

# Dell™ Dimension™ 4600C Service Manual

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## Notes, Notices, and Cautions

-  **NOTE:** A NOTE indicates important information that helps you make better use of your computer.
-  **NOTICE:** A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.
-  **CAUTION:** A CAUTION indicates a potential for property damage, personal injury, or death.

## Abbreviations and Acronyms

For a complete list of abbreviations and acronyms, see the *Tell Me How* help file.

If you purchased a Dell™ n Series computer, any references in this document to Microsoft® Windows® operating systems are not applicable.

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August 2004 Rev. A05

## Advanced Troubleshooting

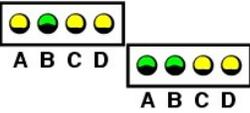
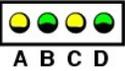
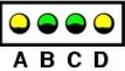
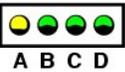
### Dell™ Dimension™ 4600C Service Manual

- [Diagnostic Lights](#)
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## Diagnostic Lights

To help you troubleshoot a problem, your computer is equipped with four lights on the back panel labeled "A," "B," "C," and "D." These lights can be yellow or green. When the computer starts normally, the lights flash. After the computer starts, all four lights will display solid green. If the computer malfunctions, the color and sequence of the lights identify the problem.

**CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

Light Pattern	Problem Description	Suggested Resolution
	The computer is in a normal off condition or a possible pre-BIOS failure has occurred.	Verify that the computer is plugged into a working electrical outlet and that you have pressed the power button.
	Memory modules are detected, but a memory failure has occurred.	<ol style="list-style-type: none"> <li>1. If you have one memory module installed, <a href="#">reinstall the module</a> and restart the computer.</li> <li>1. If you have two or more memory modules installed, remove the modules, <a href="#">reinstall one module</a>, and then restart the computer. If the computer starts normally, reinstall an additional module. Continue until you have identified a faulty module or reinstalled all modules without error.</li> <li>1. If available, <a href="#">install</a> properly working memory of the same type into your computer.</li> <li>1. If the problem persists, contact Dell. See "Contacting Dell" in your <i>Owner's Manual</i> for technical assistance.</li> </ol>
	A possible expansion card failure has occurred.	<ol style="list-style-type: none"> <li>1. Determine if a conflict exists by <a href="#">removing a card</a> (not the video card) and then restarting the computer.</li> <li>2. If the problem persists, <a href="#">reinstall the card</a> that you removed, remove a different card, and then restart the computer.</li> <li>3. Repeat this process for each card. If the computer starts normally, troubleshoot the last card removed from the computer for resource conflicts (see "Resolving Software and Hardware Incompatibilities" in your <i>Owner's Manual</i>).</li> <li>4. If the problem persists, contact Dell. See "Contacting Dell" in your <i>Owner's Manual</i> for technical assistance.</li> </ol>
	A possible video card failure has occurred.	<ol style="list-style-type: none"> <li>1. If the computer has a video card, <a href="#">remove the card</a>, reinstall it, and then restart the computer.</li> <li>1. If the problem still exists, <a href="#">install a video card</a> that you know works and restart the computer.</li> <li>1. If the problem persists or the computer has integrated video, contact Dell. See "Contacting Dell" in your <i>Owner's Manual</i> for technical assistance.</li> </ol>
	A possible CD/DVD or hard drive failure has occurred.	Reseat all power and data cables and restart the computer.
	A possible USB failure has occurred.	Reinstall all USB devices, check cable connections, and then restart the computer.
	No memory modules are detected.	<ol style="list-style-type: none"> <li>1. <a href="#">Reinstall all memory modules</a>, and restart the computer.</li> <li>1. To eliminate the possibility of a faulty memory connector, <a href="#">remove all memory modules</a>.</li> </ol>

		reinstall one memory module (if the computer supports a single module), and then restart the computer. If the computer starts normally, move the memory module to a different connector and restart the computer. Continue until you have identified a faulty connector or reinstalled all modules without error.
	Memory modules are detected, but a memory configuration or compatibility error exists.	<ul style="list-style-type: none"> <li>1 Ensure that there are no special <a href="#">memory module/memory connector placement requirements</a>.</li> <li>1 Verify that the memory modules that you are installing are <a href="#">compatible</a> with your computer.</li> <li>1 If the problem persists, contact Dell. See "Contacting Dell" in your <i>Owner's Manual</i> for technical assistance.</li> </ul>
	Other failure has occurred.	<ul style="list-style-type: none"> <li>1 Ensure that the cables are properly connected from the hard drive, CD drive, and DVD drive to the <a href="#">system board</a>.</li> <li>1 If the problem persists, contact Dell. See "Contacting Dell" in your <i>Owner's Manual</i> for technical assistance.</li> </ul>
	The computer is in a normal operating condition after POST.	None.
<ul style="list-style-type: none"> <li> = yellow</li> <li> = green</li> <li> = off</li> </ul>		

## Beep Codes

Your computer might emit a series of beeps during start-up if the monitor cannot display errors or problems. This series of beeps, called a beep code, identifies a problem. One possible beep code (code 1-3-1) consists of one beep, a burst of three beeps, and then one beep. This beep code tells you that the computer encountered a memory problem.

