take an inventory of items as you unpack them to ensure that you have all of the components. If any items are missing or damaged, contact your place of purchase. The following items come with your IBM IntelliStation E Pro computer:

- One keyboard
- One mouse
- One power cord (9-ft line cord)
- One compact disc with device drivers
- One IBM *IntelliStation Documentation CD*
- This *Installation Guide*
- *Device Drivers and IBM Enhanced Diagnostics CD*

If you are missing an item, contact your place of purchase.

Notices and statements used in this book

The caution and danger statements also appear in the multilingual safety book provided on the IBM *IntelliStation Documentation CD*. Each statement is numbered for easy reference to the corresponding statement in the safety book.

The notice and statement definitions are as follows:

- **Notes:** These notices provide important tips, guidance, or advice.
- **Important:** These notices provide information that might help you avoid inconvenient or problem situations.
- **Attention:** These notices indicate possible damage to programs, devices, or data. An attention notice is placed just before the instruction or situation in which damage could occur.
- **Caution:** These statements indicate situations that can be potentially hazardous to you. A caution statement is placed just before the description of a potentially hazardous procedure step or situation.
- **Danger:** These statements indicate situations that can be potentially lethal or extremely hazardous to you. A danger statement is placed just before the description of a potentially lethal or extremely hazardous procedure step or situation.

Related information

The following documentation contains additional information about your computer. Because your computer comes with IBM-preinstalled software, you might be able to view some of these documents in Access IBM. See “Using Access IBM” on page 41. These IBM documents can also be found at <http://www.ibm.com/> on the World Wide Web.

- *User's Guide*

This publication contains detailed information about your computer and how to use and configure the functions of the computer.

- *Hardware Maintenance Manual*

This publication contains information for trained service technicians. It can be found at <http://www.ibm.com/pc/support/> on the World Wide Web.

- README files on the *Device Drivers and IBM Enhanced Diagnostics* CD

Several README files on this CD contain information about the various adapters and devices that might be attached to your computer.

- Adaptec SCSI documentation (some models only)

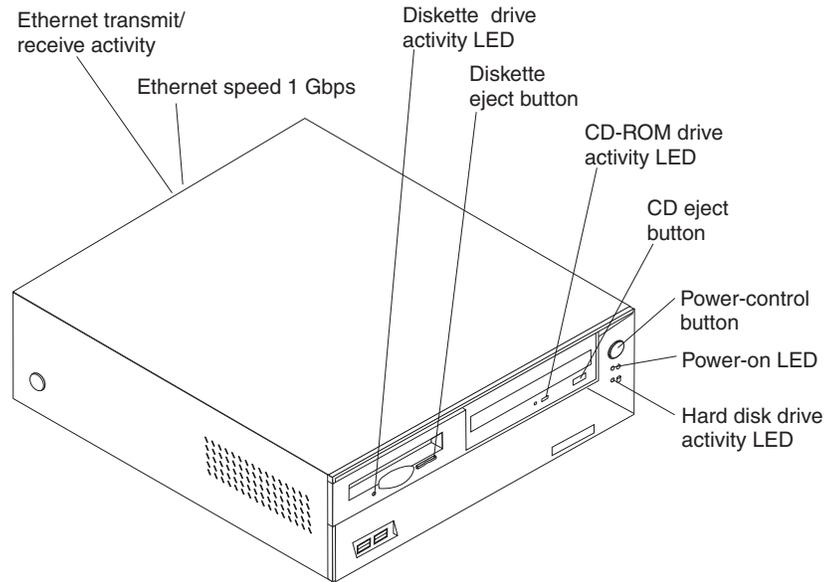
This publication, accessible through Online Books, contains information and instructions for installing and configuring small computer system interface (SCSI) device drivers and devices.

- *Safety Information*

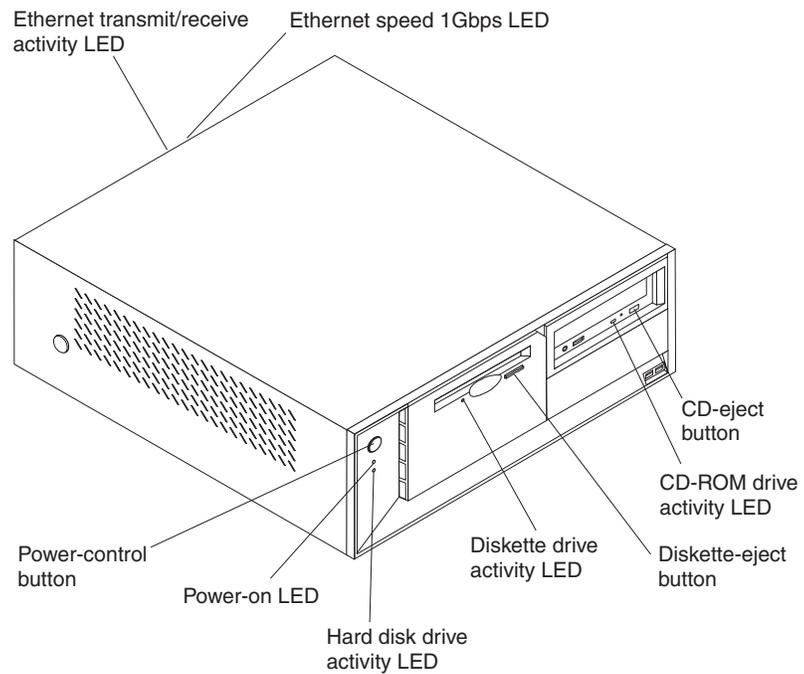
This publication, accessible through Online Books, contains multilingual caution and danger statements.

Computer controls and indicators

Type 6216



Type 6226



Ethernet transmit/receive activity: When this LED is on, there is activity between the computer and the network. The Ethernet transmit/receive activity LED is located on the Ethernet (RJ-45) connector on the rear of the computer.

Ethernet speed 1 Gbps: When this LED is on, the Ethernet speed is 1 Gbps. When the LED is off, the Ethernet speed is 10 Mbps or 100 Mbps. The Ethernet speed LED is located on the Ethernet (RJ-45) connector on the rear of the computer.

CD-eject button: Push this button to open the tray to insert or remove a CD.

CD-ROM drive activity LED: When this LED is on, the CD-ROM drive is in use.

Diskette-eject button: Push this button to release a diskette from the drive.

Diskette drive activity LED: When this LED is on, the diskette drive is in use.

Hard disk drive activity LED: When this LED is on, the hard disk drive is in use.

Power-on LED: This status indicator lights when you turn on your computer.

Power-control button: Press this button to manually turn the computer on or off.

Chapter 2. Installing the hardware

This chapter provides instructions for installing the hardware and options in your computer. This section is for all users, but it is written with the experienced user in mind. If you need more detailed installation information for options, see the *User's Guide* on the IBM *IntelliStation Documentation CD*.

Selecting a location for your computer

Make sure you have an adequate number of properly grounded electrical outlets for the computer, monitor, and any other devices. Select a location for the computer where it will remain dry. Leave approximately 50 mm (2 in.) of space around the computer for proper air circulation.

Arranging your workspace

To get the most from your computer, arrange both the equipment you use and your work area to suit your needs and the kind of work you do. Your comfort is of foremost importance, but light sources, air circulation, and the location of electrical outlets can also affect the way you arrange your workspace.

Comfort

The following guidelines will help you decide what working position suits you best.

Choose a chair to reduce fatigue from sitting in the same position for long periods. The backrest and seat should adjust independently and provide good support. The seat should have a curved front to relieve pressure on the thighs. Adjust the seat so that your thighs are parallel to the floor and your feet are either flat on the floor, or on a footrest.

When using the keyboard, keep your forearms parallel to the floor and your wrists in a neutral, comfortable position. Try to keep a light touch on the keyboard, and your hands and fingers relaxed. Change the angle of the keyboard for maximum comfort by adjusting the position of the keyboard feet.

Adjust the monitor so that the top of the screen is at, or slightly below, eye level. Place the monitor at a comfortable viewing distance, usually 51 to 61 cm (20 to 24 in.), and position it so that you can view it without having to twist your body.

Glare and lighting

Position the monitor to minimize glare and reflections from overhead lights, windows, and other light sources. Place the monitor at right angles to light sources whenever possible. Reduce overhead lighting, if necessary, by turning off lights or using lower wattage bulbs. If you install the monitor near a window, use curtains or blinds to block the sunlight. You might have to adjust the Brightness and Contrast controls on the monitor as the lighting changes throughout the day.

Where it is impossible to avoid reflections or to adjust the lighting, place an antiglare filter over the screen. However, these filters might affect the clarity of the screen image; try them only after you have exhausted other methods of reducing glare.

Dust compounds problems associated with glare. Clean your monitor screen periodically using a soft cloth moistened with a nonabrasive, liquid glass cleaner.

Air circulation

Your computer and monitor produce heat. The computer fan pulls in fresh air and forces out hot air. The monitor lets hot air escape through vents. Blocking the air vents can cause overheating, possibly resulting in malfunction or damage. Place the computer and monitor so that nothing blocks the air vents; usually 51 mm (2 in.) of air space is sufficient. Also, make sure the vented air is not blowing on someone else.

Electrical outlets and cable lengths

The location of electrical outlets and the length of device power cords and cables might determine the final placement of your computer.

When arranging your work space:

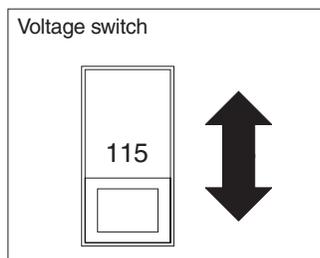
- Avoid the use of extension cords. Whenever possible, plug the computer power cord directly into an electrical outlet.
- Keep power cords and cables neatly routed away from walkways and other areas where they might be accidentally dislodged.

For more information about power cords, see “Power cords” on page 68.

Setting the voltage-selection switch

Check the position of the voltage-selection switch beside the power-cord connector. Use a ballpoint pen to slide the switch, if necessary.

- If the voltage supply range in your location is 90–137 V ac, set the switch to 115 V.
- If the voltage supply range in your location is 180–265 V ac, set the switch to 230 V.



Installing options

This section contains instructions for installing options in your IntelliStation E Pro computer.

Before you begin

Before you begin to install options in your computer, read the following information:

- Read the handling guidelines in “Handling static-sensitive devices” on page 11, and read the safety statements in “Safety information” on page v. These guidelines will help you work safely with your computer and options.

- Make sure that you have an adequate number of properly grounded electrical outlets for your computer, monitor, and other options that you intend to install.
- Back up all important data before you make changes to disk drives.
- Have a small, flat-blade screwdriver available.
- For a list of supported options for your computer, go to <http://www.ibm.com/pc/support/> on the World Wide Web.

System reliability considerations

To help ensure proper system cooling and system reliability, make sure that:

- Each of the drive bays has a drive or a filler panel and electromagnetic compatibility (EMC) shield installed.
- There is adequate space around the computer to allow the computer cooling system to work properly. Leave approximately 51 mm (2 in.) of open space around the front and rear of the computer. Do not place objects in front of the fans.
- You have followed the instructions for cabling provided with optional adapters.
- You have replaced a failed fan as soon as possible.

Handling static-sensitive devices

Attention: Static electricity can damage electronic devices and your system. To avoid damage, keep static-sensitive devices in their static-protective packages until you are ready to install them.

To reduce the possibility of electrostatic discharge, observe the following precautions:

- Limit your movement. Movement can cause static electricity to build up around you.
- Handle the device carefully, holding it by its edges or its frame.
- Do not touch solder joints, pins, or exposed printed circuitry.
- Do not leave the device where others can handle and possibly damage the device.
- While the device is still in its static-protective package, touch it to an unpainted metal part of the system unit for at least 2 seconds. (This drains static electricity from the package and from your body.)
- Remove the device from its package and install it directly into your system unit without setting it down. If it is necessary to set the device down, place it in its static-protective package. Do not place the device on your system unit cover or on a metal table.
- Take additional care when handling devices during cold weather; heating reduces indoor humidity and increases static electricity.

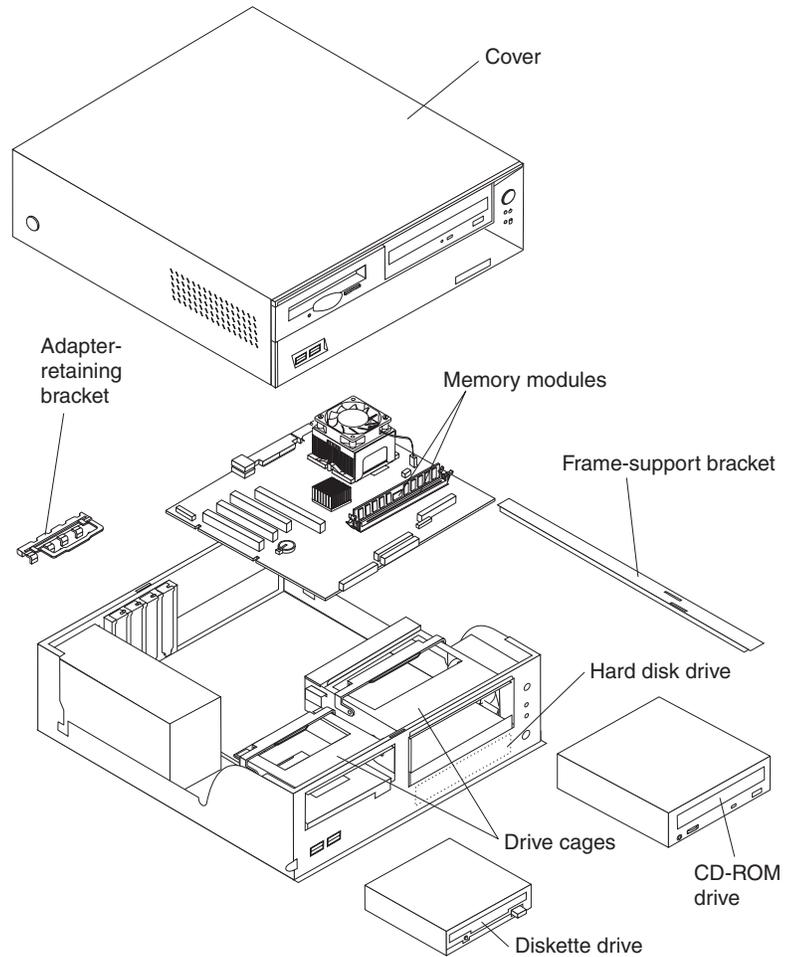
Installing options in the IntelliStation E Pro Type 6216

Use the instructions in the following sections to help you install options in the IntelliStation E Pro Type 6216 computer.

Note: For instructions to install options in the IntelliStation E Pro Type 6226, see “Installing options in the IntelliStation E Pro Type 6226” on page 22.

