

# Maintaining and Troubleshooting Your E-4200 System



# Maintaining and Troubleshooting Your E-4200 System



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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 key names are printed in small capitals.
CTRL+ALT+DEL	A plus sign indicates that the keys must be pressed simultaneously.
<b>Setup</b>	Commands to be entered, options to select, and messages that appear on your monitor are printed in bold.
<i>User's Guide</i>	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 the system and in the documentation.
- When the computer is turned off, a small amount of electrical current still runs through the computer. Always unplug the computer from the electrical outlet before cleaning the system or opening the computer cover. (Follow the cleaning instructions in your user's guide.)
- 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 computer 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 computer ventilation slots.
- Use the voltage setting for your area. The voltage selector switch is set at the factory to the correct voltage.
- As a safety feature, this system is equipped with a 3-wire power cord to ensure that the product is properly grounded when in use. The plug will only fit into a grounding-type outlet. If you are unable to insert the plug into an outlet, contact an electrician to install the appropriate 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 electrical voltages or other risks.

Refer all servicing of those compartments to qualified service personnel.

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- There is a danger of explosion if the CMOS (complementary metal-oxide semiconductor) 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.
  - 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.

## **Additional information sources**

Along with this manual and your user's guide, you can find additional information by using the following sources.

### *The Gateway Support Center*

Log on to the Gateway Support Center at [www.gateway.com/support](http://www.gateway.com/support) to access information about your system or other Gateway products. Some types of information you can access are:

- Hardware driver (including BIOS) and software application updates
- An expanded glossary
- Technical tips
- Service Agreement information
- Technical documents and component information
- Frequently Asked Questions (FAQ)
- Online access to Tech Support

# *The 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.



# 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:

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.

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## **Caution!**

Prevent electrostatic damage to your system by following static electricity precautions every time you open your computer case.

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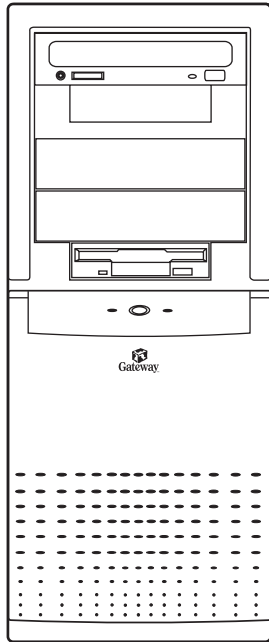
## **Warning!**

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

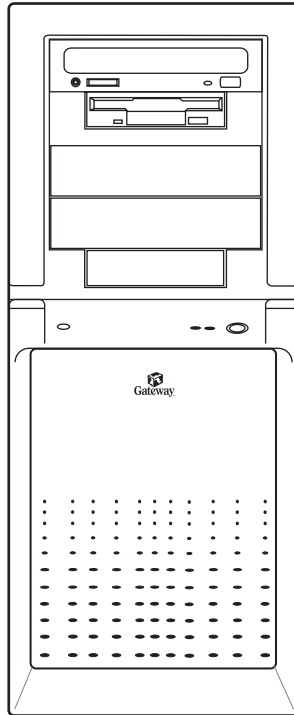
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# Identifying your computer case

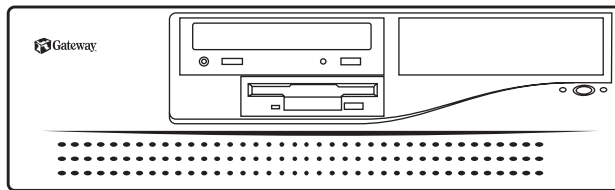
This chapter includes the procedures for opening and closing the case for each of the four models shown below. Refer to the section appropriate to your case style.



*Mid-tower case*



*Tower case*



*Desktop case*

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# Opening the case

The system is available in three basic models:

- Desktop
- Mid-tower
- Tower

The desktop case has a removable top panel and a removable front bezel. The mid-tower and tower cases have two removable side panels, and a removable front bezel.

To install or remove components inside your desktop system, you must remove the top cover panel. For some procedures you must remove the front bezel. For the mid-tower and tower systems, you must remove the panel on the right side (as seen from the back of the system). For some procedures you must remove the left side panel and the front bezel.

Your system includes an anti-intrusion switch on the case. If you attempt to open the case without turning off the system, your system automatically turns off.

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.

## *Removing the desktop case cover*

You need a grounding wrist strap and a Phillips screwdriver to open the case.

### To remove the desktop case cover

1. Turn off the computer and disconnect all power cords.
2. Remove the two thumbscrews at the back of the computer and set them aside.

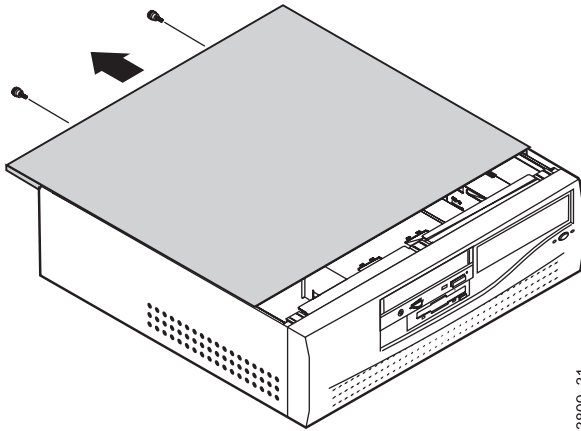
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#### ★ *Important!*

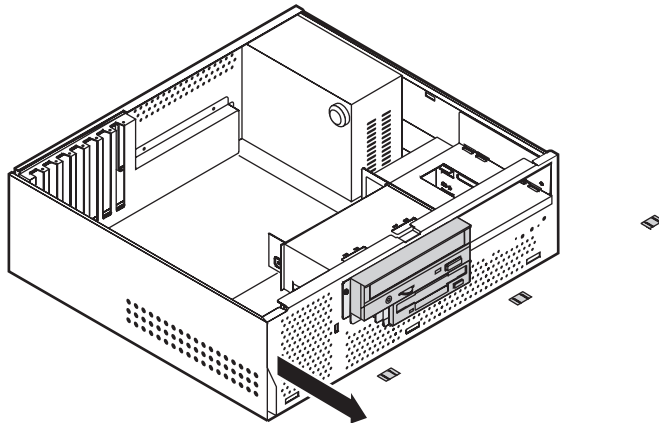
Only qualified personnel should open the system for maintenance. You need a grounding wrist strap and a Phillips screwdriver to remove the computer's cover.

---

3. Slide the top cover panel back, lift it up, and set it aside.



4. If you are replacing or adding a drive you may also need to remove the bezel. To do this, lift up on the tabs at each end of the top edge of the case bezel and pull the bezel away from the system frame.



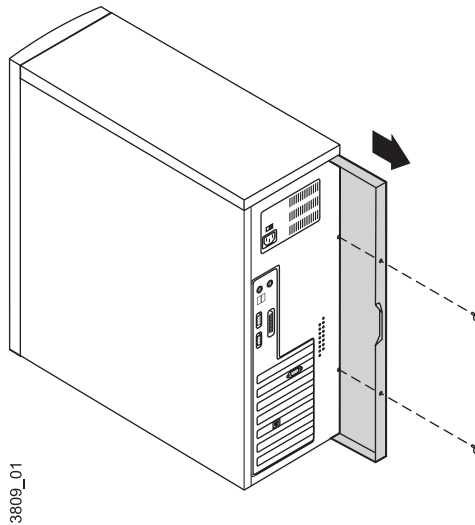


## Removing the mid-tower case cover

You need a grounding wrist strap and a Phillips screwdriver to open the case.

### To remove the mid-tower case cover

1. Turn off the system and disconnect all power cords.
2. Remove the thumbscrews on the right side of the back of the computer.
3. Remove the right side panel by pulling on the handgrip between the thumbscrew holes.



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4. If you are replacing externally accessible drives, remove the two Phillips screws on the other side of the back of the computer and remove the side panel. Both side panels must be removed to access the four screws that attach such devices to the drive cage.
5. Remove the four screws that attach the 5.25-inch CD-ROM drive to the drive cage. Pull the CD-ROM drive out half-way. This allows the bezel to be removed.

6. If you are installing externally accessible drives or replacing existing ones, remove the bezel by inserting a finger into each of the two circular openings at the front of the computer, pushing in on the spring clips, and pulling the upper portion of the bezel slightly forward to release it.

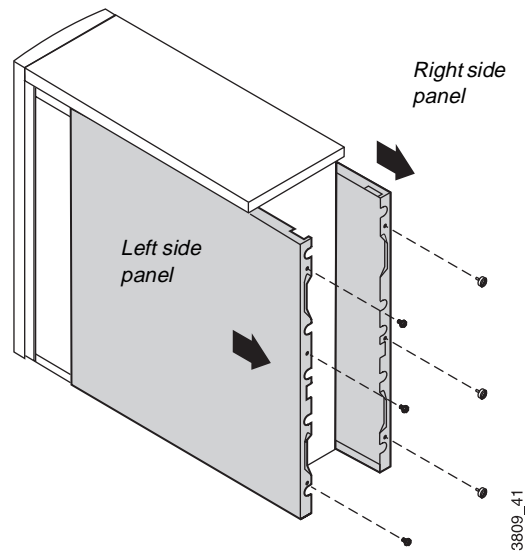
7. Lift the bezel up until the bottom tabs release.
8. Pull the bezel away from the computer.

## *Removing the tower case*

You need a grounding wrist strap and a case.

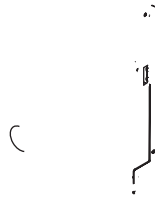
1. Turn off the system.

2. With the back of the computer facing you, remove the three thumbscrews and the three Phillips screws that attach the side panels to the chassis.



3. Grasp the right panel by the handholds on the panel and slide the panel towards you until the panel comes off the chassis.
4. Grasp the left panel by the handholds on the panel and slide the panel towards you until the panel comes off the chassis.

5. Push in the tabs on each side of the front bezel and pull the bezel off the chassis.



## Replacing the cover

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.

### *Replacing the desktop case cover*

You need a grounding wrist strap and a Phillips screwdriver to close the case.

#### To replace the desktop case cover

1. If you removed the case bezel, replace the bezel by inserting it at the bottom of the system frame and snapping the top tabs back in place.
2. Slide the top panel cover back on to the case frame.
3. Secure the top panel cover with the thumbscrews you removed.



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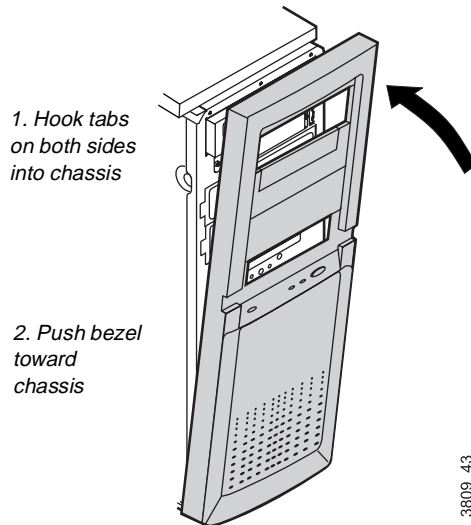
e

## Replacing the tower case cover

You need a grounding wrist strap and a Phillips screwdriver to close the case.

