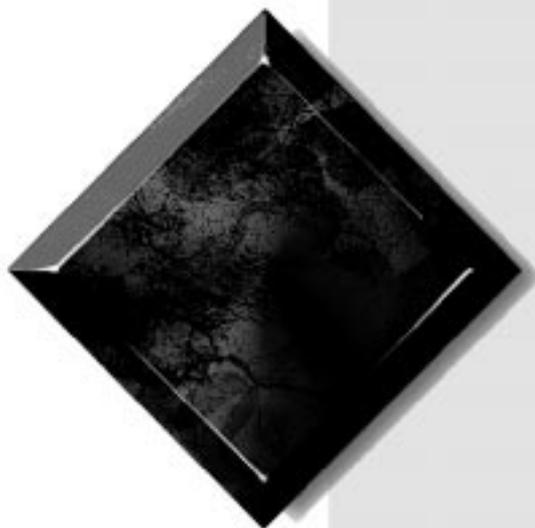


Maintaining and Troubleshooting Your E-3200 System



Gateway™





Maintaining and Troubleshooting Your E-3200 System



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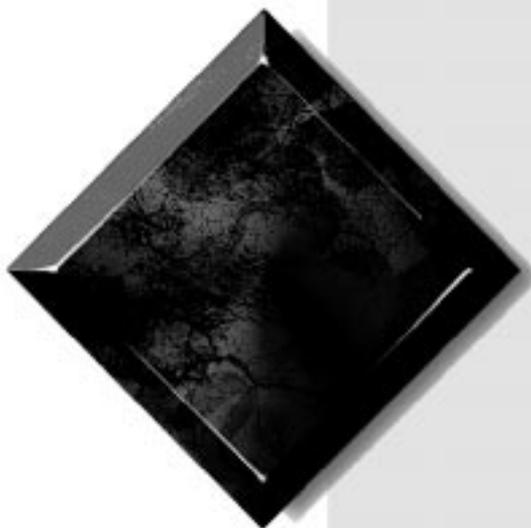
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Preface

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Conventions Used in This Guide

Throughout this guide, you will see the following conventions:

Convention	Description
Enter	Keyboard names are printed in small capitals.
Ctrl+Alt+Del	A plus sign indicates that the keys must be pressed simultaneously.
Setup	Commands to be entered, options to select, and messages that appear on your monitor are printed in bold.
User's Guide	Names of publications and files are printed in italic.
 <i>Important!</i>	An important note informs you of special circumstances.
 <i>Caution!</i>	A caution warns you of possible damage to equipment or loss of data.
 <i>Warning!</i>	A warning indicates the possibility of personal injury.

Safety Instructions

Observe the following safety instructions when using your system:

- Follow all instructions marked on this product and in the documentation.
- When the system is turned off, a small amount of electrical current still runs through the system. Always unplug the system from the electrical outlet before cleaning the system or opening the cover.
- Do not use this product near water or a heat source, such as a radiator or heat register.
- Do not spill anything on or into the system. The best way to avoid spills is to avoid eating and drinking near your system.
- Make sure you set up the system on a stable work surface.
- Openings in the system cabinet are provided for ventilation. Do not block or cover these openings. Make sure you provide adequate space (at least 12 inches) around the system for ventilation when you set up your work area. Never insert objects of any kind into the system ventilation slots.
- Use the voltage setting for your area. The voltage selector switch is set at the factory to the correct voltage.
- This system is equipped with a 3-wire grounding plug (a plug with a grounding pin). This plug will only fit into a grounded power outlet. This is a safety feature. Do not defeat the purpose of the grounding pin. If you are unable to insert the plug into the outlet, contact your electrician to replace the outlet.
- Do not walk on the power cord or allow anything to rest on it.
- If you use an extension cord with this system, make sure the total ampere ratings on the products plugged into the extension cord do not exceed the extension cord ampere rating. Also, the total ampere requirements for all products plugged into the wall outlet must not exceed 15 amperes.

 **Warning!**

Do not attempt to service the system yourself except as explained elsewhere in the system documentation. Adjust only those controls covered in the instructions.

Opening or removing covers marked "Do Not Remove" may expose you to dangerous voltages or other risks.

Refer all servicing of those compartments to qualified service personnel.

- There is a danger of explosion if the complementary metal-oxide semiconductor (CMOS) battery is replaced incorrectly. Replace the battery with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.
- Unplug the system from the wall outlet and refer servicing to qualified personnel if:
- The power cord or plug is damaged.
 - The power cord or plug is damaged.
 - Liquid has been spilled into the system.
 - The system does not operate properly when the operating instructions are followed.
 - The system was dropped or the cabinet is damaged.
 - The system's performance changes.



Case Access

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Static Electricity Precautions

Static electricity can permanently damage electronic components in your computer. When opening your computer case, always perform the following procedure:

Caution!

To prevent electrostatic damage to your system, follow static electricity precautions every time you open your computer case.

1. Wear a grounding wrist strap (available at most electronics stores).
2. Turn off the system power.
3. Touch the back of the power supply fan, located on the back of the case, to discharge any static electricity.
4. Unplug all power cords from AC outlets.
5. Remove the computer case cover.

Follow these precautions to avoid electrostatic damage to your system components:

- Avoid static-causing surfaces such as plastic and styrofoam in your work area.
- Remove the parts from their antistatic bags only when you are ready to use them. Do not lay parts on the outside of antistatic bags since only the inside of the bag provides antistatic protection.
- Always hold cards by their edges and their metal mounting bracket. Avoid touching components on the cards and the edge connectors that connect to expansion slots.
- Never slide cards or other parts over any surface.

Opening the Case

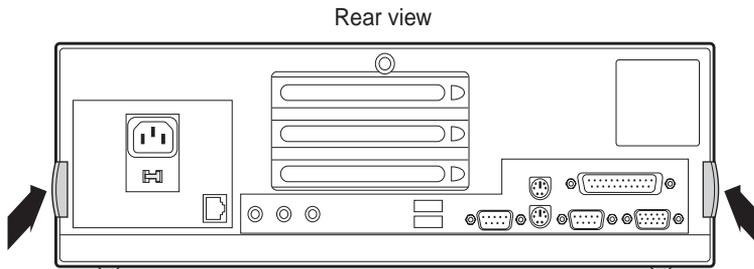
To perform work in the internal components of the computer, you must open the case, which has two removable parts:

- A chassis cover, that surrounds the sides and top of the system
- A front faceplate (bezel) that covers the front of the system

Because the components inside your computer are extremely sensitive to static electricity, be sure to follow the precautions for avoiding static electricity damage at the beginning of this chapter.

To remove the chassis cover

1. Turn off the computer and disconnect all power cords.
2. Remove the thumbscrew or lock on the back of the case.
3. Locate the latches at the rear sides of the case, and pull both latches out until they clear the chassis.



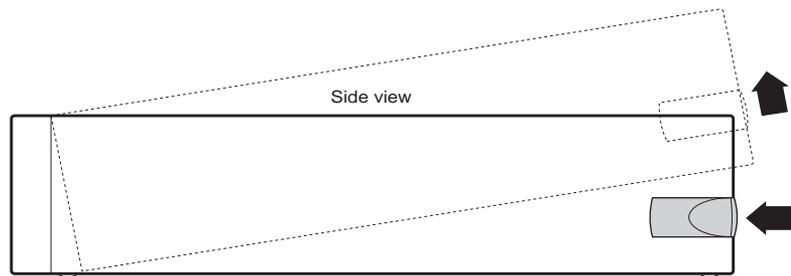
★ Important!

Only qualified personnel should open the system for maintenance. You need a grounding wrist strap and the proper tools to remove the computer's cover.

⚠ Warning!

To avoid exposure to dangerous electrical voltages and moving parts, turn off your computer and unplug the power cord before removing the system cover.

4. Lift up the rear of the cover and slide the cover toward the rear of the computer until the lip on the cover is free of the front bezel. Remove the cover.



To remove the front bezel

1. Lift the three upper tabs and push them through the slots in the chassis. The top of the bezel unlatches out and away from the chassis.
2. Lift the front of the chassis until the lower bezel tabs clear the chassis locking holes. Remove the bezel.

Closing the Case

Replace the cover as soon as you finish installing or removing components so that dust and dirt (which could damage the computer) do not collect inside the computer.

To replace the front bezel

1. Lift the front of the chassis and set the lower chassis tabs into the locking holes on the bezel.
2. Press the bezel into the chassis until the three upper tabs snap into their locking holes. Two of the three upper tabs latch underneath the locking holes. One tab latches over the top of the chassis.

To replace the chassis cover

1. Place the cover on the computer making sure the tabs on the front end are inserted underneath the bezel and the rear of the cover is in a raised position.
2. Lower the rear of the cover onto the computer chassis until the side latches snap into place.
3. Reinstall the thumbscrew or lock that was removed to open the case.



