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Adding and Replacing Parts

Dell™ Dimension™ 4550 Series

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CAUTION: Safety Instructions

Use the following safety guidelines to help ensure your own personal safety and to help protect your computer and working environment from potential damage.

General

- Do not attempt to service the computer yourself unless you are a trained service technician. Always follow installation instructions closely.
- To help prevent electric shock, plug the computer and device power cables into properly grounded electrical outlets. These cables are equipped with 3-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cable, use a 3-wire cable with properly grounded plugs.



- To help avoid the potential hazard of electric shock, do not use your computer during an electrical storm.
- To help avoid the potential hazard of electric shock, do not connect or disconnect any cables or perform maintenance or reconfiguration of this product during an electrical storm.
- If your computer includes a modem, the cable used with the modem should be manufactured with a minimum wire size of 26 American wire gauge (AWG) and an FCC-compliant RJ-11 modular plug.
- Before you clean your computer, disconnect the computer from the electrical outlet. Clean your computer with a soft cloth dampened with water. Do not use liquid or aerosol cleaners, which may contain flammable substances.
- To help avoid possible damage to the system board, wait 5 seconds after turning off the computer before

disconnecting a device from the computer.

- To avoid shorting out your computer when disconnecting a network cable, first unplug the cable from the network adapter on the back of your computer, and then from the network jack. When reconnecting a network cable to your computer, first plug the cable into the network jack, and then into the network adapter.
- To help protect your computer from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).
- Ensure that nothing rests on your computer's cables and that the cables are not located where they can be stepped on or tripped over.
- Do not push any objects into the openings of your computer. Doing so can cause fire or electric shock by shorting out interior components.
- Keep your computer away from radiators and heat sources. Also, do not block cooling vents. Avoid placing loose papers underneath your computer; do not place your computer in a closed-in wall unit or on a bed, sofa, or rug.

When Using Your Computer

As you use your computer, observe the following safe-handling guidelines.

 **CAUTION:** Do not operate your computer with any cover(s) (including computer covers, bezels, filler brackets, front-panel inserts, and so on) removed.

- Your computer is equipped with one of the following:
 - A fixed-voltage power supply — Computers with a fixed-voltage power supply do not have a voltage selection switch on the back panel and operate at only one voltage (see the regulatory label on the outside of the computer for its operating voltage).
 - An auto-sensing voltage circuit — Computers with an auto-sensing voltage circuit do not have a voltage selection switch on the back panel and automatically detect the correct operating voltage.
 - A manual voltage selection switch — Computers with a voltage selection switch on the back panel must be manually set to operate at the correct operating voltage.



 **NOTICE:** To help avoid damaging a computer with a manual voltage selection switch, set the switch for the voltage that most closely matches the AC power available in your location. For Japan, the voltage selection switch must be set to the 115-V position even though the AC power available in Japan is 100 V. Also, ensure that your monitor and attached devices are electrically rated to operate with the AC power available in your location.

- Before working inside the computer, unplug the computer to help prevent electric shock or system board damage. Certain system board components continue to receive power any time the computer is connected to AC power.

When Working Inside Your Computer

Before you open the computer cover, perform the following steps in the sequence indicated.

 **CAUTION:** Do not attempt to service the computer yourself, except as explained in your online Dell™ documentation or in instructions otherwise provided to you by Dell. Always follow installation and service instructions closely.

 **NOTICE:** To help avoid possible damage to the system board, wait 5 seconds after turning off the computer before removing a component from the system board or disconnecting a device from the computer.

1. Perform an orderly computer shutdown using the operating system menu.
2. Turn off your computer and any devices connected to the computer.
3. Ground yourself by touching an unpainted metal surface on the chassis, such as the metal around the card-slot openings at the back of the computer, before touching anything inside your computer.

While you work, periodically touch an unpainted metal surface on the computer chassis to dissipate any static electricity that might harm internal components.

4. Disconnect your computer and devices, including the monitor, from their electrical outlets. Also, disconnect any telephone or telecommunication lines from the computer.

Doing so reduces the potential for personal injury or shock.

In addition, take note of these safety guidelines when appropriate:

- When you disconnect a cable, pull on its connector or on its strain-relief loop, not on the cable itself. Some cables have a connector with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before disconnecting the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.
- Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a microprocessor chip by its edges, not by its pins.

 **CAUTION:** There is a danger of a new battery exploding if it is incorrectly installed. Replace the battery only with the same or equivalent type recommended by the manufacturer. Do not dispose of the battery along with household waste. Contact your local waste disposal agency for the address of the nearest battery deposit site.

Protecting Against Electrostatic Discharge

Static electricity can harm delicate components inside your computer. To prevent static damage, discharge static electricity from your body before you touch any of your computer's electronic components, such as the microprocessor. You can do so by touching an unpainted metal surface on the computer chassis.

As you continue to work inside the computer, periodically touch an unpainted metal surface to remove any static charge your body may have accumulated.

You can also take the following steps to prevent damage from electrostatic discharge (ESD):

- Do not remove components from their antistatic packing material until you are ready to install the component in your computer. Just before unwrapping the antistatic packaging, discharge static electricity from your body.
- When transporting an electrostatic sensitive component, first place it in an antistatic container or packaging.
- Handle all electrostatic sensitive components in a static-safe area. If possible, use antistatic floor pads and workbench pads.

Ergonomic Computing Habits

 **CAUTION:** Improper or prolonged keyboard use may result in injury.

 **CAUTION:** Viewing the monitor screen for extended periods of time may result in eye strain.

For comfort and efficiency, observe the ergonomic guidelines in the *Owner's Manual* when setting up and using your computer.



Battery Disposal

Your computer uses a lithium coin-cell battery. The lithium coin-cell battery is a long-life battery, and it is very possible that you will never need to replace it. However, should you need to replace it, see your *Owner's Manual*.

Do not dispose of the battery along with household waste. Contact your local waste disposal agency for the address of the nearest battery deposit site.

Shutting Down the Computer

 **NOTICE:** To prevent data loss, you must turn off your computer through the **Start** menu rather than by pressing the power button.

 **HINT:** If you are having difficulty turning off your computer, see "[General Problems](#)."

1. Save and close any open files and exit any open programs.
2. Click the **Start** button and then click **Turn off Computer**.
3. Click **Turn off**.

The computer automatically turns off after the shutdown process finishes.

 **NOTICE:** Turn off your monitor and any other devices connected to power.

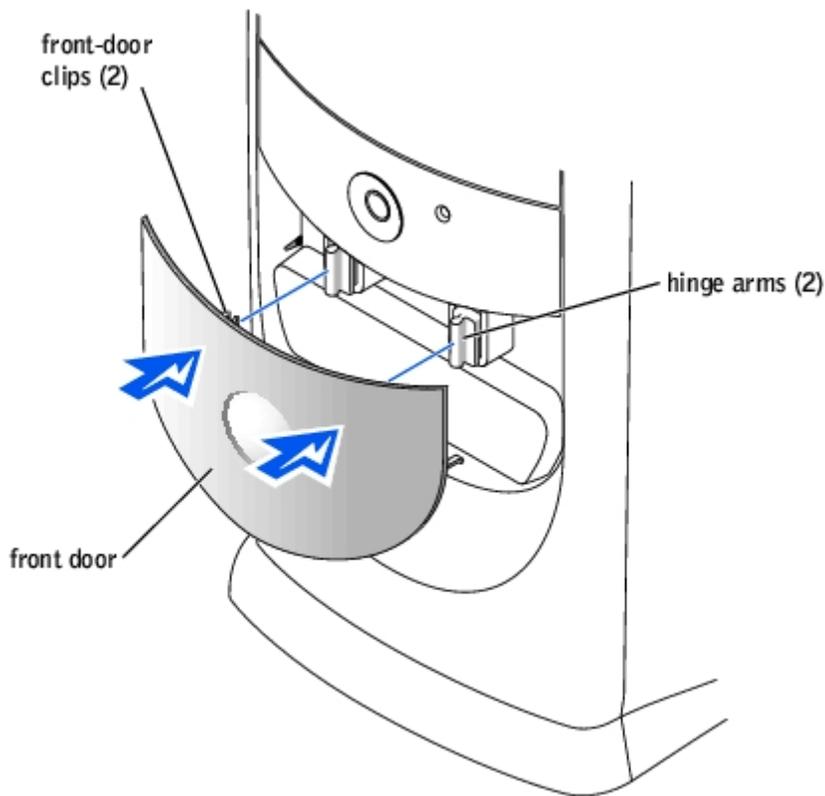
Reattaching the Front Door and Hinge Arms

To prevent damage to your computer, the front door is designed to "break away" if it is lifted up too far. If the front door breaks away, you might need to reattach both the front door and the hinge arms.

Reattaching the Front Door

1. [Shut down the computer](#).
2. Lower the hinge arms to the vertical position.

3. Align the two clips on the inside of the front door with the two hinge arms.
4. Press inward on the front door until it clips to both hinge arms.



Reattaching the Hinge Arms

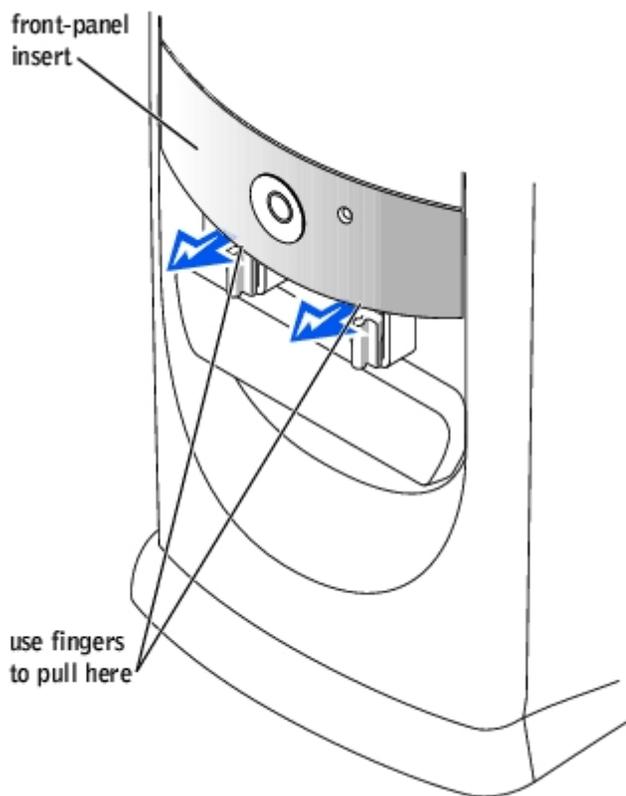
⚠ CAUTION: Before you begin any of the procedures in this section, follow the safety instructions listed in "[When Working Inside Your Computer](#)."

1. [Shut down the computer](#).
2. Disconnect the power cable from your computer.
3. Remove the front door, if it is attached.