### To close the tower case

1. Hook the tabs at the bottom of the front bezel into the slots in the chassis. Then push the bezel toward the chassis until the bezel snaps in place.



2. Place the left side panel on to the chassis and slide the panel toward the front of the chassis. Make sure the tab at the front of the panel fits under the edge of the chassis.



3. Replace the three thumbscrews that attach the left side panel to the chassis.
4. Place the right side panel on to the chassis, making sure the panel fits into the notch in the chassis. Slide the panel toward the front of the chassis until the tabs on the panel fit under the edge of the chassis.
5. Replace the three thumbscrews that attach the right side panel to the chassis.

# System Components

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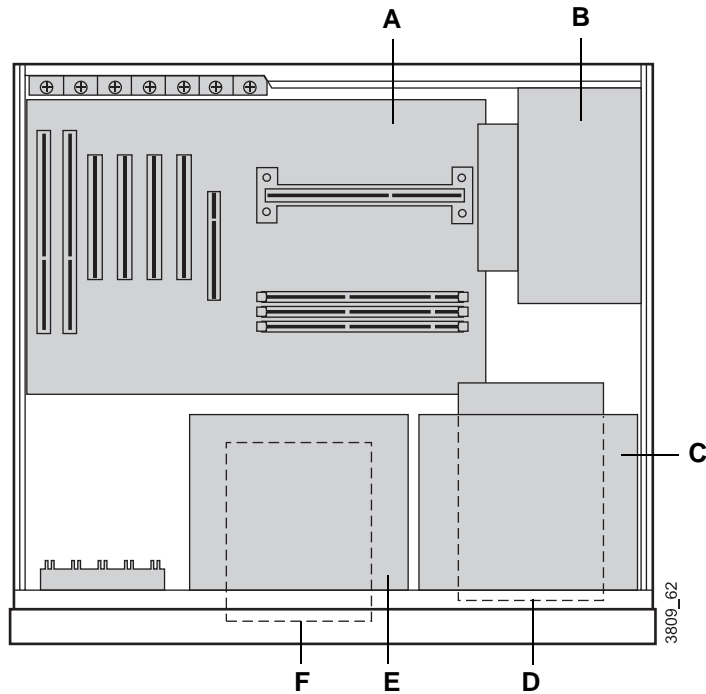


# Locating components

The following figures and lists identify the components inside the computer.

## *Desktop components*

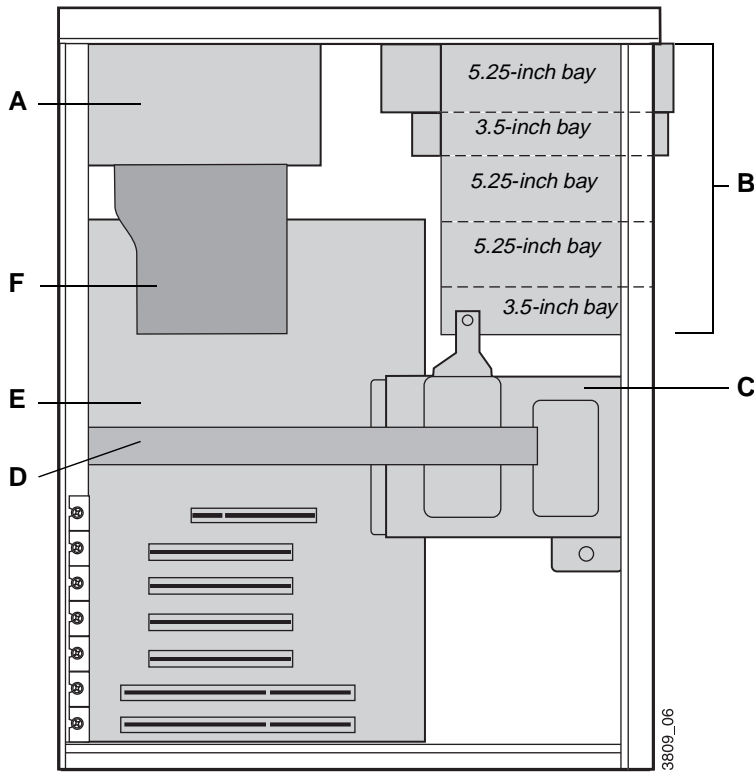
The following components are inside your desktop system (illustration shown from top view of system).



- A** System board
- B** Power supply
- C** 5.25-inch drive bay (top)
- D** Two 3.25-inch internal drive bays (bottom)
- E** 5.25-inch external drive bay (top)
- F** 3.25-inch external drive bay (bottom)

## Mid-tower components

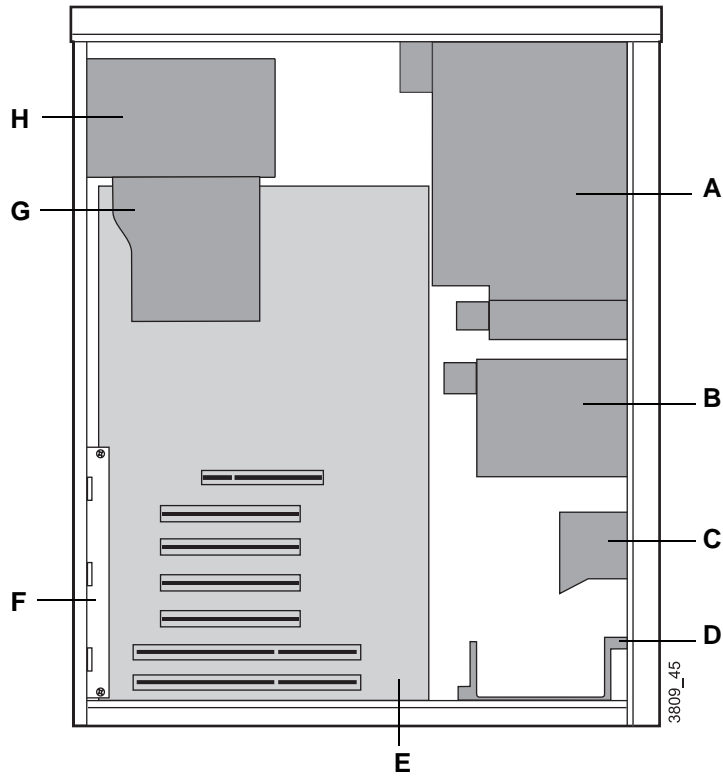
The following components are inside your mid-tower system.



- A** Power Supply
- B** Externally accessible drive bays
- C** Internal 3.5-inch hard drive bays
- D** Stability bar
- E** System board
- F** Fan duct

## Tower components

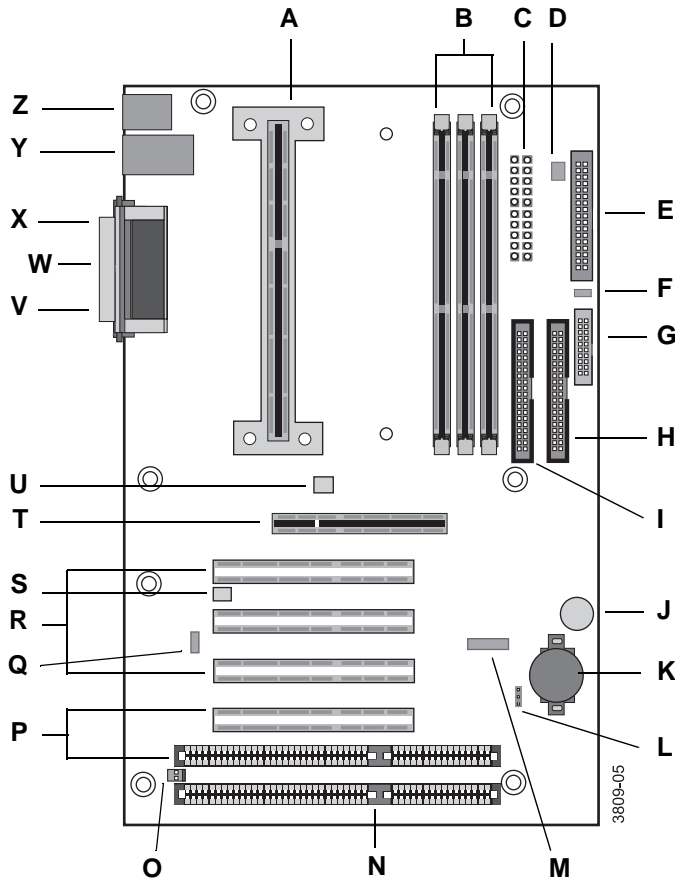
The following components are inside your tower system.



- A** Top drive cage
- B** Middle hard drive cage
- C** Add-in card guide (included in some systems)
- D** Bottom hard drive cage
- E** System board
- F** Add-in card bracket
- G** Fan duct
- H** Power supply

# System board

The following figure and list identify system board components.

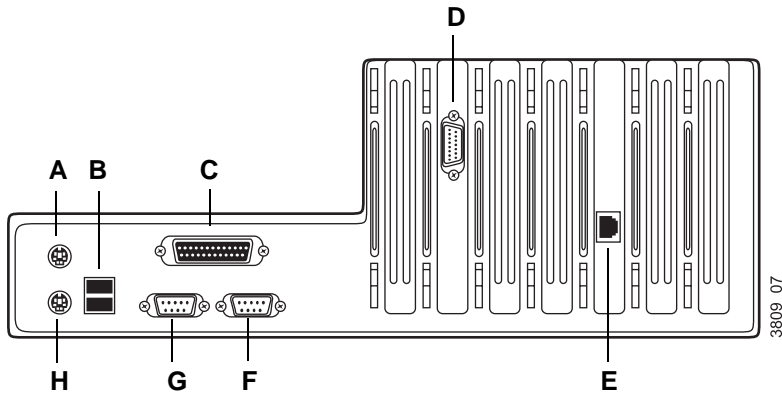


- A Slot 1 connector
- B DIMM sockets (3)
- C Power connector
- D Fan 1 connector (to fan on power supply)
- E Diskette drive connector
- F SCSI LED header

- G** Front panel connector
- H** Primary IDE connector
- I** Secondary IDE connector
- J** Onboard speaker
- K** Battery
- L** Configuration jumper (J7B1)
- M** Front panel USB header
- N** ISA slot
- O** Wake-on-Ring (WOR) connector
- P** Shared ISA/PCI slot (1)
- Q** Wake-on-LAN (WOL) connector
- R** PCI slots (3)
- S** Chassis intrusion switch connector
- T** AGP connector
- U** Fan 3 connector
- V** Serial port B
- W** Parallel port
- X** Serial port A
- Y** USB ports (2)
- Z** Mouse and Keyboard ports

# I/O connectors

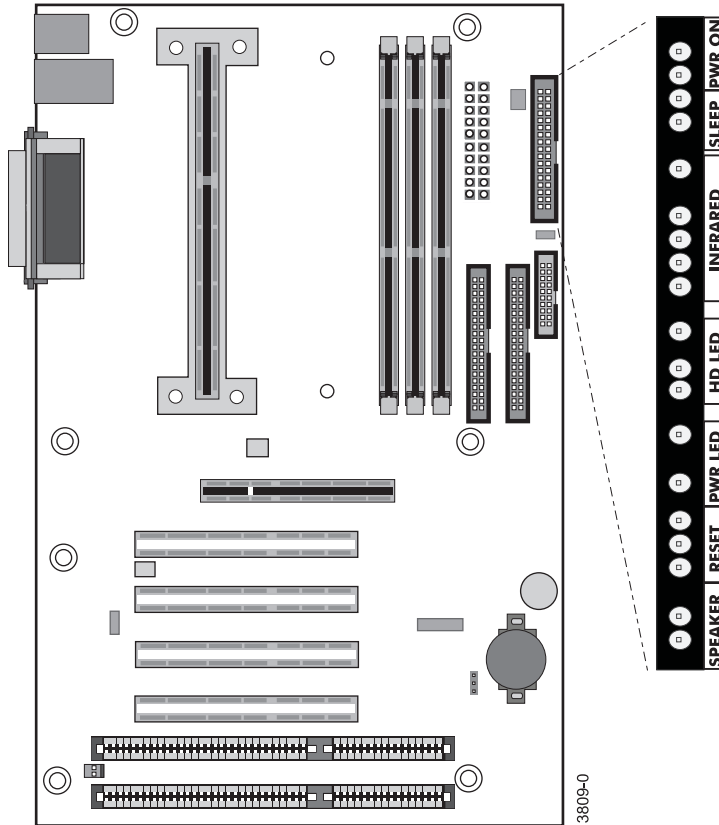
The following figure and list identify connectors on the back of the computer.