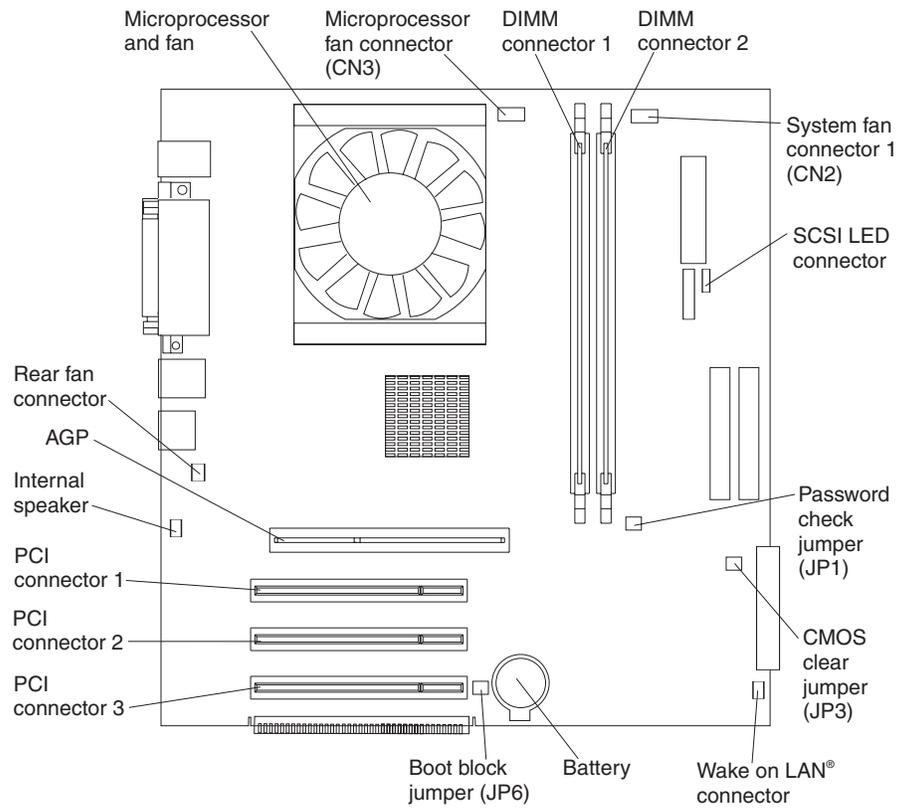
Major components of the IntelliStation E Pro Type 6216

The following illustration shows the locations of major components in the IntelliStation E Pro Type 6216 computer.

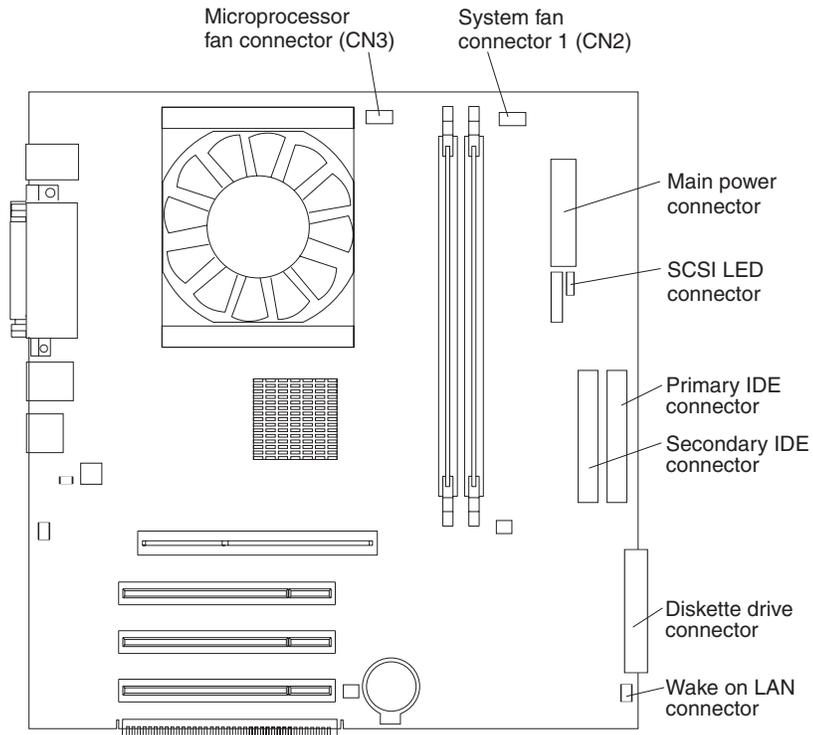


System board

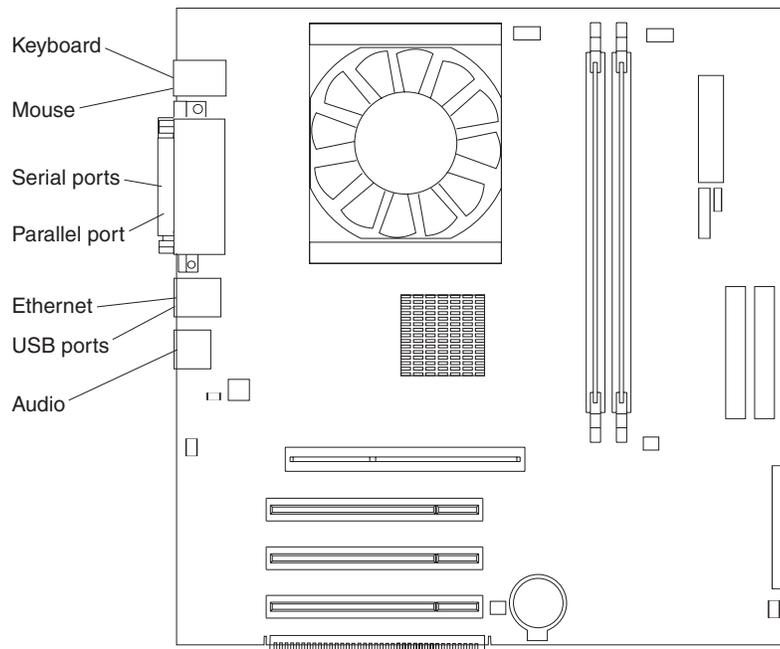
The illustrations in the following sections show various components on the system board. Depending on installed options, your system board might look slightly different.



System board internal cable connectors: The following illustration identifies system-board connectors for internal cables.



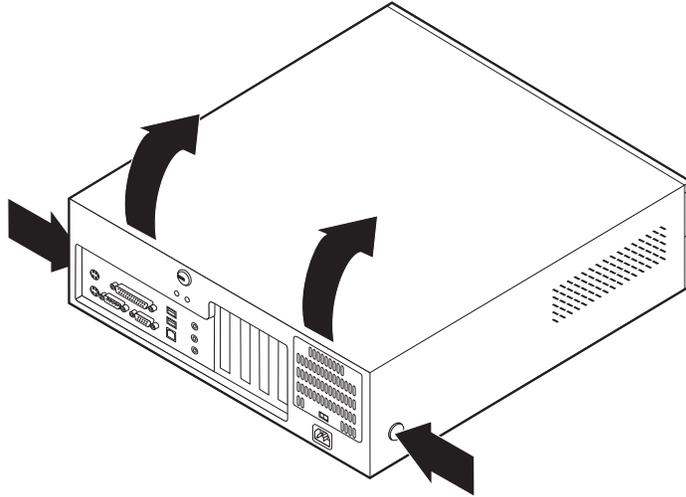
System board external cable connectors: The following illustration identifies system-board connectors for external devices.



Removing the cover

To remove the cover from the IntelliStation E Pro Type 6216 computer, complete the following steps:

1. Review the information in “Safety information” on page v and “Before you begin” on page 10.
2. Turn off the computer and all attached devices.
3. Disconnect all external cables and power cords.
4. Press the buttons on both sides of the computer cover and lift the cover from the computer.

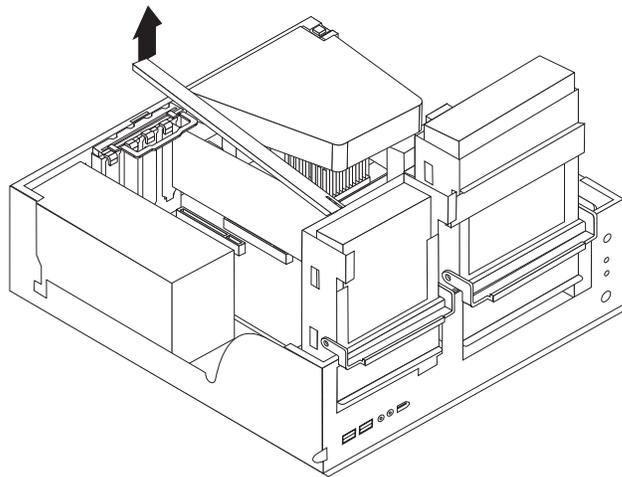


To replace the cover, see “Replacing the cover” on page 21.

Removing the frame-support bracket

You must remove the frame-support bracket to access many of the components of the IntelliStation E Pro Type 6216 computer. To remove the frame-support bracket, complete the following steps:

1. Pivot the drive cages until the pivot locks catch the front of the chassis, holding the drive cages in place.
2. Lift the frame-support bracket out of the computer.



To replace the frame-support bracket, reverse the steps.

Working with adapters

Your computer has three PCI adapter connectors or *slots* and one AGP adapter slot. The AGP video adapter is installed in the AGP slot. All PCI slots are 32-bit, 33 MHz slots.

See “System board” on page 13 for the location of the expansion slots on the system board.

Adapter considerations: Before you install adapters, review the following:

- Locate the documentation that comes with the adapter and follow those instructions in addition to the instructions provided in this chapter. If you need to change switch or jumper settings on your adapter, follow the instructions that come with the adapter.
- You can install low-profile adapters in all three PCI slots.
- Your computer supports 5.0 V and universal PCI adapters; it does not support 3.3 V adapters.
- Your computer uses a rotational interrupt technique to configure PCI adapters. Because of this technique, you can install a variety of PCI adapters that currently do not support PCI interrupt sharing.
- PCI slots 1 through 3 are on PCI bus 0.
The system scans the AGP slot and PCI expansion slots 1 through 3 to assign system resources; then, the system starts the PCI devices in the following order: PCI expansion slots 1 and 2, system board integrated drive electronics (IDE) or SCSI devices, and then PCI expansion slot 3.
- For a list of supported options for your computer, go to <http://www.ibm.com/pc/support/> on the World Wide Web.

Installing an adapter: Complete the following steps to install an adapter in the IntelliStation E Pro Type 6216 computer.

Attention: When you handle static-sensitive devices, take precautions to avoid damage from static electricity. For details about handling these devices, see “Handling static-sensitive devices” on page 11.

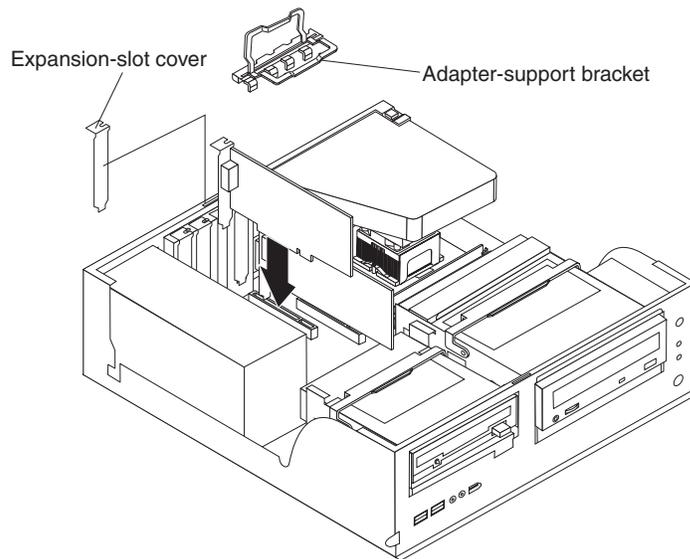
1. Review the information in “Safety information” on page v.
2. Turn off the computer and attached devices.
3. Disconnect all external cables and power cords; then, remove the cover. See “Removing the cover” on page 15.
4. Determine which PCI slot you will use for the adapter.

Note: Check the instructions that come with the adapter for any requirements, restrictions, or cabling instructions. It might be easier to route cables before you install the adapter.

5. Rotate each drive bay cage until the drive cage latches catch the front of the computer chassis.
6. Lift the frame-support bracket. See “Removing the frame-support bracket” on page 15.
7. Rotate the rear adapter-support bracket to the open (unlocked) position and remove it from the computer.
8. Remove the expansion-slot cover. From the rear of the computer, press on the slot cover. Grasp it and pull it out of the expansion slot. Store it in a safe place for future use.

Attention: Expansion-slot covers must be installed on all vacant slots. This maintains the electronic emissions standards of the computer and ensures proper ventilation of computer components.

9. When you are ready, remove the adapter from the static-protective package. It is best to move the adapter directly from the static-protective package to the adapter slot. If this is not possible, set the adapter down in its static-protective package on a hard surface. Avoid touching the components and gold-edge connectors on the adapter.
10. Set any jumpers or switches on the adapter or system board as described by the adapter manufacturer.
11. To install the adapter, carefully grasp the adapter by the top edge or upper corners, and align it with the expansion slot guides; then, press the adapter *firmly* into the expansion slot.



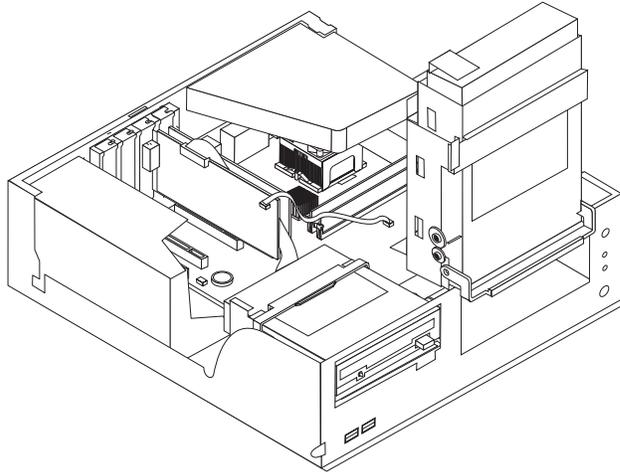
Attention: Be certain that the adapter is correctly seated in the expansion slot before you turn on the computer. Incomplete installation of an adapter might damage the system board or the adapter.

12. Connect required cables to the adapter.
13. If you have another adapter to install, repeat steps 1 through 12. If you have another option to install, do so now. Otherwise, complete the remaining steps in this section.
14. Reinstall the rear adapter support bracket; then, rotate the bracket to the closed (locked) position.
15. Replace the frame-support bracket.
16. Return the drive-bay cages to their original positions in the computer.
17. Replace the cover, see “Replacing the cover” on page 21 for details.
18. Reconnect the external cables and power cords; then, turn on the attached devices and the computer.

Installing a SCSI adapter: Complete the following steps to install an optional SCSI adapter:

1. Complete steps 1 through 12 of “Installing an adapter” on page 16; then, continue with step 2.
2. Remove the air duct from its position over the microprocessor.

3. Connect the SCSI signal cable to the adapter and one or more of the signal cable connectors to the rear of the SCSI devices.
4. Connect the SCSI activity indicator cable to the adapter and to the SCSI LED connector on the system board. See “System board” on page 13 for the location of the SCSI LED connector.



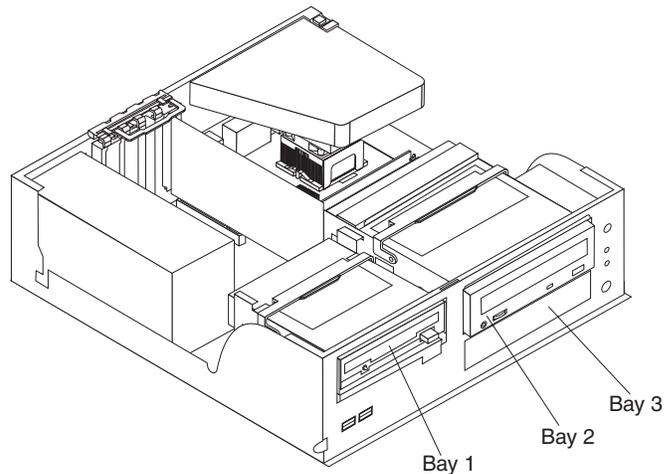
5. If you have other adapters or options to install or remove, do so now.
6. Reinstall the rear adapter support bracket; then, rotate it to the closed (locked) position.
7. Replace the frame-support bracket, and replace the air duct.
8. Replace the cover. See “Replacing the cover” on page 21 for details.
9. Reconnect the external cables and power cords; then, turn on the attached devices and the computer.