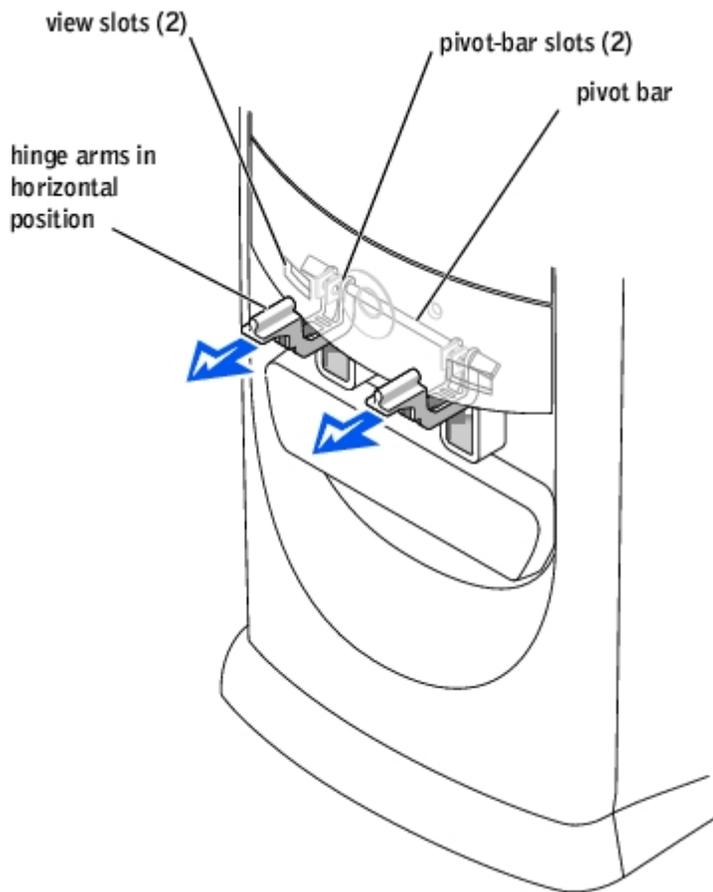
The front door snaps off of the two hinge arms.

4. Remove the front-panel insert above the front-door bay area.

Pull the bottom of the insert with your fingers to remove it.



5. Lift both hinge arms to the horizontal position.
6. Use the two view slots to align the pivot bar with the two pivot-bar slots.



➡ **NOTICE:** Using excessive force to pull the hinge arms into place may damage the arms or the front panel.

7. Pull the arms toward you until they snap into place.

If the hinge arms don't snap back into place on the first attempt, slightly reposition the arms and try again.

8. After the hinge arms clip into place, lower and raise the arms two or three times to properly seat them.
9. Reattach the front-panel insert.
10. Reconnect the power cable to your computer.
11. Reattach the front door as described in "[Reattaching the Front Door](#)."

Opening the Computer Cover

⚠ **CAUTION:** Before you begin any of the procedures in this section, follow the steps listed in "[Safety Instructions](#)."

⚠ **CAUTION:** To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

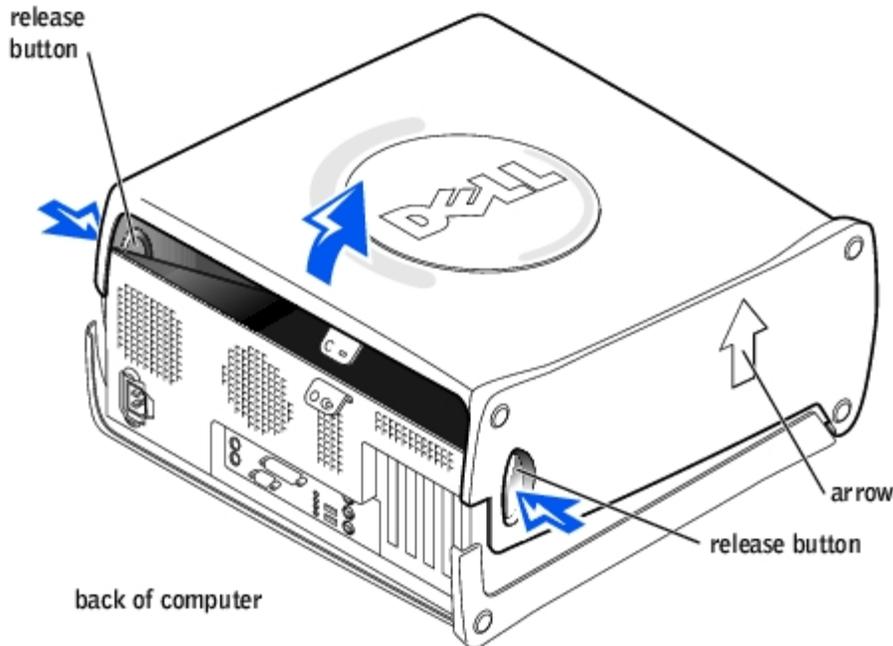
1. [Shut down the computer](#).

➡ **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.

NOTICE: Ensure that there is sufficient space to support the open cover—at least 30 cm (1 ft) of desktop space.

4. Lay the computer on its side so that the arrow on the bottom of the computer points up.
5. Locate the *two* release buttons shown in the illustration. Then, press the *two* release buttons as you lift the cover.



Installing and Removing Cards

CAUTION: Before you begin any of the procedures in this section, follow the steps listed in "[Safety Instructions](#)."

CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before [opening the cover](#).

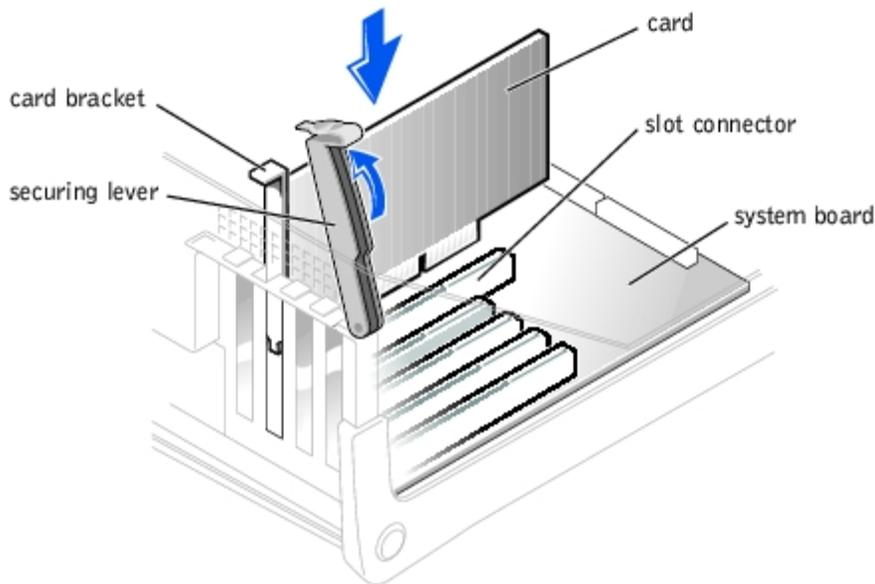
The computer's card connectors allow you to install different types of devices such as modems, network adapters, and video cards.

Installing a Card

CAUTION: Before you begin any of the procedures in this section, follow the steps listed in "[Safety Instructions](#)."

1. If you are replacing a card, remove the current driver for the card from the operating system.
2. [Shut down the computer](#).

- ➔ **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.
3. Turn off any attached devices and disconnect them from their electrical outlets.
 4. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.
 5. [Open the computer cover.](#)
 6. Press the tab on the card retention arm and raise the retention arm.



7. If you are installing a new card, remove the filler bracket to create a card-slot opening. Then continue with step 9.
8. If you are replacing a card that is already installed in the computer, [remove the card.](#)

If necessary, disconnect any cables connected to the card. Grasp the card by its top corners, and ease it out of its connector.

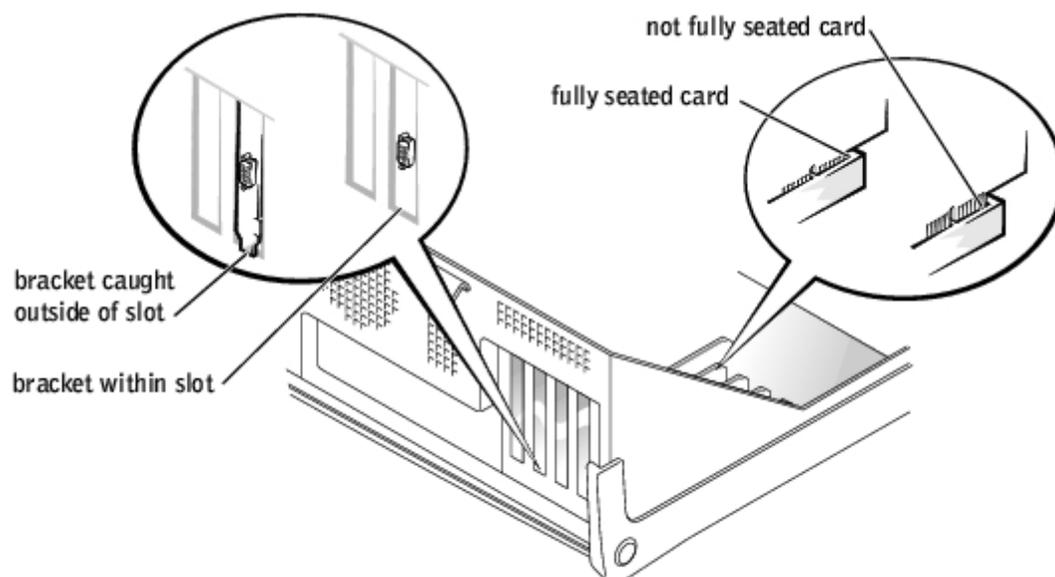
9. Prepare the card for installation.

See the documentation that came with the card for information on configuring the card, making internal connections, or otherwise customizing it for your computer.

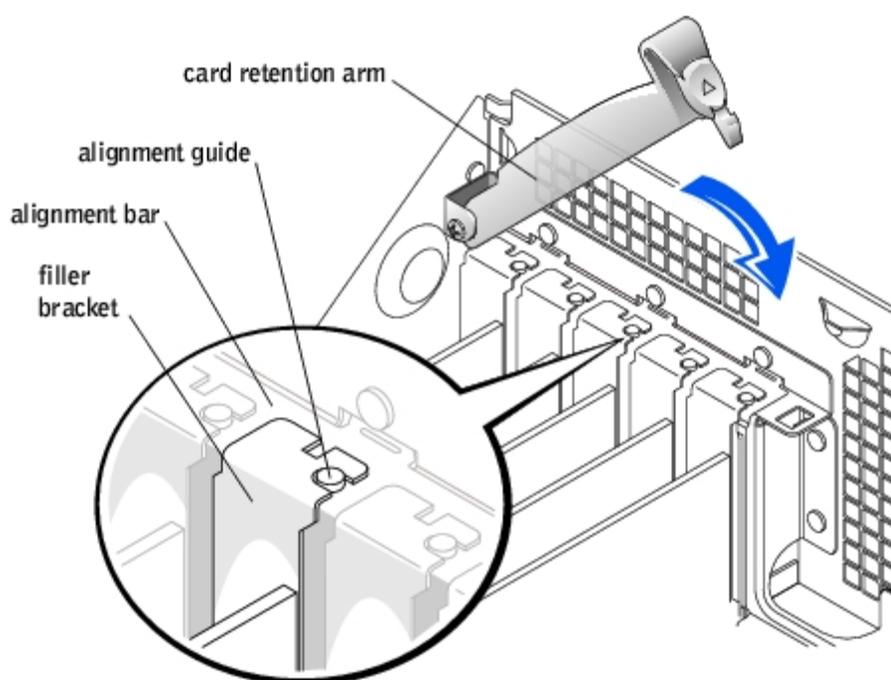
10. Place the card in the connector and press down firmly. Ensure that the card is fully seated in the slot.