- A PS/2 mouse port
- B USB ports
- C Parallel port
- D Video port
- E RJ-45 LAN connector
- F Serial port B
- G Serial port A
- H Keyboard port

## Front panel I/O connections

The front panel I/O connector block lets you connect devices such as speakers and power management accessories. Although these connections are not covered in this guide, the illustration is provided for your reference.



# Setting the jumpers

The system board jumper (J7B1) 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.

J7B1 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

The following figure shows the location of the jumper on the system board.

---

★ *Important!*

Some processors are designed so that your system can automatically detect the processor speed. For other processors, you must manually enable the system to detect the processor speed. See page 27 for more information.

---



## *Recovery mode*

The J7B1 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 pin on the J7B1 jumper and store it in a safe place. You will replace the jumper on pins 1-2 in Step 12.
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 J7B1 jumper.
13. Close the case, as described in Chapter 1, reconnect the power cord, and turn on the system.

# Replacing the processor

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

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

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

It is critical that a heat sink be installed on each Pentium processor.

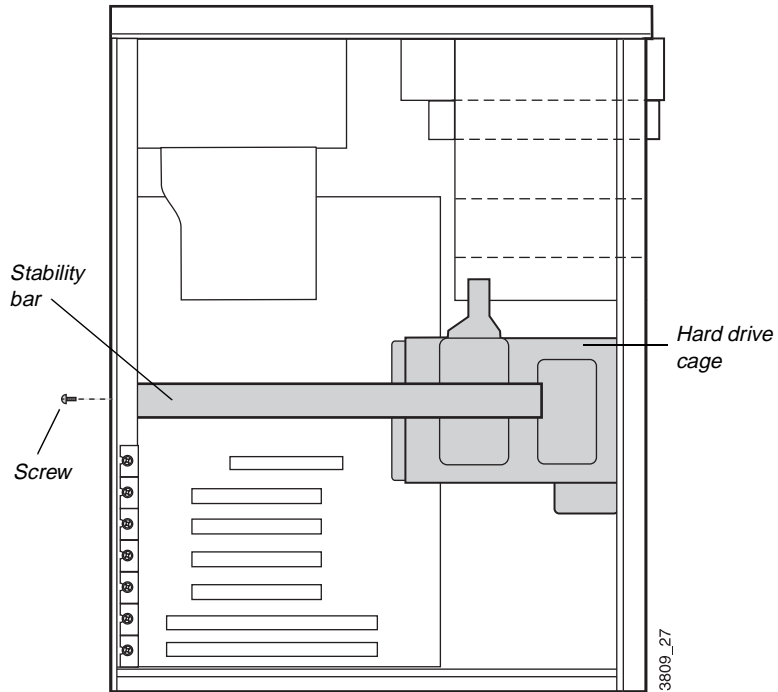
When replacing a processor, order a Pentium processor upgrade kit. The kit includes the Pentium processor, a heat sink, and a disposable electrostatic discharge (ESD) wrist strap.

Some of the steps below are specific to your desktop, mid-tower or tower computer. Please skip the step if it does not apply to your system.

## To replace the processor

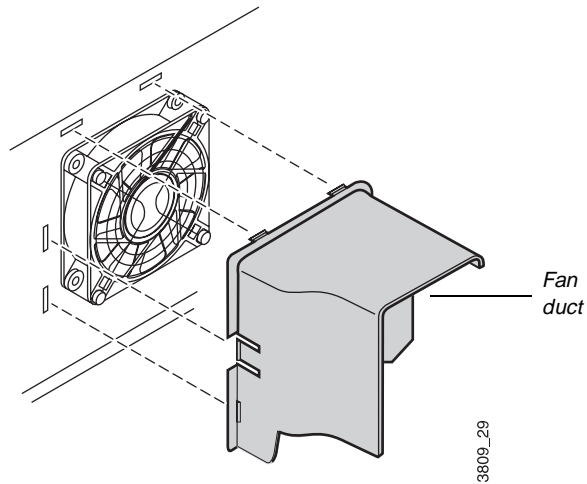
1. Turn off the system and disconnect the power cord.
2. Open the case, observing the “Static electricity precautions” on page 2.
3. Remove the stability bar (mid-tower only). Skip to step 4 if your system does not have a stability bar:

- A.** Using a Phillips screwdriver, remove the screw that attaches the stability bar to the chassis.



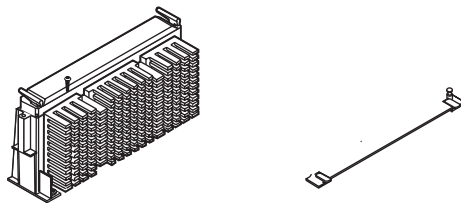
- B.** Lift the bar slightly and slide it towards the front of the chassis until the bar clears the hard drive cage. Lift the bar out of the chassis.
- 4.** Remove the fan duct (mid-tower and tower only). Skip to step 5 if your system does not have a fan duct:
- A.** Grasp the sides of the fan duct.

- B.** Gently squeeze the duct until the side tabs unlatch from the power supply.



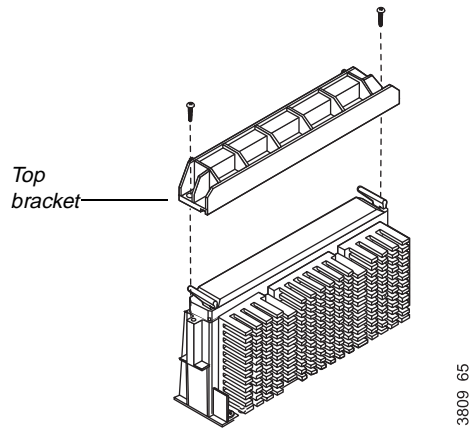
- C.** Lift the duct out of the chassis.

- 5.** Identify your processor bracket type. The processor is attached to the system board with either a top bracket or a bottom bracket.



- 6.** If your processor is attached by a top bracket:
- A.** Using a flat-bladed screwdriver, remove the screws from the top bracket. Lift off the bracket.

**B.** Pull the processor up and out.

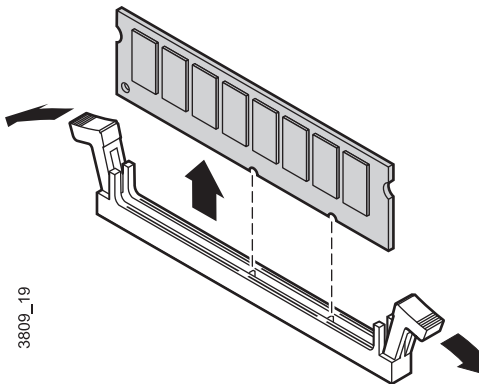


**C.** Push the new processor into the slot until it is fully seated.

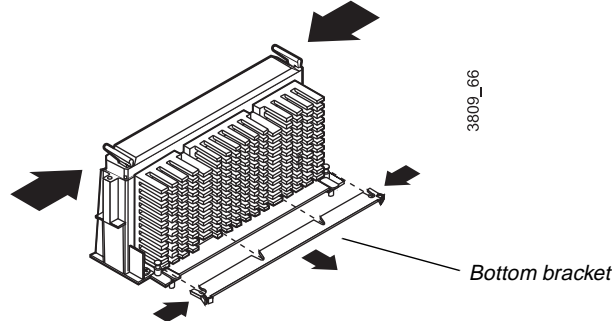
**D.** Place the top bracket over the processor and replace the two screws.

**7.** If your processor is attached by a bottom bracket:

**A.** Remove the DIMMs on the system board that block access to the bottom processor bracket. Gently push out the plastic socket clamps on each end of the DIMMs. Then carefully lift the DIMMs out of their sockets. Store the DIMMs in static-free bags.



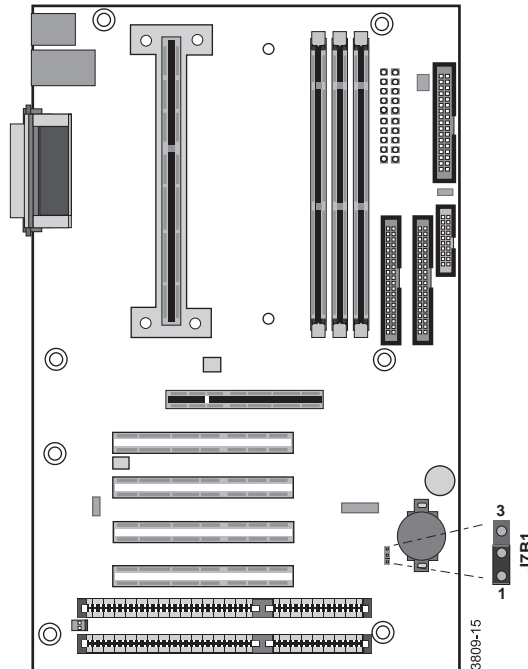
- B.** Push in the tabs on the outside edges of the bottom bracket and pull the bracket away from the processor.



- C.** Press in the two latches at the top of the processor, and pull the processor up and out.
- D.** Push the new processor into the slot until it snaps into place.
- E.** Push the support bracket back into the base of the processor until it snaps into place.
- F.** Replace any DIMMs you removed.
- 8.** Replace the stability bar and fan duct if applicable.
- 9.** Close the case, as described in Chapter 1.
- 10.** Plug in the power cord and turn on the computer and monitor.
- 11.** Check to see if your system has automatically detected the processor speed.
- A.** When you see the Gateway logo on the screen, press TAB to display the system messages.
- B.** Check the processor speed displayed on the screen. If the correct speed is shown, your system has automatically detected the processor speed.

If an incorrect speed is shown, you need to open a special menu in your system's Setup program to manually set the correct processor speed. Setting system board jumper J7B1 opens this menu.

