Upgrading and Servicing Guide

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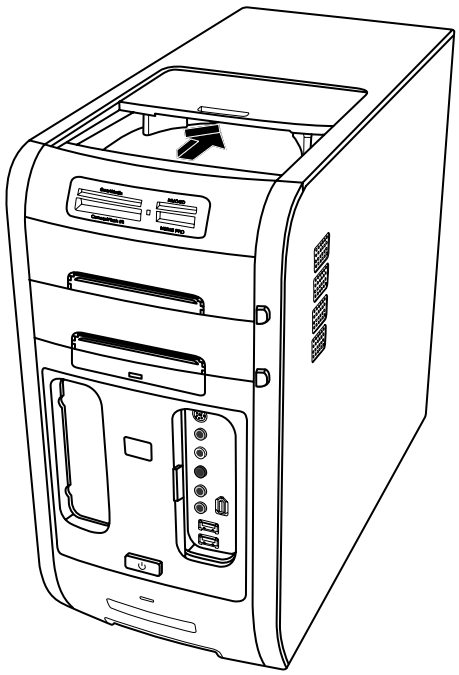
Safety Information

This product has not been evaluated for connection to an "IT" power system (an AC distribution system with no direct connection to earth, according to IEC 60950).

WARNING: Please read "Safety Information" in your *Warranty and Support Guide* before installing and connecting your system to the electrical power system.

The *Upgrading and Servicing Guide* provides instructions on how to remove and replace hardware components of your PC.

To open the lid of your PC, gently push down on the lid before sliding it back.



Opening and Closing the PC

Preparing the PC

Before you upgrade any component in your PC, you need to prepare the PC so that you can safely handle it and the components.

Read the following items before attempting to upgrade or service the PC.

- These procedures assume familiarity with the general terminology associated with personal computers and with the safety practices and regulatory compliance required for using and modifying electronic equipment.
- Write down and save the system model and serial numbers, all installed options, and other information about the system. It will be easier to consult this information than to open up and examine the PC.
- HP recommends that you use an antistatic wrist strap and a conductive foam pad when working on the system.

WARNING: Always disconnect the modem cord from the telephone system, and then disconnect the PC from the power source before removing the front and side panels of the PC. Failure to do so before you open the PC or do any procedures can result in personal injury or equipment damage.

Before Opening the PC

To avoid injury and equipment damage, always follow this procedure in this order before opening the PC:

1. Remove any diskette or optical disc (CD or DVD) from the PC.
2. Click the **Start** button on the taskbar. Click **Turn Off Computer** and then click **Turn Off** again.
3. Disconnect the modem/telephone cable, if present.

WARNING: To reduce the risk of personal injury from electrical shock or hot surfaces, disconnect the power cord from the wall outlet, and allow the internal system components to cool before touching.

4. Disconnect the power cord from the electrical outlet and then from the PC.
5. Disconnect all other attached cables (such as the keyboard, mouse, and monitor).
6. Disconnect all external devices.

CAUTION: Static electricity can damage the electronic components of the PC or optional equipment. Ensure that you are discharged of static electricity by briefly touching a grounded metal object.

After Closing the PC

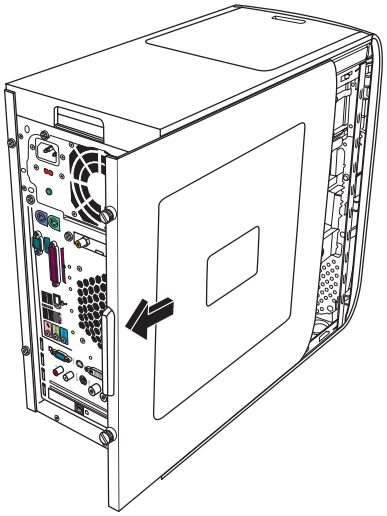
To avoid injury and equipment damage, always follow this procedure in this order after closing the PC:

1. Reconnect the power cord.

WARNING: To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telecommunications or telephone connectors into the network interface card (NIC) (labeled as an Ethernet connector).

2. Reconnect the modem/telephone cable and all other attached cables (such as the keyboard, mouse, and monitor).
3. Reconnect external devices.
4. Turn on the PC and all peripherals such as the monitor.
5. If you installed an add-in card, install any software drivers supplied by the card manufacturer.