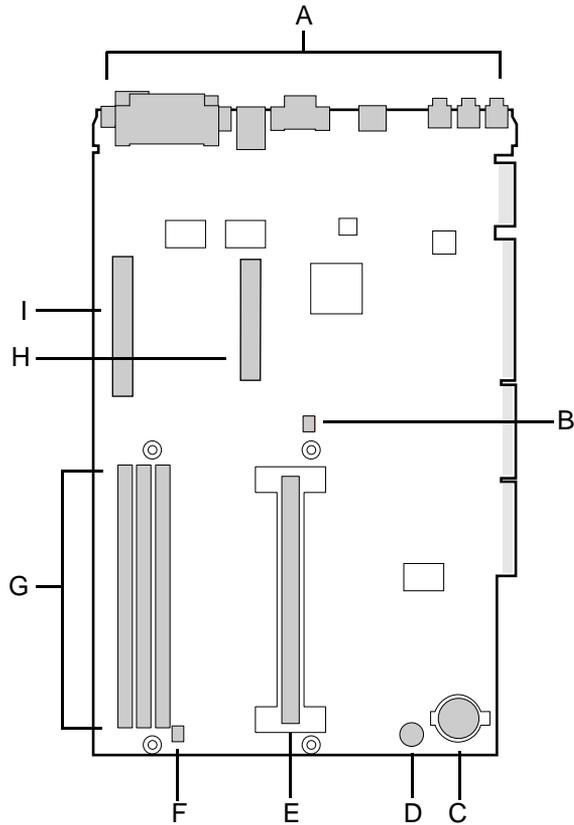
System Components

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System board

System board components are identified in the following figure and list.



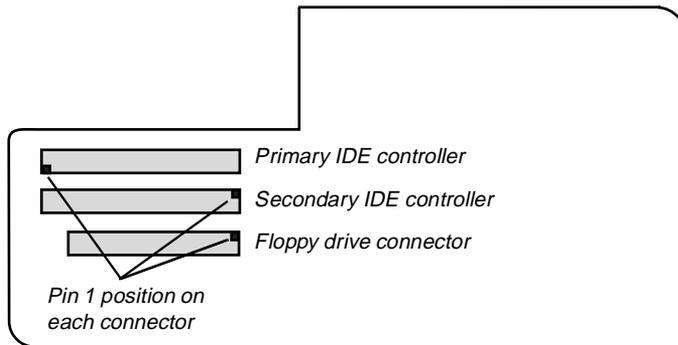
- A Back panel I/O connectors
- B Configuration jumper (J5G1)
- C Battery
- D Onboard speaker
- E Slot 1 processor connector
- F Fan (active heat sink) connector

- G DIMM slots
- H Digital Versatile Disc (DVD) connector
- I AGP connector

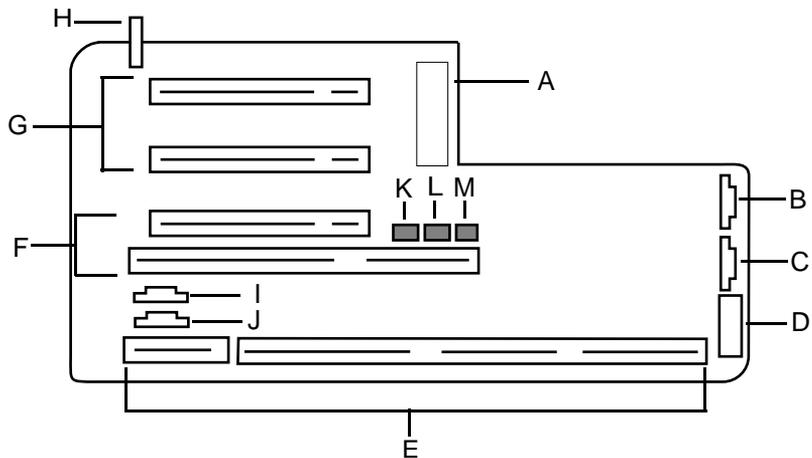
Riser card

The riser card is mounted to the chassis by brackets at its base and two screws at the top. The two screws attach the riser card to a bracket attached to the power supply cage. To enable easy removal of the system board without unplugging cables or connectors, the riser card contains most of the connectors (including the integrated RJ-45 Network interface connector) and slots used by the internal system components.

Back of riser card



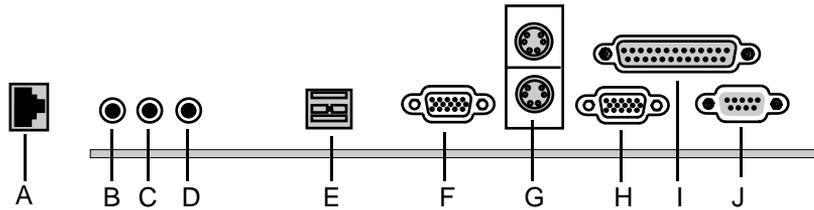
Front of riser card



- A ATX power connector
- B SCSI LED connector
- C JP10: CPU/Chassis Fan connector
- D Front panel control connector
- E NLX system board edge connector
- F PCI/ISA slot (shared)
- G PCI slots (2)
- H SW1: Chassis intrusion switch
- I CN3: TAD/Speakerphone
- J CN4: CD/DVD audio connector
- K JP9: Power supply fan connector
- L JP7: Wake on LAN connector
- M JP8: Ring in connector

I/O connectors

The following I/O connectors are included with the E-3200 system:



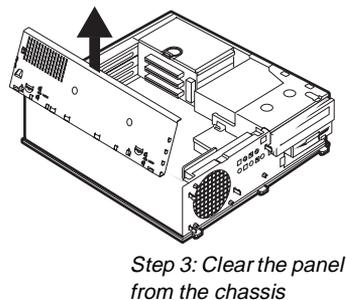
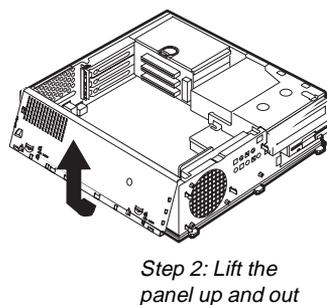
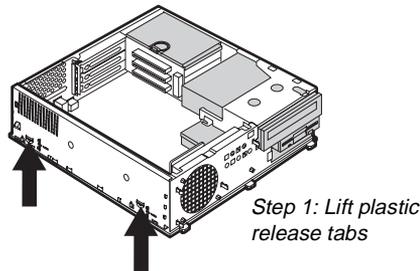
- A RJ-45 LAN connector
- B Line in
- C Microphone in
- D Line out
- E USB ports (2)
- F COM B serial port
- G Mouse (upper), Keyboard (lower) ports
- H COM A serial port
- I Parallel port
- J VGA video port

Removing the System Board

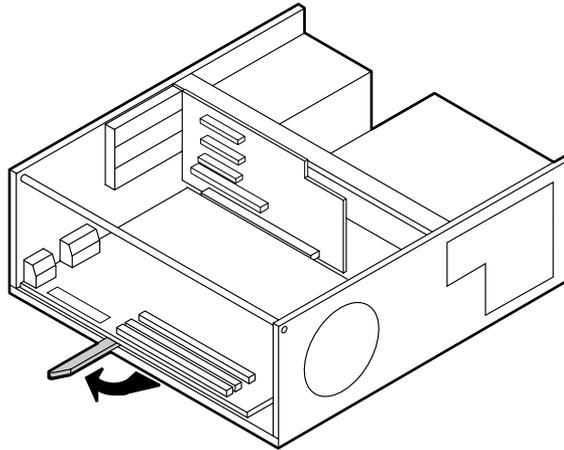
The system board is installed on a set of guide rails, and can be removed without tools.

To remove the system board

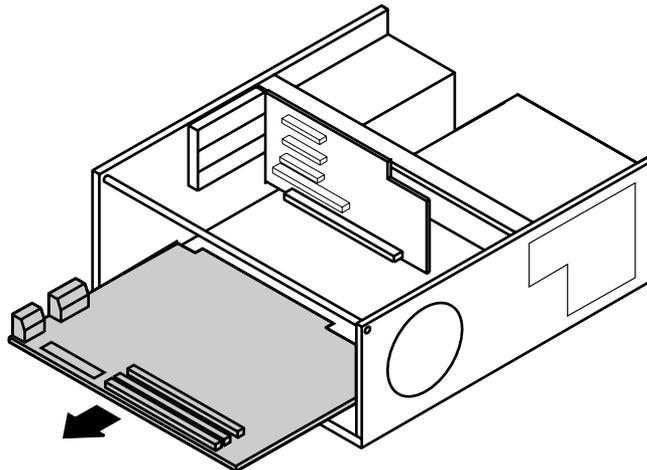
1. Turn off the system and disconnect the power cord and all external peripheral devices.
2. Open the case, observing the “Static Electricity Precautions” on page 2.
3. Remove the chassis cover and any cards, such as an Accelerated Graphics Port (AGP) card or cables that may be connected to the system board. Make a note of the locations for reassembly.
4. Remove the chassis side panel by lifting up on both plastic release tabs on the outside of the chassis (step 1 below). Lift the panel up and out (step 2 below). Clear the panel from the chassis (step 3). The bezel in the following illustration was removed for clarity.



5. Locate the release lever at the outside center edge of the system board. Lift the lever slightly upwards and then pull it outward approximately eighty degrees from the edge of the system board. This disengages the edge connector on the system board from the riser card and moves the board slightly out of the chassis.



6. Grasp the edge of the system board and carefully slide it out of the chassis.



To reinstall the system board

1. Align the rails located underneath the system board with the guides on the chassis.
2. Push in the release lever until it is parallel with the chassis. This should complete the reinstallation and lock the board in place.
3. Reattach any cards or cables.

Replacing the Processor

The system is compatible with the Intel Pentium® II 100 MHz front-side bus (FSB) and 66 MHz FSB processors.

The system board will support the following processor/bus configurations:

- 233/66
- 266/66
- 300/66
- 333/66
- 350/100
- 400/100
- 450/100

It is critical that a heat sink be installed on each processor to provide sufficient cooling.

When replacing a processor, order a processor upgrade kit. The kit includes the processor, a heat sink, and a disposable electrostatic discharge (ESD) wrist strap.