- 12.** If the processor speed is not detected automatically, set the speed manually:
- A.** Turn off your system and unplug all power cords.
  - B.** Open the system case.
  - C.** Locate jumper J7B1, as shown in the following figure.



- D.** Take the jumper shunt off pins 1 and 2 on jumper J7B1 and place the shunt over pins 2 and 3.
- E.** Close the computer case, reconnect the power cords, and turn on the system. As your system starts, the Setup program opens and a Maintenance screen appears.
- F.** When the Maintenance screen appears, set the processor speed. Save the configuration and exit Setup.
- G.** Turn off the system, disconnect the power cords, and open the case.
- H.** Move the jumper shunt on the J7B1 jumper back to its normal position over pins 1 and 2.

1. Close the case, reconnect the power cord, and turn on the system.  
Your system now detects the speed of the new processor.

## Installing memory

The Synchronous Dynamic Random Access Memory (SDRAM) Dual In-line Memory Modules (DIMMs) supported by your system board conform to the following standards:

- 3.3 V, 168-pin unbuffered SDRAM
- 16 MB and 32 MB (16 bit technology)
- 64 MB and 128 MB (64 bit technology)
- Single- or double-sided configurations
- 384 MB maximum system memory

When you are installing DIMMs, keep the following in mind:

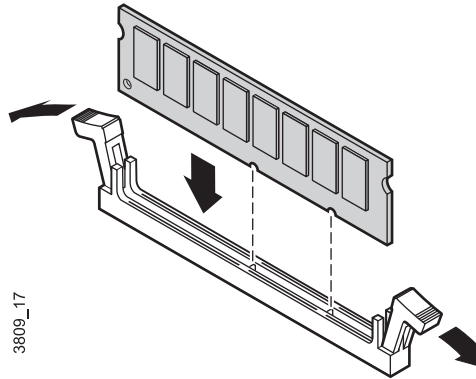
- You can use 16-MB, 32-MB, 64-MB, and 128-MB DIMMs in any combination, band, or order to expand the SDRAM up to 384 MB.
- No jumper settings are required for the memory size or type because this information is automatically detected by the BIOS.
- This system board requires 4-clock DIMMs with a clock latency of 2 (CL2), otherwise known as CL24-clock DIMMs.

### To install DIMMs

1. Turn off the system and disconnect the power cord.
2. Open the case, observing the Static Electricity precautions in Chapter 1.



3. Pull open the socket clamps on each side of the DIMM socket.



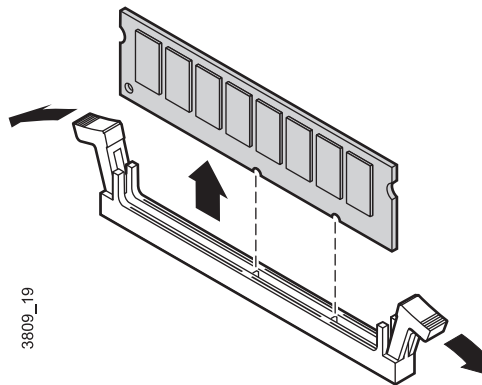
4. Insert the DIMM into the socket and align the two notches in the DIMM with the two notches in the DIMM socket.
5. Gently press the DIMM into the socket until it doesn't move any farther. (Inserting the DIMM automatically locks each of the socket clamps on each end of the DIMM.)
6. Close the case, 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. Gently push out the plastic socket clamps on each end of the DIMM. 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.

## Installing and replacing drives

The standard configuration for your computer includes a 5.25-inch IDE CD-ROM drive, a 3.5-inch IDE hard drive, and a 3.5-inch diskette drive.

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

- 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 expansion card controller, install the expansion card before you install the drive.
- The computer's integrated IDE connectors can support four IDE drives. The computer's integrated diskette connector can support a diskette 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.
- If you want to install SCSI drives, you need to install a SCSI controller card to operate the drives and may need to install software drivers.
- You may need to configure the drives you install through the system's Setup program. Press F1 at start up to access the Setup program.

---

### ★ *Important!*

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

---

## *Replacing and installing drives in your desktop computer*

Your desktop computer contains the following drive bays:

- One 3.5-inch drive bay that can be accessed from outside the computer.
- Two 5.25-inch drive bay that can be accessed from outside the computer.
- Two 3.5-inch drive bays that are not accessible from outside the computer.

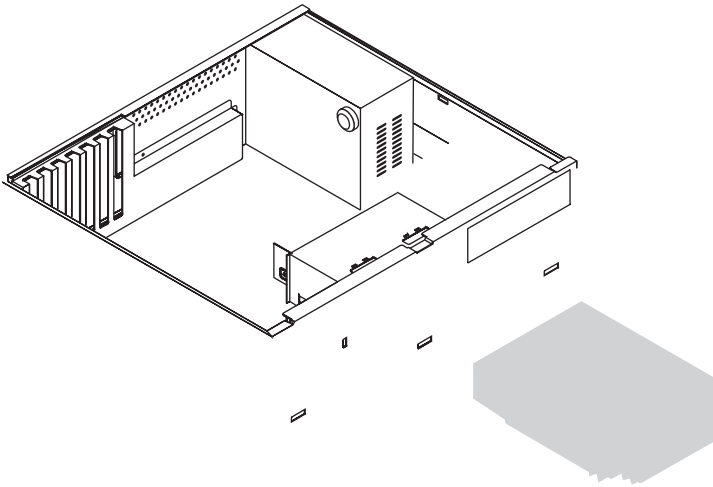
### Replacing the 3.5-inch diskette drive in your desktop computer

In your computer, a 3.5-inch diskette drive attaches to a metal mounting bracket. For the location of the 3.5-inch diskette drive brackets, see the section “Desktop components” on page 14.

#### To replace the 3.5-inch diskette 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 combination 3.5-inch drive/5.25-inch drive cage.
4. Disconnect the power and data cables from the back of both drives, noting their locations and orientations. (You will reconnect these cables after you install the new drive.)

5. Remove the drive cage from the case.



6. Remove the drive from the cage.

7. Secure the new drive in the cage.

8. Connect the power and data cables to the 3.5-inch and 5.25-inch drives, making sure the cables match their original positions.

9. Reinstall the drive cage in the case.

10. Connect the power and data cables to the drive.

11. Close the computer case as described in Chapter 1.
12. Reconnect the power cord and turn on the system.

If the system does not recognize the new drive, see “Peripheral/Adapter problems” on page 76.

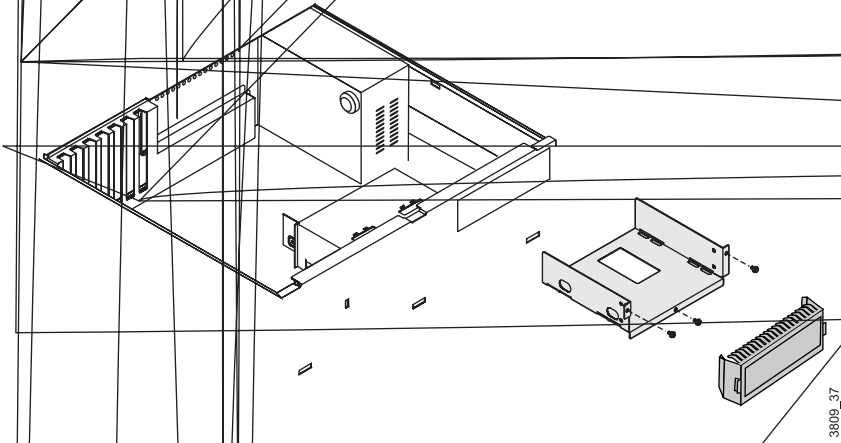
## Installing a 3.5-inch hard drive in your desktop computer

The hard disk is secured to a metal mounting cage, which enables the drive to be easily installed and removed from the case.

### To install a hard disk 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 5.25-inch drive cage to the right of the case and do one of the following:
  - If the drive bay is empty, remove the metal drive bay cover from the front of the 5.25-inch drive bay.
  - If a drive is installed in the 5.25-inch drive bay, disconnect the data and power cables from the drive, noting their locations and orientations. (You will reconnect these cables after you install the new drive.)

4. Remove the 5.25-inch drive cage from the case. The hard drive cage is underneath.



5. Disconnect the hard disk data and power cables from the hard disk, noting their locations and orientations. (You will reconnect these cables when you install the new hard disk.)
6. Remove the hard disk cage from the case.

7. Configure the new drive by following your drive documentation.
8. Do one of the following:
  - If you are replacing the hard drive that is installed in the cage, remove the drive from the cage and install the new drive in its place.
  - If you are adding an additional hard drive, install the drive in the empty bay of the drive cage.
9. Reinstall the drive cages into the case.
10. Close the case as describe in Chapter 1.
11. Plug in the power cable and peripherals.
12. Turn on the computer.

If the system does not recognize the new drive, see “Hard disk problems” on page 73 for troubleshooting information.

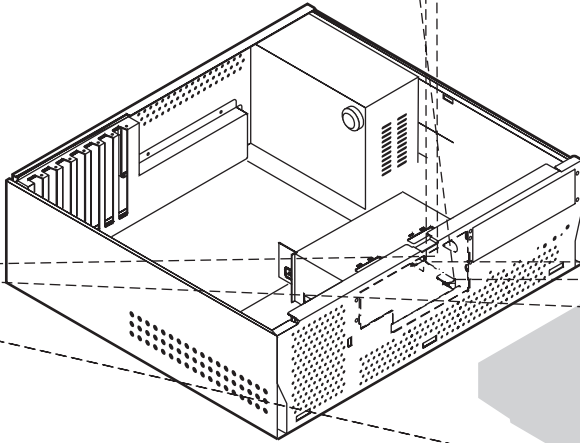
## Replacing the CD-ROM drive in your desktop computer

A 5.25-inch drive is secured to the same metal mounting cage as the 3.5-inch drive. A 5.25-inch drive, such as a CD or DVD drive, can be installed in this location.

### To replace the CD-ROM drive in the center bay

1. Turn off the system and disconnect the power cord.
2. Remove the cover side panels, observing the “Static electricity precautions” on page 2.
3. Locate the combination 3.5-inch drive/5.25-inch drive cage.
4. Disconnect the power and data cables from the back of both drives, noting their locations and orientations. (You will reconnect these cables after you install the new drive.)

5. Remove the drive cage from the case.



6. Remove the drive from the cage.

7. Secure the new drive in the cage.

8. Connect the power and data cables to the drives, making sure the cables match their original positions. Configure the drive by following your drive documentation.

9. Reinstall the drive cage into the case.



10. Close the computer case (see “Replacing the desktop case cover” on page 9 for further instructions).
11. Plug in the power cable and peripherals.
12. Turn on the computer.

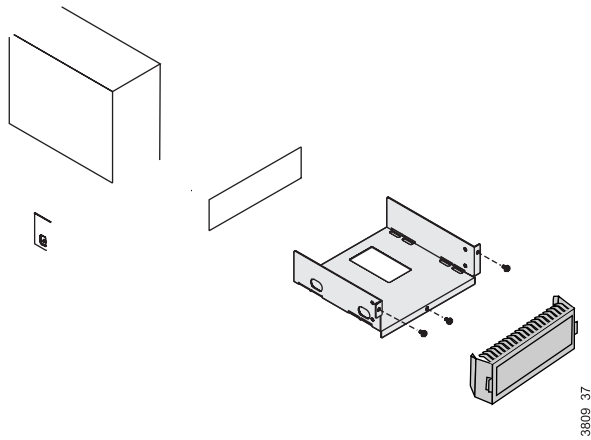
## Installing or replacing an additional 5.25-inch drive in your desktop computer

You can install another 5.25-inch drive, such as a CD or DVD drive, in the drive expansion bay to the right of the case.