Installing internal drives

Different types of drives enable your computer to read various types of media and store data in different formats. Your computer comes with the following drives preinstalled:

- Diskette
- Hard disk
- CD-ROM, DVD-ROM, or CD-RW

Internal drive bays: The IntelliStation E Pro Type 6216 computer comes with an IDE CD-ROM, DVD-ROM, or CD-RW drive in bay 1; a 3.5-in., 1.44-MB diskette drive in bay 2; and a hard disk drive installed in bay 3.



Notes:

1. The IntelliStation E Pro computer supports only one diskette drive.
2. The IntelliStation E Pro Type 6216 does not support the installation of additional internal disk drives. However, you can replace failed internal drives. If you want to replace an internal drive, see the *User's Guide*.
3. For a complete list of supported options for your computer, go to <http://www.ibm.com/pc/support/> on the World Wide Web.

Installing memory modules

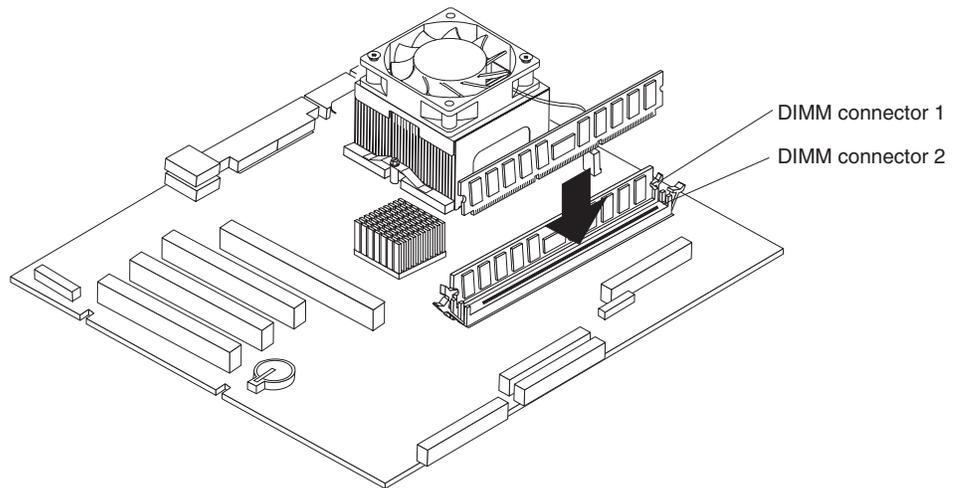
You can increase the amount of memory in your computer by installing memory modules. Your IntelliStation E Pro computer uses industry-standard, PC2100 266 MHz double density RAM (DDR) dual inline memory modules (DIMMs).

Complete the following steps to install a DIMM.

Attention: When handling static-sensitive devices, take precautions to avoid damage from static electricity. For details about handling these devices, see "Handling static-sensitive devices" on page 11.

1. Review the safety precautions listed in "Safety information" on page v.
2. Turn off the computer and all attached devices. Disconnect all external cables and power cords; then, remove the cover. See "Removing the cover" on page 15 or for details.
3. Lift the frame-support bracket. See "Removing the frame-support bracket" on page 15.
4. Touch the static-protective package containing the DIMM to any unpainted metal surface on the computer. Then, remove the new DIMM from the package.
5. Gently open the retaining clip on each end of the DIMM slot. Turn the DIMM so that the pins align correctly with the connector.

6. Insert the DIMM into the connector. Firmly press the DIMM straight down into the connector by applying pressure on both ends of the DIMM simultaneously. The retaining clips snap into the locked position when the DIMM is firmly seated in the connector.



7. If there is a gap between the DIMM and the retaining clips, the DIMM has not been correctly installed. Open the retaining clips, remove the DIMM, and then reinsert it.
8. If you have other options to install or remove, do so now.
9. Replace the frame-support bracket.
10. Replace the cover. See “Replacing the cover” on page 21.
11. Reconnect the external cables and power cords. Turn on the attached devices, and turn on the computer.

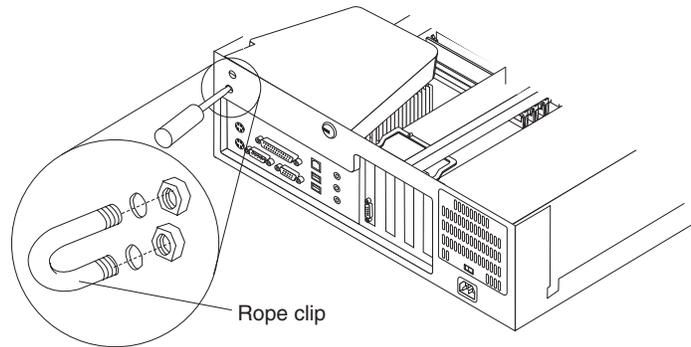
Installing a security rope clip

To help prevent theft, you can add a rope clip and cable to your computer.

Complete the following steps to install the rope clip:

1. Review the safety precautions listed in “Safety information” on page v.
2. Turn off the computer and all attached devices. Disconnect all external cables and power cords; then, remove the cover. See “Removing the cover” on page 15 for details.
3. Use a screwdriver to remove the two metal knockouts.
4. Insert the rope clip through the rear panel; then, attach and tighten the nuts.

5. Thread the cable through the rope clip and around an object that is not part of or permanently secured to the building structure or foundation, and from which the cable cannot be removed. Fasten the cable ends together with a lock. After you add the security cable, make sure that it does not interfere with other cables connected to the computer.

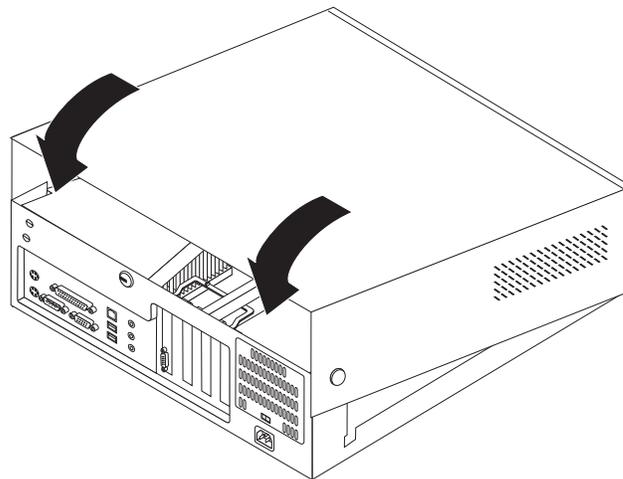


6. Replace the cover. See “Replacing the cover”.
7. Reconnect the external cables and power cords, and turn on the attached devices, then the computer.

Replacing the cover

Complete the following steps to replace the computer cover:

1. Clear any cables that might impede the replacement of the cover.
2. Place the cover over the chassis, and pivot it down over the computer until it snaps into place.



3. Reconnect the external cables and power cords to the computer; then, connect the power cords to electrical outlets.
4. Turn on the attached devices; then, turn on the computer.

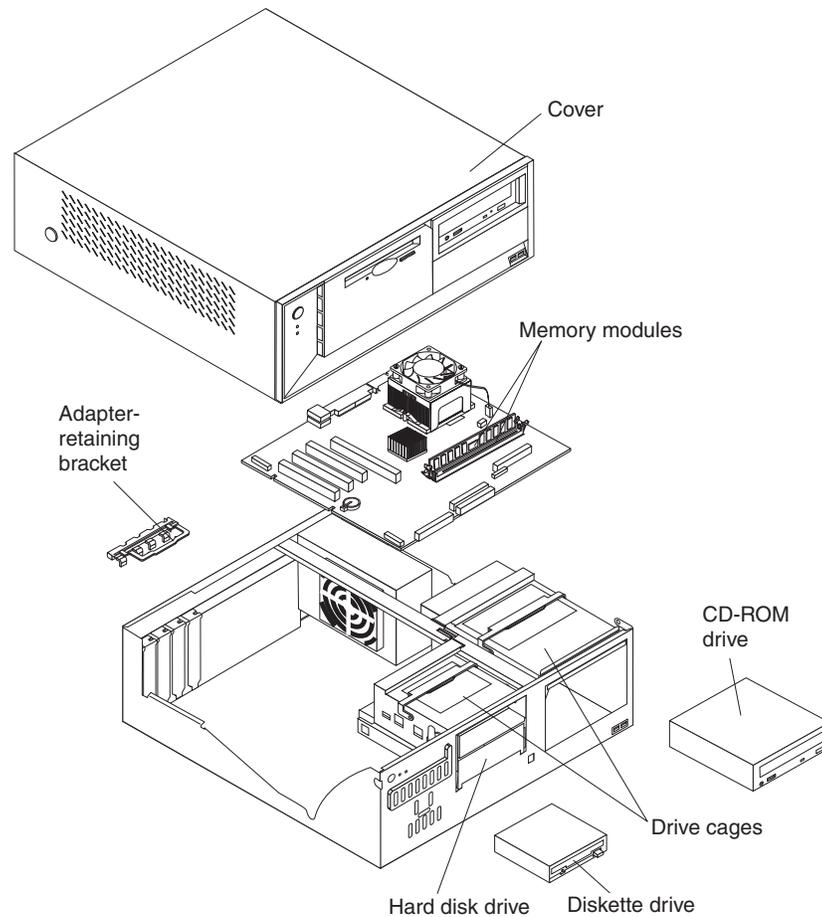
Installing options in the IntelliStation E Pro Type 6226

Use the instructions in the following sections to help you install options in the IntelliStation E Pro Type 6226 computer.

Note: For instruction to install option in an IntelliStation E Pro Type 6216, see “Installing options in the IntelliStation E Pro Type 6216” on page 12.

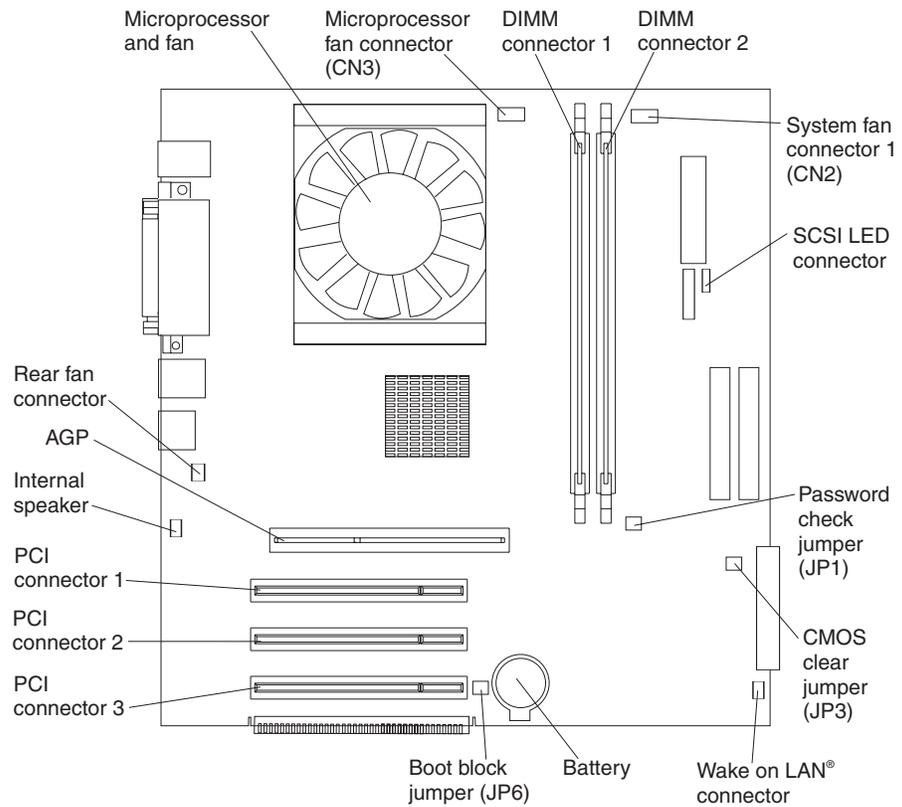
Major components of the IntelliStation E Pro Type 6226 computer

The following illustration shows the locations of major components in the IntelliStation E Pro Type 6226 computer.

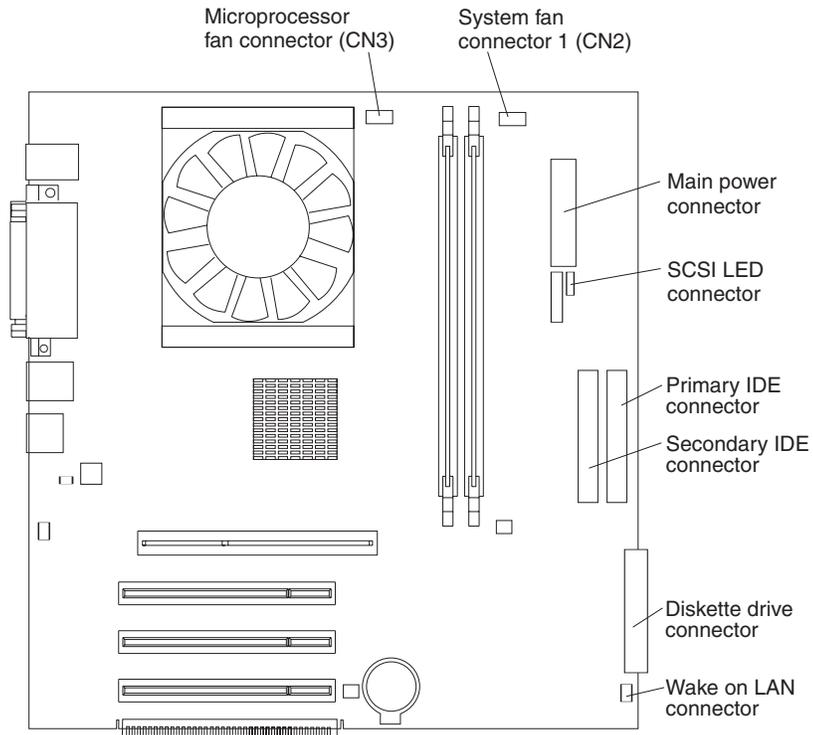


System board

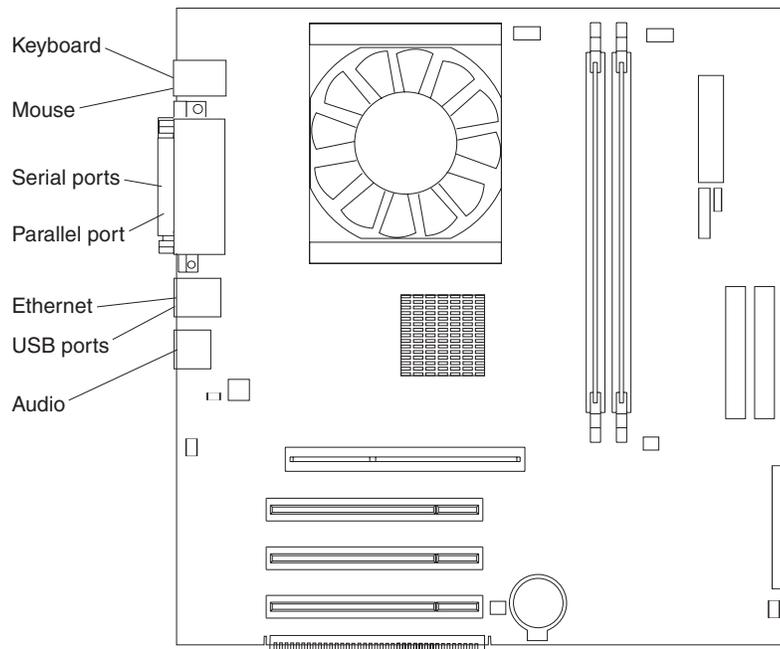
The illustrations in the following sections show the various components on the system board. Depending on installed options, your system board might look slightly different.