Removing the Side Panel



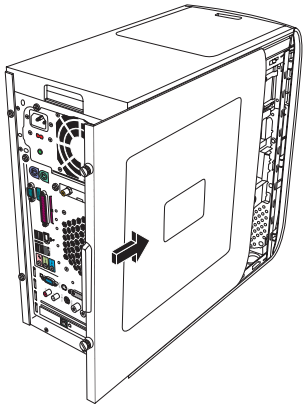
1. See "Before Opening the PC" on page 2.
2. Loosen the two thumbscrews on the right side of the back panel. The first time you loosen these screws, you may need to use a Phillips screwdriver.

WARNING: Beware of sharp edges inside the chassis.

3. Slide the panel back about 2.5 cm (1 inch), lift it off the PC, and set it aside.

NOTE: You do not need to remove the other side panel to replace the hardware listed in this guide.

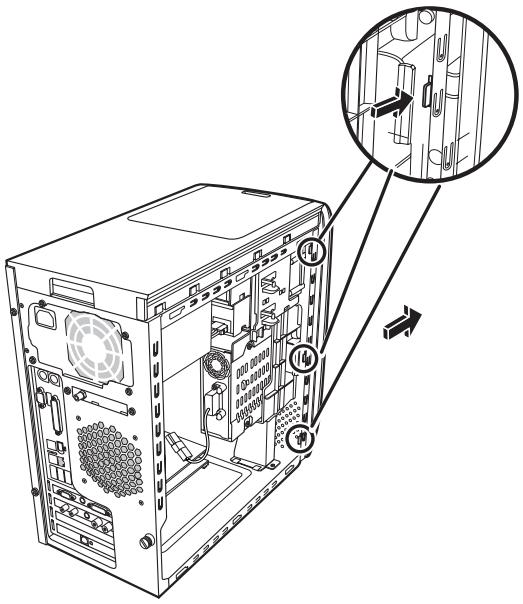
Replacing the Side Panel



1. Slide the side panel forward on the frame until it locks into place.
2. Align the thumbscrews on the side panel with the holes on the back of the chassis frame, and then tighten the thumbscrews on the side panel.
3. See "After Closing the PC" on page 2.

Removing the Front Panel

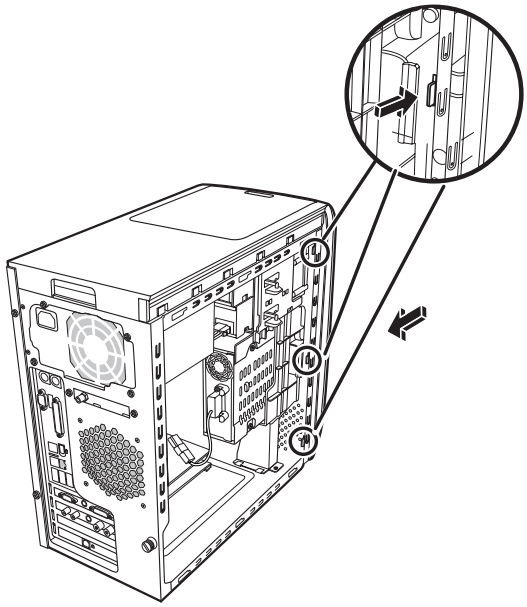
This procedure is necessary only when removing or replacing an optical drive, a memory card reader, or a hard disk drive.



1. Locate the three small tabs attached to the front panel on the side of the chassis.
2. Press each tab away from the center of the chassis. Press the top, the middle, and the bottom tab, and then gently remove the front panel.

Replacing the Front Panel

1. Place the chassis upright, and then align the bottom of the front panel with the ridge on the bottom of the chassis.
2. Guide the three small tabs on each side of the front panel into the correct holes until the panel snaps into place.