### To install a 5.25-inch drive in the expansion bay

1. Turn off the system and disconnect the power cord.
2. Remove the cover side panels, observing the “Static electricity precautions” on page 2.
3. Do one of the following:
  - If a drive is not yet installed in the drive bay, remove the metal drive bay cover from the front of the bay. Also, remove the plastic drive bay cover from the front bezel.
  - If you are replacing a drive, disconnect the power and data cables from the drive, noting their locations and orientations. (You will reconnect these cables after you install the new drive.)

4. Remove the drive cage from the case.



5. If you are replacing a drive, remove it from the mounting cage.

6. Secure the new drive in the cage.
7. Install the drive cage in the case.
8. Connect the power and data cables to the drive. Configure the drive by following your drive documentation.
9. Close the computer case (see “Replacing the desktop case cover” on page 9 for further instructions).

10. Plug in the power cable and peripherals.
11. Turn on the computer.

## *Replacing and installing drives in your mid-tower computer*

Your mid-tower computer contains the following drive bays:

- Three 3.5-inch drive bays that can be accessed from outside the computer.
- Two 5.25-inch drive bays that can be accessed from outside the computer.
- Three 3.5-inch drive bays that are not accessible from outside the computer.

### Replacing a 3.5-inch diskette drive in the mid-tower computer

In your computer, a 3.5-inch diskette drive attaches to a metal mounting bracket. For the location of the 3.5-inch diskette drive brackets, see the section “Mid-tower components” on page 15.

#### To replace a 3.5-inch diskette drive

1. Turn off the system and disconnect the power cord.
2. Open the case, observing the “Static electricity precautions” on page 2.
3. If you are replacing a drive, remove the drive:
  - Disconnect the power and data cables from the back of the drive.
  - Remove the four screws that attach the drive to the drive bracket. The screws can be accessed through the chassis side panels.
  - Push the drive out of the chassis through the bezel.
4. If you are adding a drive into a bay that is empty:

- A. Remove the bezel.
  - B. Push out the EMI shield in the bay.
  - C. Remove the plastic drive bay cover on the front bezel. For information on removing the bezel, see the section “Removing the mid-tower case cover” on page 6.
5. Place the new drive into the drive bracket through the front bezel.



6. Secure the drive to the mounting bracket using four screws.
7. Connect the power and data cables to the drive.
8. Close the case, as described in Chapter 1.
9. Reconnect the power cord and turn on the system.

If the system does not recognize the new drive, see “Peripheral/Adapter problems” on page 76.

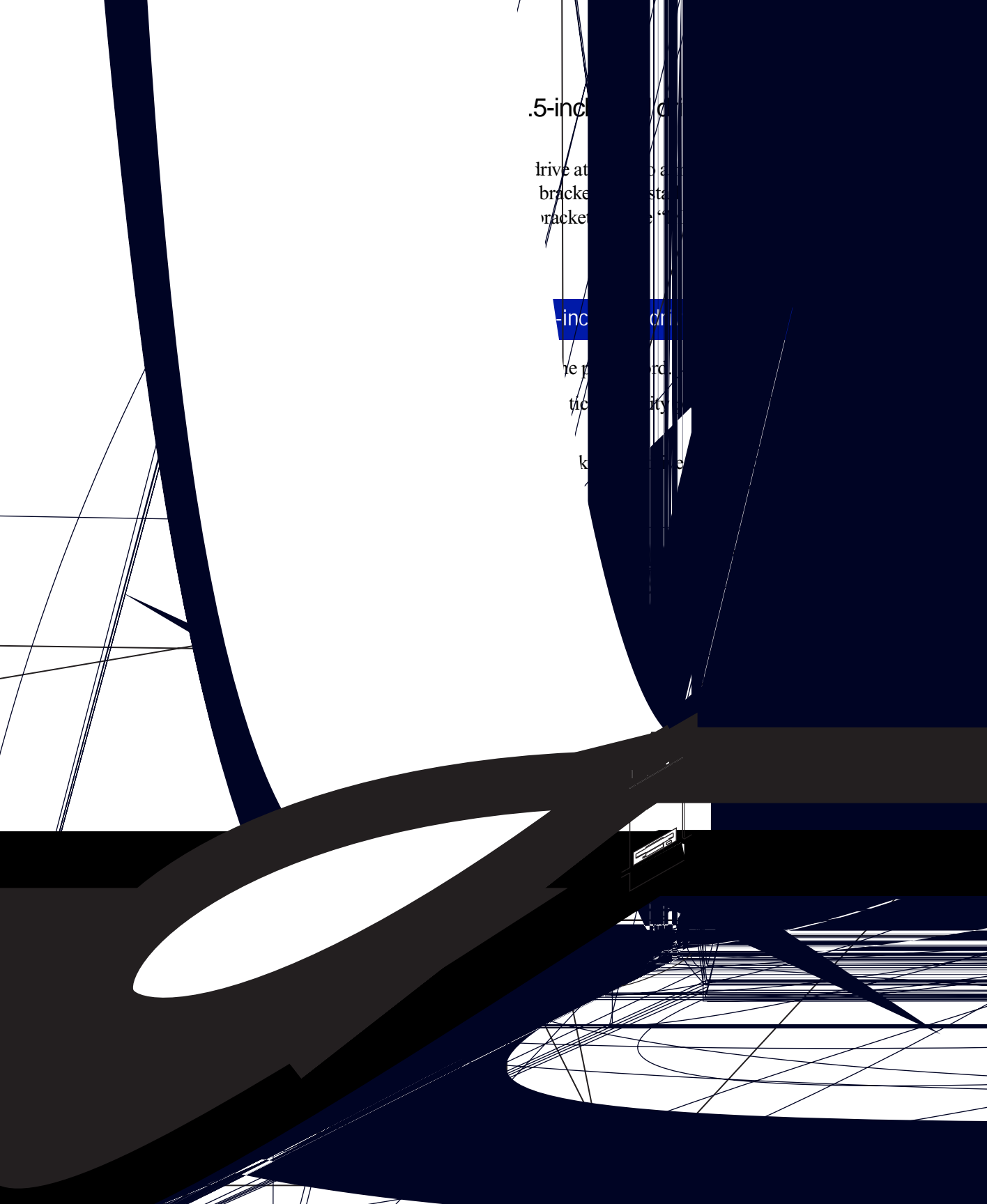
.5-inch

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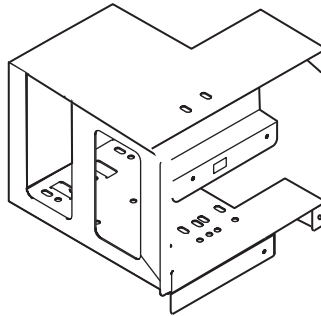
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6. Slide the bracket up to unhook the tabs on the bracket from the slots in the chassis. Lift the bracket out of the chassis.
7. If you are replacing a hard drive, remove the screws that attach the drive to the drive cage and remove the drive.



8. Slide the new hard drive into the bracket and attach the drive to the drive cage.
9. Replace the hard drive cage in the chassis, sliding it down until the tabs on the bracket hook into the slots on the chassis. Attach the bracket to the chassis with the three screws you removed in step 5.
10. Replace the stability bar.
11. Connect the power and controller cables to the drives in the bracket.
12. Replace the system cover (see “Replacing the cover” on page 9 for instructions). Plug in the power cord and turn on the computer.
13. Configure the drive as needed in Setup.

If the system does not recognize the new drive, see “Hard disk problems” on page 73 for troubleshooting information.

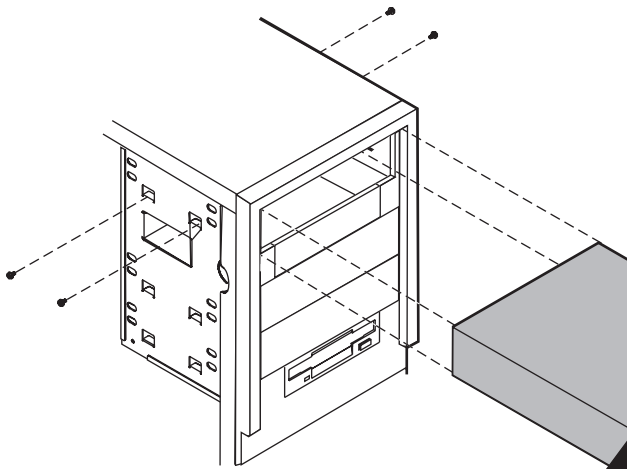
## Installing a CD-ROM or other 5.25-inch drive in your mid-tower computer

The 5.25-inch drive bay can be used to install a CD-ROM drive, diskette drive, or other 5.25-inch device.

### To install a CD-ROM or other 5.25-inch drive

1. Turn off the system and disconnect the power cord.
2. Remove the cover side panels, observing the “Static electricity precautions” on page 2.
3. If you are replacing a drive, remove it from the chassis:
  - Disconnect the cables from the back of the drive.
  - Remove the four screws that attach the drive to the chassis. The screws can be accessed through the chassis side panels.
  - Slide the drive out of the chassis through the front of the bezel.
4. If you are installing a drive in an empty drive bay:
  - A. Remove the bezel
  - B. Push out the EMI shield in the bay.
  - C. Remove the plastic drive bay cover on the front bezel. For information on removing the bezel, see the section “Identifying your computer case” on page 3.

5. Slide the new 5.25-inch drive into the bay through the



6. Attach the drive to the chassis with the four screws.
7. Connect the power and data cables to the drive. See the drive's documentation for proper jumper settings.
8. Close the case (see "Replacing the Case" for further instructions).
9. Plug in the power cable and power on the computer.
10. Turn on the computer.

## *Replacing and computer*

Your tower computer

- Top drive
- access
- M



- Bottom drive cage: one full-height or two half-height 3.5-inch hard drives that are not accessible from outside the system.

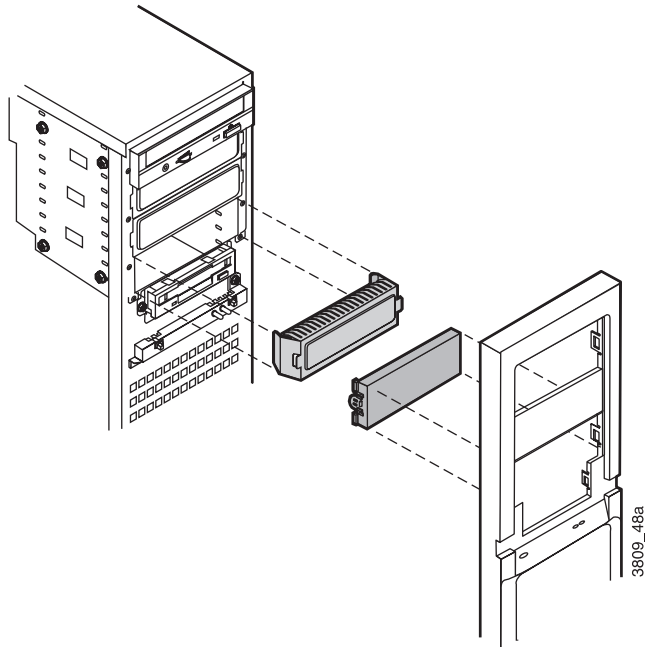
## Installing or replacing a CD-ROM drive or diskette drive in the top drive cage of your tower computer

You can install a 5.25-inch CD-ROM and 3.5-inch diskette drive the top drive cage.