If the card is full-length, insert the end of the card into the card guide bracket as you lower the card toward its connector on the system board. Insert the card firmly into the card connector on the system board.

11. Before you lower the retention arm, ensure that:
 - The tops of all cards and filler brackets are flush with the alignment bar.
 - The notch in the top of the card or filler bracket fits around the alignment guide.



12. Press the arm into place, securing the card(s) in the computer.



- ➔ **NOTICE:** Do not route card cables over or behind the cards. Cables routed over the cards can prevent the computer cover from closing properly or cause damage to the equipment.

13. Connect any cables that should be attached to the card.

See the documentation that came with the card for information about the card's cable connections.

- ➔ **NOTICE:** To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

14. [Close the computer cover](#), reconnect the computer and devices to electrical outlets, and turn them on.

15. Install any drivers required for the card as described in the documentation that came with the card.

Removing a Card

⚠ CAUTION: Before you begin any of the procedures in this section, follow the steps listed in "[Safety Instructions](#)."

⚠ CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before [opening the cover](#).

1. [Shut down the computer](#).

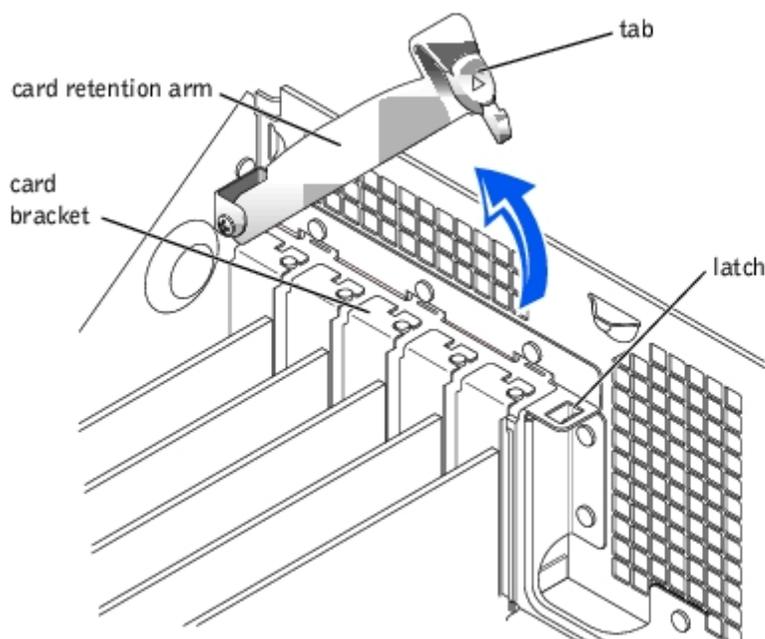
➡ NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.

➡ NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

3. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.

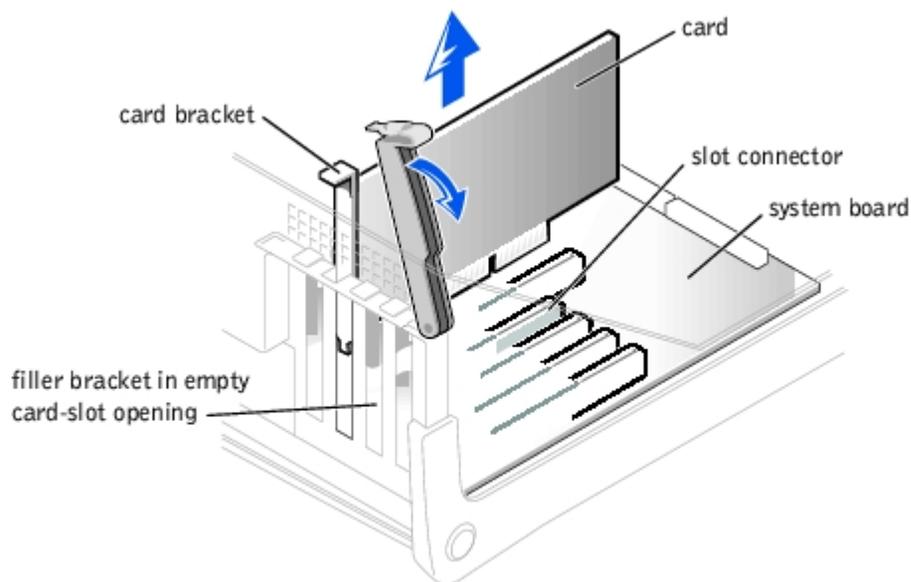
4. Press the tab on the card retention arm and raise the retention arm.



5. If necessary, disconnect any cables connected to the card.

6. Grasp the card by its top corners, and ease it out of its connector.

7. If you are removing the card permanently, install a filler bracket in the empty card-slot opening.



If you need a filler bracket, contact Dell.

➔ **NOTICE:** Installing filler brackets over empty card-slot openings is necessary to maintain FCC certification of the computer. The brackets also keep dust and dirt out of your computer.

8. Lower the retention arm and press it into place, securing the card(s) in the computer.

➔ **NOTICE:** To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

9. [Close the computer cover](#), reconnect the computer and devices to electrical outlets, and turn them on.

10. Remove the card's driver from the operating system.

Adding Memory

⚠ **CAUTION:** Before you begin any of the procedures in this section, follow the steps listed in "[Safety Instructions](#)."

⚠ **CAUTION:** To guard against electrical shock, always unplug your computer from the electrical outlet before [opening the cover](#).

You can increase your computer memory by installing memory modules on the system board. For information on the type of memory supported by your computer, see "[Memory](#)" in "Technical Specifications."

🔑 **HINT:** Memory purchased from Dell is covered under your computer warranty.

1. [Shut down the computer](#).

➔ **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.

3. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.
4. [Open the computer cover.](#)

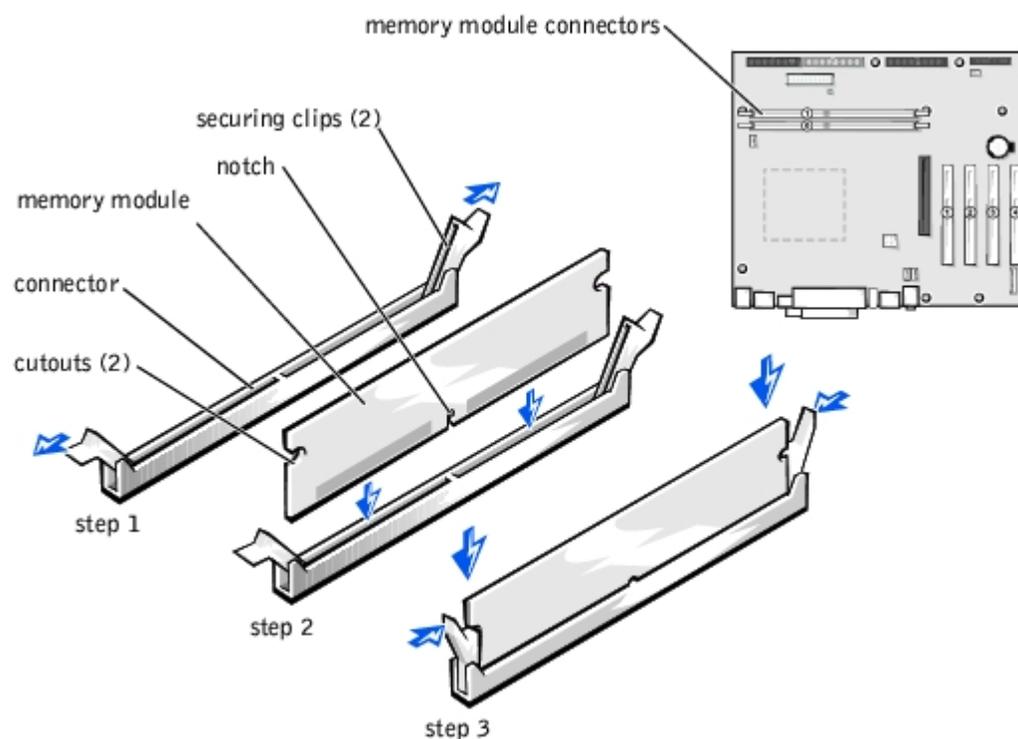
Removing a Memory Module

1. If your computer has an AGP card, [remove it.](#)
2. Press out the securing clip at each end of the memory module connector.
3. Grasp the module and pull up.

If the module is difficult to remove, gently ease the module back and forth to remove it from the connector.

Adding a Memory Module

1. Press out the securing clip at each end of the memory module connector.



2. Align the notch on the bottom of the module with the crossbars in the connector.



NOTICE: To avoid damage to the memory module, press the module straight down into the socket with equal force applied at each end of the module.

3. Insert the module straight down into the connector, ensuring that it fits into the vertical guides at each end of the connector. Press firmly on the ends of the module until it snaps into place.

If you insert the module correctly, the securing clips snap into the cutouts at each end of the module.

4. [Reinstall the AGP card.](#)
5. [Close the computer cover.](#)



NOTICE: To connect a network cable, first plug the cable in to the network wall jack and then plug it in to the computer.

6. Connect your computer and devices to their electrical outlets, and turn them on.
7. Right-click **My Computer**, and then click **Properties**.
8. Click the **General** tab.
9. To verify that the memory is installed correctly, check the amount of memory (RAM) listed.

Adding or Replacing an AGP Card



CAUTION: Before you begin any of the procedures in this section, follow the steps listed in "[Safety Instructions](#)."



CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before [opening the cover](#).

1. [Shut down the computer.](#)

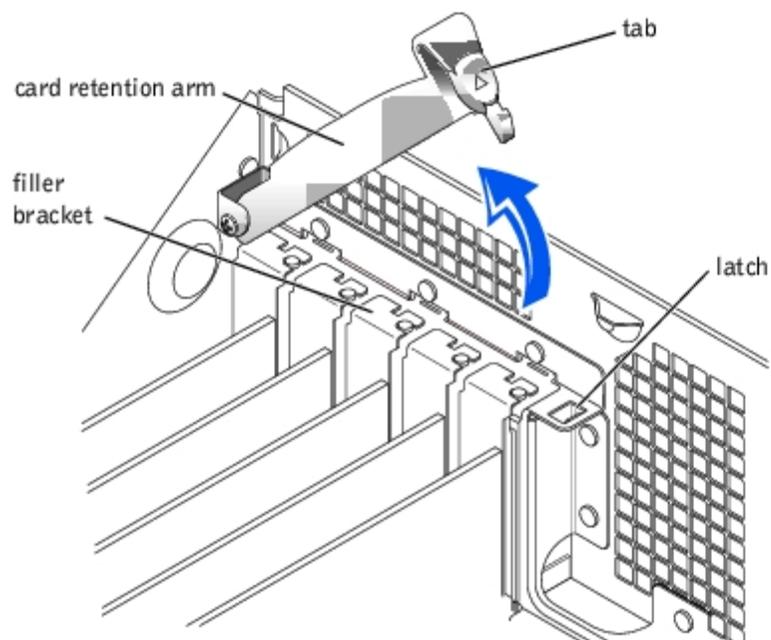


NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

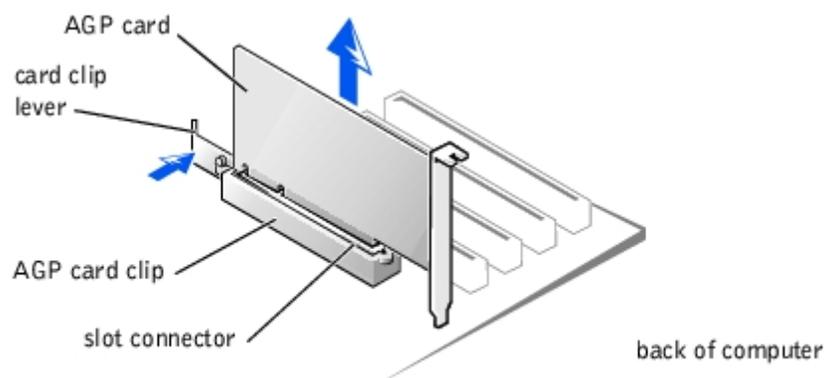
2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.
4. [Open the computer cover.](#)

Removing a Card

1. Some AGP cards require a power cable. If the card has a power cable attached to it, disconnect the cable from the card.
2. Remove the filler bracket by raising the card retention arm and sliding the bracket up.