[Reseating the memory modules](#) may fix the beep code errors in the following table. If the problem persists, see "Contacting Dell" in your *Owner's Manual* for instructions on obtaining technical assistance.

Code	Cause
1-3-1 through 2-4-4	Memory not being properly identified or used
4-3-1	Memory failure above address 0FFFFh

If you hear one of the following beep codes, see "Contacting Dell" in your *Owner's Manual* for instructions on obtaining technical assistance.

Code	Cause
1-1-2	Microprocessor register failure
1-1-3	NVRAM
1-1-4	ROM BIOS checksum failure
1-2-1	Programmable interval timer
1-2-2	DMA initialization failure
1-2-3	DMA page register read/write failure
3-1-1	Slave DMA register failure
3-1-2	Master DMA register failure
3-1-3	Master interrupt mask register failure
3-1-4	Slave interrupt mask register failure
3-2-2	Interrupt vector loading failure
3-2-4	Keyboard Controller Test failure
3-3-1	NVRAM power loss
3-3-2	NVRAM configuration
3-3-4	Video Memory Test failure
3-4-1	Screen initialization failure
3-4-2	Screen retrace failure

3-4-3	Search for video ROM failure
4-2-1	No time tick
4-2-2	Shutdown failure
4-2-3	Gate A20 failure
4-2-4	Unexpected interrupt in protected mode
4-3-3	Timer-chip counter 2 failure
4-3-4	Time-of-day clock stopped
4-4-1	Serial or parallel port test failure
4-4-4	Cache test failure

## System Messages

 **NOTE:** If the message you received is not listed in the following table, see the documentation for either the operating system or the program that was running when the message appeared.

Message	Possible Cause	Corrective Action
8042 Gate-A20 error	The keyboard controller failed its test.	If you receive this message after you make changes in the system setup program, <a href="#">enter the system setup program</a> and restore the original value (s).
Address Line Short!	An error in the address decoding circuitry in the memory has occurred.	<a href="#">Reseat the memory modules.</a>
C: Drive Error C: Drive Failure	The hard drive is not working or is not configured correctly.	Ensure that the drive is installed correctly in the computer and defined correctly in the <a href="#">system setup program</a> .
Cache Memory Bad, Do Not Enable Cache	The cache memory is not operating.	See "Contacting Dell" in your <i>Owner's Manual</i> for instructions on obtaining technical assistance.
CH-2 Timer Error	An error is occurring on the timer on the system board.	See "Contacting Dell" in your <i>Owner's Manual</i> for instructions on obtaining technical assistance.
CMOS Battery State Low CMOS Checksum Failure CMOS System Options Not Set CMOS Display Type Mismatch CMOS Memory Size Mismatch CMOS Time and Date Not Set	The system configuration information in the system setup program is incorrect or the battery charge may be low.	<a href="#">Enter the system setup program</a> , verify the system configuration, and then restart the computer.
Diskette Boot Failure	Drive A or B is present but has failed the BIOS POST.	Ensure that the drive is installed correctly in the computer and defined correctly in the <a href="#">system setup program</a> . Check the interface cable at both ends.
DMA Error DMA 1 Error DMA 2 Error	Error in the DMA controller on the system board.	The keyboard or <a href="#">system board</a> may need to be replaced.
HDD Controller Failure	The BIOS cannot communicate with the hard drive controller.	Ensure that the <a href="#">hard drive</a> is installed correctly in the computer and defined correctly in the <a href="#">system setup program</a> . Check the interface cable at both ends.
INTR1 Error INTR2 Error	An interrupt channel on the system board failed to POST.	The keyboard or <a href="#">system board</a> may need to be replaced.
Invalid Boot Diskette	The operating system cannot be located on drive A or drive C.	<a href="#">Enter the system setup program</a> and confirm that drive A or drive C is properly identified.
Keyboard Error	The BIOS has detected a stuck key.	Ensure that nothing is resting on the keyboard. If a key appears to be stuck, carefully pry it up. If the problem persists, you may need to replace the keyboard.
KB/Interface Error	An error occurred with the keyboard connector.	Ensure that nothing is resting on the keyboard. If a key appears to be stuck, carefully pry it up. If the problem persists, you may need to replace the keyboard.
No ROM Basic	The operating system cannot be located on drive A or drive C.	<a href="#">Enter the system setup program</a> and confirm that drive A or drive C is properly identified.

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## Battery

**⚠ CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

A coin-cell battery maintains computer configuration, date, and time information. The battery can last several years.