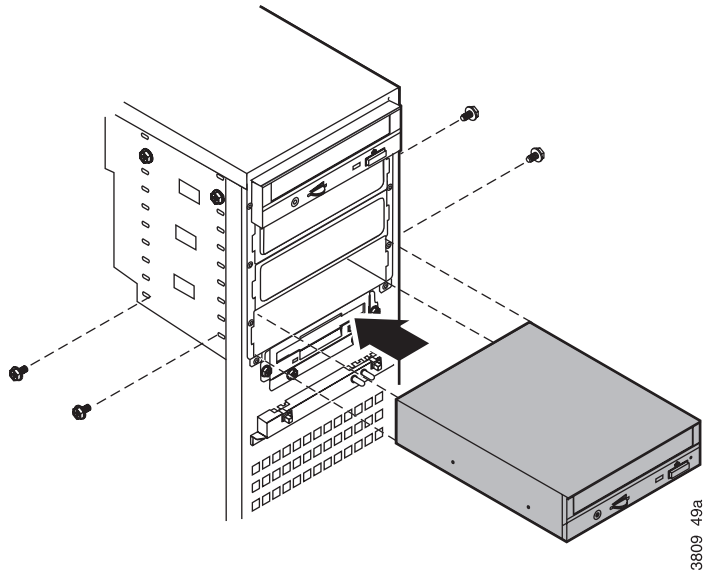
### To install a drive in the top drive cage

1. Turn off the system and disconnect the power cord.
2. Open the case, observing the “Static electricity precautions” on page 2.
3. If a drive is installed in the bay you want to use, remove the drive:
  - Disconnect data cables from the back of the drive.
  - Remove the four screws (two on either side of the drive) that attach the drive to the drive cage.
  - Push the drive out of the chassis through the bezel.

4. If an EMI shield and slot cover are in the bay you want to use, remove them:
- Push the EMI shield out through the front of the chassis.
  - Push the slot cover out through the back of the bezel.



5. Slide the new drive into the system through the front of the chassis.



6. Install the four screws that attach the drive to the drive cage.
7. Close the case, as described in Chapter 1.
8. Reconnect the power cord and turn on the system.

If the system does not recognize the new drive, see “Peripheral/Adapter problems” on page 76.

## Installing a 3.5-inch hard drive in your tower computer

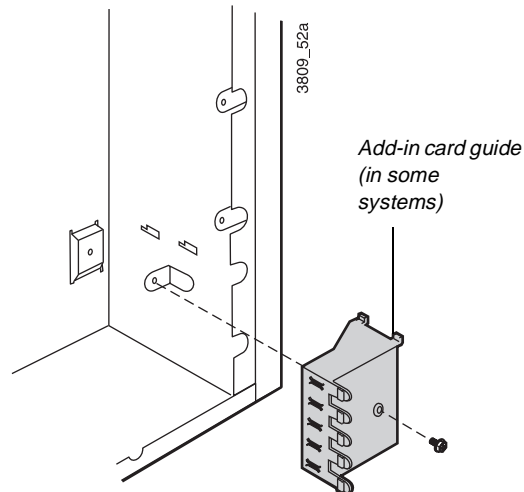
In your computer, a middle and bottom drive cage together can hold five 3.5-inch hard drives. For the location of the 3.5-inch hard drive cage, see the “Tower components” on page 16.

## Installing or replacing hard drives in the middle drive cage

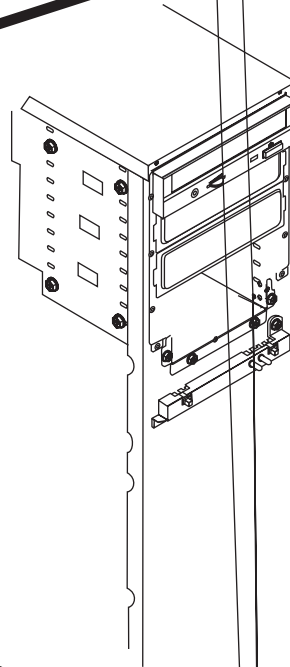
You can install up to three 3.5-inch hard drives in the middle drive cage.

### To install a drive in the middle drive cage

1. Turn off the system and unplug the power cord.
2. Remove the left side panel of the case, observing the “Static electricity precautions” on page 2.
3. If any drives are installed in the drive cage, disconnect the cables from the back of the drives.
4. If your system includes an add-in card guide, remove it:
  - A. Remove any long add-in cards attached to the card guide.
  - B. Remove the screw that attaches the add-in card guide to the chassis and then slide the card guide out of the computer.

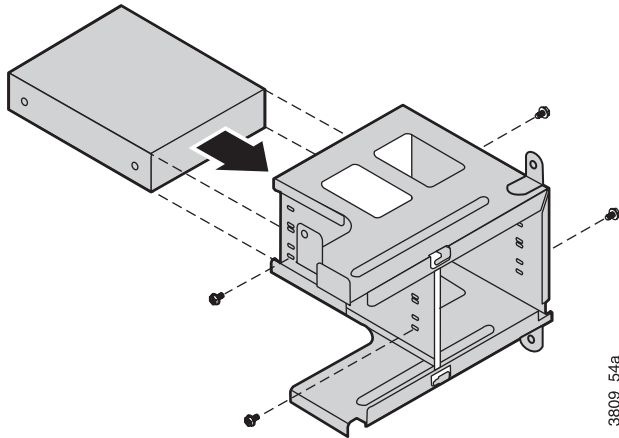


5. Remove the three screws that attach the middle drive cage to the chassis. Support the cage with your hand as you remove the last screw. Then slide the drive cage out of the chassis.

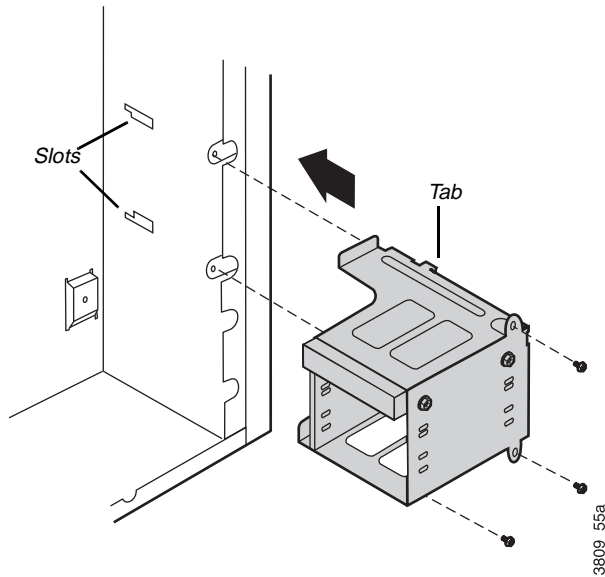


6. If a drive is in the bay of the cage that you want to use, remove the screws that attach the drive to the cage and remove the drive.

7. Slide the new drive into the cage and attach the drive to the cage with four screws.



8. Slide the drive cage into the chassis, making sure to hook the tabs on the cage into the slots on the chassis. Replace the three screws that attach the cage to the chassis.



9. Connect the cables to the drives in the cage. If a card guide is included in your system, replace the add-in card guide and any add-in cards you removed.

---

★ **Important!**

When you reinstall the middle drive cage, make sure you do not set the cage on the cables attached to the control panel.

---

10. Close the computer case (see “Replacing the tower case cover” on page 11 for instructions). Plug in the power cord and turn on the computer.

If the system does not recognize the new drive, see “Hard disk problems” on page 73 for troubleshooting information.

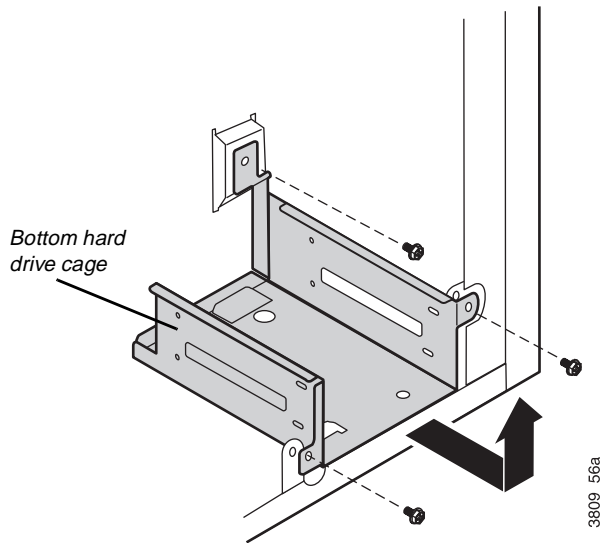
## Installing hard drives in the bottom drive cage

You can install 3.5-inch hard drives in the bottom drive cage.

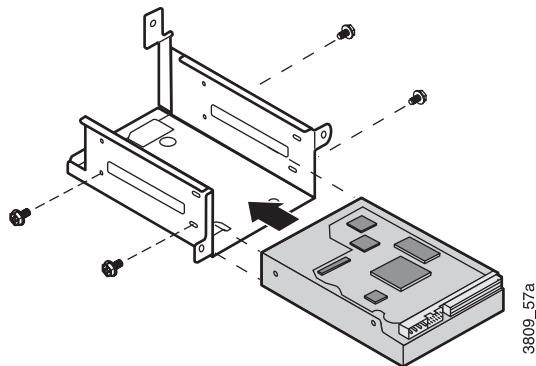
### To install a drive in the bottom drive cage

1. Turn off the system and unplug the power cord.
2. Remove the right side panel of the case (see page 7 for instructions), observing the “Static electricity precautions” on page 2.
3. If any drives are installed in the drive cage, disconnect the cables from the back of the drives.
4. If your system includes an add-in card guide, remove it:
  - A. Remove any long add-in cards attached to the card guide.
  - B. Remove the screw that attaches the add-in card guide to the chassis and then slide the card guide out of the computer.

5. Remove the three screws that attach the drive cage to the chassis. Then slide the cage forward and lift it out of the chassis.

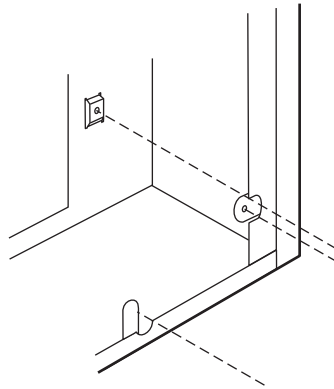


6. If a drive is in the bay of the cage that you want to use, remove the screws that attach the drive to the cage and remove the drive.
7. Slide the new drive into the cage with the bottom of the drive facing up. Attach the drive to the cage with four screws.