System board internal cable connectors: The following illustration identifies system board connectors for internal cables.



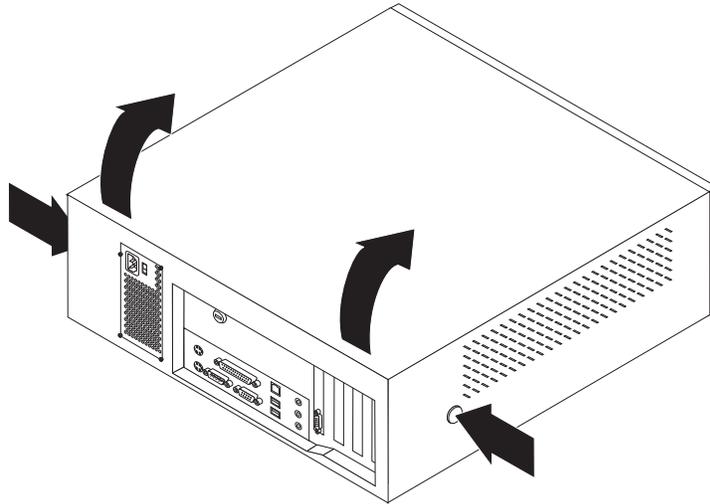
System board external cable connectors: The following illustration identifies system board connectors for external devices.



Removing the cover

To remove the cover from the IntelliStation E Pro Type 6226 computer, complete the following steps:

1. Review the information in “Safety information” on page v and “Before you begin” on page 10.
2. Turn off the computer and all attached devices.
3. Disconnect all external cables and power cords.
4. Press the buttons on both sides of the computer cover and lift the cover from the computer.



To replace the cover, see “Replacing the cover” on page 35.

Working with adapters

Your computer has three PCI adapter connectors or *slots* and one AGP adapter slot. The AGP video adapter is installed in the AGP slot. All PCI slots are 32-bit, 33 MHz slots.

See “System board” on page 23 for the location of the expansion slots on the system board.

Adapter considerations: Before you install adapters, review the following:

- Locate the documentation that comes with the adapter and follow those instructions in addition to the instructions in this chapter. If you need to change switch or jumper settings on your adapter, follow the instructions that come with the adapter.
- You can install low-profile adapters in all three PCI slots.
- Your computer supports 5.0 V and universal PCI adapters; it does not support 3.3 V adapters.
- Your computer uses a rotational interrupt technique to configure PCI adapters. Because of this technique, you can install a variety of PCI adapters that currently do not support PCI interrupt sharing.
- PCI slots 1 through 3 are on PCI bus 0.

The system scans the AGP slot and PCI expansion slots 1 through 3 to assign system resources; then the system starts the PCI devices in the following order: PCI expansion slots 1 and 2, system board integrated drive electronics (IDE) or SCSI devices, and then PCI expansion slot 3.

- For a list of supported options for your computer, go to <http://www.ibm.com/pc/support> on the World Wide Web.

Installing an adapter: Complete the following steps to install an adapter in the IntelliStation E Pro Type 6226 computer:

Attention: When you handle static-sensitive devices, take precautions to avoid damage from static electricity. For details about handling these devices, see “Handling static-sensitive devices” on page 11.

1. Review the information in “Safety information” on page v.
2. Turn off the computer and attached devices.
3. Disconnect all external cables and power cords; then, remove the cover. See “Removing the cover” on page 25.
4. Determine which PCI slot you will use for the adapter.

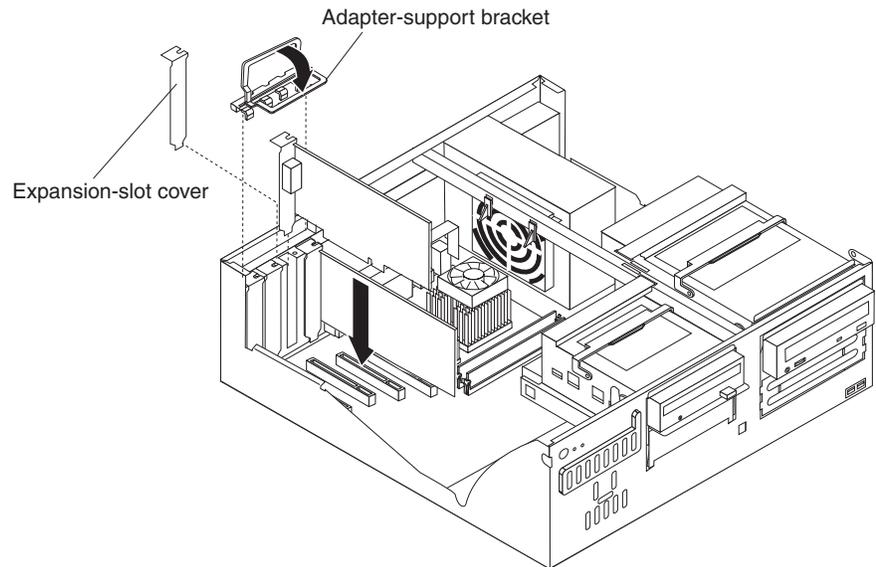
Note: Check the instructions that come with the adapter for any requirements, restrictions, or cabling instructions. It might be easier to route any cables before you install the adapter.

5. Rotate the rear-adapter-support bracket to the open (unlocked) position and remove it from the computer.
6. Remove the expansion-slot cover. From the rear of the computer, press on the slot cover. Grasp it and pull it out of the expansion slot. Store it in a safe place for future use.

Attention: Expansion-slot covers must be installed on all vacant slots. This maintains the electronic emissions standards of the computer and ensures proper ventilation of computer components.

7. When you are ready, remove the adapter from the static-protective package. It is best to move the adapter directly from the static-protective package to the adapter slot. If this is not possible, set the adapter down in its static-protective package on a hard surface. Avoid touching the components and gold-edge connectors on the adapter.
8. Set any jumpers or switches on the adapter or system board as described by the adapter manufacturer.

- Carefully grasp the adapter by the top edge or upper corners, and align it with the expansion slot guides; then, press the adapter *firmly* into the expansion slot.



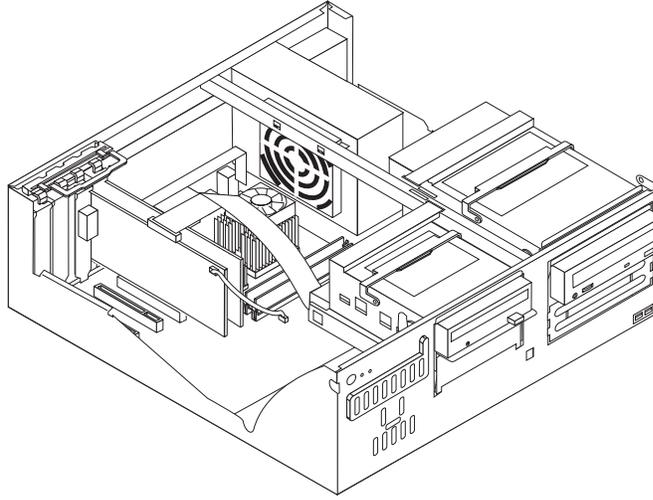
Attention: Be certain that the adapter is correctly seated in the expansion slot before you turn on the computer. Incomplete installation of an adapter might damage the system board or the adapter.

- Connect required cables to the adapter.
- If you have another adapter to install, repeat steps 1 through 12 on page 17. If you have another option to install, do so now. Otherwise, complete the remaining steps in this section.
- Reinstall the rear-adapter-support bracket; then, rotate the bracket to the closed (locked) position.
- Return the drive bay cages to their original positions in the computer.
- Replace the top cover. See “Replacing the cover” on page 35 for details.
- Reconnect the external cables and power cords; then, turn on the attached devices and the computer.

Installing a SCSI adapter: Complete the following steps to install an optional SCSI adapter:

- Complete steps 1 through 12 of “Installing an adapter” on page 26; then, continue with step 2.
- Connect the SCSI signal cable to the adapter and one or more of the signal cable connectors to the rear of the SCSI devices.

3. Connect the SCSI activity indicator cable to the adapter and to the SCSI LED connector (CN23) on the system board. See “System board” on page 23 for the location of the SCSI LED connector.



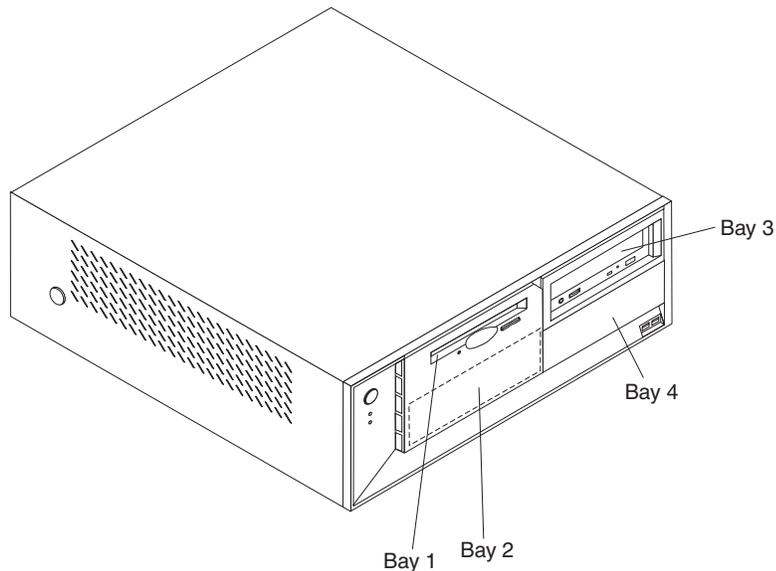
4. If you have other adapters or options to install or remove, do so now.
5. Reinstall the rear adapter-support bracket; then, rotate it to the closed (locked) position.
6. Replace the cover. See “Replacing the cover” on page 35 for details.
7. Reconnect the external cables and power cords; then, turn on the attached devices and the computer.

Installing internal drives

Different types of drives enable your computer to read various types of media and store data in different formats. Your computer comes with the following drives preinstalled:

- Diskette
- Hard disk
- CD-ROM, DVD-ROM, or CD-RW

Internal drive bays: The IntelliStation E Pro Type 6226 computer comes with a 3.5-in. 1.44-MB diskette drive in bay 1; a hard disk drive installed in bay 2; and an IDE CD-ROM, DVD-ROM, or CD-RW drive in bay 3.



Notes:

1. The IntelliStation E Pro Type 6226 computer supports only one diskette drive.
2. For a complete list of supported options for your computer, go to <http://www.ibm.com/pc/support/> on the World Wide Web.

Preinstallation steps: Before you replace drives in your computer, verify that you have all the cables and other equipment specified in the documentation that comes with the drive. You might also need to perform certain preinstallation activities. Some steps are required only during the initial installation of an option.

If you want to replace a drive, see the *User's Guide*.

1. Read "Safety information" on page v, "Handling static-sensitive devices" on page 11, and the documentation that comes with your drive.
2. Choose the bay in which you want to install the drive.
3. Check the instructions that come with the drive to see if you need to set any switches or jumpers on the drive. If you are installing a SCSI device, be sure to set the SCSI ID for that device.

Power and signal cables for internal drives: Your computer uses cables to connect IDE, SCSI, and diskette devices to the power supply and to the system board. The following cables are provided:

- Four-wire power cables connect the drives to the power supply. At the end of these cables are plastic connectors that attach to different drives; these connectors vary in size. Also, certain power cables attach to the system board.
- Flat signal cables, also called ribbon cables, connect IDE and diskette drives to the system board. There are two sizes of ribbon cables that come with your computer.
 - The wider IDE signal cable has two or three connectors.
 - If the cable has three connectors, one of these connectors is attached to the drive, one is a spare, and the third attaches to the primary or secondary IDE connector on the system board.

- If the cable has two connectors, one of these connectors is attached to the hard disk drive, and the other attaches to the primary or secondary IDE connector on the system board.

Note: The CD-ROM drive is attached to an ATA 66 signal cable. The hard disk drive is attached to an ATA 100 signal cable. ATA 66 and ATA 100 signal cables are color-coded. The blue connector attaches to the system board. The black connector attaches to the primary device. If the cable has a gray middle connector, it attaches to the secondary device. If you are installing a hard disk drive, you must change the switch setting on the CD-ROM drive to secondary and change the connector used for the CD-ROM drive to the gray middle connector.

- The narrower signal cable has two connectors, one to attach to the diskette drive, and the other to attach to the connector (FDD1) on the system board.
- SCSI signal cables connect SCSI devices to a SCSI adapter. If you have a SCSI adapter installed in your computer, the SCSI signal cable has four connectors. One of these connectors is attached to the SCSI adapter, two connectors are spares, and the fourth connector is attached to a SCSI hard disk drive.

To locate connectors on the system board, see “System board internal cable connectors” on page 24.

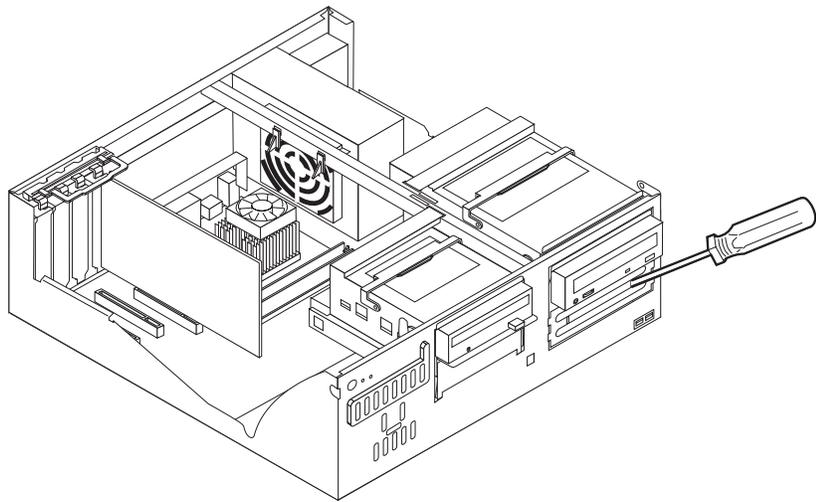
Review the following information before connecting power and signal cables to internal drives:

- The drives that are preinstalled in your computer come with power and signal cables attached. If you replace any drives, it is important to remember which cable is attached to which drive.
- When you install a drive, ensure that the drive connector at the end of the signal cable is always connected to a drive, and ensure that the drive connector at the other end is connected to the system board.
- If you have only one IDE device on a cable, it must be set as a primary device.
- If two IDE devices are used on a single cable, one must be designated as the primary device and the other as the secondary device; otherwise, the computer might not detect some of the IDE devices. The primary and secondary designation is determined by switch or jumper settings on each IDE device.
- If two IDE devices are on a single cable, and only one is a hard disk drive, the hard disk drive must be set as a primary device.
- You must also set the SCSI ID for any SCSI device that you install in your computer. Each SCSI device has its own methods and considerations for setting the SCSI ID. See the instructions that come with the SCSI device for details about setting the SCSI ID for the SCSI device.