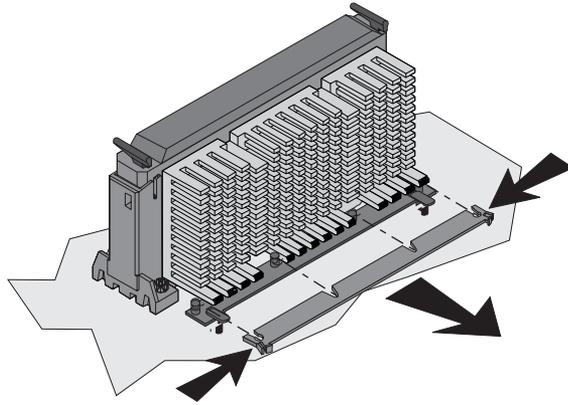
To replace the E-3200 processor

1. Turn off the system and disconnect the power cord.
2. Open the case, observing the “Static Electricity Precautions” on page 2.

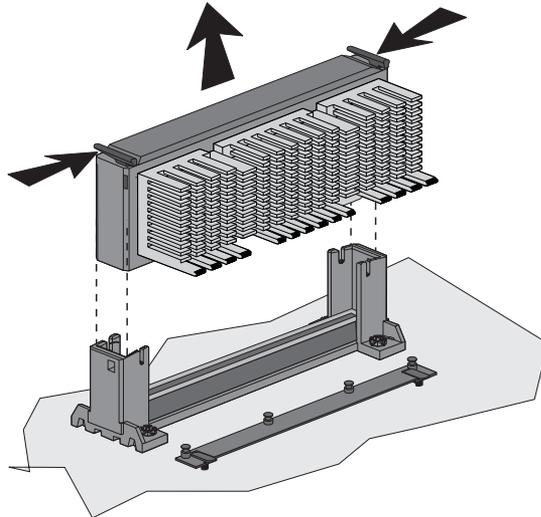
★ *Important!*

66 Mhz front-side bus (FSB) processors can be paired with 66 or 100 MHz SDRAM, but 100 MHz FSB processors should be paired only with 100 MHz SDRAM.

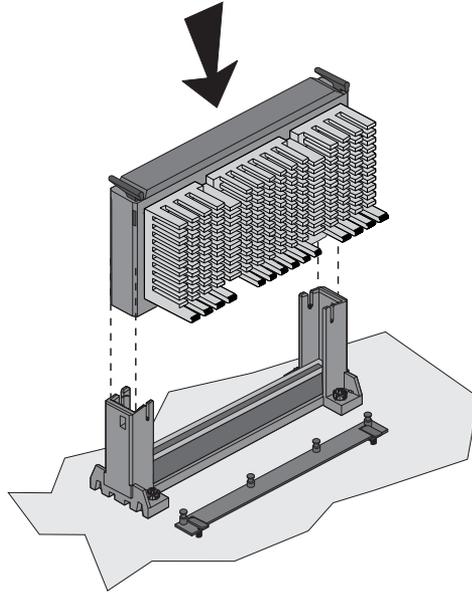
3. Squeeze the tabs on the outside edges of the bottom bracket and pull out the bottom bracket.



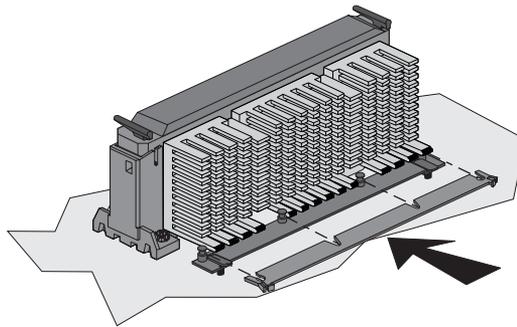
4. Press in the two latches at the top of the processor and pull the unit up and out.



5. Lower the new processor into the slot until it snaps into place.



6. Push the bottom bracket back onto the base of the processor until it snaps into place.



7. Move the J5G1 configuration jumper from pins 1-2 to pins 2-3 (see “System board” on page 8 for jumper location).
8. Close the case, as described in Chapter 1.

9. Reconnect the power cord and turn on the system. Your system automatically boots to a configuration mode in the Setup utility. Once in this mode, you can set the correct processor speed.
10. Make your selections and exit, saving your changes.
11. Turn off the system and disconnect the power cord.
12. Open the case, observing the “Static Electricity Precautions” on page 2.
13. Move the jumper back to its normal position connecting pins 1-2.
14. Close the case, as described in Chapter 1.
15. Reconnect the power cord and turn on the system.

Setting the Jumpers

Caution!

Moving the jumper with the power on can damage your computer. Always turn off the power and unplug the power cord from the computer before changing the jumper.

The J5G1 configuration jumper on the E-3200 system board lets you clear passwords, set the processor/bus speed, and recover the BIOS. The table below shows the settings required to perform those tasks, and the following text provides step-by-step instructions for each mode.

J5G1 Mode	Jumper Setting	Action When Set
Normal	1-2	Normal operation
Configure	2-3	Adds a Maintenance menu to Setup utility with options to clear passwords and set processor/bus speeds
Recovery	No jumper	Causes system to attempt BIOS update or recovery from diskette

Configure mode

The system board supports a range of processor speeds and two bus speeds. If you upgrade your processor, you may need to change the speed settings.

To change processor/bus speeds and passwords

1. Turn off the system and disconnect the power cord.
2. Open the case, observing the “Static Electricity Precautions” on page 2.
3. Remove the jumper that connects pins 1-2 and place it on pins 2-3.
4. Close the case, as described in Chapter 1.

5. Reconnect the power cord and turn on the system. Setup utility starts and opens a Maintenance screen with the following options:
 - Clear Passwords, which allows you to clear and reset passwords
 - Set CPU Speed, which allows you to select the new processor (and bus) speed if you upgrade processors
6. Make your selections from the **Maintenance** menu and exit, saving your changes.
7. Turn off the system and disconnect the power cord.
8. Move the jumper back to its normal position connecting pins 1-2.
9. Close the case (see page 5), reconnect the power cord, and turn on the system.
10. If you cleared passwords, enter Setup utility to restore them.

Recovery mode

The J5G1 jumper lets you recover the BIOS if it has become corrupted.

To recover the BIOS

1. Log onto the internet.
2. Download the correct BIOS file from the Technical Support web site.
3. Extract the contents of the BIOS file you downloaded, and copy the contents onto a bootable diskette.
4. Turn off the system and disconnect the power cord.
5. Open the case, observing the “Static Electricity Precautions” on page 2.
6. Remove the jumper on the J5G1 jumper and store it in a safe place. You will replace the jumper on the pins 1-2 in Step 11.
7. Close the case, as described in Chapter 1.

- 8.** Place the bootable diskette containing the BIOS files into drive A.
- 9.** Reconnect the power cord and turn on the system to recover the BIOS. When you hear two beeps, the BIOS has been successfully recovered.
- 10.** Turn off the system again, eject the diskette from drive A, and disconnect the power cord.
- 11.** Open the case, observing the “Static Electricity Precautions” on page 2.
- 12.** Place the jumper back on pins 1-2 on the J5G1 jumper.
- 13.** Close the case, as described in Chapter 1.
- 14.** Reconnect the power cord and turn on the system.

Installing Memory and Hardware

The E-3200 system board supports:

- 3.3-V, 168-pin unbuffered, Synchronous Dynamic Random Access Memory (SDRAM) Dual In-line Memory Modules (DIMMs).
- 16 MB and 32MB (16 bit technology)
- 64MB and 128 MB (64 bit technology)
- Non-ECC (64 bit) and ECC (72 bit) memory
- Single- or double-sided configurations
- 384MB maximum system memory

You can use 16-MB, 32-MB, 64-MB, and 128-MB DIMMs in any combination, bank, or order to expand the SDRAM up to 384 MB.

DIMM Size	Non-ECC Configuration	ECC Configuration
16 MB	2 Mbit x 64	2 Mbit x 72
32 MB	4 Mbit x 64	4 Mbit x 72
64 MB	8 Mbit x 64	8 Mbit x 72
128 MB	16 Mbit x 64	16 Mbit x 72

ECC Memory

With error checking and correcting (ECC) memory, multiple bit errors and single bit errors can be detected and corrected. The BIOS automatically detects if ECC memory is installed and provides a Setup utility option to enable error checking. Non-ECC memory does not provide error checking capability.

	Setup Utility Memory Error Detection Mode Setting	
	ECC Disabled	ECC Enabled
Non-ECC DIMM	No error detection	N/A
ECC DIMM	No error detection	Single-bit error correction, multiple-bit error detection

★ Important!

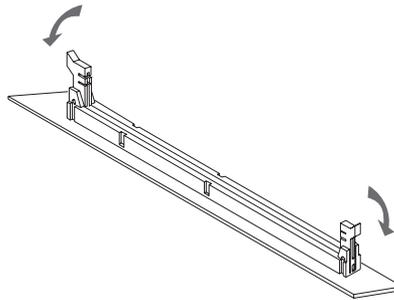
66 MHz FSB processors can be paired with 66 or 100 MHz SDRAM, but 100 MHz FSB processors should be paired only with 100 MHz SDRAM.