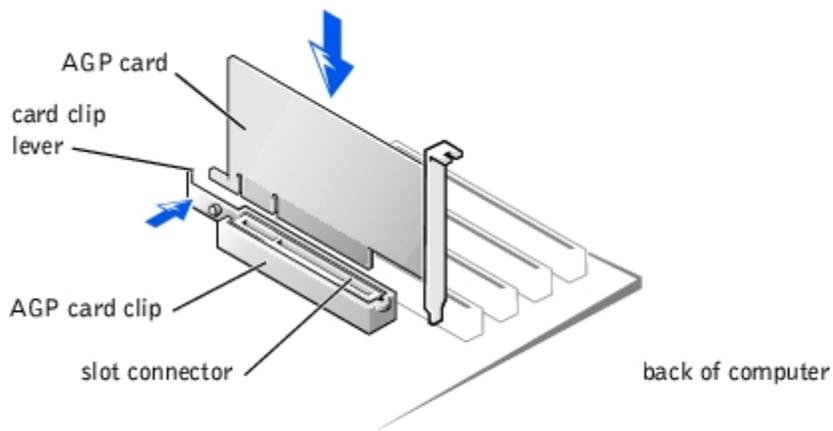


3. On the card clip, press the tab toward the card slot.
4. Pull the card up and out of the card clip.



Installing a Card

1. To add or replace the card, gently press it down into the slot connector until it clicks into place.



2. Release the card clip lever, ensuring that the tab on the card clip lever fits into the notch on the front end of the card.
3. Secure the card by lowering the hinged lever on the back panel.
4. If you disconnected a power cable from the card in step 1 of the previous procedure, reconnect the cable to the card.
5. [Close the computer cover.](#)

➡ **NOTICE:** To connect a network cable, first plug the cable in to the network wall jack and then plug it in to the computer.

6. Connect your computer and devices to their electrical outlets, and turn them on.

Removing and Installing a Hard Drive

⚠ **CAUTION:** Before you begin any of the procedures in this section, follow the steps listed in "[Safety Instructions.](#)"

⚠ **CAUTION:** To guard against electrical shock, always unplug your computer from the electrical outlet before [opening the cover.](#)

➡ **NOTICE:** To avoid damage to the drive, do not set it on a hard surface. Instead, set the drive on a surface, such as a foam pad, that will sufficiently cushion it.

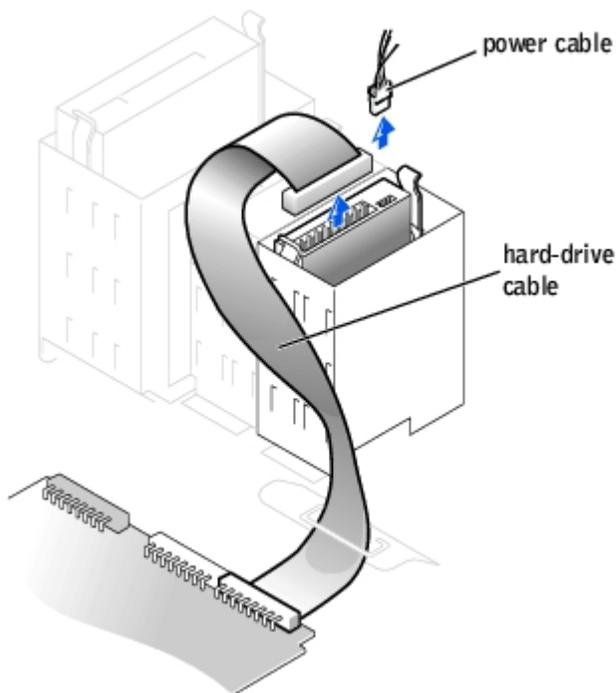
1. If you are replacing a hard drive that contains data you want to keep, back up your files before you begin this procedure.
2. [Shut down the computer.](#)

➡ **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

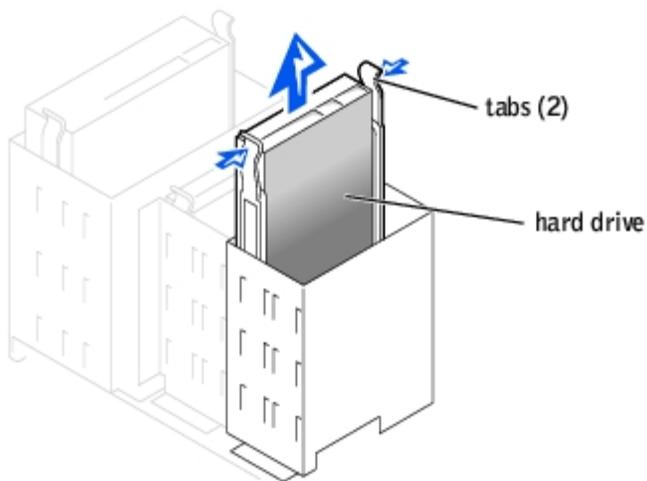
3. Turn off any attached devices and disconnect them from their electrical outlets.
4. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.
5. [Open the computer cover.](#)

Removing a Hard Drive

1. Disconnect the power and hard-drive cables from the drive.



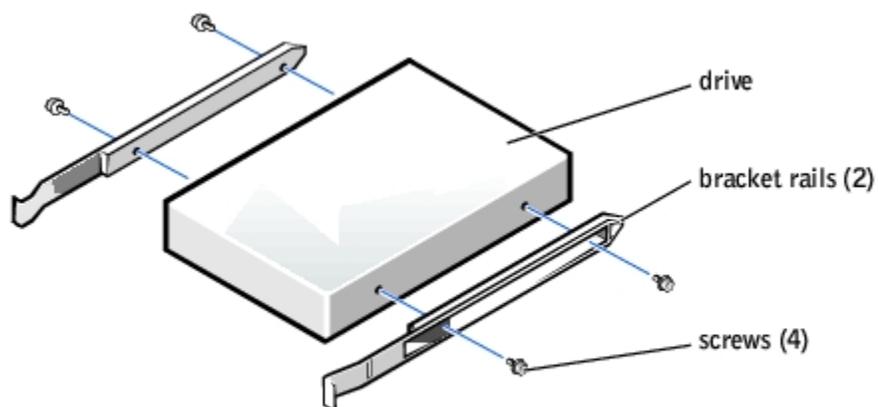
2. Press in on the tabs on each side of the drive and slide the drive up and out.



Installing a Hard Drive

1. Unpack the replacement hard drive, and prepare it for installation.
2. Check the documentation for the drive to verify that it is configured for your computer.
3. If your replacement hard drive does not have the bracket rails attached, remove the rails from the old drive by removing the two screws that secure each rail to the drive. Attach the bracket rails to the new drive by

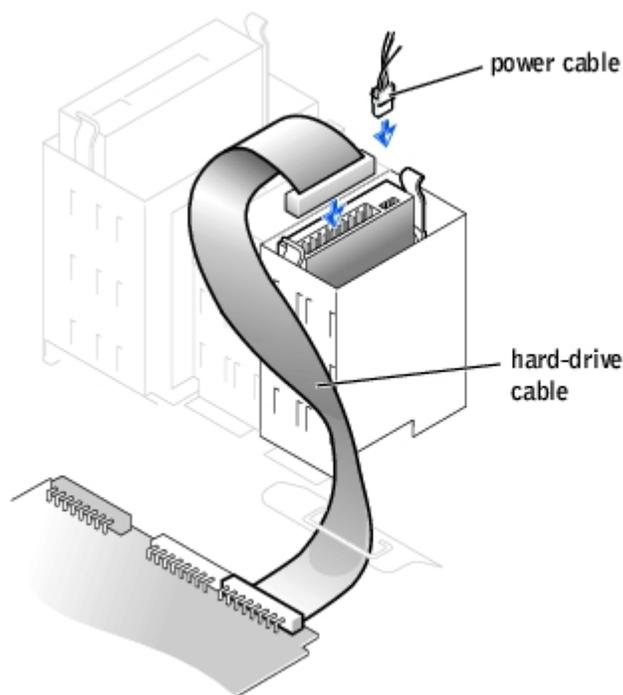
aligning the screw holes on the drive with the screw holes on the bracket rails and then inserting and tightening all four screws (two screws on each rail).



4. Install the hard drive into the computer by gently sliding the drive into place until you hear it securely click.

➔ **NOTICE:** Match the colored strip on the cable with pin 1 on the drive (pin 1 is marked as "1").

5. Connect the power and hard-drive cables to the drive.



6. Check all connectors to be certain that they are properly cabled and firmly seated.

7. [Close the computer cover.](#)

➔ **NOTICE:** To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

8. Connect your computer and devices to electrical outlets, and turn them on.

See the documentation that came with the drive for instructions on installing any software required for drive operation.

Adding a Second Hard Drive

-  **CAUTION:** Before you begin any of the procedures in this section, follow the steps listed in "[Safety Instructions](#)."
-  **CAUTION:** To guard against electrical shock, always unplug your computer from the electrical outlet before [opening the cover](#).
-  **NOTICE:** To avoid damage to the drive, do not set it on a hard surface. Instead, set the drive on a surface, such as a foam pad, that will sufficiently cushion it.

Your computer includes one hard drive. To add a second hard drive:

1. Check the documentation for the drive to verify that it is configured for your computer.
2. [Shut down the computer](#).