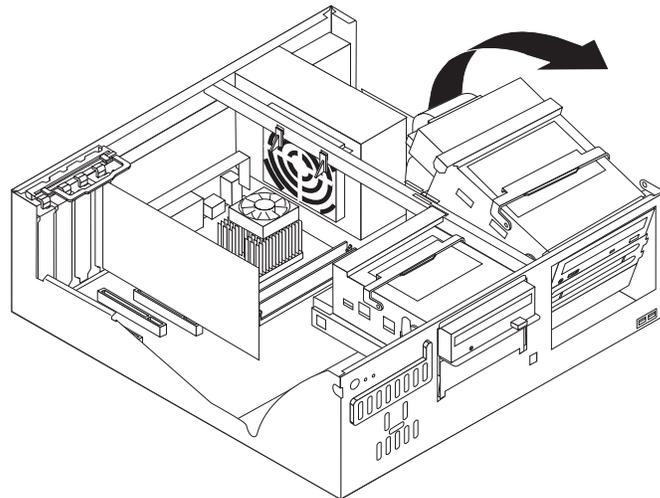
Installing a drive in bay 4: To install a drive in bay 4 of the IBM IntelliStation E Pro Type 6226 computer, complete the following steps:

1. Read the information in “Preinstallation steps” on page 29.
2. Turn off the computer and attached devices, and disconnect all external cables and power cords.
3. Remove the cover. See “Removing the cover” on page 25 for details.
4. Disconnect power and signal cables to the drive.

5. Use a screwdriver to pry the electromagnetic cover from drive bay 4.



6. Rotate the drive bay cage out of the computer chassis.



Note: If you are installing a drive that contains a laser, observe the following safety precaution.

Statement 3:



CAUTION:

When laser products (such as CD-ROMs, DVD drives, fiber optic devices, or transmitters) are installed, note the following:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.



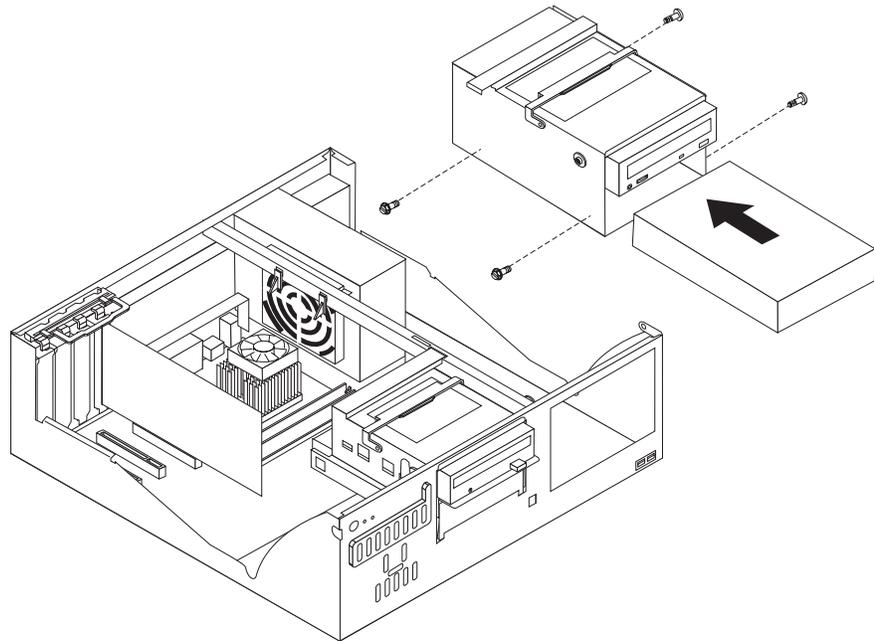
DANGER

Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following.

Laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.

7. Touch the static-protective package containing the drive to any unpainted metal surface on the computer; then, remove the drive from the package and place it on a static-protective surface.
8. Set any jumpers or switches on the drive according to the documentation that comes with the drive.

- Slide the drive into the drive bay through the front, and then attach the drive to the drive cage.



- Place the drive cage back into the computer chassis.
- If you are installing an IDE device, connect one end of the IDE signal cable into the back of the drive and the other end of the cable into the IDE connector on the system board. For the location of the IDE connectors, see “System board internal cable connectors” on page 24. If you are installing a SCSI device, connect one end of the SCSI signal cable to the device and the other end to the SCSI connector on the SCSI adapter.

Note: Make sure to route the signal cable so that it does not block the airflow to the rear of the drives or over the microprocessor.

- Connect the power cable to the back of the drive. The connectors are keyed and can be inserted only one way.
- If you have other options to install or remove, do so now.
- Replace the cover. See “Replacing the cover” on page 35 for details.
- Reconnect the external cables and power cords; then, turn on the attached devices and the computer.

Installing memory modules

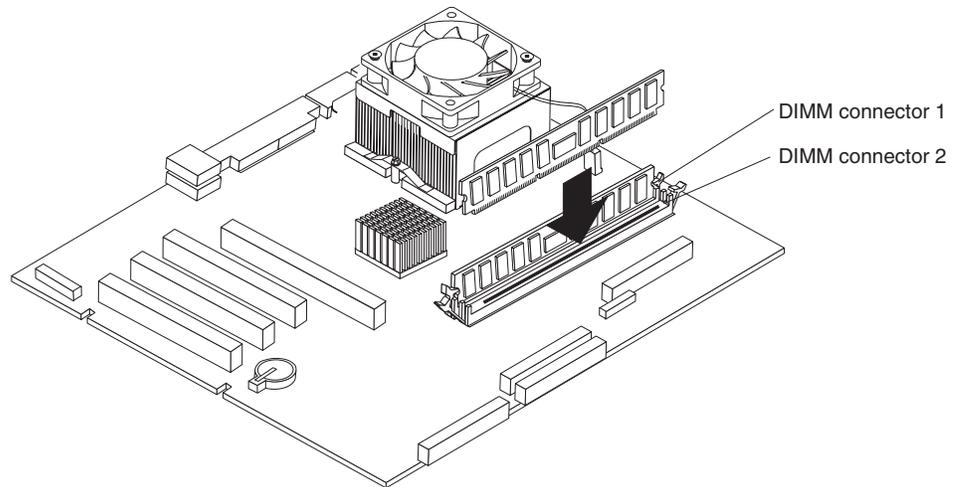
You can increase the amount of memory in your computer by installing memory modules. Your IntelliStation E Pro computer uses industry-standard, PC2100 266 MHz double density RAM (DDR) dual inline memory modules (DIMMs).

Complete the following steps to install a DIMM.

Attention: When handling static-sensitive devices, take precautions to avoid damage from static electricity. For details about handling these devices, see “Handling static-sensitive devices” on page 11.

- Review the safety precautions listed in “Safety information” on page v.
- Turn off the computer and all attached devices. Disconnect all external cables and power cords; then, remove the cover. See “Removing the cover” on page 25 or for details.

3. Rotate the drive cages until the drive-cage latches catch the chassis.
4. Touch the static-protective package containing the DIMM to any unpainted metal surface on the computer. Then, remove the new DIMM from the package.
5. Gently open the retaining clip on each end of the DIMM slot. Turn the DIMM so that the pins align correctly with the connector.
6. Insert the DIMM into the connector. Firmly press the DIMM straight down into the connector by applying pressure on both ends of the DIMM simultaneously. The retaining clips snap into the locked position when the DIMM is firmly seated in the connector.



7. If there is a gap between the DIMM and the retaining clips, the DIMM has not been correctly installed. Open the retaining clips, remove the DIMM, then reinsert it.
8. If you have other options to install or remove, do so now.
9. Replace the cover. See “Replacing the cover” on page 35.
10. Reconnect the external cables and power cords. Turn on the attached devices, and turn on the computer.

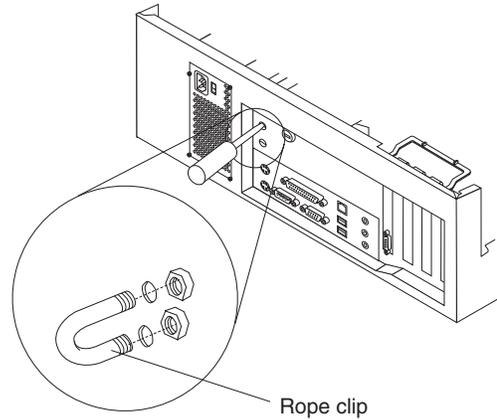
Installing a security rope clip

To help prevent theft, you can add a rope clip and cable to your computer.

Complete the following steps to install the rope clip:

1. Review the safety precautions listed in “Safety information” on page v.
2. Turn off the computer and all attached devices. Disconnect all external cables and power cords; then, remove the cover. See “Removing the cover” on page 25 for details.
3. Use a screwdriver to remove the two metal knockouts.
4. Insert the rope clip through the rear panel; then, attach and tighten the nuts.

5. Thread the cable through the rope clip and around an object that is not part of or permanently secured to the building structure or foundation, and from which the cable cannot be removed. Fasten the cable ends together with a lock. After you add the security cable, make sure that it does not interfere with other cables connected to the computer.

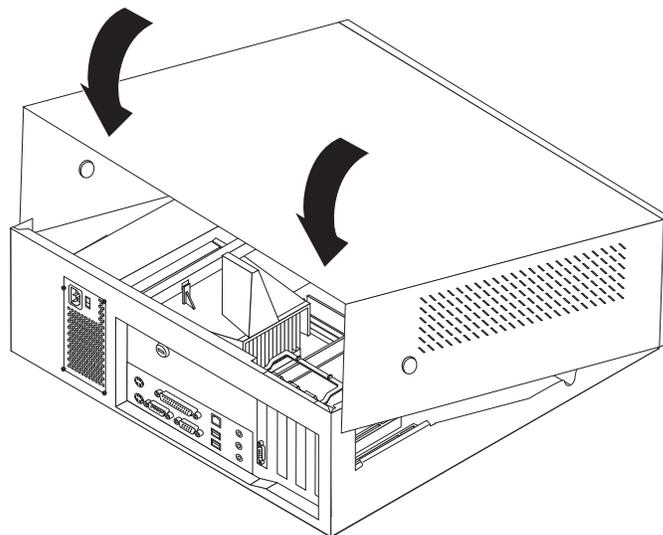


6. Reconnect the external cables and power cords, and turn on the attached devices, then the computer.

Replacing the cover

Complete the following steps to replace the computer cover:

1. Clear any cables that might impede the replacement of the cover.
2. Place the cover over the chassis, and pivot it down over the computer until it snaps into place.

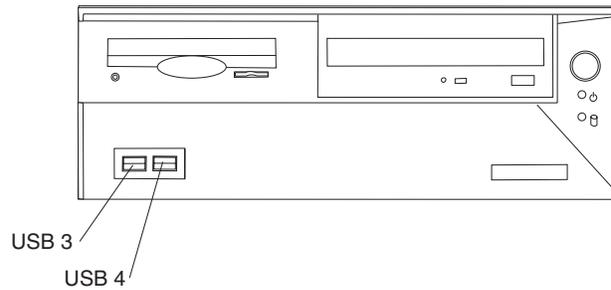


3. Reconnect the external cables and power cords to the computer; then, connect the power cords to electrical outlets.
4. Turn on the attached devices; then, turn on the computer.

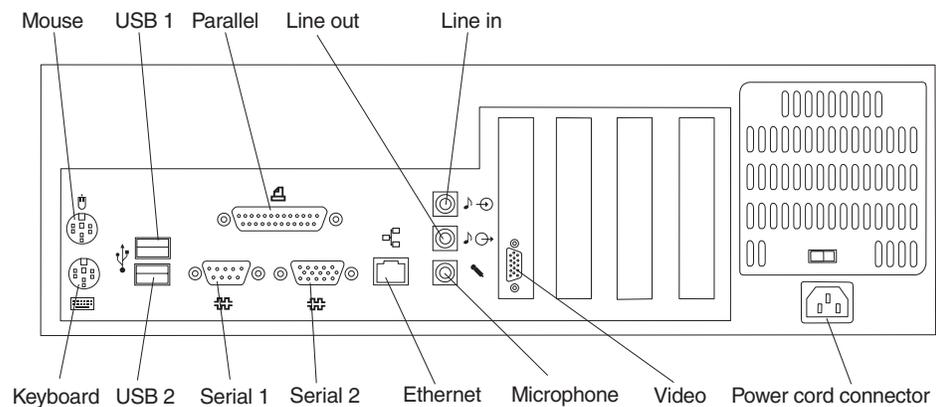
Cabling the computer

Connect the device cables to the connectors on the front or rear of the computer, using the following illustration as a guide. The connectors on the cables and on the computer might be color-coded to help you match each cable with the correct connector.

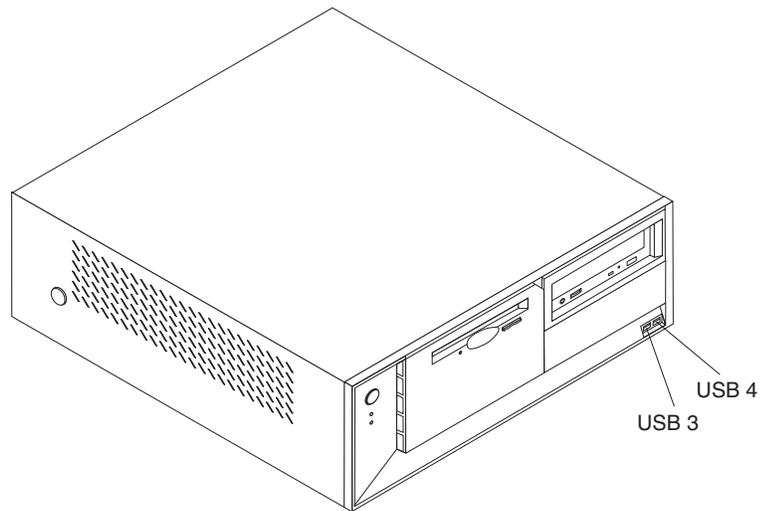
The following illustration shows the input/output (I/O) connectors on the front of the IntelliStation E Pro Type 6216 computer.



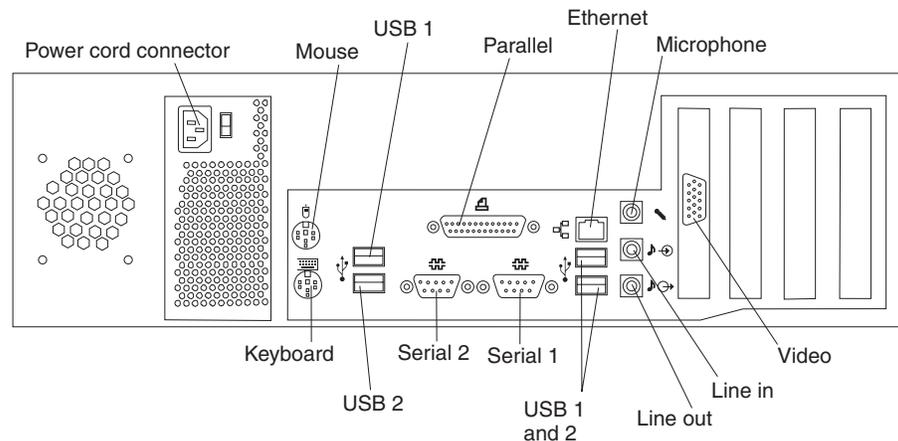
The following illustration shows the input/output (I/O) connectors on the rear of the IntelliStation E Pro Type 6216 computer.