Locating Components Inside the PC

A Memory card reader

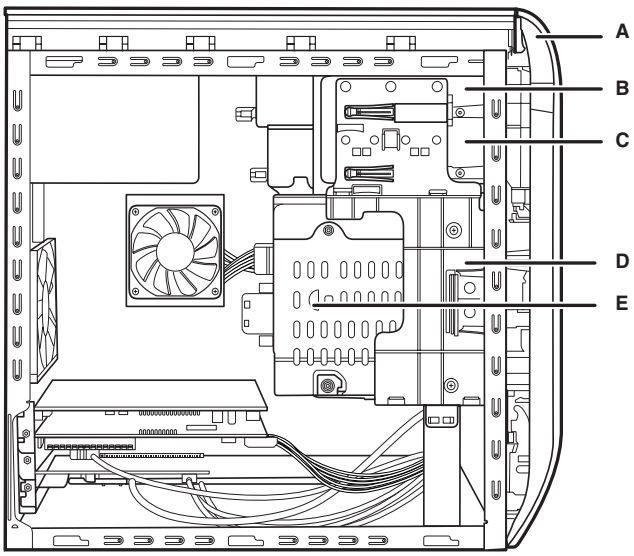
B Upper optical drive bay, may be a CD-ROM, CD-RW, DVD-ROM, DVD+RW, or combination drive

C Lower optical drive bay, may be empty (blank plate) or a CD-ROM, CD-RW, DVD-ROM, DVD+RW, or combination drive

D Hard disk drive (located behind the HP Personal Media Drive bay)

E HP Personal Media Drive bay

NOTE: The HP Personal Media drive is a removable, large capacity hard disk drive that is sold separately.



Removing and Replacing Drives

Your PC includes several drives that you can replace or upgrade. See "Locating Components Inside the PC" on page 4.

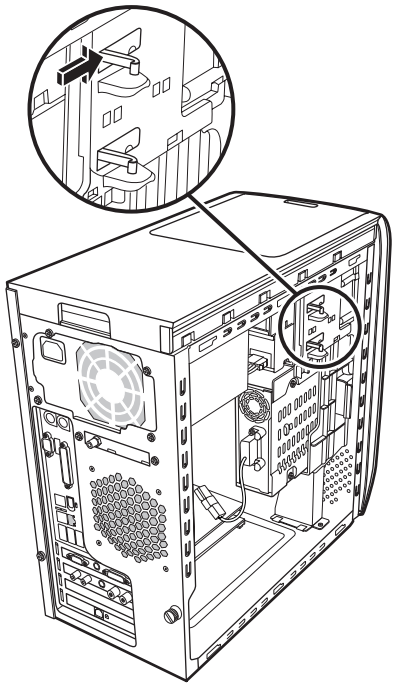
You can add an optical drive to an empty lower optical bay.

IMPORTANT: Before adding a new optical drive, make sure that it is compatible with the Microsoft® Windows® XP operating system. Also, make sure you have the correct software and drivers for the optical drive to work with the operating system.

Removing an Optical Drive

1 Complete the procedures to prepare the PC and to remove the side panel. See "Opening and Closing the PC" on page 1.

2 Remove the front panel. See "Removing the Front Panel" on page 3.



3 Lift the plastic tabs on the side of the optical drive you want to remove. Push the drive partway out through the front of the PC.

NOTE: You do not need to remove the screws on the side of the optical drive to remove it from the PC.

4 Make a note of each cable and plug orientation attached to the back of the optical drive you want to replace before removing the cables.

5 Disconnect the power cable and data cable from the back of the optical drive, using a gentle rocking motion. Disconnect the sound cable, if present.

6 Pull the drive out through the front of the PC.

7 If you are replacing the old drive with a new drive, remove the four guide screws from the old drive. You need these screws to install the new drive.

Replacing or Adding an Optical Drive

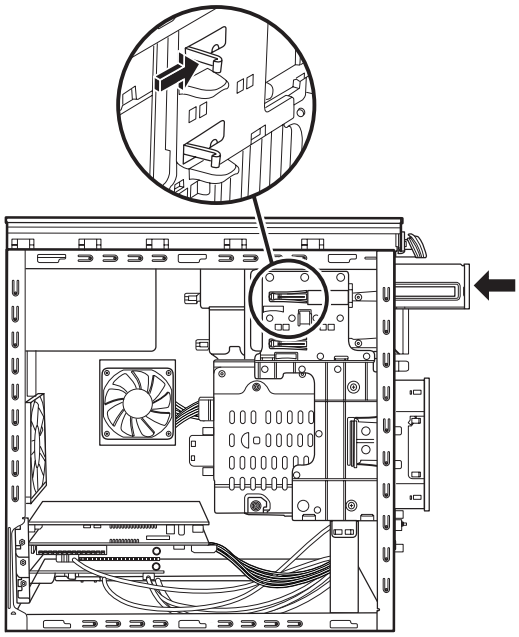
1 Complete the procedures to prepare the PC and to remove the side panel. See "Opening and Closing the PC" on page 1.