-  **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

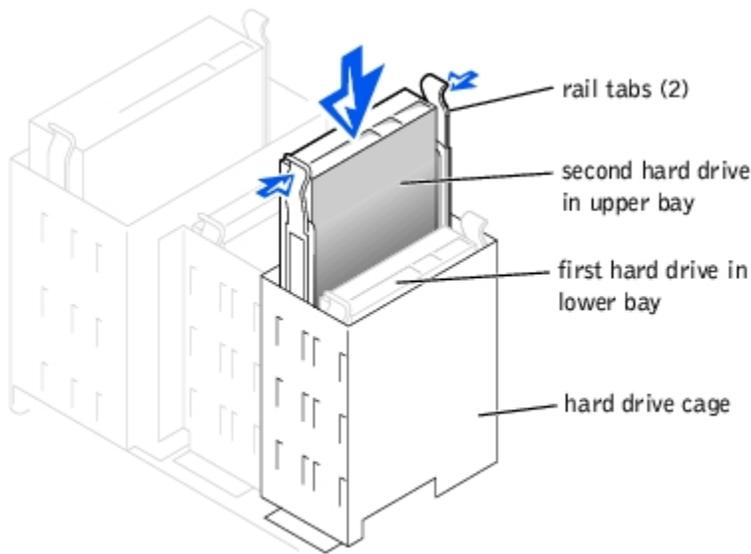
3. Turn off any attached devices and disconnect them from their electrical outlets.
4. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.
5. [Open the computer cover](#).
6. Remove the two green plastic rails from the inside of the hard-drive bay by gently pulling the rails up and out of the bay.
7. Attach the rails to the hard drive using the two screws attached to the rails.

Ensure that the rail tabs are positioned at the back of the hard drive.

-  **NOTICE:** Do not install any drive into the lower hard-drive bay until you have removed the green drive rails from the inside of the hard-drive bay.

-  **HINT:** Two sets of rails are attached to the inside of the computer cover. Use the two longer rails on 5.25-inch drives. Use the shorter rails for 3.5-inch drives. Rails for a second hard drive are attached inside the hard-drive bay.

8. Remove the first hard drive from the upper bay and install it in the lower bay.
 - a. Disconnect the power cable and the hard-drive cables from the back of the first hard drive.
 - b. Press in the two green rail tabs and pull the first hard drive out of the upper bay.
 - c. Gently slide the first hard drive into the lower bay until you hear a click.
 - d. Reconnect the power cable and the hard-drive cables to the back of the first hard drive.
9. Gently slide the new hard drive into the upper bay until you hear a click.

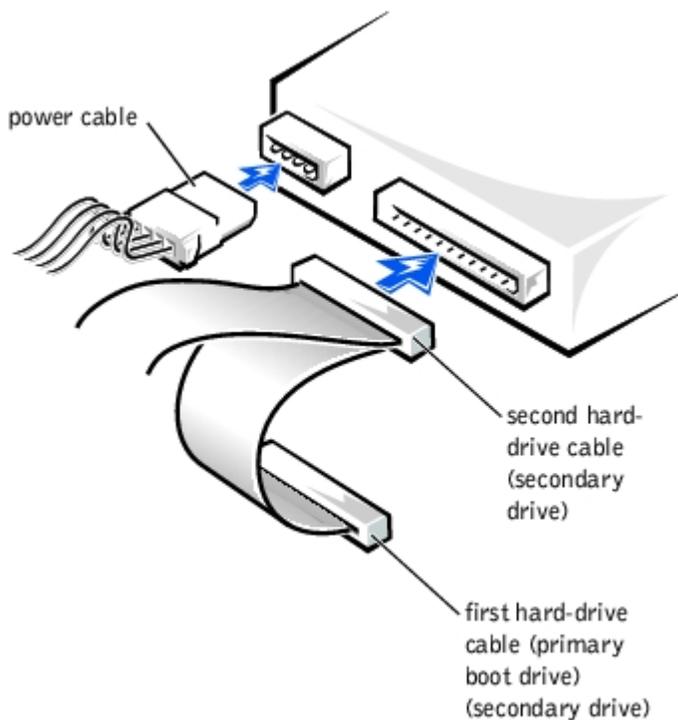


10. Connect a power cable to the drive.

NOTICE: Match the colored strip on the cable with pin 1 on the drive.

11. Locate the extra connector on the drive cable that is attached to your first hard drive, and attach the connector to the second hard drive.

HINT: Your computer uses cable-select drive cables. This means that the device connected to the end connector of the drive cable is the master device and the device connected to the middle connector is the slave device. Be sure the jumper setting on the new device is set for "cable select" (see the documentation that came with the drive for information).



12. [Close the computer cover.](#)

- ➡ **NOTICE:** To connect a network cable, first plug the cable in to the network wall jack and then plug it into the computer.

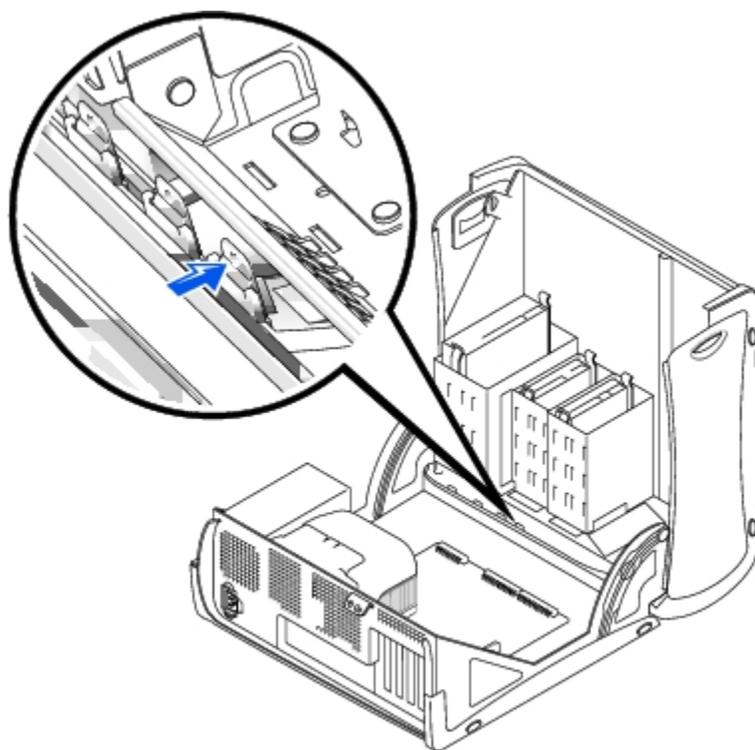
13. Connect your computer and devices to their electrical outlets, and turn them on.

See the documentation that came with the drive for instructions on installing any software required for drive operation.

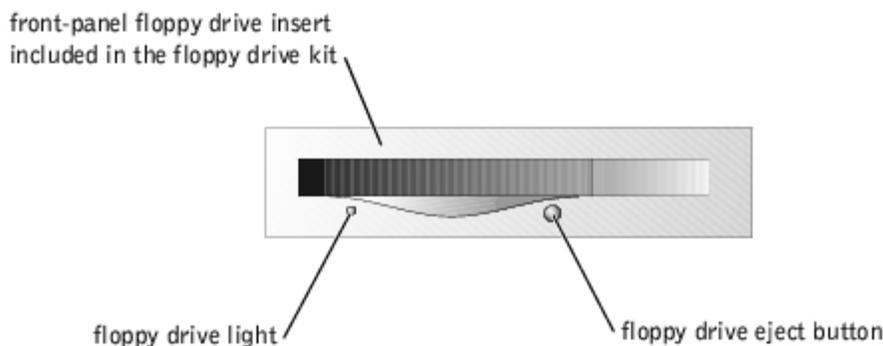
Front-Panel Inserts

If you are installing a new floppy or CD/DVD drive instead of replacing a drive, remove the front-panel inserts.

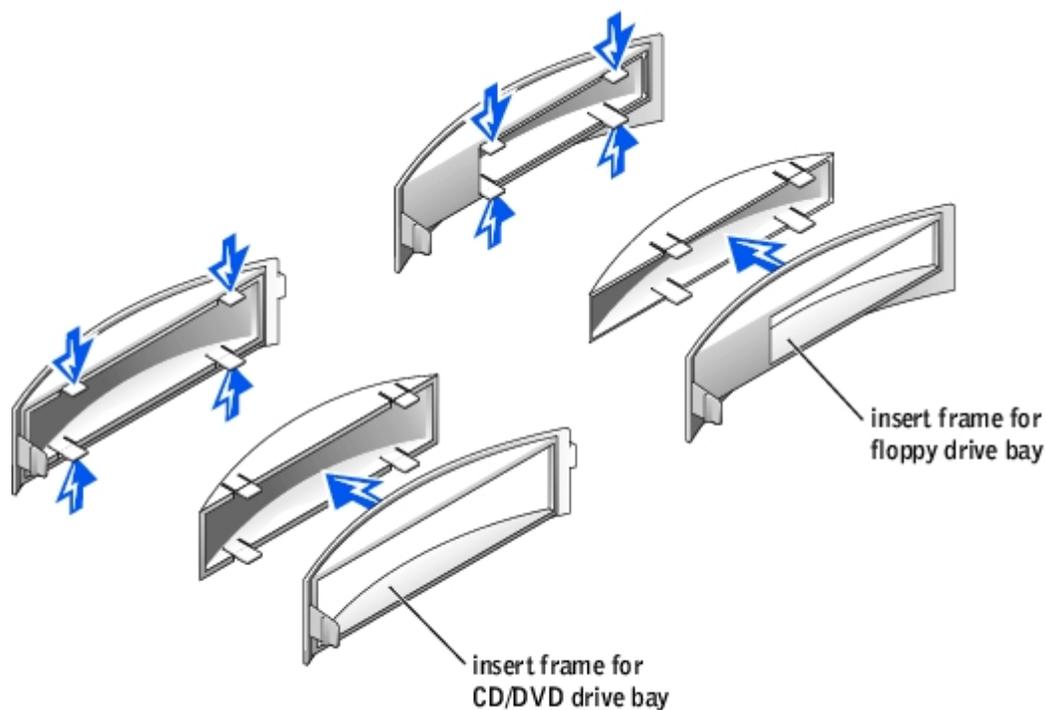
1. Open the cover to a 90-degree angle.
2. Locate the insert that is in front of the drive bay that you want to use.
3. From inside the computer, press in the release tab of the insert.



4. From the outside of the computer, pull the insert away from the computer's front panel.
5. If you purchased your floppy drive from Dell, you received a front-panel insert in your floppy drive kit. Proceed to [step 7](#).



6. If you are installing a CD/DVD drive or a floppy drive that was not purchased from Dell, remove the insert from the insert frame by pressing on the four tabs.



7. If you purchased your floppy drive from Dell, attach the insert that you received in the floppy drive kit over the front of the drive bay. If you are installing a CD/DVD drive or floppy drive that was not purchased from Dell, reattach the empty insert frame over the front of the drive bay.
8. To attach either insert, face the front of the computer and slip the left side of the insert into the left side of the drive bay opening. Then, slightly press in the right-side insert release tab and gently push in the insert.

Removing and Installing a Floppy Drive

-  **CAUTION:** Before you begin any of the procedures in this section, follow the steps listed in "[Safety Instructions](#)."
-  **CAUTION:** To guard against electrical shock, always unplug your computer from the electrical outlet before [opening the cover](#).