The following illustration shows the input/output (I/O) connectors on the front of the IntelliStation E Pro Type 6226 computer.



The following illustration shows the input/output (I/O) connectors on the rear of the IntelliStation E Pro Type 6226 computer.



Your computer has one keyboard connector on the back of the computer. Use this connector to attach a keyboard. You can also connect an optional USB keyboard to the computer using one of the USB connectors. After installing a USB keyboard, you might need to use the Configuration/Setup Utility program to enable keyboardless operation and prevent the POST error message 301 from being displayed during setup. For detailed information about this option and how to connect it to your computer, see the documentation that comes with the option.

Turning on the computer

After you connect the computer to a power source, the computer can start in either of the following ways:

- You can press the power-control button on the front of the computer to start the computer.
- If the computer is turned on and a power failure occurs, the computer will start automatically when power is restored.

Important: After turning on your computer for the first time, you must complete the operating system setup procedure before turning off your computer; otherwise, unexpected results might occur.

Running the operating system setup program

If you are starting your computer for the first time, the Microsoft Windows setup program runs automatically when you start the computer. The program will prompt you to make choices or type information. If you need more detailed information than is provided in this *Installation Guide*, see your Microsoft operating-system manual.

Important information to know before you start:

- The setup program might be slightly different from the one described in your operating-system manual. Some choices do not appear because they are preset.
- During the setup procedure, you must indicate that you accept the license agreement.
- The Microsoft registration information will already be displayed in the registration field. If the Product ID number is not already displayed, you must type it. The Product ID is on a label attached to the computer.

To complete the setup program, you will need the following information:

- The Microsoft documentation that comes with your computer.
- Network information (if applicable) from your network administrator.
- The printer model and port, if a printer is attached directly to your computer.

Important: After turning on your computer for the first time, you must complete the operating system setup procedure before turning off your computer; otherwise, unexpected results might occur.

After the setup procedure finishes and the computer restarts, the Windows desktop opens. Your computer is ready for use.

Turning off the computer

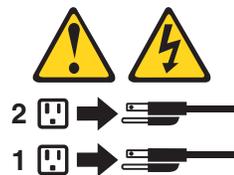
Use one of the following procedures to turn off your computer.

Statement 5



CAUTION:

The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.



- You can press the power-control button on the front of the computer. This starts an orderly shutdown of the operating system, if this feature is supported by your operating system, and places the computer in Standby mode.

Note: After you turn off the computer, wait at least 5 seconds before you press the power-control button to turn on the computer again.

- You can press and hold the power-control button for more than 4 seconds to cause an immediate shutdown of the computer. You can use this feature if the operating system stops functioning.
- If you cannot use the power-control button to turn off your computer, disconnect the computer power cords from the electrical outlets.

Note: After disconnecting the power cords, wait approximately 15 seconds for your system to stop running.

Chapter 3. Configuring the computer

This chapter describes how to install and configure software for your IBM IntelliStation E Pro Type 6216 or Type 6226 computer.

Viewing the license agreement

The IBM *International License Agreement for Non-Warranted Programs* is viewable through Access IBM. Use of your computer signifies acceptance of this agreement. To view the license agreement, complete the following steps:

1. Double-click the **Access IBM** icon.
2. Click **How do I...** Then, click **Solve problems**.
3. Click **IBM International License Agreement**.

Using Access IBM

Access IBM is an interface through which you can quickly access information or perform specific tasks.

The following choices are available from the Access IBM main menu:

- **How do I...**

Select this choice to display information about tasks that you typically perform immediately after installing a new computer, such as personalizing your computer to fit your needs, protecting your data, upgrading your computer hardware, purchasing IBM services, purchasing IBM options, solving problems, and viewing the IBM International License Agreement.

- **Tools & Tips**

Select this choice to display information about access support, diagnostic programs, antivirus tools, configuration backup and restoration tools, and online books.

- **On the Web**

Select this choice to display information about obtaining additional information and support on the World Wide Web.

Complete the following steps to use Access IBM:

1. Double-click the **Access IBM** icon on the Windows desktop. If the **Access IBM** icon is not available on your desktop, click **Start → Access IBM**.
2. Click one of the tabs (for example, **How do I...**).
3. Click a topic.

Using the built-in configuration programs

The following configuration programs are provided with your computer:

- **Configuration/Setup Utility program**

This program is part of the basic input/output system (BIOS) code that comes with your computer. You can use this program to configure serial- and parallel-connector assignments, change the drive startup sequence, set the date and time, and set passwords. For more information on how to start this utility, see “Starting the Configuration/Setup Utility program”. For detailed information, see the *User's Guide*.

- **Broadcom NetXtreme Gigabit Ethernet Boot Agent program**

The Broadcom NetXtreme Gigabit Ethernet Boot Agent program is part of the BIOS code that comes with your computer. You can use this program to configure the computer to start from the network. For information about how to enable this utility, see “Starting the **Broadcom** Multi-Boot Agent program” on page 43.

- **SCSISelect Utility (some models)**

With the SCSISelect Utility program, you can configure the devices that are connected to the optional SCSI adapter. Use this program to change default values, resolve configuration conflicts, and perform a low-level format on a SCSI hard disk drive. For information about how to start this utility, see “Starting the SCSISelect utility program (some models)” on page 43.

- **Boot Menu program**

The Boot Menu is part of the BIOS code that comes with your computer. You can use the Boot Menu program to temporarily alter the order in which the computer accesses startable devices for one startup session without reconfiguring the startup sequence in the Configuration/Setup Utility program.

Note: See the *User's Guide* on the IBM *IntelliStation Documentation* CD for detailed instructions for using the configuration programs.

The following sections provide the instructions for starting the utility programs.

Starting the Configuration/Setup Utility program

Configuration/Setup is a menu-driven utility that is part of the BIOS code that comes with your computer. You can use it to:

- Configure serial connector assignments
- Change the startup sequence
- Enable USB keyboard and mouse support
- Resolve configuration conflicts
- Set the date and time
- Set an administrator password

Complete the following steps to start the Configuration/Setup Utility program:

1. Turn on the computer and watch the monitor screen.
2. When the message Press F1 for Configuration/Setup appears, press the F1 key.
3. Follow the instructions that appear on the screen.

Starting the Broadcom Multi-Boot Agent program

The Broadcom NetXtreme Gigabit Ethernet Boot Agent program is a built-in configuration utility program that you can use to configure the computer to start from the network. You enable the Broadcom NetXtreme Gigabit Ethernet Boot Agent program and establish your network as a startup device using the Configuration/Setup Utility program.

To enable Broadcom NetXtreme Gigabit Ethernet Boot Agent, complete the following steps:

1. From the Configuration/Setup Utility main menu, select **Devices and I/O Ports** and press Enter.
2. Select **System Board Ethernet PXE/DHCP** and use the Right Arrow (→) key to set it to Enabled.
3. Select **Save Settings** and press Enter.

For details about using the Configuration/Setup Utility program to configure the computer to start from the network, see the *User's Guide* on the IBM *IntelliStation Documentation CD*.

Starting the SCSISelect utility program (some models)

SCSISelect is a menu-driven configuration utility program that you can use to:

- View the default SCSI IDs
- Locate and correct configuration conflicts

Note: If your server has a redundant array of independent disks (RAID) adapter installed, use the configuration method that is supplied with the RAID adapter to view or change SCSI settings for devices attached to the adapter.

Complete the following steps to start the SCSISelect Utility program:

1. Turn on the computer and watch the monitor screen.
2. When the <<< Press <CTRL><A> for SCSISelect Utility! >>> prompt appears, press Ctrl+A.
3. When the Would you like to configure the host adapter or run the SCSI disk utility? question appears, make your selection and press Enter.
4. Use the arrow keys to select a choice from the menu.
5. Follow the instructions on the screen to change the settings of the selected items; then, press Enter.

Starting the Boot Menu program

Complete the following steps to start the Boot Menu program:

1. Turn on the computer and watch the monitor screen.
2. When the message Press F1 for Configuration/Setup, Press F12 for Boot Menu appears, press the F12 key.
3. Follow the instructions that appear on the screen.

Chapter 4. Completing the installation

This chapter contains information about registering your computer, recording important information in case of emergency, and preparing emergency diskettes.

Registering your computer

Registering your computer helps IBM provide better service to you. When IBM receives your registration information, it is placed into a central technical support database. If you need technical assistance, the technical support representative will have information about your computer. In addition, comments about your computer are reviewed by a team dedicated to customer satisfaction and are taken into consideration in making improvements to IBM computers. To register your computer, use one of the following methods:

- Register through Access IBM. In Access IBM, click **How do I...** Click **Registering your IBM Computer**, and then follow the instructions in the window. (See "Using Access IBM" on page 41 for further information.)
- Register your computer at <http://www.ibm.com/pc/register/> on the World Wide Web.

Note: The Register program that starts through Access IBM or the IBM Registration icon will enable you to print the registration information and will provide a mailing address in the event no Internet access is available.

Recording important numbers

Locate the serial, model, and type numbers. Record this information in the following table. You will need these numbers when communicating with IBM about your computer.

Product name	IBM IntelliStation E Pro
Machine type	_____
Model number	_____
Serial number	_____
Key serial number	_____
Key manufacturer	_____
Key phone number	_____

Creating an emergency repair diskette

At your earliest opportunity, create a recovery-repair diskette and an IBM Enhanced Diagnostics diskette, and store them in a safe place. Use the following instructions to create a recovery-repair diskette. See the *User's Guide* on the IBM *IntelliStation Documentation* CD for information about how to create an IBM Enhanced Diagnostics diskette.

In the unlikely event that your desktop becomes unusable, the recovery-repair diskette will enable you to access the Product Recovery program. Additional information about the diskette is in Access IBM. For more information about using this diskette, see the *User's Guide* on the *IBM IntelliStation Documentation* CD.

Complete the following steps to create a recovery-repair diskette:

1. From Access IBM, click the **How do I...** tab; then, click **Protect data**.
2. Click **Creating emergency diskettes**.
3. Click **Recovery Repair diskette**.
4. Follow the instructions on the screen.

Chapter 5. Solving problems

This section provides basic troubleshooting information to help you resolve some common problems that might occur with your computer.

If you cannot locate and correct the problem using the information in this section, see “Solving problems” in the *User’s Guide* on the IBM *IntelliStation Documentation* CD.

Diagnostic tools overview

The following tools are available to help you identify and resolve hardware-related problems:

- **POST beep codes**

The power-on self-test (POST) beep codes indicate the detection of a problem. See “Power-on self-test (POST)” for more details.

- **Diagnostic programs and error messages**

The diagnostic programs are provided on the *Device Drivers and IBM Enhanced Diagnostics* CD. These programs test the major components of your computer.

Note: See the *User’s Guide* on the IBM *IntelliStation Documentation* CD for more detailed information about the diagnostic programs.

- **Troubleshooting chart**

This chart lists problem symptoms and steps to correct the problem. See “Troubleshooting chart” on page 49 for more information.

- **Customized support page**

You can create a customized support page on the World Wide Web that is specific to your hardware, including frequently asked questions, parts information, technical hints and tips, and downloadable files. In addition, you can choose to receive electronic mail (e-mail) notifications whenever new information becomes available about your registered products.

After you register and profile your IntelliStation E Pro computer, you can diagnose problems using the IBM Online Assistant, and you can participate in the IBM discussion forum. For more detailed information about registering and creating a customized profile for your IBM products, go to the following addresses on the Web:

- <http://www.ibm.com/pc/register/>
- <http://www.ibm.com/pc/support/>

Power-on self-test (POST)

When you turn on the computer, the Power On Self-Test (POST) performs a series of tests to check the operation of system components and some of the installed options.

If POST finishes without detecting any problems, the first window of your operating system or application program appears.

If POST detects a problem, more than one beep sounds and an error message appears on your screen.

Notes:

1. If you have a user password set, you must type the password and press Enter, when prompted, before the operating system will load.
2. A single problem might cause several error messages. When this occurs, work to correct the cause of the first error message. After you correct the cause of the first error message, the other error messages usually will resolve the next time you run the test.

POST beep codes

The possible types of beep codes are as follows:

No beeps

If no beep occurs after your computer completes POST, call for service.

Continuous beep

Your microprocessor has failed, or your system board or speaker subsystem might contain a failing component. If the system continues through POST with no errors, call for service. If no video appears, the microprocessor processor has failed. Call for service.

POST error messages

The following table provides an abbreviated list of the error messages that might appear during POST.

Note: See the *User's Guide* on the *IBM Documentation CD* for more information about the POST error messages.

POST message	Failing device or problem found	Suggested action
162	Change in device configuration	Verify that your optional devices are turned on and installed correctly.
163	Time of day has not been set	Set the correct date and time.
164	Change in memory configuration	Verify that your memory is installed properly; then, restart the computer and run the Configuration/Setup Utility program.
201	Change in memory configuration	Verify that your memory is fully seated and installed properly.
289	Failing DIMM was disabled	Verify that your memory is correct for your computer and that it is installed properly.
301 303	Keyboard and keyboard controller	Ensure that the keyboard cable is connected and nothing is resting on the keyboard keys.
11xx	Serial port error	Verify that the serial cable is connected correctly.
1162	Serial port configuration error	Start the Configuration/Setup Utility program and ensure that the IRQ and I/O port assignments needed by the serial port are available.
1601	BIOS code update needed	Download and install the latest level of system BIOS code.
1800	PCI adapter hardware interrupt	Start the Configuration/Setup Utility program and verify that the interrupt resource settings are correct.
2400 2462	Video adapter and memory	Verify that the monitor is connected correctly.

POST message	Failing device or problem found	Suggested action
00180xxx	A PCI adapter requested a resource that is not available	Start the Configuration/Setup Utility program and ensure that the resources needed by the PCI adapter are available.
012980xx 012981xx	Data for microprocessor	Download and install the latest level of system BIOS code.
I9990305	POST could not find an operating system	Install your operating system.

Troubleshooting chart

Notes:

1. See "Solving Problems" in the *User's Guide* on the IBM *IntelliStation Documentation CD* for more detailed troubleshooting charts.
2. If you cannot find the problem in the troubleshooting chart, run the diagnostic programs. If you have run the diagnostic test programs, or if running the tests does not detect the problem, call for service.