2 Remove the front panel. See "Removing the Front Panel" on page 3.

3 If your optical drive bay is empty, remove the drive cover by pressing the tabs on each side of the drive cover, and then pulling it toward you and out of the PC.

4 Screw all four guide screws into the sides of your optical drive. Refer to the instructions that came with your optical drive.

5 Slide the new optical drive through the front of the PC. Don't slide the drive in all the way; you need room to attach the cables.



6 Connect the power cable and data cable to the back of the optical drive. Some drive models may have a sound cable. If so, connect the sound cable.

7 Push the optical drive all the way in through the front of the PC until it snaps into place.

8 Replace the front panel. See "Replacing the Front Panel" on page 3.

9 Complete the procedures to replace the side panel, and to close the PC. See "Opening and Closing the PC" on page 1.

Removing a Memory Card Reader

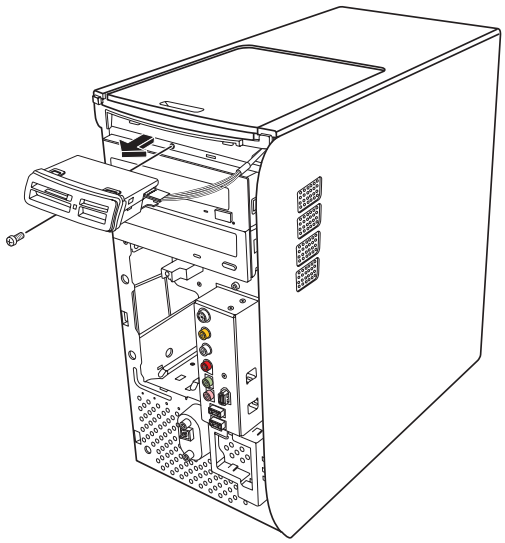
Your PC has a memory card reader above your optical drive. You can replace it with another memory card reader.

To ensure that the drive fits properly into the PC, be sure to purchase the replacement memory card reader from HP. Refer to the *Warranty and Support Guide* for contact information.

1 Complete the procedures to prepare the PC and to remove the side panel. See "Opening and Closing the PC" on page 1.

2 Remove the front panel. See "Removing the Front Panel" on page 3.

3 Remove the screw under the memory card reader.



4 Pull the memory card reader part way out of the front of the PC.

5 Remove the cable attached to the side of the memory card reader.

Installing a Memory Card Reader

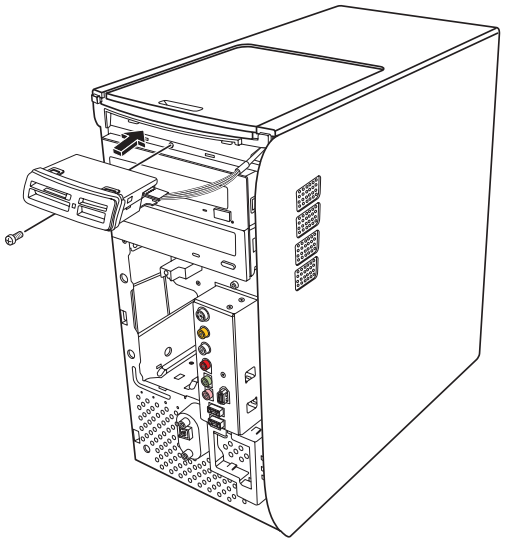
1 Complete the procedures to prepare the PC and to remove the side panel. See "Opening and Closing the PC" on page 1.

2 Remove the front panel. See "Removing the Front Panel" on page 3.

3 See "Removing a Memory Card Reader" on page 5.

4 Attach the cable to the memory card reader.

5 Slide the memory card reader inside the slot and make sure the screw hole on the chassis is aligned with the screw hole under the memory card reader.



6 Insert the screw to secure the memory card to the chassis.

7 Replace the front panel. See "Replacing the Front Panel" on page 3.

8 Complete the procedures to replace the side panel, and to close the PC. See "Opening and Closing the PC" on page 1.

Removing a Hard Disk Drive

The hard disk drive of your PC is attached to your HP Personal Media Drive bay. The hard disk drive is preloaded with the system recovery partition of your PC. If you remove this hard disk drive, store it in an antistatic bag that is properly sealed.