Installing DIMMs

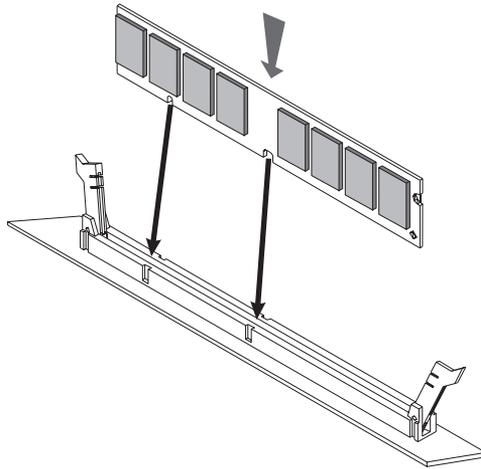
The system board contains three DIMM banks. You can fill DIMM0, DIMM1, DIMM2, or a combination of banks with DIMMs. No jumper settings are required for the memory size or type because the BIOS automatically detects this information.

To install DIMMs

1. Turn off the system and disconnect the power cord.
2. Open the case, observing the “Static Electricity Precautions” on page 2.
3. Pull open the socket clamps on each side of the DIMM socket.



4. Insert the DIMM into the socket and align the two bottom notches in the DIMM with the two notches in the DIMM socket.



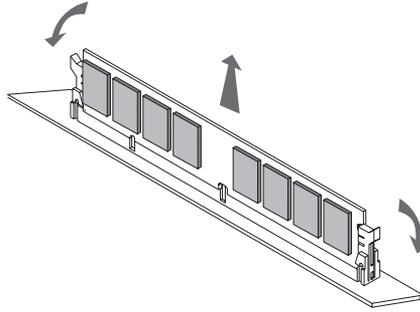
5. Gently press the DIMM into the socket until the plastic socket clamps on each side of the socket snap into the notches on the side of the DIMM.
6. Close the case, as described in Chapter 1.
7. Reconnect the power cord and turn on the system.

Caution!

Never try to remove a DIMM without releasing the clamps. You may break the socket, causing serious damage.

To remove DIMMs

1. Using your fingers, gently push out both plastic socket clamps on each end of the DIMM socket. The DIMM should pop up slightly from the socket.

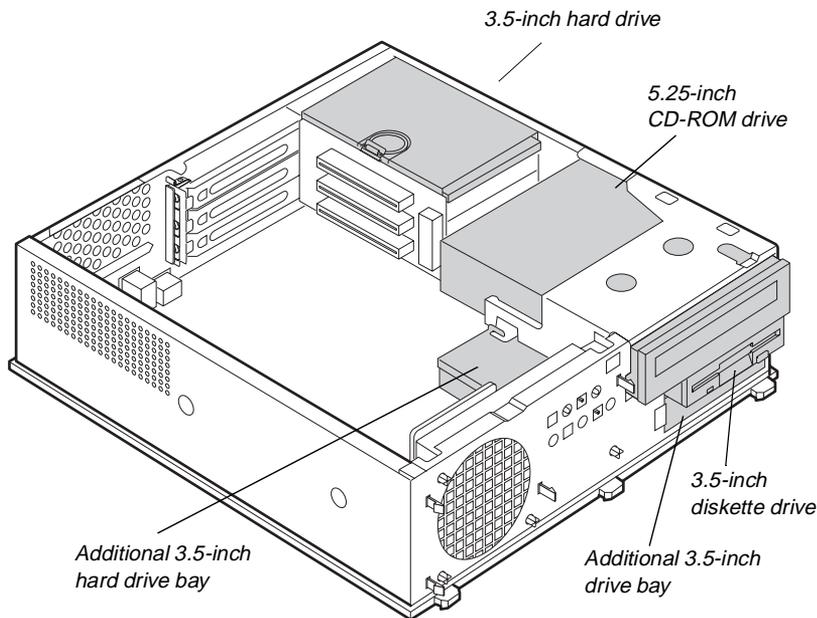


2. Carefully lift the DIMM out of the socket.
3. Store the DIMM in a static-free container.

Replacing and adding drives

One 3.5-inch diskette drive, one 3.5-inch hard drive, and one CD-ROM drive come with your computer. You can add additional drives of the following types:

- Half-height 3.5-inch diskette drives. The riser card has a floppy controller that supports up to two floppy devices, one of which is the 3.5-inch diskette drive that comes with your computer.
- Half-height 3.5- or 5.25-inch hard drives. The riser card has two IDE connectors that support up to two drives each. To use another type of hard drive, such as a SCSI drive, install an add-in card.



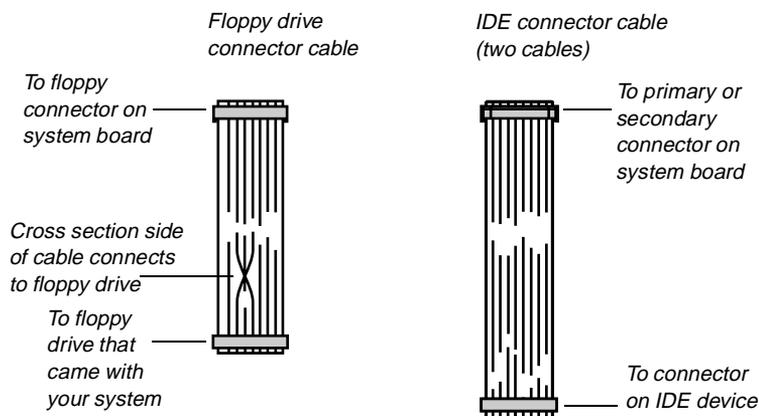
As you prepare to install drives, keep the following in mind:

- To remove and install drives, you need a grounding wrist strap and a Phillips screwdriver. If you remove a drive, place it in an antistatic bag.

- Before you install a drive, see the drive's documentation for information on configuring the drive, setting any jumpers on the drive, and attaching cables to the drive.
- If you are installing a drive that uses an add-in controller, install the add-in card before you install the drive.
- IDE hard drives can be configured as single, master, or slave. IDE CD-ROM drives can be configured as master or slave. Use the drive-select jumpers on the drives to configure IDE drives as follows: If only one drive is attached to the controller cable, configure the drive as single if it is a hard drive or master if it is a CD-ROM drive. If two drives of any type are attached to the cable, configure one as master and one as slave.
- You may need to configure the drives you install through the Setup utility program. Press F1 at start up to access the Setup utility program.

Drive Cabling Information

Three drive cables are included with your system. The floppy drive connector cable is used to connect floppy drives and other non-IDE devices (such as a tape backup drive). The two IDE connector cables are used to connect IDE devices such as CD-ROM drives and additional hard drives. If you want to add additional drives, you can replace the drive connector cables with ones that contain three connectors, which would allow you to add a total of four IDE devices or two floppy devices.



Replacing the 3.5-inch diskette or CD-ROM drive

Both the 3.5-inch diskette drive and 5.25-inch CD-ROM drives are secured in the chassis by a set of removable rails. The rails allow the drives to slide into and out of the guides in the front bays.

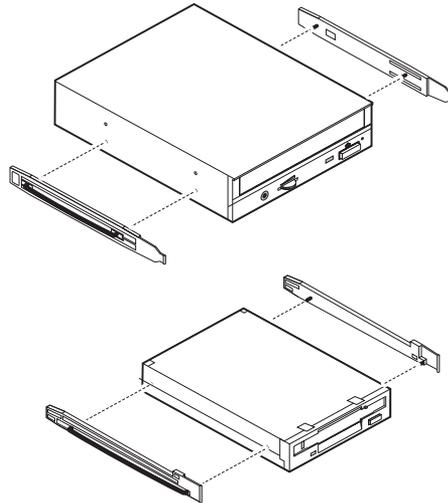
To replace the drives

1. Turn off the system and disconnect the power cord.
2. Open the case and remove the front bezel, observing the “Static Electricity Precautions” on page 2.
3. Locate the 3.5-inch diskette or 5.25-inch CD-ROM drive. If you are removing the 3.5-inch diskette, you may need to partially remove the CD-ROM drive to get to the 3.5-inch diskette drive.
4. Disconnect the power and data cables from the back of the drive, noting their location and orientation. (You will reconnect these cables after you install the new drive.)
5. Press inward on both front rail extensions to disengage the locking tabs, then push on the back of the drive to move it slightly out of the bay. Pull the drive out of the chassis.

★ *Important!*

The rails on the 3.5-inch drive are different from those on the CD-ROM drive. Make sure you install the correct rails on each drive.

6. Remove the rails on both sides of the drive, and snap them onto the new drive in the same positions. Make sure the front rail extensions are towards the front of the drive.



7. Align the rails with the appropriate bay, and slide the drive into the bay until the locking tabs snap into place.
8. Connect the power and data cables, making sure the cables match their original position. (See drive documentation for proper drive jumper settings and cable orientation.)
9. Close the case, as described in Chapter 1.
10. Reconnect the power cord and turn on the system.

Installing an additional 3.5-inch device

The second 3.5-inch drive bay can be used to install a 3.5-inch device, such as a tape drive or 100MB or 120MB disk storage device. A set of rails are included with your system and are used during the installation. You will have to purchase an IDE cable with three connectors and of sufficient length to connect the existing hard drive and the new drive to the riser card IDE connector.

To install an additional drive in the 3.5-inch drive bay

1. Turn off the system and disconnect the power cord.
2. Open the case and remove the front bezel, observing the “Static Electricity Precautions” on page 2.
3. Remove the bezel insert (you can save and replace the insert should you need to remove the device and continue to use the system).
4. Remove the 3.5-inch diskette and CD-ROM drive (see “Replacing the 3.5-inch diskette or CD-ROM drive” on page 29). This will allow access to the bottom drive bay.
5. Remove the metal shield from the front of the drive bay by placing a flat-bladed screwdriver in the metal shield tab and pulling it outwards.
6. Snap the rails onto the drive, making sure the front rail extensions are towards the front of the device.
7. Align the rails with the bay, and slide the drive into the chassis until the locking tabs snap into place.
8. Connect the power and data cables to the back of the drive. (See drive documentation for proper drive jumper settings and cable orientation.)
9. Close the case, as described in Chapter 1.
10. Reconnect the power cord and turn on the system.
11. Run the configuration software, if required.