Monitor	Suggested action
The screen is blank.	<p>Verify that:</p> <ol style="list-style-type: none"> 1. The computer power cord is plugged into the computer and a working electrical outlet. 2. The monitor cables are connected properly. 3. The monitor is turned on, and the brightness and contrast controls are adjusted correctly. <p>If the items above are correct and the screen remains blank, call for service.</p>
Only the cursor appears.	Call for service.
The monitor works when you turn on the computer, but goes blank when you start some application programs.	<p>Verify that:</p> <ol style="list-style-type: none"> 1. The primary monitor cable is connected to the video port. 2. You installed the necessary device drivers for the applications. <p>Some IBM monitors have their own self-tests. If you suspect a problem with your monitor, refer to the information that comes with the monitor for adjusting and testing instructions.</p> <p>If the items above are correct and the screen remains blank, call for service.</p>
Wavy, unreadable, rolling, distorted screen, or screen jitter.	<p>If the monitor self-tests show the monitor is OK, consider the location of the monitor. Magnetic fields around other devices (such as transformers, appliances, fluorescent lights, and other monitors) can cause screen jitter or wavy, unreadable, rolling, or distorted screen images. If this happens, turn off the monitor. (Moving a color monitor while it is turned on might cause screen discoloration.) Then, move the device and the monitor at least 305 mm (12 in.) apart. Turn on the monitor.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. To prevent diskette drive read/write errors, be sure the distance between monitors and diskette drives is at least 76 mm (3 in.). 2. Non-IBM monitor cables might cause unpredictable problems. 3. An enhanced monitor cable with additional shielding is available for the 9521 and 9527 monitors. For information about the enhanced monitor cable, see your IBM reseller or IBM marketing representative. <p>If the problem remains, call for service.</p>

Wrong characters appear on the screen.	If the wrong language is displayed, update the BIOS code with the correct language. If the problem remains, call for service.
Power	Suggested action
The computer does not power on.	Verify that: 1. The power cables are properly connected to the computer. 2. The electrical outlet functions properly. 3. The type of memory that is installed is correct. 4. If you just installed an option, remove it, and restart the computer. If the computer now turns on, you might have installed more options than the power supply supports. If the problem remains, call for service.
Memory	Suggested action
The amount of memory displayed is less than the amount of memory installed.	Verify that: 1. The memory modules are seated properly. 2. You have installed the correct type of memory. 3. If you changed the memory, you must update the memory configuration with the Configuration/Setup Utility program. 4. All banks of memory on the DIMMs are enabled. The computer might have automatically disabled a DIMM bank if it detected a problem, or a DIMM bank could have been manually disabled. If the problem persists, call for service.
Option	Suggested action
An IBM option that was just installed does not work.	Verify that: 1. The option is designed for the computer. 2. You followed the installation instructions that came with the option. 3. The option is installed correctly. 4. You have not loosened any other installed options or cables. 5. You updated the configuration information in the Configuration/Setup Utility program. Whenever memory or an option is changed, you must update the configuration. If the problem remains, call for service.

Product Recovery program

The Product Recovery program reinstalls your operating system and preinstalled software. It is on a hidden partition on the hard disk. The Product Recovery Program runs independently from the operating system.

If you are using FDISK, Disk Management, or another utility to reformat the hard disk, you might see the partition where the Product Recovery program is stored. Do not delete this partition or the Product Recovery program will be lost.

If your hard disk drive, including the partition where the Product Recovery Program resides, becomes damaged or you replace the hard disk drive, contact IBM to order the *IBM Product Recovery CD* to recover your preinstalled operating system, application programs and device drivers. See Appendix A, "Getting help and technical assistance" on page 51 for details.

Appendix A. Getting help and technical assistance

If you need help, service, or technical assistance or just want more information about IBM® products, you will find a wide variety of sources available from IBM to assist you. This appendix contains information about where to go for additional information about IBM and IBM products, what to do if you experience a problem with your xSeries or IntelliStation® system, and whom to call for service, if it is necessary.

Before you call

Before you call, make sure that you have taken these steps to try to solve the problem yourself:

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system is turned on.
- Use the troubleshooting information in your system documentation, and use the diagnostic tools that come with your system.
- Go to the IBM Support Web site at <http://www.ibm.com/pc/support/> to check for technical information, hints, tips, and new device drivers.
- Use an IBM discussion forum on the IBM Web site to ask questions.

You can solve many problems without outside assistance by following the troubleshooting procedures that IBM provides in the online help or in the publications that are provided with your system and software. The information that comes with your system also describes the diagnostic tests that you can perform. Most xSeries and IntelliStation systems, operating systems, and programs come with information that contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the information for the operating system or program.

Using the documentation

Information about your IBM xSeries or IntelliStation system and preinstalled software, if any, is available in the documentation that comes with your system. That documentation includes printed books, online books, README files, and help files. See the troubleshooting information in your system documentation for instructions for using the diagnostic programs. The troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software. IBM maintains pages on the World Wide Web where you can get the latest technical information and download device drivers and updates. To access these pages, go to <http://www.ibm.com/pc/support/> and follow the instructions. Also, you can order publications through the IBM Publications Ordering System at <http://www.elink.ibm.com/public/applications/publications/cgibin/pbi.cgi>.

Getting help and information from the World Wide Web

On the World Wide Web, the IBM Web site has up-to-date information about IBM xSeries and IntelliStation products, services, and support. The address for IBM xSeries information is <http://www.ibm.com/eserver/xseries/>. The address for IBM IntelliStation information is <http://www.ibm.com/pc/intellistation/>.

You can find service information for your IBM products, including supported options, at <http://www.ibm.com/pc/support/>. If you click **Profile** from the support page, you can create a customized support page. The support page has many sources of information and ways for you to solve problems, including:

- Diagnosing problems, using the IBM Online Assistant
- Downloading the latest device drivers and updates for your products
- Viewing Frequently Asked Questions (FAQ)
- Viewing hints and tips to help you solve problems
- Participating in IBM discussion forums
- Setting up e-mail notification of technical updates about your products

Software service and support

Through IBM Support Line, you can get telephone assistance, for a fee, with usage, configuration, and software problems with xSeries servers, IntelliStation workstations, and appliances. For information about which products are supported by Support Line in your country or region, go to <http://www.ibm.com/services/sl/products/>.

For more information about Support Line and other IBM services, go to <http://www.ibm.com/services/>, or go to <http://www.ibm.com/planetwide/> for support telephone numbers.

Hardware service and support

You can receive hardware service through IBM Integrated Technology Services or through your IBM reseller, if your reseller is authorized by IBM to provide warranty service. Go to <http://www.ibm.com/planetwide/> for support telephone numbers.

In the U.S. and Canada, hardware service and support is available 24 hours a day, 7 days a week. In the U.K., these services are available Monday through Friday, from 9 a.m. to 6 p.m.

Appendix B. Warranty information

This section contains information about your warranty period and the service and support that are provided by your warranty.

Warranty period

The warranty period varies by machine type and country or region.

Contact your place of purchase for warranty service information. Some IBM Machines are eligible for on-site warranty service depending on the country or region where service is performed.

Prior to on-site warranty service, you are required to go through problem determination with an IBM service specialist call center technician.

A warranty period of 3 years on parts and 1 year on labor means that IBM will provide warranty service without charge for:

1. parts and labor during the first year of the warranty period
2. parts only, on an exchange basis, in the second and third years of the warranty period. IBM will charge you for any labor it provides in performance of the repair or replacement.

The IBM Machine Warranties Web site at http://www.ibm.com/servers/support/machine_warranties/ contains a worldwide overview of the IBM Statement of Limited Warranty for IBM Machines, a glossary of terms used in the Statement of Limited Warranty, Frequently Asked Questions (FAQ), and links to Product Support Web pages. The IBM Statement of Limited Warranty is available from this Web site in 29 languages in Portable Document Format (PDF).

Machine - IBM IntelliStation E Pro Types 6216 and 6226

Country or region	Warranty period	Service delivery method
Worldwide	3 years	On-site

Problem determination

Prior to on-site warranty service, you are required to go through problem determination with an IBM service specialist call center technician. The service specialist will run diagnostic tests on the hardware and check the software.

Running diagnostics

The IBM service specialist will help you determine whether your equipment is functioning as specified. It might be necessary to isolate the failing xSeries, Netfinity®, or IntelliStation system; IBM component; or both from any active production environment to run diagnostics and perform defect-isolation programs. You are responsible for making the system, IBM component, or both available for running diagnostics and defect-isolation programs.

Checking software

The IBM service specialist will help you ensure that the correct BIOS code, firmware, device drivers, and other supporting IBM software are installed and correctly configured. It might be necessary to manually gather information about the relevant software levels or run IBM-approved utility programs to gather this

information. It might be necessary to isolate the failing system from any active production environment to gather this information. You are responsible, with assistance from the service specialist, for gathering this information. The IBM Statement of Limited Warranty does not include on-site assistance with this activity.

Warranty service and support

With the original purchase of an IBM xSeries or IntelliStation system, you have access to extensive service and support. During the IBM Machine warranty period, you may call IBM or your reseller for problem-determination assistance under the terms of the IBM Statement of Limited Warranty.

The following services are available during the warranty period:

- **Problem determination** - Trained personnel are available to assist you with determining if you have a hardware problem and deciding what action is necessary to fix the problem.
- **IBM hardware repair** - If the problem is determined to be caused by IBM hardware under warranty, trained service personnel are available to provide the applicable level of service, either on-site or at an IBM service center as determined by IBM.
- **Engineering Change management** - Occasionally, there might be changes that are required after a product has been shipped from IBM. In those instances, IBM will make Engineering Changes (ECs) available that apply to your hardware.
- **Customer replaceable units (CRUs)** - Some parts of IBM xSeries and IntelliStation systems are designated as customer replaceable units. IBM ships CRUs to you for replacement by you. CRUs include keyboards, monitors, memory, diskette drives, hard disk drives, and mice (this list is not inclusive of all CRUs).

The following items are not covered under warranty service:

- Replacement or use of non-IBM parts. All IBM parts contain a 7-character identification in the format IBM FRU XXXXXXXX.
- Identification of software problem sources.
- Installation of customer replaceable units (CRUs).
- Installation and configuration of BIOS code, firmware, or device drivers that are designated as customer installable.

See the IBM Statement of Limited Warranty for a full explanation of IBM warranty terms. Be sure to retain your proof of purchase to obtain warranty service.

Please have the following information ready when you call:

- The machine type and model of your IBM hardware product (if available)
- Serial numbers of your IBM hardware products
- A description of the problem
- The exact wording of any error messages
- Hardware and software configuration information

International Warranty Service

If you travel with your xSeries or IntelliStation system or relocate it to a country or region where your system is sold and serviced by IBM or IBM resellers authorized to perform warranty service, International Warranty Service (IWS) is available during the warranty period. Eligible IBM systems are identified by their four-digit machine types.

You can obtain IWS through the service delivery method (such as depot, carry-in, or on-site) provided in the servicing country or region. Service methods and procedures vary by country or region, and some service or parts might not be available in all countries and regions. Service centers in certain countries or regions might not be able to service all models of a particular machine type. In addition, some countries or regions might have fees and restrictions that apply at the time of service.

To determine whether your system is eligible for IWS, go to <http://www.ibm.com/pc/support/> and click **Warranty lookup**.

Purchasing additional services

During and after the warranty period, you can purchase additional services, such as support for IBM and non-IBM hardware, operating systems, and application programs; network setup and configuration; upgraded or extended hardware repair services; and custom installations. Service availability and service name might vary by country or region.

For more information about these services, contact your IBM marketing representative.

IBM Statement of Limited Warranty Z125-4753-06 8/2000

Part 1 - General Terms

This Statement of Limited Warranty includes Part 1 - General Terms and Part 2 - Country-unique Terms. The terms of Part 2 replace or modify those of Part 1. The warranties provided by IBM in this Statement of Limited Warranty apply only to Machines you purchase for your use, and not for resale, from IBM or your reseller. The term "Machine" means an IBM machine, its features, conversions, upgrades, elements, or accessories, or any combination of them. The term "Machine" does not include any software programs, whether pre-loaded with the Machine, installed subsequently or otherwise. Unless IBM specifies otherwise, the following warranties apply only in the country where you acquire the Machine. Nothing in this Statement of Limited Warranty affects any statutory rights of consumers that cannot be waived or limited by contract. If you have any questions, contact IBM or your reseller.

The IBM Warranty for Machines: IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM's Official Published Specifications ("Specifications"). The warranty period for a Machine is a specified, fixed period commencing on its Date of Installation. The date on your sales receipt is the Date of Installation unless IBM or your reseller informs you otherwise.

If a Machine does not function as warranted during the warranty period, and IBM or your reseller are unable to either 1) make it do so or 2) replace it with one that is at least functionally equivalent, you may return it to your place of purchase and your money will be refunded.

Extent of Warranty: The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, or failure caused by a product for which IBM is not responsible. The warranty is voided by removal or alteration of Machine or parts identification labels.

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Items Not Covered by Warranty: IBM does not warrant uninterrupted or error-free operation of a Machine. Any technical or other support provided for a Machine under warranty, such as assistance via telephone with "how-to" questions and those regarding Machine set-up and installation, will be provided **WITHOUT WARRANTIES OF ANY KIND.**

Warranty Service: To obtain warranty service for a Machine, contact IBM or your reseller. If you do not register your Machine with IBM, you may be required to present proof of purchase.

During the warranty period, IBM or your reseller, if approved by IBM to provide warranty service, provides without charge certain types of repair and exchange service to keep Machines in, or restore them to, conformance with their Specifications. IBM or your reseller will inform you of the available types of service for a Machine based on its country of installation. At its discretion, IBM or your reseller will 1) either repair or exchange the failing Machine and 2) provide the service either at your location or a service center. IBM or your reseller will also manage and install selected engineering changes that apply to the Machine.

Some parts of IBM Machines are designated as Customer Replaceable Units (called "CRUs"), e.g., keyboards, memory, or hard disk drives. IBM ships CRUs to you for replacement by you. You must return all defective CRUs to IBM within 30 days of your receipt of the replacement CRU. You are responsible for downloading designated Machine Code and Licensed Internal Code updates from an IBM Internet Web site or from other electronic media, and following the instructions that IBM provides.

When warranty service involves the exchange of a Machine or part, the item IBM or your reseller replaces becomes its property and the replacement becomes yours. You represent that all removed items are genuine and unaltered. The replacement may not be new, but will be in good working order and at least functionally equivalent to the item replaced. The replacement assumes the warranty service status of the replaced item. Many features, conversions, or upgrades involve the removal of parts and their return to IBM. A part that replaces a removed part will assume the warranty service status of the removed part.

Before IBM or your reseller exchanges a Machine or part, you agree to remove all features, parts, options, alterations, and attachments not under warranty service.

You also agree to

1. ensure that the Machine is free of any legal obligations or restrictions that prevent its exchange;
2. obtain authorization from the owner to have IBM or your reseller service a Machine that you do not own; and
3. where applicable, before service is provided:
 - a. follow the problem determination, problem analysis, and service request procedures that IBM or your reseller provides;
 - b. secure all programs, data, and funds contained in a Machine;
 - c. provide IBM or your reseller with sufficient, free, and safe access to your facilities to permit them to fulfill their obligations; and
 - d. inform IBM or your reseller of changes in a Machine's location.

IBM is responsible for loss of, or damage to, your Machine while it is 1) in IBM's possession or 2) in transit in those cases where IBM is responsible for the transportation charges.

Neither IBM nor your reseller is responsible for any of your confidential, proprietary or personal information contained in a Machine which you return to IBM or your reseller for any reason. You should remove all such information from the Machine prior to its return.

Limitation of Liability: Circumstances may arise where, because of a default on IBM's part or other liability, you are entitled to recover damages from IBM. In each such instance, regardless of the basis on which you are entitled to claim damages from IBM (including fundamental breach, negligence, misrepresentation, or other

contract or tort claim), except for any liability that cannot be waived or limited by applicable laws, IBM is liable for no more than

1. damages for bodily injury (including death) and damage to real property and tangible personal property; and
2. the amount of any other actual direct damages, up to the charges (if recurring, 12 months' charges apply) for the Machine that is subject of the claim. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code.

This limit also applies to IBM's suppliers and your reseller. It is the maximum for which IBM, its suppliers, and your reseller are collectively responsible.

UNDER NO CIRCUMSTANCES IS IBM LIABLE FOR ANY OF THE FOLLOWING: 1) THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, YOUR RECORDS OR DATA; OR 3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES, LOST PROFITS OR LOST SAVINGS, EVEN IF IBM, ITS SUPPLIERS OR YOUR RESELLER IS INFORMED OF THEIR POSSIBILITY. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

Governing Law: Both you and IBM consent to the application of the laws of the country in which you acquired the Machine to govern, interpret, and enforce all of your and IBM's rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Agreement, without regard to conflict of law principles.