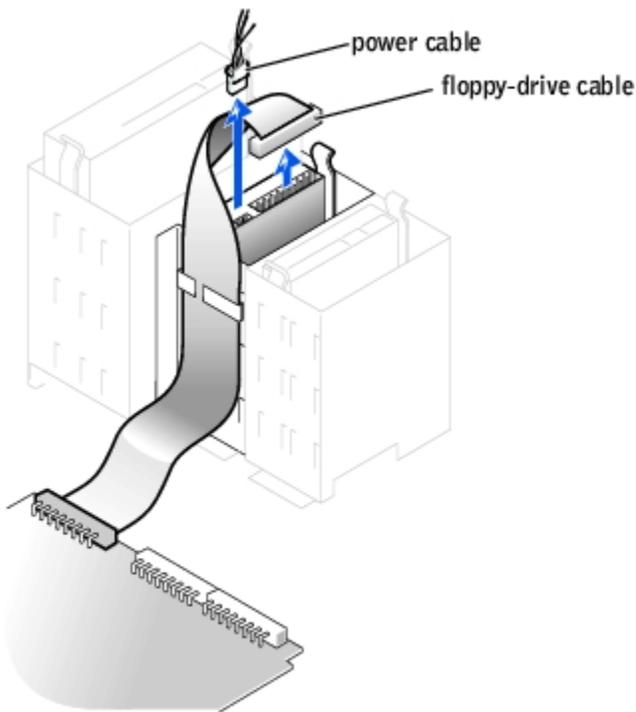
1. [Shut down the computer.](#)

➔ **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

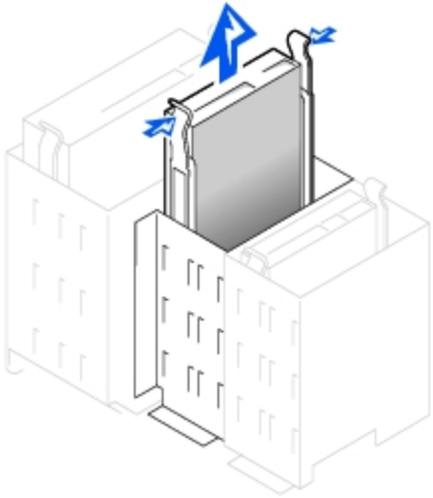
2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.
4. [Open the computer cover.](#)

Removing a Floppy Drive

1. Disconnect the power and floppy-drive cables from the back of the floppy drive.

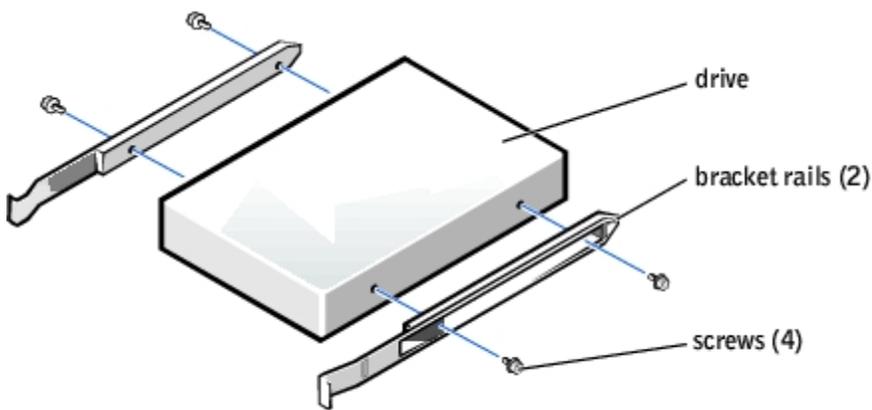


2. Press inward on the two tabs on the sides of the drive, slide the drive upward, and remove it from the floppy-drive bay.

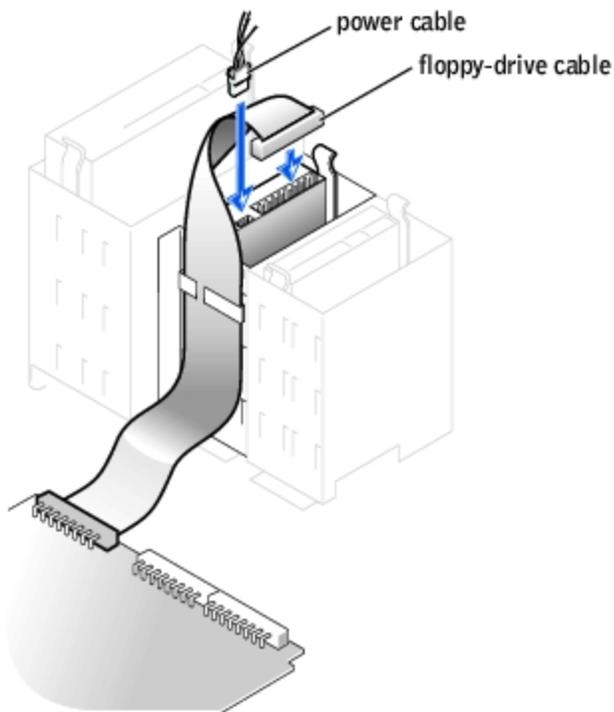


Installing a Floppy Drive

1. If you are replacing a drive and the new drive does not have the bracket rails attached, remove the rails from the old drive by removing the two screws that secure each rail to the drive. Attach the bracket to the new drive by aligning the screw holes on the drive with the screw holes on the bracket rails and then inserting and tightening all four screws (two screws on each rail).



2. Gently slide the drive into place until the tabs securely click into position.
3. Attach the power and floppy-drive cables to the floppy drive.



4. If you are installing a new floppy drive rather than replacing a drive, [remove the front-panel inserts](#).
5. Check all cable connections, and fold cables out of the way to provide airflow for the fan and cooling vents.
6. [Close the computer cover](#).

➡ **NOTICE:** To connect a network cable, first plug the cable in to the network wall jack and then plug it in to the computer.

7. Connect your computer and devices to their electrical outlets, and turn them on.

See the documentation that came with the drive for instructions on installing any software required for drive operation.

Removing and Installing a CD/DVD Drive

⚠ **CAUTION:** Before you begin any of the procedures in this section, follow the steps listed in "[Safety Instructions](#)."

⚠ **CAUTION:** To guard against electrical shock, always unplug your computer from the electrical outlet before [opening the cover](#).

1. [Shut down the computer](#).

➡ **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

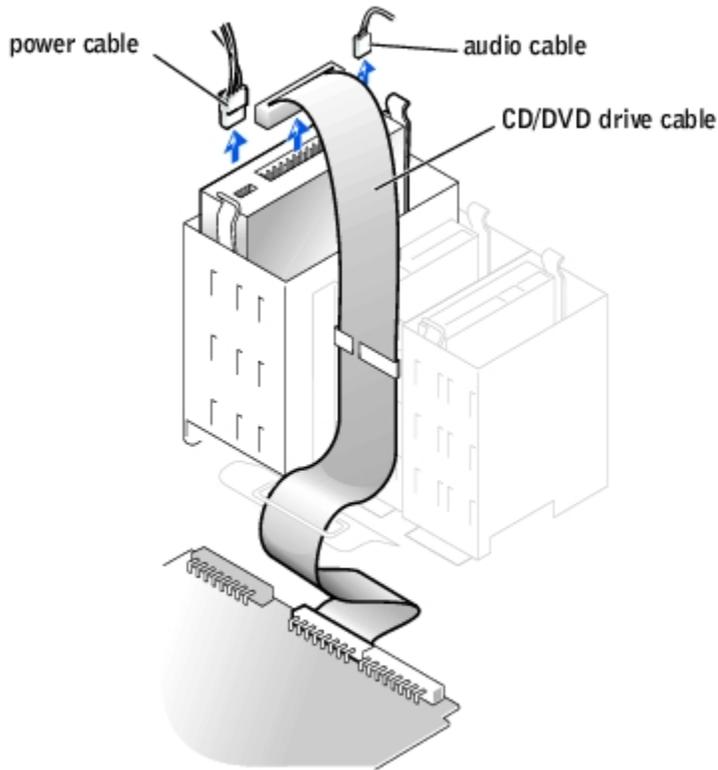
2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the

system board.

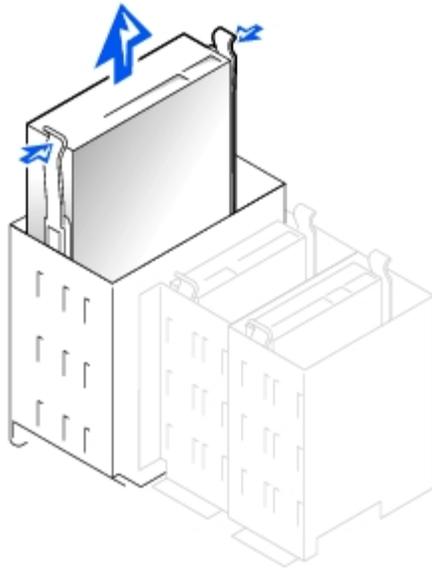
4. [Open the computer cover.](#)

Removing a CD/DVD Drive

1. Disconnect the power, audio, and CD/DVD drive cables from the back of the drive.



2. Press inward on the two tabs on the sides of the drive, and then slide the drive upward and remove it from the drive bay.

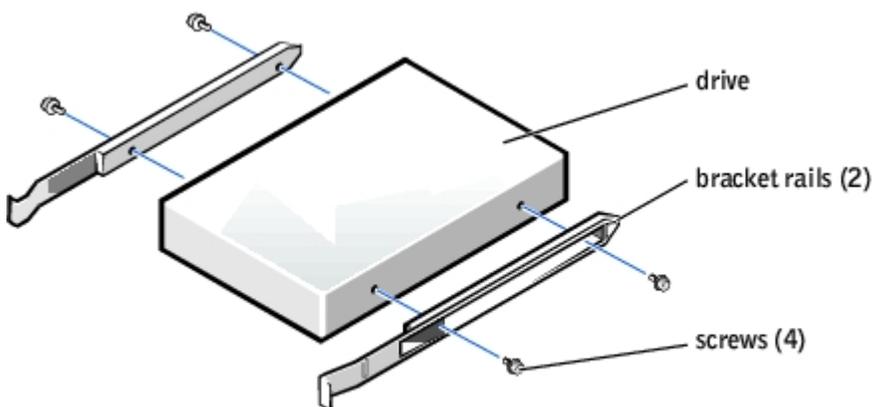


Installing a CD/DVD Drive

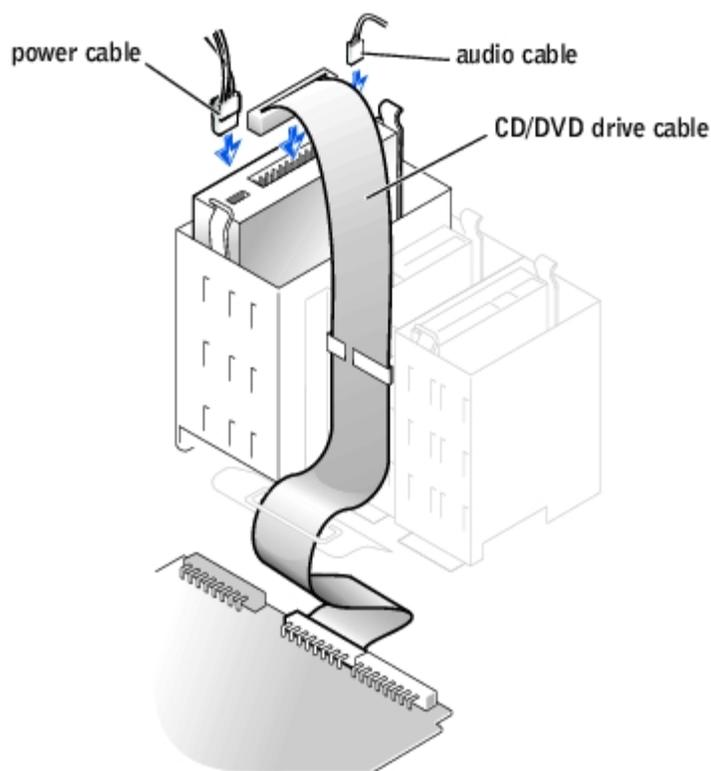
1. If you are installing a new drive, unpack the drive and prepare it for installation.