Caution!

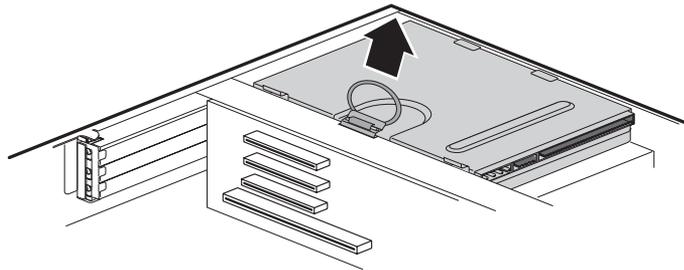
Your system was designed to adhere to safe emissions standards, and the shield is an integral part of the system. Installing an approved device should continue to maintain those standards. If you remove the device, you should replace the shield.

Replacing the hard drive

The hard drive is secured to a mounting plate that snaps out of and into the chassis.

To replace the hard drive

1. Turn off the system and disconnect the power cord.
2. Open the case, observing the “Static Electricity Precautions” on page 2.
3. Locate the 3.5-inch hard drive and mounting ring.
4. Lift the ring slightly and then pull it towards the center of the drive until the spring latch releases. Lift the drive out of the chassis.



5. Remove the mounting plate from the old drive by lifting and sliding one tab at a time until they unlock. Lift the mounting plate off the drive.
6. Position the new drive upside down in the mounting plate and snap it into place.
7. Place the drive back into the drive bay.
8. Connect the power and data cables to the back of the drive. (See drive documentation for proper drive jumper settings and cable orientation.)
9. Close the case, as described in Chapter 1.
10. Reconnect the power cord and turn on the system.

★ Important!

Make sure the option ROMs on your add-in cards conform to the Phoenix POST Memory Manager Specification, Version 1.01 and BIOS Boot Specification, Version 1.01. For additional information, refer to the following website: <http://www.phoenix.com>.

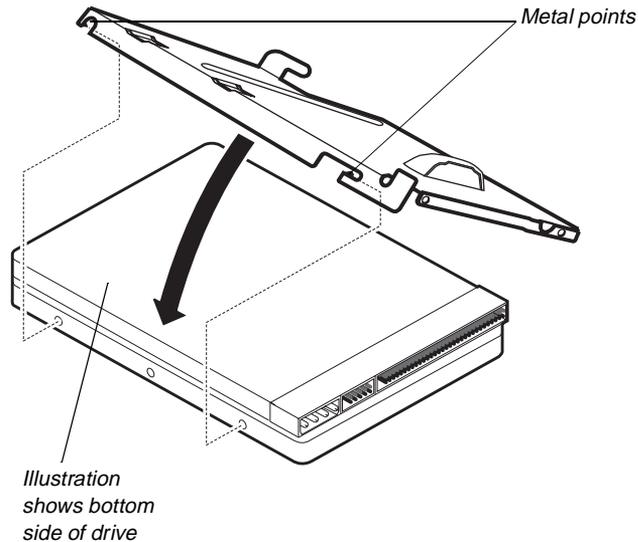
Adding a second hard drive

The system comes with a metal drive mounting plate you can use to install an additional internal hard drive. You will have to purchase an IDE cable with three connectors and of sufficient length to connect the existing hard drive and the new drive to the riser card IDE connector.

To install a second hard drive

1. Turn off the system and disconnect the power cord.
2. Open the case, observing the “Static Electricity Precautions” on page 2.
3. Locate and remove the two screws that attach the mounting plate to the front of the chassis.
4. Remove the CD-ROM drive from the chassis so you can access the slide plate (see “Replacing the 3.5-inch diskette or CD-ROM drive” on page 29).
5. Slide plate towards the back of the chassis until the tabs disengage from the chassis. Lift the mounting bracket out of the chassis.

6. With the drive upside down, insert the metal points into the threaded holes on one side of the drive and lower the plate over the bottom of the drive.



7. Secure the drive to the enclosure with a screw.
8. Replace the mounting bracket into the chassis and slide the two locking tabs together.
9. Replace the two screws you removed in step 2.
10. Replace the CD-ROM drive.
11. Connect the proper cables to the drive (see “Replacing and adding drives” on page 27).
12. Close the case as described in Chapter 1.
13. Reconnect the power cord and turn on the system.

Adding an expansion card

The E-3200 chassis has three expansion slots for PCI/ISA cards and one slot for an AGP card.

The riser card has two PCI connectors and one shared PCI/ISA connector. For the shared slot, so you can install either a PCI or ISA expansion card, but not both. The AGP connector is on the system board.

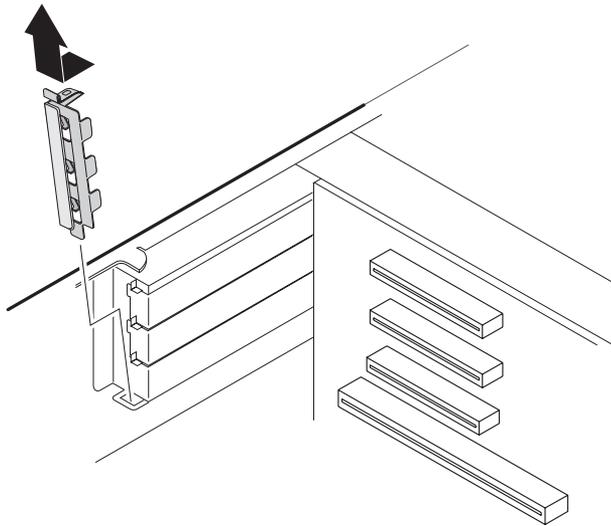
Some ISA expansion cards have jumpers or switches that set interrupts and I/O addresses. They come with instructions that explain how to set them to avoid hardware conflicts. Follow the instructions carefully.

★ *Important!*

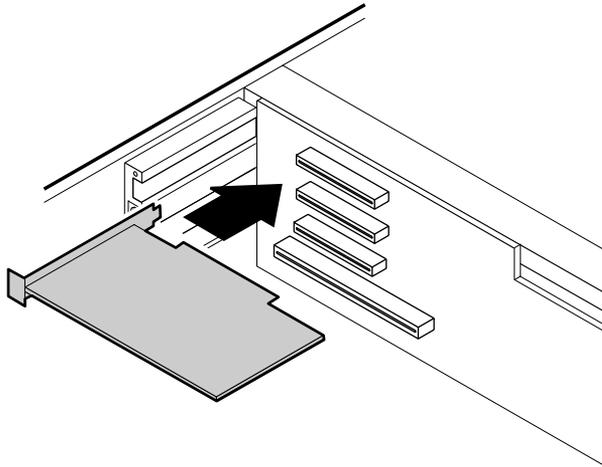
The on-board AGP is automatically disabled if an AGP add-in card is used.

To add a PCI/ISA expansion card

1. Set any jumpers and switches on the card, if required in the card instructions.
2. Turn off the system and disconnect the power cord.
3. Open the case, observing the “Static Electricity Precautions” on page 2.
4. Remove the slot cover bracket by pressing downward and outward on the tab.



5. Locate an available slot, and remove the slot cover (save the cover for reinstallation if you need to remove the card) by releasing the lock tab (you can use a blunt tool such as a flat-head screwdriver if the tab does not release with finger pressure). Either apply inward pressure to the middle of the slot cover or use a flat-head screwdriver and insert it into the tab hole.
6. Insert the edge of the expansion card into the slot on the riser card.



7. After seating the card firmly, replace the slot cover bracket.
8. Connect any cables to the card (see card documentation for proper jumper settings and cable orientation)
9. Close the case, as described in Chapter 1.
10. Reconnect the power cord and turn on the system.

It may be necessary to reconfigure your system after installing some expansion cards. You may also need to install software that came with the card. Check the card documentation for additional information.

Heceta II hardware management

Heceta II is an integrated data acquisition system that lets you monitor the status of your system hardware. Monitored information includes internal temperature, fan speed, voltage, and chassis intrusion (to alert you in case of tampering). The features of the hardware management system can be accessed through LANDesk® Client Manager, which provides a quick system health indicator.

Installing LANDesk Client Manager

Intel's LANDesk Client Manager is the Desktop Management Interface (DMI) solution that is already loaded on your system. LANDesk Client Manager lets you monitor your system for critical situations that may need your attention. It also lets your system administrator remotely inventory and manage systems on your network.

To install LANDesk Client Manager

1. In the C:\DMI folder, double-click the Setup icon to launch the InstallShield® wizard.
2. Follow the instructions that appear on your screen. If you are prompted for a password during the installation process, enter **LOWTCO**.

LANDesk Client Manager comes with complete electronic documentation and online help. Refer to these documents and Help for any LANDesk concerns.

Replacing the battery

The battery provides power for the system real-time clock and CMOS RAM, which holds the system configuration information.

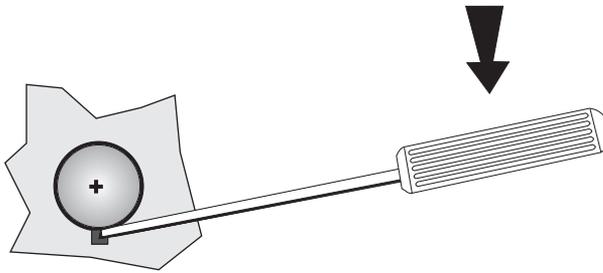
If your battery is failing you may notice your system clock slowing down and giving you the incorrect time. If so, open the Setup utility and write down all the values in the menus and submenus before replacing the battery. Replacing the battery resets the Setup utility to its default values.