8. Slide the drive cage into the chassis, making sure to hook the tabs on the cage into the slots on the chassis. Replace the three screws that attach the cage to the chassis.



9. Connect the cables to the drives in the bracket.
10. If a card guide is included in your system, replace the add-in card guide and any add-in cards you removed.
11. Close the case as described in Chapter 1.
12. Plug in the power cord and turn on the computer.

If the system does not recognize the new drive, see “Hard disk problems” on page 73 for troubleshooting information.

# Adding an expansion card

The E-4200 system board has seven expansion slot connectors:

- One shared ISA/PCI slot
- Three PCI local-bus slots
- One ISA slot
- One AGP slot

The E-4200 system board accepts three types of expansion cards: ISA, PCI, and AGP.

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.

Refer to the appropriate system board illustration earlier in this chapter for the correct installation location.

## To add an 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.

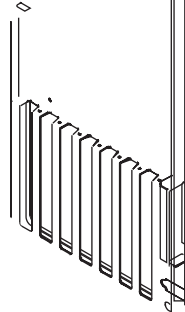
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### ★ *Important!*

Your desktop system only supports half-length AGP cards.

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4. If applicable, remove the two screws that attach the add-in card bracket to the case and remove it.



5. Locate an available slot.

6. Remove and retain the screw securing the expansion port cover to the rear panel. Keep the port cover for reinstallation in case you ever need to remove the card.

7. Firmly insert the edge of the expansion card into the slot.

8. After seating the card firmly, secure it to the chassis by installing the screw you removed in Step 6 through the mounting bracket at the end of the card.
9. Replace the add-in card bracket.
10. Connect cables to the card (see card documentation for proper jumper settings and cable orientation)
11. Close the case, as described in Chapter 1.
12. 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.

## LM81 hardware management

LM81 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<sup>®</sup> 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 on-line 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.

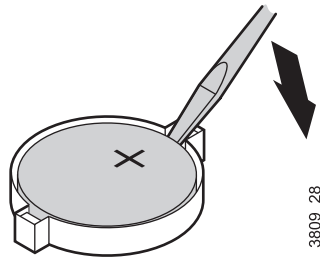
## To replace the battery

1. Restart the computer and start the BIOS Setup program by pressing F1 when you are prompted to do so.

### 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.

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 program, see “Using the BIOS setup utility” on page 66.)
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 17). The battery is circular and has the positive pole mark (+) on the top.
6. Using a flat-bladed screwdriver, carefully remove the battery from its socket on the system board.



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 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 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 BIOS Setup 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.

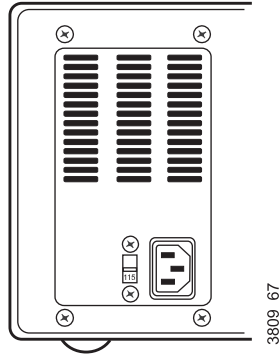
## **Replacing the power supply**

Please observe the following instructions for removing the power supply and installing a new one

### Installing a power supply in your desktop computer

1. Turn off the system and unplug the power cord.
2. Open the case, as described in Chapter 1. Observe the “Static electricity precautions” on page 2.

3. Disconnect all power supply cables from internal devices, including the main power supply connection to the system board.
4. Remove the four screws on the back of the chassis that attach the power supply to the chassis.



5. Lift the power supply out of the chassis.
6. Check the red voltage switch on the back of the new power supply. Be sure it is set to the correct voltage for your area.
7. Line up the holes in the new power supply with the screw holes in the back of the chassis.
8. Replace the four screws on the back of the chassis that attach the power supply to the chassis.
9. Reconnect the power supply cables.
10. Replace the system cover (see “Replacing the desktop case cover” on page 9 for instructions). Plug in the power cord and turn on the computer.

---

★ **Important!**

To remove and install the power supply, you need a grounding wrist strap and a Phillips screwdriver.

---



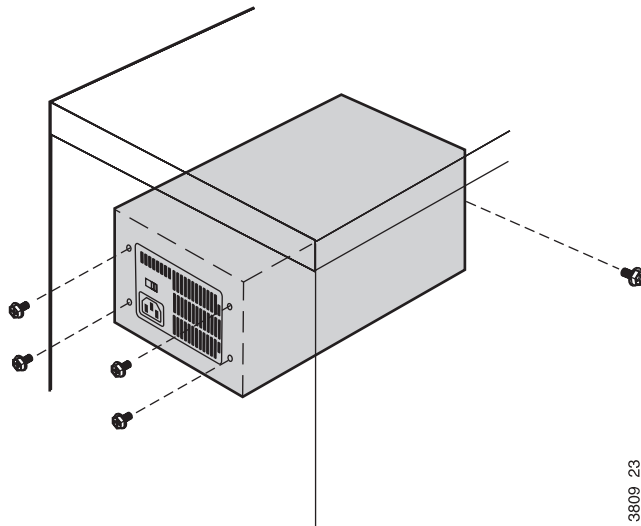
If the system does not work correctly, make sure that you installed the power supply correctly and connected the power supply cable to the power connector on the system board. Check that the voltage connector on the back of the power supply is set correctly.

## Installing a power supply in your mid-tower computer

### ★ *Important!*

To remove and install the power supply, you need a grounding wrist strap and a Phillips screwdriver.

1. Turn off the system and unplug the power cord.
2. Open the case, as described in Chapter 1. Observe the “Static electricity precautions” on page 2.
3. Disconnect all power supply cables from internal devices, including the main power supply connection to the system board.
4. Remove the fan duct (see page 24 for more information on removing the duct).
5. Remove the four screws on the back of the chassis that attach the power supply to the chassis.



6. Support the power supply with your hand and remove the screw inside the chassis that attaches the power supply.

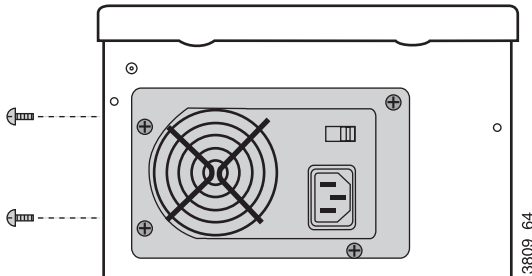
7. Lift the power supply out of the chassis.
8. Check the red voltage switch on the back of the new power supply. Be sure it is set to the correct voltage for your area.
9. Line up the holes in the new power supply with the screw holes in the back of the chassis.
10. Replace the four screws on the back of the chassis and the one screw inside the chassis that attach the power supply to the chassis.
11. Replace the fan duct.
12. Reconnect the power supply cables.
13. Replace the system cover (see “Replacing the cover” on page 9 for instructions). Plug in the power cord and turn on the computer.

If the system does not work correctly, make sure that you installed the power supply correctly and connected the power supply cable to the power connector on the system board. Check that the voltage connector on the back of the power supply is set correctly.

### Installing a power supply in your tower computer

1. Turn off the system and unplug the power cord.
2. Open the case, as described in Chapter 1. Observing the static electricity precautions on “Static electricity precautions” on page 2.
3. Disconnect all power supply cables from internal devices, including the main power supply connection to the system board.
4. Remove the fan duct (see page 24 for more information on removing the fan duct).

5. Remove the four screws on the back of the chassis that attach the power supply to the chassis.



6. Support the power supply with your hand and remove the two screws on the side of the chassis that attach the power supply.
7. Lift the power supply out of the chassis.
8. Check the red voltage switch on the back of the new power supply. Be sure it is set to the correct voltage for your area.
9. Line up the holes in the new power supply with the screw holes in the back of the chassis.
10. Replace the four screws on the back of the chassis and the two screws on the side of the chassis.
11. Replace the fan duct.
12. Reconnect the power supply cables.
13. Replace the system cover (see “Replacing the tower case cover” on page 11 for instructions). Plug in the power cord and turn on the computer.

If the system does not work correctly, make sure that you installed the power supply correctly and connected the power supply cable to the power connector on the system board. Check that the voltage selector on the back of the power supply is set correctly.

# BIOS Setup

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# About the BIOS setup utility

The computer's BIOS has a built-in program that lets you set many basic system characteristics. These settings are stored and saved even when the power is off. This chapter contains information about this setup utility and is intended to serve as a guide so that you can make changes to your system BIOS when necessary.

## *Using the BIOS 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 screen opens.

BIOS Setup Utility	
Main Advanced Security Power Boot Exit	Item Specific Help
BIOS Version 4M4PBox1.15A.xxx.xxx	Select the current default language used by BIOS
Processor Type Pentium® II	
Processor Speed xxx MHz	
Front Side Bus Speed xxx KB	
Cache Ram xxx MB	
System Memory	
Memory Bank 0 [Not Installed]	
Memory Bank 1 [Not Installed]	
Memory Bank 2 64 MB SDRAM	
Language: [English (US)]	
Cache ECC Support: [Disabled]	
System Time: [xx:xx:22]	
System Date: [xx/xx]	
F1 Help ↑↓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 at the bottom of the screen shows the keystrokes necessary to access help, navigate through the menus, and perform other functions.

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 related to power-saving functions available with your system.
- **Boot** gives you access to settings that determine how your computer starts up.
- **Exit** gives you access to options for exiting the BIOS 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. Log onto the Internet and go the Gateway website:  
*<http://www.gateway.com>*
2. Click on the **Tech Support** link.
3. Under **File and Driver Downloads**, click the **Hardware Drivers** link.
4. Under **Hardware Support**, click the **Desktop/Tower** link.
5. Under **Desktop/Tower**, click the **BIOS/Firmware Updates** link.
6. Download the correct BIOS file.

---

#### ★ *Important!*

You may encounter a CMOS checksum error or other problem after the system restarts. Try turning the system off and then restarting. CMOS checksum errors require that you enter BIOS Setup, check your settings, save your settings, and exit setup.

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- 7.** Extract the contents of the BIOS file you downloaded.
- 8.** Follow the instructions in the Readme file.

# Troubleshooting

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★ *Important!*

Do not return any equipment without obtaining a Return Material Authorization (RMA) number.

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# Introduction

If your system does not operate correctly, re-read the instructions for the procedure(s) you have performed. If an error occurs in an application, consult the documentation supplied with the software.

This section identifies solutions to common problems. If the suggestions in this chapter do not resolve your problem, call Technical Support.

## 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 BIOS program and check your configuration settings.

### *Viewing system resources*

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 system properties.

## *Troubleshooting guidelines*

As you troubleshoot your system, follow these guidelines:

- 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 cause 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 for it when calling Technical Support.
- Only qualified personnel should open the system for maintenance.
- If you are confident that you are qualified to maintain the system yourself, make certain you are properly grounded before opening the system chassis. See the section "Static electricity precautions" on page 2 for more information on preventing electrostatic damage to the system.

# CD-ROM problems

An audio CD produces no sound.

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 <b>Accessories</b> menu ( <b>Start   Programs   Accessories</b> ), click <b>Multimedia</b> , and then click <b>Volume Control</b> . 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 speakers may be faulty.	Connect a set of headphones to the speaker jack to test the output. If they work, replace the speakers.

---

★ *Important!*

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

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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 ( <b>Start   Settings   Control Panel</b> ), double-click <b>Add New Hardware</b> . Follow the directions for adding the drive. If you are not experienced with this procedure, call Technical Support.