CAUTION: Back up your personal files on the hard disk drive to an external storage device, such as a CD, before removing the hard disk drive. Failure to do so will result in data loss. After replacing the hard disk drive, you need to run System Recovery using the recovery discs to load the factory-installed files. Please read "System Recovery" in your printed documentation for details about the recovery procedure.

You can replace the (primary) hard disk drive attached to the drive bay.

The hard disk drive is either a Serial ATA (advanced technology attachment) drive that uses a narrow data cable, or a Parallel ATA drive that uses a wide data cable.

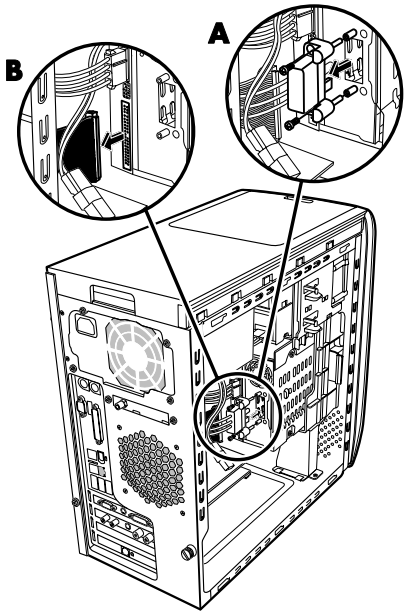
To remove a hard disk drive

1 Complete the procedures to prepare the PC and to remove the side panel. See "Opening and Closing the PC" on page 1.

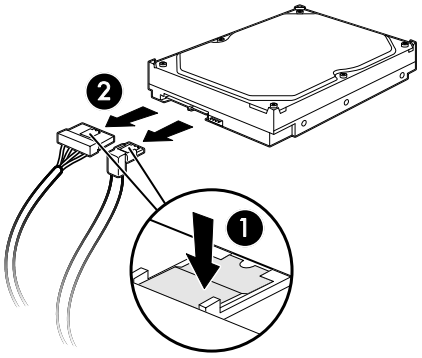
2 Remove the front panel. See "Removing the Front Panel" on page 3.

3 Make a note of each cable attached to the hard disk drive and back of the HP Personal Media Drive bay before removing the cables.

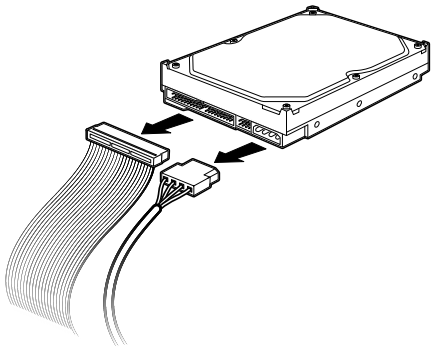
4 Remove the two screws from the back of the drive bay and remove the cable (**A**).



5 Disconnect the power cable and data cable from the back of the hard disk drive (**B**). For a Serial ATA drive, press the latch (**1**) (select models only) in the center of each plug and pull the plug (**2**) from the drive connector. For a Parallel ATA drive, use a gentle rocking motion to free the plug.



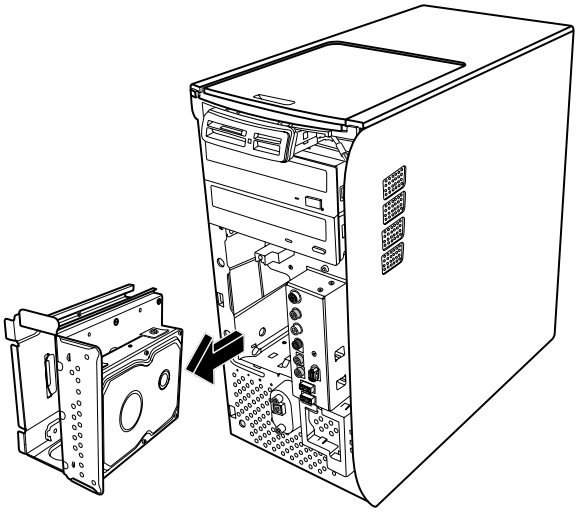
Disconnecting the Serial ATA hard disk drive cables