To replace the battery

1. Restart the computer and start the Setup utility program by pressing F1 when you are prompted to do so.
2. Write down the CMOS values from the Main Setup utility screen so you can reenter them after you replace the battery. For more information about the Setup utility program, see “BIOS Setup Utility” on page 43
3. Turn off the system and disconnect the power cord.
4. Open the case, observing the “Static Electricity Precautions” on page 2.
5. Locate the battery on the system board (see “System board” on page 8). The battery is circular and has the positive pole mark (+) on the top.
6. Using a small flat-bladed screwdriver, carefully remove the battery from its socket on the system board.

▼ *Caution!*

There is a danger of explosion if the battery is incorrectly replaced. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.



7. Press the new battery in the socket with the positive pole up. Be sure you have pressed the battery down far enough for it to contact the base of the socket.
8. Close the case, as described in Chapter 1.
9. Reconnect the power cord and turn on the system.
10. Enter the Setup utility program and verify that the system configuration is correct using the data you recorded in Step 2.

If the CMOS data is not correct, change the information in the Setup utility screens as necessary.

Troubleshooting the battery installation

If you have problems after installing the new battery, try each of the items listed below, replacing the cover and restarting the computer after each try.

- Turn off the system and ensure that all exterior cables are attached to the correct connectors and secured.
- Check to be sure that all power switches are on. If the system is plugged into a power strip or surge protector, be sure it is turned on also.
- Enter the Setup utility program and compare the settings on the screen with your notes or the system hardware manuals. Correct any discrepancies.

- Turn off the system, remove the cover, and verify that all cables inside the case are attached securely. Also, make sure that the colored cable edges are aligned correctly and that the connectors didn't miss any pins. Disconnect and reconnect the cables, and then replace the cover carefully so as not to disturb any cables.
- Turn off the system, remove the cover and, if you have the proper test equipment, verify that the new battery has power. (It is possible, although highly unlikely, that your new battery is defective.)

When everything works properly, close the case as described in Chapter 1, reconnect the power cord, and turn on the system.

Using Your System Restoration CD

The System Restoration CD included with your system can be used to:

- Restore your Windows 95 or Windows 98 operating system
- Install hardware drivers for Windows 95, Windows 98, and Windows NT
- Reinstall selected software applications, such as LANDesk Client Manager or McAfee Virus Scan
- View or install component online documentation

Instructions for each operating system are provided with the System Restoration CD.



BIOS Setup Utility

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Using the Setup Utility

The computer's BIOS has a built-in setup utility that lets you configure several basic system characteristics. The settings are stored in battery-backed RAM and are retained even when the power is off.

To enter the Setup utility, restart the system and then press F1 when prompted on screen during the startup process. Upon entering Setup, the Main Setup utility screen opens.

BIOS Setup Utility					
Main	Advanced	Security	Power	Boot	Exit
					Item Specific Help
BIOS Version: xx					Select the display
Processor Type: Pentium II processor					language for the
Processor Speed: 400 MHz					BIOS.
Front Side Bus Speed: 100 MHz					
Cache RAM: 512 KB					
System Memory: 64 MB					
Memory Bank 0: 32 MB SDRAM					
Memory Bank 1: 32 MB SDRAM					
Memory Bank 2: Not Installed					
Language: [English (US)]					
Cache ECC Support: [Disabled]					
System Time: [xx:xx:xx]					
System Date: [xx/xx/xxxx]					
F1 Help	0 Select Item	-/+ Change Values		F9 Setup Default	
ESC Exits	~& Select Menu	Enter Select > Sub-Menu		F10 Save and	
Exit					

As you select items on the main menu and in submenus, you will see specific information related to the current selection in the Item Specific Help box. Refer to the Help box for information about the menu options.

The command bar shows the keystrokes necessary to access help, navigate through the menus, and perform other functions.

- F1 opens the Help screen, providing general help for using the Setup utility.
- The up arrow (↑) and down arrow (↓) keys select items in the menu.
- The left arrow (←) and right arrow (→) keys move you between the menus.
- ENTER either moves you to a submenu screen when a selected item is preceded by > or activates a selected field.

- The plus sign (+) and minus sign (-) change values in fields.
- ESC closes the screen you are in and returns you to the previous screen or exits you from the Setup utility.
- F9 opens a screen that lets you return all values to their default settings.
- F10 opens a screen that lets you save all parameters and then exit the Setup utility.

The main screen has the following menu selections at the top of the screen:

- **Main** gives you access to basic information and settings related to your system hardware and configuration.
- **Advanced** gives you access to information and settings for system resources, hardware, and system configuration.
- **Security** gives you access to settings related to system access passwords.
- **Power** gives you access to information and settings for power management features
- **Boot** gives you access to information and settings for boot features and boot sequences.
- **Exit** gives you access to options for exiting the Setup utility.

Refer to the Item-Specific Help box for information about specific menu options.

Updating the BIOS

Flash memory simplifies distributing BIOS upgrades. If you need a new version of BIOS, you can download the BIOS update from the Technical Support web site and install the new version from a diskette.

To update the BIOS

1. Enter Setup by pressing F1 when prompted during startup.
2. Write down the settings for each of parameters. (At the end of the BIOS update process, you will reset the parameters back to the values you recorded.)
3. Exit the Setup utility program.
4. Log onto the internet.
5. Download the correct BIOS file from the Technical Support web site.
6. Uncompress the contents of the BIOS file you downloaded, and copy the contents onto a bootable diskette.
7. Place the bootable diskette containing the BIOS files into drive A, and restart the system with the diskette in the drive. The Setup utility program starts.
8. Press ENTER to go to the **Main** menu.
9. Select Update Flash Memory From a File and press ENTER.
10. Select **Update System BIOS**.
11. Press TAB to select the file name and press ENTER.

The system warns you that BIOS is about to be changed and asks you to confirm the BIOS version.
12. Press ENTER.
13. Once the BIOS files have been loaded, remove the diskette from drive A and press ENTER at the prompt to restart the system.

14. As the system starts up, verify that the correct BIOS version is reported.
15. Enter Setup by pressing F1 when prompted during startup. Once in Setup, press F9 to load the Setup utility default settings.
16. If you want to change any BIOS fields, use the UP ARROW (↑) and DOWN ARROW (↓) to select the BIOS fields you want to change. Press ENTER and then reenter the values you wrote down at the beginning of this process.



Troubleshooting

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Introduction

If your system does not operate correctly, re-read the instructions for the procedures you have performed. If an error occurs within an application, consult the documentation supplied with the software. This section identifies solutions to some possible problems.

Troubleshooting Checklist

Before turning on the system, make sure that:

- The power cord is connected to the AC power-in connector and an AC outlet.
- The AC outlet is supplying power.
- If a power strip is used, it is turned on, and the circuit breaker is set.
- The voltage selection switch on the system power supply reflects the proper voltage.

Verifying your configuration

If your system is not operating correctly, the BIOS may contain an invalid configuration parameter. Enter the Setup utility program and check your configuration settings.

Troubleshooting guidelines

As you troubleshoot your system, keep the following guidelines in mind:

- Never remove the system cover while the system is turned on.
- Do not attempt to open the monitor; it is extremely dangerous. Even if the monitor's power is disconnected, stored energy within the monitor's components can offer a painful or harmful experience.
- If a peripheral such as the keyboard, mouse, drive, or printer does not appear to work, verify that all connections are secure.
- If an error message displays on the screen, write it down, word for word. You may be asked about it when calling Technical Support.
- Only qualified personnel should open the system for maintenance.
- If you feel you are qualified to maintain the system yourself, make certain you are properly grounded before opening the system chassis. See Chapter 1, Case Access, for more information on preventing electrostatic damage to the system.

CD-ROM Problems

 An audio CD produces no sound.

★ *Important!*

Some systems do not have sound cards because sound capabilities are built into the system board.

Probable Cause	Solution
The CD is loaded incorrectly.	Make certain the label is facing upward, and then try again.
The speakers are not connected.	Check the speaker cables. Make certain they are connected properly and securely.
The speaker volume is turned down.	Check the volume control.
The speakers may be muted via the Multimedia volume control.	From the Accessories menu (Start Programs Accessories), click Multimedia , and then click Volume Control . Make certain the volume is turned up.
The sound card may not be installed correctly.	Open the system, and then reseal the sound card. Make certain the cables are connected properly.
The CD-ROM drive audio cable may be installed incorrectly.	Open the system and make certain the cables are connected properly.
The speakers may be faulty.	Connect a set of headphones to the speaker jack to test the output. If they work, replace the speakers.

 The CD-ROM drive is not recognized by the system.

Probable Cause	Solution
The CD is not intended for PC use.	Make certain the CD is PC-compatible.
The CD is loaded incorrectly.	Make certain the label is facing upward, and then try again.
The CD is scratched or dirty.	Try cleaning the CD with a lint-free cloth. Check the CD for scratches.
The CD-ROM drive needs to be added as new hardware.	From the Control Panel window (Start Settings Control Panel), double-click Add New Hardware . Follow the directions for adding the drive. If you are not experienced with this procedure, call Technical Support.
The secondary IDE device may be disabled.	Restart your computer, and then press F1 to enter the Setup utility program. From the Advanced IDE Configuration menu, set the IDE Controller to Both and the Secondary IDE Master to Auto.
The CD cables are not installed correctly.	Open the system and check all cables between the CD controller and the CD-ROM drive.
The CD-ROM drive may be defective.	Replace the CD-ROM drive.