Probable Cause	Solution
The secondary IDE device may be disabled.	Restart your computer, and then press F1 to enter the setup program. From the <b>Peripheral Configuration   Advanced</b> menu, set the <b>Secondary IDE Interface</b> to <b>Auto</b> and make certain the <b>Secondary IDE Status</b> is <b>Enabled</b> .
The CD cables are not installed correctly.	Open the system and check all cables between the CD controller and the CD-ROM drive.

## Hard disk problems

The SCSI drive is not recognized by the system.

Probable Cause	Solution
The primary IDE device may be disabled.	Restart your computer, and then press f1 to enter the setup program. From the <b>Peripheral Configuration   Advanced</b> menu, set the <b>Primary IDE Interface</b> and <b>Primary IDE Status</b> to <b>Enabled</b> .
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 program. From the <b>Main</b> menu, set the <b>Primary IDE Master</b> to <b>Auto Configured</b> .
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.

## 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 BIOS Setup.	Enter BIOS 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 or in the wrong socket.	Check the installation. The processor should be recognized automatically if it was installed correctly.
The processor speed was not selected on the system board.	If your system board enables you to select the processor speed, make sure you have selected the speed properly.
A pin was bent on the processor during installation.	Remove the processor and inspect it for damage. If a pin is bent, very carefully try to straighten it.

## 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 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 ( <b>Start   Settings   Control Panel</b> ), double-click <b>Add New Hardware</b> . 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 program. From the <b>Main   Floppy Options</b> menu, ensure that the diskette drive settings are correct.
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.

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

<b>Probable Cause</b>	<b>Solution</b>
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 lights continuously.

<b>Probable Cause</b>	<b>Solution</b>
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.

<b>Probable Cause</b>	<b>Solution</b>
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 (e.g., EISA configuration utility).	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 On. If power is applied to the printer, the green power LED should be lit.
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 ( <b>Start   Settings   Printers</b> ), double-click <b>Add Printer</b> . 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 ( <b>Start   Settings   Printers</b> ), select the printer. From the <b>File</b> menu, click <b>Properties</b> . 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 is set for the correct power source.
One power supply is not supplying power to the load share module.	Verify both power cords are plugged into working AC outlets. Verify that both power cords are fully plugged into their AC-IN connectors on rear of computer. Verify that both power supplies are set to the correct voltage range (115-V AC or 230-V AC). Verify that both power supplies are turned on. Replace defective power supply.

The keyboard doesn't 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 doesn't 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 started.	Load the appropriate mouse driver manually or contact Technical Support.
The mouse is defective.	Try a mouse you know is working.

### ★ *Important!*

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

## 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 light.
The monitor 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 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 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.

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 <b>Control Panel</b> window ( <b>Start   Settings   Control Panel</b> ), double-click <b>Display</b> , set the display to the appropriate monitor type, and then restart 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 ( <b>Start   Settings   Control Panel</b> ), double-click <b>Display</b> 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.

<b>Probable Cause</b>	<b>Solution</b>
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.	<ul style="list-style-type: none"><li>• Try saving to a new file or diskette.</li><li>• Move the write-protection tab over the hole on the back of the diskette.</li></ul>
Bad command or file name.	<ul style="list-style-type: none"><li>• Make certain you entered the right command.</li><li>• Verify the specified drive and try it again.</li><li>• If you are trying to exit MS-DOS to return to Windows, type <b>exit</b> and press <b>ENTER</b>.</li></ul>
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 BIOS Setup and verify the parameter values.
CD-ROM is not recognized.	See "The CD-ROM drive is not recognized by the system." on page 72.
Data error.	Run ScanDisk on the reported disk.
Decreasing available memory.	Your BIOS configuration is incorrect. Enter BIOS Setup and verify the parameter values.
Diskette drive is not recognized.	See "The diskette drive is not recognized by the system." on page 76.
Diskette drive 0 seek to track 0 failed.	<ul style="list-style-type: none"><li>• Enter BIOS Setup and verify the diskette drive settings.</li><li>• Check the diskette drive cables. Make certain Pin 1 on the cable aligns with Pin 1 on the connector.</li></ul>

Error Message	Solutions
Diskette drive reset failed.	<ul style="list-style-type: none"> <li>• Enter BIOS Setup and verify the diskette drive settings.</li> <li>• Check the diskette drive cables. Make certain pin 1 on the cable aligns with pin 1 on the connector.</li> </ul>
Diskette read failed - strike F1 to retry restart.	<ul style="list-style-type: none"> <li>• Make certain the boot disk contains the Command.com file.</li> <li>• Use the configuration utility (if applicable) to verify your drive or controller configuration.</li> <li>• Press F1 to try the restart again.</li> </ul>
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.	<ul style="list-style-type: none"> <li>• Make certain the hard disk cable is properly connected.</li> <li>• Open the BIOS Setup program and verify that the correct drive type is selected.</li> </ul>
Hard disk controller failure - press F1 to try restart.	<ul style="list-style-type: none"> <li>• The drive controller may be defective. Press F1 to retry the restart.</li> <li>• Try running Fdisk and DOS Format. For more information, refer to your DOS documentation.</li> </ul>
Insert bootable media device.	<ul style="list-style-type: none"> <li>• See "The IDE drive is not recognized by the system." on page 74.</li> <li>• See "The SCSI drive is not recognized by the system." on page 73.</li> <li>• Backup your files as soon as possible.</li> </ul>
Insufficient disk space.	<ul style="list-style-type: none"> <li>• Check the free space on the disk volume. If the volume is full or almost full, remove unnecessary files.</li> </ul>
Invalid configuration information...	<ul style="list-style-type: none"> <li>• Enter BIOS Setup and verify the parameter values.</li> </ul>

Error Message	Solutions
Invalid password.	<ul style="list-style-type: none"> <li>• Enter your password again, making certain to enter it correctly.</li> <li>• If you do not know the password, you may need to reinstall the software you are trying to access.</li> <li>• 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 "Installing memory" on page 29 for more information.</li> </ul>
Keyboard clock line failure.	<ul style="list-style-type: none"> <li>• Try a working keyboard.</li> <li>• Make certain the keyboard is compatible with the system. You may have to change the switch setting to AT.</li> <li>• Replace the keyboard chip.</li> </ul>
Keyboard controller failure.	<ul style="list-style-type: none"> <li>• Try a working keyboard.</li> <li>• Make certain the keyboard is compatible with the system. You may have to change the switch setting to AT.</li> <li>• Replace the keyboard chip.</li> </ul>
Keyboard controller failure.	<ul style="list-style-type: none"> <li>• Try a working keyboard.</li> <li>• Make certain the keyboard is compatible with the system. You may have to change the switch setting to AT.</li> <li>• Replace the keyboard chip.</li> </ul>
Keyboard not detected.	<ul style="list-style-type: none"> <li>• See "The keyboard doesn't work." on page 79.</li> <li>• Turn off the system and check the keyboard cable.</li> </ul>
Keyboard stuck key failure.	<ul style="list-style-type: none"> <li>• Remove any objects that may be resting on the keyboard, and then restart the system.</li> <li>• Check for sticky keys. Clean the keyboard if necessary.</li> </ul>



Error Message	Solutions
Memory errors were detected while the system powered up.	See "Memory errors were detected during system start up." on page 74.
Memory size error.	Enter BIOS Setup and save the memory configuration.
Non-system disk or disk error.	<ul style="list-style-type: none"> <li>• Eject the diskette and press <b>ENTER</b>.</li> <li>• If the diskette is bootable, check it for errors.</li> </ul>
Not enough memory.	Close all programs that are not currently in use.
Print queue is full.	<ul style="list-style-type: none"> <li>• Wait until the current print job has completed before sending another print job.</li> <li>• If you receive this error often, you need to add memory to the printer.</li> </ul>
Printer is out of paper.	<ul style="list-style-type: none"> <li>• Add paper to the printer.</li> <li>• Make certain the printer is online.</li> </ul>
Required parameter missing.	<ul style="list-style-type: none"> <li>• Make certain you entered the right command.</li> <li>• If you are trying to exit MS-DOS to return to Windows, type <b>exit</b> and press <b>ENTER</b>.</li> </ul>
Syntax error.	<ul style="list-style-type: none"> <li>• Make certain you entered the right command.</li> <li>• If you are trying to exit MS-DOS to return to Windows, type <b>exit</b> and press <b>ENTER</b>.</li> </ul>
Time and date not set.	Enter BIOS Setup 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.

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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 Intel Pentium II microprocessors operating at 266 to 450 MHz. Processors running from 266 to 333 MHz have a 66 MHz FSB. Processors running from 350 to 450 have a 100 MHz FSB. Features ATX form factor.
Desktop case	17.93 in. x 17.03 in. x 5.28 in. (WxDxH), including base.
Mid-tower case	9.87 in. x 18.64 in. x 22.8 in. (WxDxH), including base.
Tower case	8.5 in. x 18.2 in. x 20.9 in. (WxD xH), including base.
Processor	Intel Pentium II with MMX™ technology
Processor speed	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 512KB of 4-way set associative cache.
RAM capacity	168-pin Sync DRAM (SDRAM) memory. Three DIMM slots. Expandable to 384 MB SDRAM (using 64 Mbit-based DRAM).
BIOS	Phoenix BIOS: Flash BIOS for easy updates from diskette.
IDE interfaces	Supports up to four IDE devices (hard drives, CD-ROMs, LS-120s) using two onboard PCI IDE adapters. Automatic drive type selection for easy setup.

Summary	Supports Intel Pentium II microprocessors operating at 266 to 450 MHz. Processors running from 266 to 333 MHz have a 66 MHz FSB. Processors running from 350 to 450 have a 100 MHz FSB. Features ATX form factor.
Diskette drive	A diskette controller is integrated on the system board. Support available for primary and secondary diskette drives and a tape backup unit (TBU).
I/O ports	One parallel and two serial ports on the system board. LPT and COM configurable from system setup program. No jumper settings required.
USB	Universal Serial Bus (2 ports)
Mouse/Keyboard	Microsoft PS/2 mouse and keyboard connectors.
AGP Expansion Slot	One slot (dedicated graphics/video)
ISA/PCI Expansion Slots	Four PCI and one shared (ISA/PCI)
Power Supply	200 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: 12g, 11ms half-sine; 2 to 200Hz, 0.25g sinusoidal CPU clearance: >0.4 inch after installation, top and sides
Certification	FCC Class B, UL, CUL, CE Mark, VCCI, CB Scheme

# Regulatory Compliance Statements

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## American Users:



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## Caution!

The Federal Communications Commission warns the 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.

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.

---

## Attention!

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 directive 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

This equipment is in the Class 2 category (Information Technology Equipment to be used in a residential area or an adjacent area thereto) and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment aimed at preventing radio interference in such residential area.

When used near a radio or TV receiver, it may become the cause of radio interference. Read instructions for correct handling.

電波障害について

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づく第二種情報技術装置です。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、この装置をラジオやテレビジョン受信器に近接してご使用になると、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ください。

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.

---

**Caution!**

**Disconnect power before servicing.**

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*European Users:*



*Japanese Users:*



*Australian and New Zealand Users:*





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