Disconnecting the Parallel ATA hard disk drive cables

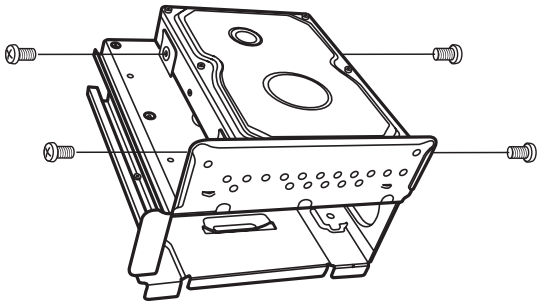
6 Remove the two screws on the front of the drive bay.

7 Gently pull back and hold the drive bay release tab while pulling out the drive bay from the front of the PC.



8 Gently lay the drive bay flat with the hard disk drive on top.

9 Remove the four screws that secure the hard disk drive to the drive bay. Lift the hard disk drive up from the drive bay bracket.



Replacing a Hard Disk Drive

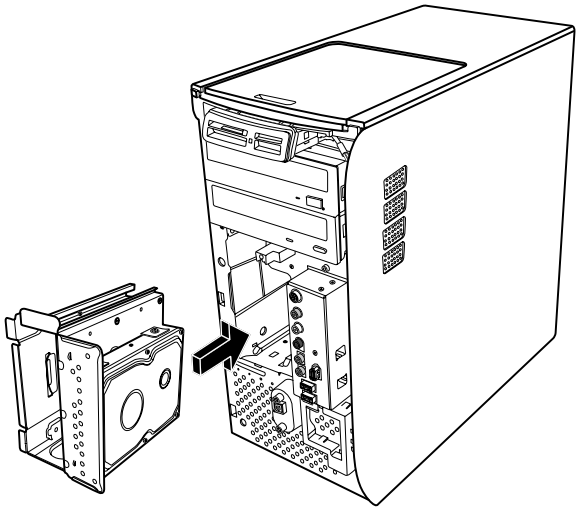
The hard disk drive of your PC attaches to your HP Personal Media Drive bay.

1 Follow the steps in "Removing a Hard Disk Drive" on page 6.

2 Align the hard disk drive with the holes on the HP Personal Media Drive bay bracket. Insert and tighten the four screws.

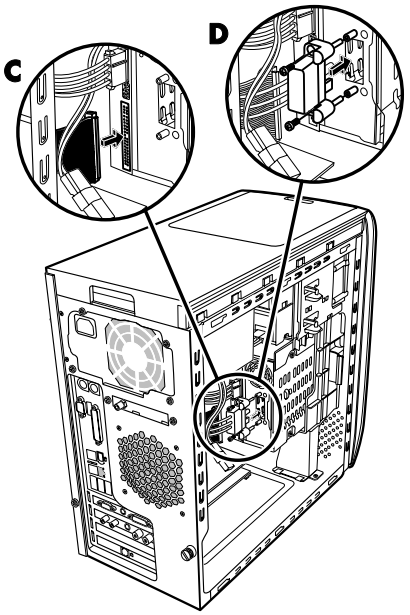
3 Slide the drive bay into the PC until it snaps into place.

4 Attach the screws to the front of the drive bay.



5 Attach the data and power supply cables to the back of the hard disk drive.

WARNING: For Parallel ATA drives, connect the IDE cable end (C) labeled *Master* to the primary hard disk drive. If the IDE cable is not connected correctly, the PC will not be able to locate the hard disk drives and data may be lost.



6 Insert and tighten the two screws (**D**) on the HP Personal Media Drive cable into the drive bay.

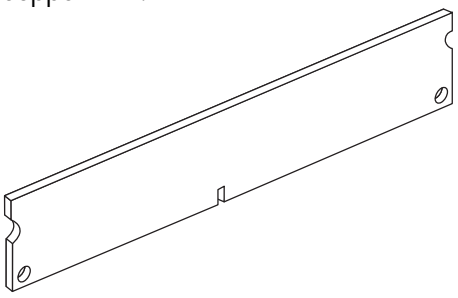
7 Replace the front panel. See "Replacing the Front Panel" on page 3.