Check the documentation that accompanied the drive to verify that the drive is configured for your computer. If you are installing an IDE drive, configure the drive for the cable select setting.

2. Connect the new drive to the set of rails that are attached to the inside of the cover. If a set of rails is not attached inside the cover, contact Dell. See your *Owner's Manual* for contact information.
3. If you are installing a replacement drive and the new drive does not have the bracket rails attached, remove the rails from the old drive by removing the two screws that secure each rail to the drive. Attach the bracket to the new drive by aligning the screw holes on the drive with the screw holes on the bracket rails and then inserting and tightening all four screws (two screws on each rail).



4. Gently slide the drive into place until the tabs securely click into position.
5. Connect the power, audio, and CD/DVD drive cables to the drive.



6. If you are installing a new CD/DVD drive rather than replacing a drive, [remove the front-panel inserts](#).
7. If you are installing a drive that has its own controller card, install the controller card in a card slot.
8. Check all cable connections, and fold cables out of the way to provide airflow for the fan and cooling vents.
9. [Close the computer cover](#).

➡ **NOTICE:** To connect a network cable, first plug the cable in to the network wall jack and then plug it in to the computer.

10. Connect your computer and devices to their electrical outlets, and turn them on.

See the documentation that came with the drive for instructions on installing any software required for drive operation.

Replacing the Microprocessor

⚠ **CAUTION:** Before you begin any of the procedures in this section, follow the steps listed in "[Safety Instructions](#)."

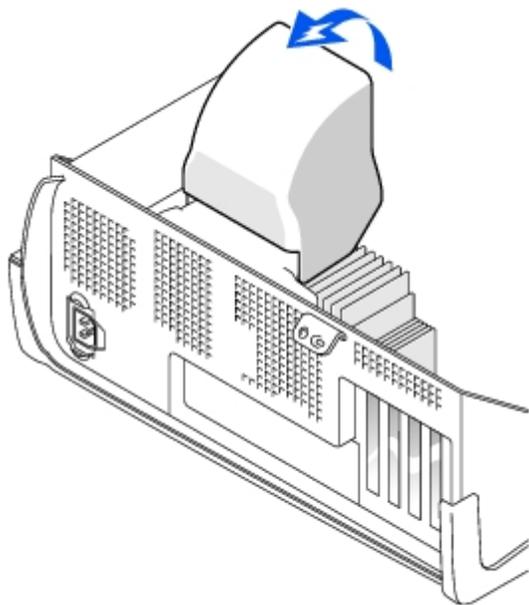
⚠ **CAUTION:** To guard against electrical shock, always unplug your computer from the electrical outlet before [opening the cover](#).

1. [Shut down the computer](#).
2. Turn off any attached devices and disconnect them from their electrical outlets.

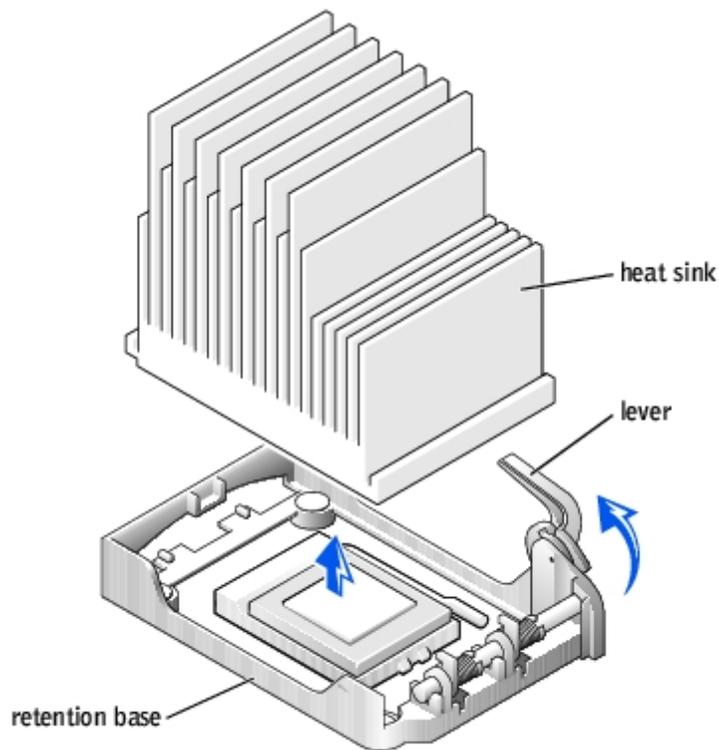
➡ **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from

the network wall jack.

3. Disconnect the power cable from your computer, and then press the power button to ground the system board.
4. [Open the computer cover.](#)
5. Disconnect the cooling fan power cable from the J1D2 connector on the system board.
6. Disconnect the +12-VDC P2 DC power cable from the J5C1 connector on the system board.
7. Lift up the airflow shroud.



8. To remove the heat sink, press and lower the green lever on the retention mechanism until it is parallel to the system board.



➔ **NOTICE:** Gently rock the heat sink and then lift it to remove it.

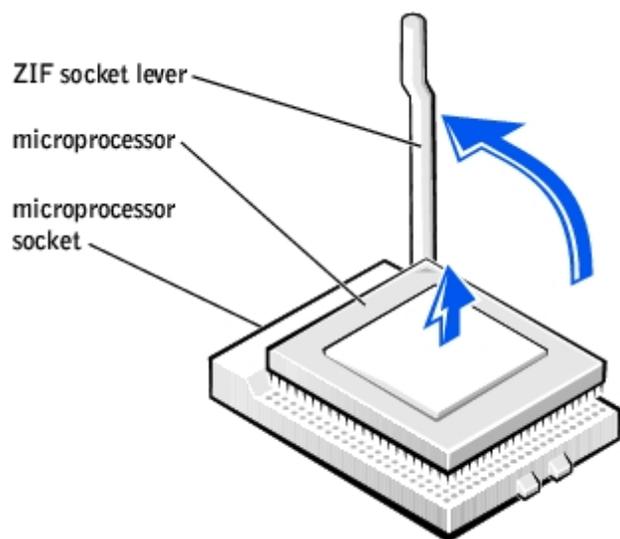
9. Lift the heat sink away from the microprocessor.

➔ **NOTICE:** Do not discard the original heat sink unless you are installing a microprocessor upgrade kit from Dell. If you are *not* installing a microprocessor upgrade kit from Dell, reuse the original heat sink and blower when you install your new microprocessor.

10. Pull the socket lever up straight up until the microprocessor is released.

The microprocessor uses a ZIF socket with a lever-type handle that secures or releases the microprocessor.

➔ **NOTICE:** Be careful not to bend any of the pins when you remove the microprocessor package from the ZIF socket. Bending the package pins can permanently damage the microprocessor.



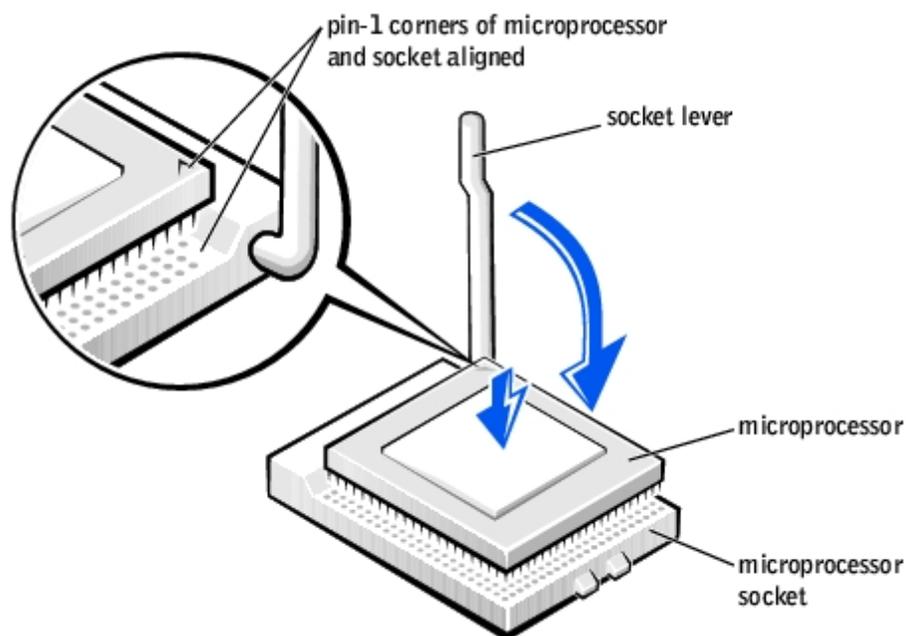
11. Remove the microprocessor from the socket.

Leave the release lever extended in the release position so that the socket is ready for the new microprocessor.

Installing the Microprocessor

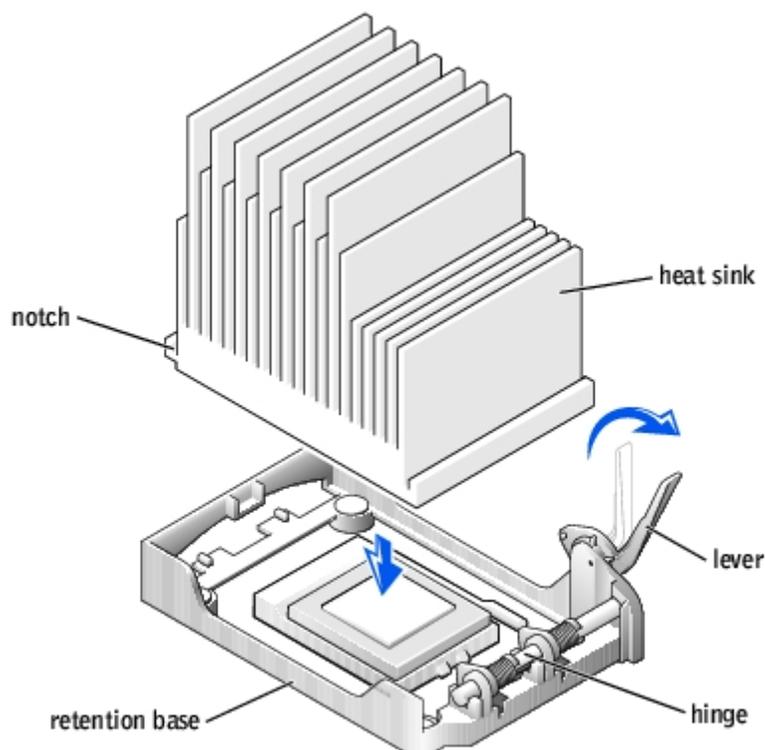
NOTICE: You must position the microprocessor package correctly in the socket to avoid permanent damage to the microprocessor and the computer.