Part 2 - Country-unique Terms

AMERICAS

BRAZIL

Governing Law: *The following is added after the first sentence:* Any litigation arising from this Agreement will be settled exclusively by the court of Rio de Janeiro.

NORTH AMERICA

Warranty Service: *The following is added to this Section:* To obtain warranty service from IBM in Canada or the United States, call 1-800-IBM-SERV (426-7378).

CANADA

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:* laws in the Province of Ontario.

UNITED STATES

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:* laws of the State of New York.

ASIA PACIFIC

AUSTRALIA

The IBM Warranty for Machines: *The following paragraph is added to this Section:* The warranties specified in this Section are in addition to any rights you may have under the Trade Practices Act 1974 or other similar legislation and are only limited to the extent permitted by the applicable legislation.

Limitation of Liability: *The following is added to this Section:* Where IBM is in breach of a condition or warranty implied by the Trade Practices Act 1974 or other similar legislation, IBM's liability is limited to the repair or replacement of the goods or the supply of equivalent goods. Where that condition or warranty relates to right to sell, quiet possession or clear title, or the goods are of a kind ordinarily acquired for personal, domestic or household use or consumption, then none of the limitations in this paragraph apply.

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:* laws of the State or Territory.

CAMBODIA, LAOS, AND VIETNAM

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:* laws of the State of New York.

The following is added to this Section: Disputes and differences arising out of or in connection with this Agreement shall be finally settled by arbitration which shall be held in Singapore in accordance with the rules of the International Chamber of Commerce (ICC). The arbitrator or arbitrators designated in conformity with those rules shall have the power to rule on their own competence and on the validity of the Agreement to submit to arbitration. The arbitration award shall be final and binding for the parties without appeal and the arbitral award shall be in writing and set forth the findings of fact and the conclusions of law.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. The number of arbitrators shall be three, with each side to the dispute being entitled to appoint one arbitrator.

The two arbitrators appointed by the parties shall appoint a third arbitrator before proceeding upon the reference. The third arbitrator shall act as chairman of the proceedings. Vacancies in the post of chairman shall be filled by the president of the ICC. Other vacancies shall be filled by the respective nominating party. Proceedings shall continue from the stage they were at when the vacancy occurred.

If one of the parties refuses or otherwise fails to appoint an arbitrator within 30 days of the date the other party appoints its, the first appointed arbitrator shall be the sole arbitrator, provided that the arbitrator was validly and properly appointed.

The English language version of this Agreement prevails over any other language version.

HONG KONG AND MACAU

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:* laws of Hong Kong Special Administrative Region.

INDIA

Limitation of Liability: *The following replaces items 1 and 2 of this Section:*

1. liability for bodily injury (including death) or damage to real property and tangible personal property will be limited to that caused by IBM's negligence;
2. as to any other actual damage arising in any situation involving nonperformance by IBM pursuant to, or in any way related to the subject of this Statement of Limited Warranty, IBM's liability will be limited to the charge paid by you for the individual Machine that is the subject of the claim.

JAPAN

Governing Law: *The following sentence is added to this Section:* Any doubts concerning this Agreement will be initially resolved between us in good faith and in accordance with the principle of mutual trust.

NEW ZEALAND

The IBM Warranty for Machines: *The following paragraph is added to this Section:* The warranties specified in this Section are in addition to any rights you may have under the Consumer Guarantees Act 1993 or other legislation which cannot be excluded or limited. The Consumer Guarantees Act 1993 will not apply in respect of any goods which IBM provides, if you require the goods for the purposes of a business as defined in that Act.

Limitation of Liability: *The following is added to this Section:* Where Machines are not acquired for the purposes of a business as defined in the Consumer Guarantees Act 1993, the limitations in this Section are subject to the limitations in that Act.

PEOPLE'S REPUBLIC OF CHINA (PRC)

Governing Law: *The following replaces this Section:* Both you and IBM consent to the application of the laws of the State of New York (except when local law requires otherwise) to govern, interpret, and enforce all your and IBM's rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Agreement, without regard to conflict of law principles.

Any disputes arising from or in connection with this Agreement will first be resolved by friendly negotiations, failing which either of us has the right to submit the dispute to the China International Economic and Trade Arbitration Commission in Beijing, the PRC, for arbitration in accordance with its arbitration rules in force at the time. The arbitration tribunal will consist of three arbitrators. The language to be used therein will be English and Chinese. An arbitral award will be final and binding on all the parties, and will be enforceable under the Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1958).

The arbitration fee will be borne by the losing party unless otherwise determined by the arbitral award.

During the course of arbitration, this Agreement will continue to be performed except for the part which the parties are disputing and which is undergoing arbitration.

EUROPE, MIDDLE EAST, AFRICA (EMEA)

THE FOLLOWING TERMS APPLY TO ALL EMEA COUNTRIES: The terms of this Statement of Limited Warranty apply to Machines purchased from IBM or an IBM reseller.

Warranty Service: If you purchase an IBM Machine in Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland or United Kingdom, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM. If you purchase an IBM Personal Computer Machine in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Kirghizia, Federal Republic of Yugoslavia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, or Ukraine, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM.

If you purchase an IBM Machine in a Middle Eastern or African country, you may obtain warranty service for that Machine from the IBM entity within the country of purchase, if that IBM entity provides warranty service in that country, or from an IBM reseller, approved by IBM to perform warranty service on that Machine in that country. Warranty service in Africa is available within 50 kilometers of an IBM authorized service provider. You are responsible for transportation costs for Machines located outside 50 kilometers of an IBM authorized service provider.

Governing Law: The applicable laws that govern, interpret and enforce rights, duties, and obligations of each of us arising from, or relating in any manner to, the subject matter of this Statement, without regard to conflict of laws principles, as well as Country-unique terms and competent court for this Statement are those of the country in which the warranty service is being provided, except that in 1) Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Hungary, Former Yugoslav Republic of Macedonia, Romania, Slovakia, Slovenia, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan, the laws of Austria apply; 2) Estonia, Latvia, and Lithuania, the laws of Finland apply; 3) Algeria, Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Congo, Djibouti, Democratic Republic of Congo, Equatorial Guinea, France, Gabon, Gambia, Guinea, Guinea-Bissau, Ivory Coast, Lebanon, Mali, Mauritania, Morocco, Niger, Senegal, Togo, and Tunisia, this Agreement will be construed and the legal relations between the parties will be determined in accordance with the French laws and all disputes arising out of this Agreement or related to its violation or execution, including summary proceedings, will be settled exclusively by the Commercial Court of Paris; 4) Angola, Bahrain, Botswana, Burundi, Egypt, Eritrea, Ethiopia, Ghana, Jordan, Kenya, Kuwait, Liberia, Malawi, Malta, Mozambique, Nigeria, Oman, Pakistan, Qatar, Rwanda, Sao Tome, Saudi Arabia, Sierra Leone, Somalia, Tanzania, Uganda, United Arab Emirates, United Kingdom, West Bank/Gaza, Yemen, Zambia, and Zimbabwe, this Agreement will be governed by English Law and disputes relating to it will be submitted to the exclusive jurisdiction of the English courts; and 5) in Greece, Israel, Italy, Portugal, and Spain any legal claim arising out of this Statement will be brought before, and finally settled by, the competent court of Athens, Tel Aviv, Milan, Lisbon, and Madrid, respectively.

THE FOLLOWING TERMS APPLY TO THE COUNTRY SPECIFIED:

AUSTRIA AND GERMANY

The IBM Warranty for Machines: *The following replaces the first sentence of the first paragraph of this Section:* The warranty for an IBM Machine covers the functionality of the Machine for its normal use and the Machine's conformity to its Specifications.

The following paragraphs are added to this Section:

The minimum warranty period for Machines is six months. In case IBM or your reseller is unable to repair an IBM Machine, you can alternatively ask for a partial refund as far as justified by the reduced value of the unrepaired Machine or ask for a cancellation of the respective agreement for such Machine and get your money refunded.

Extent of Warranty: *The second paragraph does not apply.*

Warranty Service: *The following is added to this Section:* During the warranty period, transportation for delivery of the failing Machine to IBM will be at IBM's expense.

Limitation of Liability: *The following paragraph is added to this Section:* The limitations and exclusions specified in the Statement of Limited Warranty will not apply to damages caused by IBM with fraud or gross negligence and for express warranty.

The following sentence is added to the end of item 2: IBM's liability under this item is limited to the violation of essential contractual terms in cases of ordinary negligence.

EGYPT

Limitation of Liability: *The following replaces item 2 in this Section:* as to any other actual direct damages, IBM's liability will be limited to the total amount you paid for the Machine that is the subject of the claim. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code.

Applicability of suppliers and resellers (unchanged).

FRANCE

Limitation of Liability: *The following replaces the second sentence of the first paragraph of this Section:*In such instances, regardless of the basis on which you are entitled to claim damages from IBM, IBM is liable for no more than: *(items 1 and 2 unchanged).*

IRELAND

Extent of Warranty: *The following is added to this Section:* Except as expressly provided in these terms and conditions, all statutory conditions, including all warranties implied, but without prejudice to the generality of the foregoing all warranties implied by the Sale of Goods Act 1893 or the Sale of Goods and Supply of Services Act 1980 are hereby excluded.

Limitation of Liability: *The following replaces items one and two of the first paragraph of this Section:*1. death or personal injury or physical damage to your real property solely caused by IBM's negligence; and 2. the amount of any other actual direct damages, up to 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim.

Applicability of suppliers and resellers (unchanged).

The following paragraph is added at the end of this Section: IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default shall be limited to damages.

ITALY

Limitation of Liability: *The following replaces the second sentence in the first paragraph: In each such instance unless otherwise provided by mandatory law, IBM is liable for no more than: 1. (unchanged) 2. as to any other actual damage arising in all situations involving nonperformance by IBM pursuant to, or in any way related to the subject matter of this Statement of Warranty, IBM's liability, will be limited to the total amount you paid for the Machine that is the subject of the claim. Applicability of suppliers and resellers (unchanged).*

The following replaces the third paragraph of this Section: Unless otherwise provided by mandatory law, IBM and your reseller are not liable for any of the following: (items 1 and 2 unchanged) 3) indirect damages, even if IBM or your reseller is informed of their possibility.

SOUTH AFRICA, NAMIBIA, BOTSWANA, LESOTHO AND SWAZILAND

Limitation of Liability: *The following is added to this Section: IBM's entire liability to you for actual damages arising in all situations involving nonperformance by IBM in respect of the subject matter of this Statement of Warranty will be limited to the charge paid by you for the individual Machine that is the subject of your claim from IBM.*

UNITED KINGDOM

Limitation of Liability: *The following replaces items 1 and 2 of the first paragraph of this Section:*

1. death or personal injury or physical damage to your real property solely caused by IBM's negligence;
2. the amount of any other actual direct damages or loss, up to 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim;

The following item is added to this paragraph: 3. breach of IBM's obligations implied by Section 12 of the Sale of Goods Act 1979 or Section 2 of the Supply of Goods and Services Act 1982.

Applicability of suppliers and resellers (unchanged).

The following is added to the end of this Section: IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default shall be limited to damages.

Appendix C. Notices

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EtherJet	Tivoli
IBM	Tivoli Enterprise
IntelliStation	Update Connector
Netfinity	Wake on LAN
Predictive Failure Analysis	xSeries
PS/2	

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Important notes

Processor speeds indicate the internal clock speed of the microprocessor; other factors also affect application performance.

CD-ROM drive speeds list the variable read rate. Actual speeds vary and are often less than the maximum possible.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for approximately 1000 bytes, MB stands for approximately 1 000 000 bytes, and GB stands for approximately 1 000 000 000 bytes.

When referring to hard disk drive capacity or communications volume, MB stands for 1 000 000 bytes, and GB stands for 1 000 000 000 bytes. Total user-accessible capacity may vary depending on operating environments.

Maximum internal hard disk drive capacities assume the replacement of any standard hard disk drives and population of all hard disk drive bays with the largest currently supported drives available from IBM.

Maximum memory may require replacement of the standard memory with an optional memory module.

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

IBM makes no representations or warranties with respect to non-IBM products. Support (if any) for the non-IBM products is provided by the third party, not IBM.

Some software may differ from its retail version (if available), and may not include user manuals or all program functionality.

Electronic emission notices

IBM IntelliStation E Pro Types 6216 and 6226

Federal Communications Commission (FCC) statement

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an IBM authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from IBM authorized dealers. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible party:

International Business Machines Corporation
New Orchard Road
Armonk, NY 10504
Telephone: 1-919-543-2193



Tested To Comply
With FCC Standards

FOR HOME OR OFFICE USE

Industry Canada Class B emission compliance statement

This Class B digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

European Union EMC Directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a nonrecommended modification of the product, including the fitting of non-IBM option cards. This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communication devices.

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

Power cords

For your safety, IBM provides a power cord with a grounded attachment plug to use with this IBM product. To avoid electrical shock, always use the power cord and plug with a properly grounded outlet.

IBM power cords used in the United States and Canada are listed by Underwriter's Laboratories (UL) and certified by the Canadian Standards Association (CSA).

For units intended to be operated at 115 volts: Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a parallel blade, grounding-type attachment plug rated 15 amperes, 125 volts.

For units intended to be operated at 230 volts (U.S. use): Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a tandem blade, grounding-type attachment plug rated 15 amperes, 250 volts.

For units intended to be operated at 230 volts (outside the U.S.): Use a cord set with a grounding-type attachment plug. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed.

IBM power cords for a specific country or region are usually available only in that country or region.

IBM power cord part number	Used in these countries and regions
13F9940	Argentina, Australia, China (PRC), New Zealand, Papua New Guinea, Paraguay, Uruguay, Western Samoa

IBM power cord part number	Used in these countries and regions
13F9979	Afghanistan, Algeria, Andorra, Angola, Austria, Belgium, Benin, Bulgaria, Burkina Faso, Burundi, Cameroon, Central African Rep., Chad, China (Macau S.A.R.), Czech Republic, Egypt, Finland, France, French Guiana, Germany, Greece, Guinea, Hungary, Iceland, Indonesia, Iran, Ivory Coast, Jordan, Lebanon, Luxembourg, Malagasy, Mali, Martinique, Mauritania, Mauritius, Monaco, Morocco, Mozambique, Netherlands, New Caledonia, Niger, Norway, Poland, Portugal, Romania, Senegal, Slovakia, Spain, Sudan, Sweden, Syria, Togo, Tunisia, Turkey, former USSR, Vietnam, former Yugoslavia, Zaire, Zimbabwe
13F9997	Denmark
14F0015	Bangladesh, Burma, Pakistan, South Africa, Sri Lanka
14F0033	Antigua, Bahrain, Brunei, Channel Islands, China (Hong Kong S.A.R.), Cyprus, Dubai, Fiji, Ghana, India, Iraq, Ireland, Kenya, Kuwait, Malawi, Malaysia, Malta, Nepal, Nigeria, Polynesia, Qatar, Sierra Leone, Singapore, Tanzania, Uganda, United Kingdom, Yemen, Zambia
14F0051	Liechtenstein, Switzerland
14F0069	Chile, Ethiopia, Italy, Libya, Somalia
14F0087	Israel
1838574	Thailand
6952301	Bahamas, Barbados, Bermuda, Bolivia, Brazil, Canada, Cayman Islands, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Japan, Korea (South), Liberia, Mexico, Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Saudi Arabia, Suriname, Taiwan, Trinidad (West Indies), United States of America, Venezuela

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