8 Complete the procedures to replace the side panel, and to close the PC. See "Opening and Closing the PC" on page 1.

Adding Memory

The motherboard contains sockets for DDR DIMMs (double data rate dual in-line memory modules). The exact number of sockets depends on which model you have.

To determine which type of memory module your PC uses, and for specific memory module information and specifications, go to the Web site listed in your *Warranty and Support Guide* and click the Support link.



WARNING: Using the wrong type of memory module could damage the system.

Removing a Memory Module

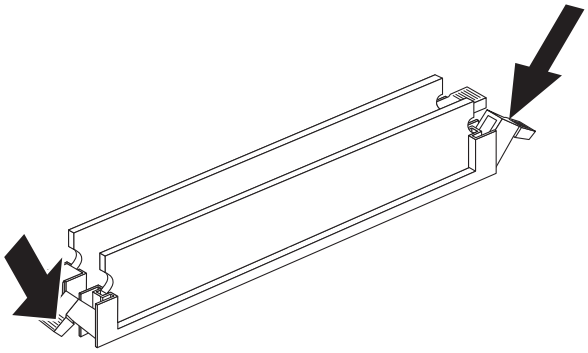
1. Complete the procedures to prepare the PC and remove the side panel. See "Opening and Closing the PC" on page 1.
2. Remove the front panel. See "Removing the Front Panel" on page 3.
3. Remove the hard disk drive. See "Removing a Hard Disk Drive" on page 6.
4. Gently lay the PC on its side.
5. Locate the memory sockets on the motherboard.

CAUTION: When handling a memory module, be careful not to touch any of the contacts. Doing so may damage the module.

6. Move any cabling out of the way, if necessary.

WARNING: Do not pull the memory module out of the socket. Use the retaining clips to eject the module.

7. Push down the two retaining clips on the ends of the socket until the memory module pops out of the socket.



8. Hold the memory module by its edges only, as you lift it away from the socket. Store it in its antistatic packaging.

Installing a Memory Module

Upgrade the memory in your PC with memory of the same type and speed as the memory originally installed in your PC.

CAUTION: When handling a memory module, be careful not to touch any of the contacts. Doing so may damage the module.

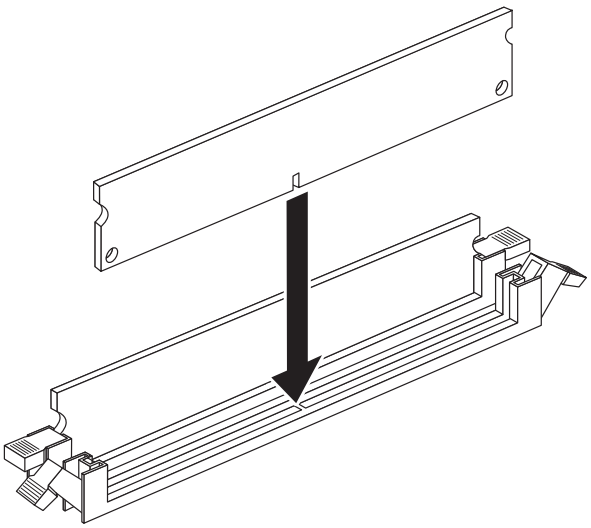
1. Open both latches of the memory module socket. See "Removing a Memory Module" on page 9.
   - If you are *replacing* a memory module, put the new memory module in the same memory slot from which the old memory was removed.

   Or

   - If you are *adding* a memory module, install the new module into the socket nearest the preinstalled module, and install additional modules in the next available sockets.

2 Hold the new memory module by its edges only as you remove it from the antistatic packaging. Avoid touching the memory chips or the gold contacts on the module.

3 The memory module can be installed in only one way. Match the notch on the module with the tab on the memory socket. Push the module carefully and firmly into the slot, ensuring that the latches on both ends snap into place.



4 Replace any cabling that was removed.

5 Complete the procedures to replacing a hard disk drive and close the PC. See "Replacing a Hard Disk Drive" page 8.

6 Complete the procedures to replace the side panel and close the PC. See "Opening and Closing the PC" on page 1.

Removing or Installing an Add-in Card

An add-in card is a circuit board, such as a PCI or an AGP card that fits into a PC add-in card slot. Your PC contains several add-in card slots that can be used to add components to your PC. The PC component configurations vary by model.