1. If the release lever on the ZIF socket is not extended to the release position, move it to that position.
2. Align pin-1 (the beveled corner) of the microprocessor package and pin-1 of the socket.



NOTICE: The microprocessor pins are delicate. To avoid damage, ensure that the microprocessor aligns properly with the socket, and do not use excessive force when installing the processor.

3. Carefully set the microprocessor in the socket and press it down lightly to seat it.
4. Rotate the lever back toward the system board until it snaps into place, securing the microprocessor package.
5. If you are installing a new heat sink, remove the film covering the bottom of the heat sink.
6. Lower the heat sink to the microprocessor so that the heat sink fits in the retention base.



7. Raise the retention lever and press until the heat sink is secured. You will feel the lever pause once it is at a 90-degree angle. Keep pressing the lever another 30 degrees, ensuring that it is in the locked position
8. Lower the airflow shroud over the heat sink.
9. Reconnect the cooling fan power cable to the J1D2 connector on the system board.
10. Plug the +12-VDC P2 DC power cable into the J5C1 connector on the system board.
11. [Close the computer cover.](#)

NOTICE: To connect a network cable, first plug the cable in to the network wall jack and then plug it in to the computer.

12. Connect your computer and devices to their electrical outlets, and turn them on.

If you are installing a microprocessor replacement kit from Dell, return the original heat sink assembly and microprocessor package to Dell in the same package in which your replacement kit was sent. Your microprocessor replacement kit should include a replacement microprocessor heat sink and one replacement securing clip.

Removing the Front I/O Panel

⚠ CAUTION: Before you begin any of the procedures in this section, follow the steps listed in "[Safety Instructions](#)."

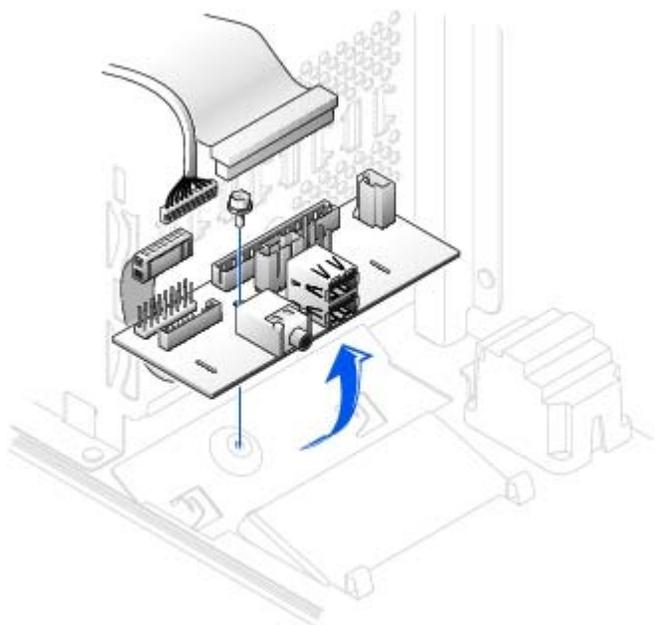
⚠ CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before [opening the cover](#).

1. [Shut down the computer](#).

➡ NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the power cable from your computer, and then press the power button to ground the system board.
4. [Open the computer cover](#).
5. Disconnect the control panel cable from the control panel connector. Disconnect the I/O cable from the connector on the system board.

Note the routing of the control panel cable as you remove it from the computer so that you can replace it correctly.



6. Remove all cables that are connected to the front I/O panel.
7. From inside the computer cover, remove the mounting screw that secures the front I/O panel to the computer.
8. Remove the front I/O panel from the computer.
9. Reinstall the front I/O panel by reversing steps 5 through 7.
10. [Close the computer cover](#).

➡ NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

11. Connect your computer and devices to their electrical outlets, and turn them on.

Replacing the Power Supply

Removing the Power Supply

⚠ CAUTION: Before you begin any of the procedures in this section, follow the steps listed in "[Safety Instructions](#)."

⚠ CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before [opening the cover](#).

1. [Shut down the computer](#).

➡ NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

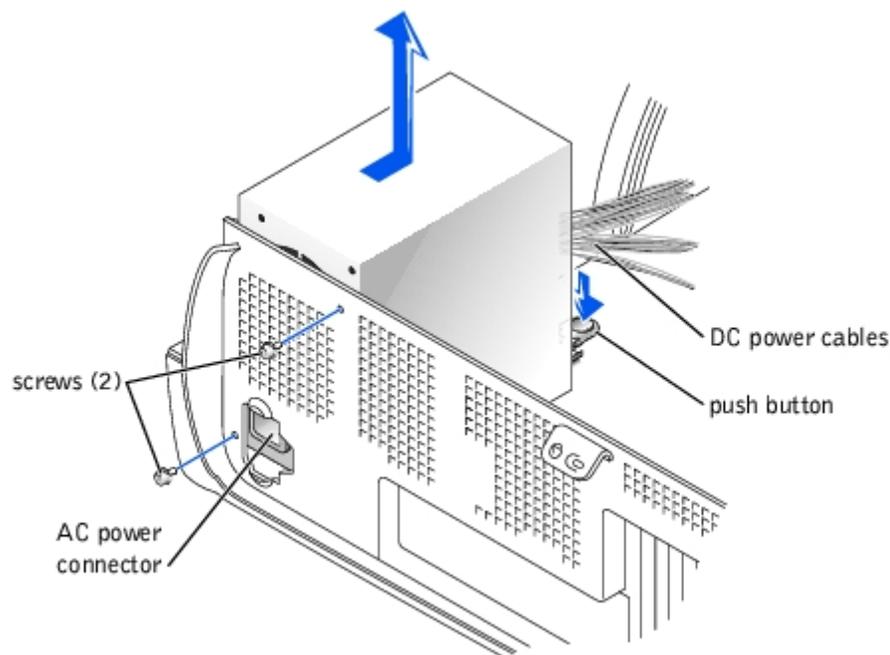
2. Turn off any attached devices and disconnect them from their electrical outlets.

➡ NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

3. Disconnect the power cable from your computer, and then press the power button to ground the system board.

4. [Open the computer cover](#).

5. Be sure the AC power cable is disconnected from the back of the power supply. Then disconnect the DC power cables from the system board and the drives.



Note the routing of the DC power cables underneath the tabs in the computer frame as you remove them

from the system board and drives. It is important to route these cables properly when you replace them to prevent them from being pinched or crimped.

6. Remove the two screws that secure the power supply to the back of the computer.
7. Press the "PUSH" button located on the floor of the computer frame.
8. Slide the power supply toward the front of the system approximately 1 inch.
9. Lift the power supply up and out of the computer.

Replacing the Power Supply

1. Slide the power supply into place.
2. Replace the two screws that secure the power supply to the back of the computer frame.
3. Reconnect the DC power cables.
4. [Close the computer cover.](#)



NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

5. Connect your computer and devices to their electrical outlets, and turn them on.
-

Replacing the System Board

Removing the System Board



CAUTION: Before you begin any of the procedures in this section, follow the steps listed in "[Safety Instructions.](#)"



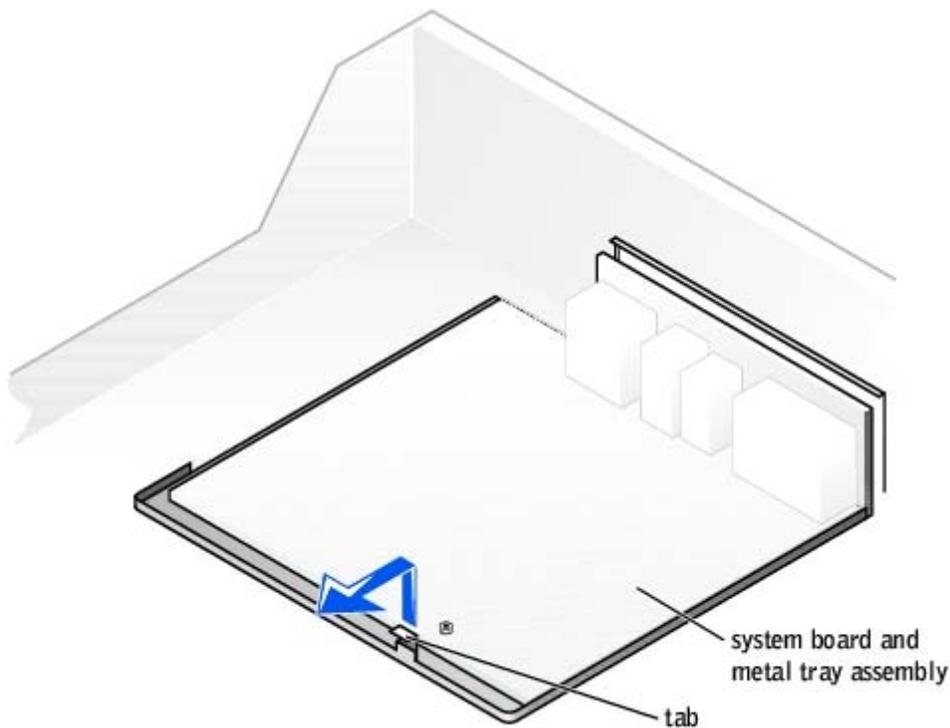
CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before [opening the cover.](#)

1. [Shut down the computer.](#)



NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the power cable from your computer, and then press the power button to ground the system board.
4. [Open the computer cover.](#)



➔ **NOTICE:** The system board and the metal tray are attached and are removed as one piece.

5. Remove or move any components that restrict access to the system board.
6. Disconnect all cables from the system board.

Before you remove the existing system board, visually compare the replacement system board to the existing system board to make sure that you have the correct part.

7. Pull up on the tab and slide the system board toward the front of the computer; lift it up and away.
8. Place the system board that you just removed next to the replacement system board.

Replacing the System Board

1. Transfer components from the existing system board to the replacement system board:
 - a. Remove the memory modules and install them on the replacement board.

⚠ CAUTION: The microprocessor package and heat sink assembly can get hot. To avoid burns, be sure that the package and assembly have had sufficient time to cool before you touch them.

- b. Remove the fan/heat sink assembly and microprocessor package from the existing system board and transfer them to the replacement system board.
2. Configure the settings of the replacement system board. Set the jumper on the replacement system board so it is identical to the one on the existing board.

➔ **NOTICE:** Some components and connectors on the replacement system board may be in different locations than the corresponding connectors on the existing system board.

3. Orient the replacement board by aligning the notches on the bottom to the tabs on the computer frame floor.
4. Slide the board toward the back of the computer until it clicks into place.
5. Replace any components and cables that you removed from the system board.

 **NOTICE:** To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

6. Reconnect all cables to their connectors at the back of the computer, [close the computer cover](#), and reconnect the computer and devices to their power sources and turn them on.

Closing the Computer Cover

1. Ensure that all cables are connected, and fold cables out of the way. Ensure that cables are not routed over the drive cage - they can prevent the cover from closing properly.
2. Ensure that no tools or extra parts are left inside the computer.
3. Pivot the cover down and ensure that the release buttons click into place.

 **NOTICE:** To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

4. Connect your computer and devices to their electrical outlets, and turn them on.

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