Hard Disk Problems

 The SCSI drive is not recognized by the system.

Probable Cause	Solution
The SCSI bus is not properly terminated.	Make certain the last device on the SCSI chain is properly terminated.
The drive is configured with a conflicting SCSI address.	Change the device's SCSI address to one that is not currently being used by the system.
The cables are not connected correctly.	Open the system and check the cable connections.

 The IDE drive is not recognized by the system.

Probable Cause	Solution
The primary IDE device may be configured incorrectly.	Restart your computer, and then press F1 to enter the Setup utility program. From the Advanced IDE Configuration menu, set the IDE Controller to Both and the Primary IDE Master to Auto .
The drive may not be configured properly.	Consult the hard disk user's guide for instructions on how to configure the drive.
The drive cables are not connected properly.	Open the system and check all cables connected to the controller card.
The drive controller is not seated properly.	Open the system and reseat the drive controller.

 **Important!**

Some systems do not have IDE controller cards because the IDE controller is built into the system board.

Memory/Processor Problems

 Memory errors were detected during system start up.

Probable Cause	Solution
Memory was added or removed, and the new configuration was not saved in Setup utility.	Enter Setup and save the new memory configuration.
The memory was installed incorrectly.	Check the memory for proper seating and orientation.
A memory chip is faulty.	Replace the card on which the faulty chip resides. Third-party diagnostic programs can help determine which chip or memory segment is failing.

 A new processor is not recognized by the system.

Probable Cause	Solution
The processor was installed incorrectly.	Check the installation. The processor should be recognized automatically if it was installed correctly.
The processor speed was not set correctly in the Setup utility configuration mode.	If your system BIOS enables you to select the processor speed, make sure you have selected the speed properly.
The processor was not seated correctly in the socket.	Check to make sure the processor is fully seated in its socket.

Modem Problems

 The modem is not recognized by the system.

Probable Cause	Solution
The modem has not been added as new hardware.	Add the modem as new hardware.
The modem is not connected to a live phone jack.	Make certain the line connected to the modem is live and plugged into the appropriate port on the modem (line port).
The modem is not configured with a valid interrupt or address.	Check the system settings for possible conflicts. If one exists, correct the problem by selecting an available interrupt and address.
The phone jack is shared by another modem or telephone.	If the modem shares the jack with another device, make certain the other device does not have the port open (for instance, someone is on the phone, or another modem is in use).

Peripheral/Adapter Problems

❖ A SCSI device is not recognized by the system.

Probable Cause	Solution
The device needs to be added as new hardware.	From the Control Panel window (Start Settings Control Panel), double-click Add New Hardware . Follow the directions for adding the device. If you are not experienced with this procedure, call Technical Support.
The SCSI ID may be invalid.	Assign an available SCSI ID to the device.
The SCSI chain is not terminated.	Make certain the last device on the SCSI chain is terminated.
The device cables are not installed correctly.	Open the system and check all cables between the controller and the device.

❖ The diskette drive is not recognized by the system.

Probable Cause	Solution
The diskette drive may be configured incorrectly.	Restart your computer, and then press F1 to enter the Setup utility program. From the Boot Removable Devices menu, ensure that the diskette drive parameters are set correctly.
The drive cables are not connected properly.	Open the system and check all cables connected to the controller card.
The drive controller is not seated properly.	Open the system and reseal the drive controller.

★ *Important!*

Some systems do not have a floppy controller card because the floppy controller is built into the system board.

 The diskette drive will not read, write, or format.

Probable Cause	Solution
The diskette is not IBM formatted.	Make certain the diskette you are trying to format is IBM-compatible. If it is, try reformatting it.
The diskette is corrupted.	Run ScanDisk on the diskette. If errors are detected and corrected, try accessing the diskette again.
The disk is write protected.	Make certain the write-protection window on the upper-right corner of the diskette is closed (unprotected).

 The diskette drive LED illuminates continuously.

Probable Cause	Solution
The diskette is corrupted.	Remove the diskette from the drive. If the light remains on, try restarting the system.
The cable to the drive is not connected properly.	Open the system and check the cable between the diskette drive and its controller. Make certain the pins are not bent or misaligned.

 An adapter card is not recognized by the system.

Probable Cause	Solution
The interrupt and/or I/O address is set incorrectly.	Check the address configuration of the adapter card and ensure that it does not conflict with another card in the system.
The card has not been configured through the software.	Configure the card with the appropriate software.
The card was not installed correctly.	Reseat the card and make certain that its jumpers are configured appropriately.

Printer Problems

 The printer will not turn on.

Probable Cause	Solution
The printer is not plugged in.	Check the power cable. Make certain it is plugged into a live power source.
The printer is not turned on.	Make certain the printer's power switch is depressed or set to the On position. If power is applied to the printer, the green power LED should be illuminated.
The printer is defective.	Try another printer if one is available.

 The printer is turned on but will not print.

Probable Cause	Solution
The printer is not connected to the system.	Check the data cable between the printer and the system. Make certain it is connected to the proper port. Check the connector and cable for bent or broken pins.
The printer is not designated as the default printer.	If the printer to which you are trying to print is not the default printer, make certain you have selected it through the application's printer setup function.
The printer has not been added to the system.	From the Printers window (Start Settings Printers), double-click Add Printer . Follow the directions for adding the new printer.

 The printer prints garbled text.

Probable Cause	Solution
The wrong driver is being used for the selected printer.	From the Printers window (Start Settings Printers), select the printer. From the File menu, click Properties . Make certain the printer is using the right printer driver. If not, install the correct one.

System Problems

 The system will not start up.

Probable Cause	Solution
The system is not connected to an AC outlet.	Check the power cable(s) and make certain it is connected to an AC power source.
Voltage selection switch not set correctly.	Make certain the voltage selection switch reflects the correct power source.

 The system is non-responsive.

Probable Cause	Solution
An error occurs during an application or your system may be out of memory.	Press the reset button to reboot your computer. If the system is still non-responsive, press and hold in the power button for 4 seconds to turn the system off. Turn the system back on and follow the onscreen instructions.

 The keyboard does not work.

Probable Cause	Solution
A key was depressed while the system was starting up.	Clear the sticking key, then turn off the system, wait for a few seconds, and then turn the system back on.
The keyboard is not plugged in or connected properly.	Check the cable. Make certain it is plugged in correctly.
Something spilled into the keyboard.	Turn off the system. Turn the keyboard upside down to let it dry before turning the system back on.
The keyboard is defective.	Try a keyboard you know is working.

 The mouse does not work.

Probable Cause	Solution
The mouse is not plugged in or connected properly.	Check the cable. Make certain it is plugged in correctly.
The mouse driver did not load when the system booted.	Load the appropriate mouse driver manually or contact Technical Support.
The mouse is defective.	Try a mouse you know is working.

Video Problems

 The system is running but there is no display.

Probable Cause	Solution
The monitor is not turned on.	Make certain the monitor is plugged in and turned on. If power is applied to the monitor, the green power LED should illuminate.
The monitor's data cable is not connected.	Make certain the monitor's data cable is connected to the video controller on the back of the system.
The connector or cable is damaged.	Check the connector and cable for bent or damaged pins.
The monitor is defective.	Connect a working monitor to the computer.
The monitor's brightness and contrast controls are turned down.	Adjust the brightness and contrast knobs to the center position.
The video card is not seated correctly.	Open the system and reseal the video card.
The video card is not compatible with the system.	PCI video cards must be compatible with the system.

 The text on the display is dim or difficult to read.

Probable Cause	Solution
The monitor's brightness and contrast controls are turned down.	Adjust the brightness and contrast knobs until the text becomes clear.
Sunlight is glaring off the display.	Position the monitor away from the sun or window.
The CRT may be old.	Replace the monitor.

 **Important!**

Your system board may have a built-in video adapter, so there may not be a video adapter to remove and replace.

- ❓ The color monitor displays everything in black and white.

Probable Cause	Solution
The system was turned on before the monitor.	Make certain the monitor is turned on, and then restart the system.
The display type is set incorrectly.	From the Control Panel window (Start Settings Control Panel), double-click Display , set the display to the appropriate monitor type, and then reboot the system.

- ❓ The displayed characters are garbled.

Probable Cause	Solution
The video cable is damaged.	Check the cable and connectors for bent pins or broken wires.
The video card has failed.	Try another video card.
The display setup is incorrect.	From the Control Panel window (Start Settings Control Panel), double-click Display and check the settings. The correct video type should be selected, along with a supported resolution. Check your monitor and video controller documentation for details.

 The video is distorted.

Probable Cause	Solution
The monitor's controls are not properly adjusted.	Adjust the monitor controls until the text becomes clear. (See your monitor documentation for more information.)
The connector or cable is damaged.	Check the connector and cable for bent or damaged pins.
The surge protector or UPS is damaged.	Disconnect the monitor power cable and connect it directly to the power source.
The monitor is too close to a source of electrical interference.	Move the monitor away from sources of electrical interference, such as televisions, unshielded speakers, microwaves, fluorescent lights, and metal beams or shelves.
The monitor needs to be degaussed.	Turn off the computer and monitor and leave them off for at least a half hour, and then restart the system.

Error Messages

This section lists common error messages that may be displayed on your monitor. These messages often indicate procedural errors such as an incorrect keystroke or a write-protected diskette. Some messages, however, may indicate a problem that requires you to consult the troubleshooting section of this manual.