WARNING: Do not overload the system by installing add-in cards that draw excessive current. The system is designed to provide 2 amps (average) of +5 V power for each board/card in the PC. The total +5 V current draw in a fully loaded system (one with all add-in card slots filled) must not exceed the total number of slots multiplied by 2 amps.

A Phillips screwdriver is needed to remove, replace, or add an add-in card.

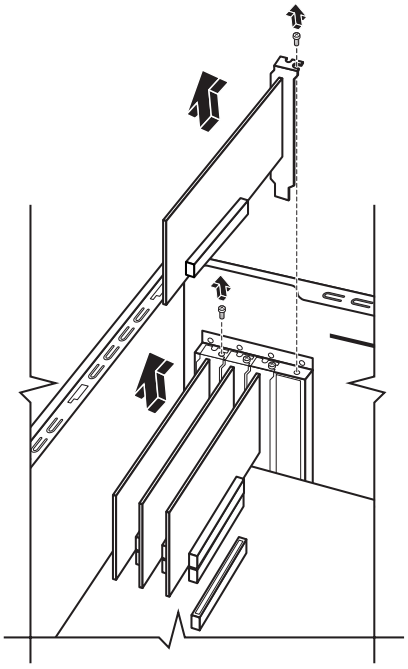
Removing an Add-in Card

1 Complete the procedures to prepare the PC and remove the side panel. See "Opening and Closing the PC" on page 1.

2 Gently lay the PC on its side.

3 Inside the PC, locate the add-in card slots on the motherboard.

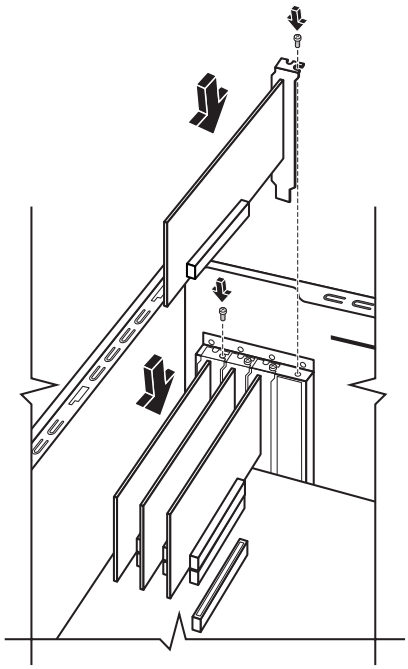
4 If you are replacing a card, make a note of any external or internal cables attached to the card, and then disconnect them.



5 Loosen the screw on the card you are replacing. Hold the card at the top and carefully pull the card straight out of the add-in card slot.

Installing an Add-in Card

1 Align the edge of the add-in card with the slot on the chassis and gently but firmly press the card straight down into the add-in card slot. The whole connector should be seated properly in the card slot.



2 Attach the screw to secure the card.

3 Connect any external or internal cables attached to the card.

4 Complete the procedures to replace the side panel and close the PC. See "Opening and Closing the PC" on page 1.

NOTE: If the new card or device isn't working, read through the card manufacturer's installation instructions, and recheck all connections, including those to the card, power supply, keyboard, and monitor.

Replacing the Battery

A lithium battery on the motherboard provides backup power for the PC's timekeeping capability.

When the battery starts to weaken, the date and time may be incorrect. If the battery fails, replace it with a CR2032 lithium battery (3 volt, 220mAH rating) or an equivalent battery.

WARNING: There is danger of explosion if the battery is incorrectly replaced. Replace only with the same, or equivalent, type of battery. Discard used batteries according to the manufacturer's instructions.

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1 Complete the procedures to prepare the PC and to remove the side panel. See "Opening and Closing the PC" on page 1.

2 Gently lay the PC on its side.

3 Remove any cabling, if necessary, to reach the battery.

4 Remove any memory modules, if necessary, to reach the battery. See "Adding Memory" on page 8.

5 Press the latch away from the battery and lift the battery from the socket to release the battery.

6 Install the new CR2032 battery in the socket, with the positive (+) side facing the latch.

7 Replace memory modules or cables you removed.

8 Set the chassis upright.

9 Complete the procedures to replace the side panel, and to close the PC. See "Opening and Closing the PC" on page 1.

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