Error Message	Solutions
Access denied.	Try saving to a new file or diskette. Move the write-protection tab over the hole on the back of the diskette.
Bad command or file name.	Make certain you entered the right command. Verify the specified drive and try it again. If you are trying to exit MS-DOS to return to Windows, type EXIT and press ENTER.
Base memory [xxx] expansion.	This is an informational message only. No action is required.
Checking RAM on disk controller.	Your BIOS configuration is incorrect. Enter Setup utility and verify the parameter values.
CD-ROM is not recognized.	See "The CD-ROM drive is not recognized by the system." on page 53.
Data error.	Run ScanDisk on the reported disk.
Decreasing available memory.	Your BIOS configuration is incorrect. Enter Setup utility and verify the parameter values.
Diskette drive is not recognized.	See "The diskette drive is not recognized by the system." on page 57.
Diskette drive 0 seek to track 0 failed.	Enter Setup utility and verify the diskette drive parameters. Check the diskette drive cables. Make certain Pin 1 on the cable aligns with Pin 1 on the connector.
Diskette drive reset failed.	Enter Setup utility and verify the diskette drive parameters. Check the diskette drive cables. Make certain Pin 1 on the cable aligns with Pin 1 on the connector.

Error Message	Solutions
Diskette read failed - strike F1 to retry boot.	<p>Make certain the boot disk contains the Command.com file.</p> <p>Use the configuration utility (if applicable) to verify your drive or controller configuration.</p> <p>Press F1 to try the boot again.</p>
Gate A20 failure.	<p>You may have an XT keyboard connected to an AT system or vice versa. Make certain the keyboard is configured to work with the appropriate system. Some keyboards have a switch to select either AT or XT.</p>
Hard disk controller failure.	<p>Make certain the hard disk cable is properly connected.</p> <p>Open the Setup utility program and verify that the correct drive type is selected.</p>
Hard disk controller failure - press F1 to try reboot.	<p>The drive controller may be defective. Press F1 to retry the boot.</p> <p>Try running Fdisk and DOS Format. For more information, refer to your DOS documentation.</p>
Insert bootable media device.	<p>See "The IDE drive is not recognized by the system." on page 54.</p> <p>See "The SCSI drive is not recognized by the system." on page 54.</p> <p>Backup your files as soon as possible.</p>
Insufficient disk space.	<p>Check the free space on the disk volume. If the volume is full or almost full, remove unnecessary files.</p>
Invalid configuration information...	<p>Enter Setup utility and verify the parameter values.</p>
Invalid password.	<p>Enter your password again, making certain to enter it correctly.</p> <p>If you do not know the password, you may need to reinstall the software you are trying to access.</p> <p>Startup passwords are stored in BIOS. If this password has been set and is unknown, you may be able to reset the password via system board jumper settings. See "Setting the Jumpers" on page 20 for more information.</p>

Error Message	Solutions
Keyboard clock line failure.	Try a working keyboard. Make certain the keyboard is compatible with the system. You may have to change the switch setting to AT.
Keyboard controller failure.	Try a working keyboard. Make certain the keyboard is compatible with the system. You may have to change the switch setting to AT.
Keyboard controller failure.	Try a working keyboard. Make certain the keyboard is compatible with the system. You may have to change the switch setting to AT.
Keyboard not detected.	See "The keyboard does not work." on page 61. Turn off the system and check the keyboard cable.
Keyboard stuck key failure.	Remove any objects that may be resting on the keyboard, and then restart the system. Check for sticky keys. Clean the keyboard if necessary.
Memory errors were detected while the system powered up.	See "Memory errors were detected during system start up." on page 55.
Memory size error.	Enter Setup utility and save the memory configuration.
Non-system disk or disk error.	Eject the diskette and press ENTER . If the diskette is bootable, check it for errors.
Not enough memory.	Close all programs that are not currently in use.
Print queue is full.	Wait until the current print job has completed before sending another print job. If you receive this error often, you need to add memory to the printer.
Printer is out of paper.	Add paper to the printer. Make certain the printer is online.

Error Message	Solutions
Required parameter missing.	Make certain you entered the right command. If you are trying to exit MS-DOS to return to Windows, type EXIT and press ENTER.
Syntax error.	Make certain you entered the right command. If you are trying to exit MS-DOS to return to Windows, type EXIT and press ENTER.
Time and date not set.	Enter Setup utility to set the system's date and time.
Write protect error.	Move the write-protection tab over the hole on the back of the diskette.





Appendix A

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Specifications

The following specifications are for the standard configuration; your system may contain optional equipment. All specifications are subject to change.

Summary	Supports Pentium® II microprocessors operating at 233 MHz to 333 MHz with 66 MHz FSB and 350 MHz to 450 MHz with 100 MHz FSB. Features NLX form factor.
Case	15" x 17.5" x 4.7" (WxDxH)
Processor	Intel Pentium® II with MMX™ technology
Processor speed	233 MHz, 266 MHz, 300 MHz, 333 MHz, 350 MHz, 400 MHz, and 450 MHz
Cache subsystem	Primary, 32K write-back cache; 16K code/16K data. L2 cache is integrated into the Pentium II processor cartridge with both 256K and 512K configuration (four-way set associative).
RAM capacity	168-pin Sync DRAM (SDRAM) memory. Three slots. Expandable to 384 MB SDRAM.
BIOS	Phoenix BIOS. Flash BIOS for easy updates from diskette.
IDE interfaces	Supports up to four IDE devices (hard disks or CD-ROMs) using two PCI IDE connectors on riser card. Automatic drive type selection for easy setup.
Diskette drive	A floppy controller is integrated on the system board. Support available for primary and secondary diskette drives or a tape backup unit.
I/O ports	One parallel and two serial ports on system board. LPT and COM configurable from system setup program. No jumper settings required.
USB	Universal Serial Bus (two ports)
Mouse	PS/2 mouse connector
Keyboard	PS/2 keyboard connector
AGP expansion slot	One slot (dedicated graphics/video)

On-board AGP	ATI RAGE PRO TURBO integrated 64-bit AGP graphics accelerator.
Shared PCI/ISA expansion slot	One PCI and one ISA slot are shared.
PCI expansion slots	Two
Network	10/100 Mbit per second Ethernet network support
Power supply	145 watts. ATX power connector for easy power cable changeover.
System environment	Internal temperature: 10°C to 35°C Humidity: 20% to 80% Altitude: -200 ft to 10,000 ft Shock, vibration: 12 g, 11 ms half-sine, 2 to 200 Hz, 0.25 g sinusoidal Processor clearance: >0.4 inch after installation, top and sides
Certification	FCC Class B, UL, CUL, CE Mark, VCCI Class B, CB Scheme

Properties

You can view system resources, such as DMA and IRQ usage, I/O maps and memory maps, from your operating system. To view these resources:

1. Under **Control Panel**, double-click the **System** icon.
2. Select the **Device Manager** tab.
3. Highlight the hardware type, in this case **Computer**, then click the **Properties** button to view your computer's properties.

Protecting Against Viruses

A virus is a program written with malicious intent for the purpose of creating havoc in a computer system. It attaches itself to executable files or boot sectors, so it can replicate and spread. Some viruses may only cause your system to beep or display messages or images on the screen. Other viruses are highly destructive and corrupt or erase the contents of your files or diskettes. To be safe, never assume any virus is harmless.

Viruses spread through direct contact with executable programs or boot sectors. Diskettes used in a contaminated system get a virus and transfer the virus when used in another system. A virus can also spread through programs downloaded from bulletin boards or the Internet.

To protect your system against viruses

- Obtain an antivirus program and scan your system regularly.
- Make backup copies of all files and write-protect the diskettes.
- Obtain all software from reputable sources and always scan new software for any viruses before installing files.

If you suspect your system has been infected, find and remove the viruses immediately using an antivirus program. Next, turn your system off and leave it off for at least 15 seconds before turning it back on. This is the only way to ensure the virus does not remain in your system RAM.

Regulatory Compliance

American Users



Caution!

The Federal Communications Commission warns users that changes or modifications to the unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device 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 or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and 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 the dealer or an experienced radio/TV technician for help.
- Use shielded I/O cables when operating this equipment.

Accessories: This equipment has been tested and found to comply with the limits of a Class B digital device. The accessories associated with this equipment are as follows:

- Shielded video cable
- Shielded power cord

These accessories are required to be used in order to ensure compliance with FCC rules.

Canadian Users:



This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par Industrie Canada.

Couper le courant avant l'entretien.

This Information Technology Equipment has been tested and found to comply with the following European directives:

[i]EMC Directive 89/336/EEC amending Directives 92/31/EEC & 93/68/EEC as per:

-EN 50081-1:1992 according to

EN 55022:1995 Class B

EN 61000-3-2:1995 or EN 60555-2:1986

EN 61000-3-3: 1995

-EN50082-1:1992 according to

EN 61000-4-2:1995 or IEC 801-2:1984

ENV 50140:1994 or IEC 801-3:1984

EN 61000-4-4:1988 or IEC 801-4:1998

[ii]Low Voltage Directive (Safety) 73/23/EEC as per EN 60950:1992, A1, A2, and A3

This is a Class B product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

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。

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to the Australian/New Zealand standard AS/NZS 3548 set out by the Spectrum Management Agency.

European Users:



Japanese Users:



Australian and New Zealand Users:



ENERGY STAR Compliant

Your system is preconfigured to be ENERGY STAR compliant. This requirement is met when your system uses less than 30 watts on or before 30 minutes of inactivity. Your computer achieves this level when the hard drives are set to spin down.

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