If you have to repeatedly reset time and date information after turning on the computer, replace the battery.

**⚠ CAUTION:** A new battery can explode if it is incorrectly installed. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

To replace the battery:

1. Record all the screens in the [system setup program](#) so that you can restore the correct settings in [step 14](#).
2. [Shut down the computer](#) through the **Start** menu.
3. Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.

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

4. Turn off any attached devices and disconnect them from their electrical outlets.
5. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.
6. [Remove the computer stand](#), if it is attached.

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

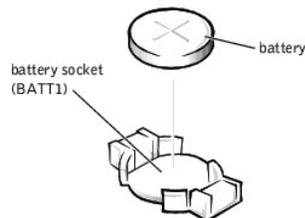
7. [Open the computer cover](#).

**➡ NOTICE:** Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.

8. Locate the battery socket on the [system board](#).

**➡ NOTICE:** If you pry the battery out of its socket with a blunt object, be careful not to touch the system board with the object. Ensure that the object is inserted between the battery and the socket before you attempt to pry out the battery. Otherwise, you may damage the system board by prying off the socket or by breaking circuit traces on the system board.

9. Remove the battery by carefully prying it out of its socket with your fingers or with a blunt, nonconducting object such as a plastic screwdriver.
10. Insert the new battery into the socket with the side labeled "+" facing up, and snap the battery into place.



11. [Close the computer cover](#).
12. [Attach the computer stand](#) (optional).

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

13. Connect your computer and devices to electrical outlets, and turn them on.
  14. [Enter system setup](#) and restore the settings you recorded in [step 1](#).
  15. Properly dispose of the old battery. See the safety instructions in the *Owner's Manual* or *Product Information Guide*.
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## Before You Begin

### Dell™ Dimension™ 4600C Service Manual

## Getting Started

This section provides procedures for removing and replacing the components, assemblies, and subassemblies in the Dell™ Dimension™ 4600C computer. Unless otherwise noted, each procedure assumes that the following conditions exist:

- 1 You have performed the steps in "[Precautionary Measures](#)."
- 1 You have read the safety information in your *Product Information Guide*.
- 1 You have opened the computer cover.

## Recommended Tools

Your computer is primarily a tool-less one, but certain procedures (such as removing the heat-sink blower or the control panel) require the use of one or more of the following tools:

- 1 Small flat-blade screwdriver
- 1 #1 and #2 Phillips-head screwdrivers
- 1 An 8-inch, #2 Phillips-head screwdriver

## Precautionary Measures

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

 **CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

 **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 (or wait until the standby light is extinguished) after turning off the computer and unplugging the power cable before removing a component from the system board or disconnecting a device from the computer.

Before you start to work on the computer, perform the following steps in the sequence listed:

1. [Shut down the computer](#) through the **Start** menu.
2. Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.

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

3. Disconnect any telephone or telecommunication lines from the computer.
4. Disconnect your computer and all attached devices from their electrical outlets, and then press the power button to ground the system board.

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

- 1 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.
- 1 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.

## 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):

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

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## Closing the Computer Cover

1. Ensure that all cables are connected, and fold cables out of the way.

Gently pull the power cables toward you so that they do not get caught underneath the drives.

2. Ensure that no tools or extra parts are left inside the computer.
3. Close the cover:
  - a. Pivot the cover down.
  - b. Press down on the right side of the cover until it closes.
  - c. Press down on the left side of the cover until it closes.
  - d. Ensure that both sides of the cover are locked. If not, repeat all of step 3.
4. [Attach the computer stand](#) (optional).

 **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 electrical outlets, and turn them on.
-

## Dell™ Dimension™ 4600C Service Manual

### ● [Opening the Computer Cover](#)

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## Opening the Computer Cover

**⚠ CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in your *Owner's Manual* or *Product Information Guide*.

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

1. [Shut down the computer](#) through the **Start** menu.

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

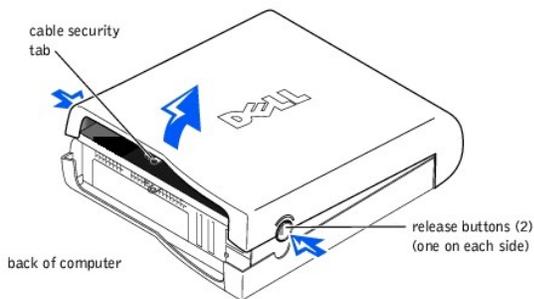
2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.
4. [Remove the computer stand](#), if it is attached.
5. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.

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

6. Locate the *two* release buttons shown in the illustration. Then press the *two* release buttons as you lift the cover.

➡ **NOTICE:** Open the cover slowly to ensure that you do not damage any cables.

Raise the back of the cover, and pivot it toward the front of the computer.



## I/O Panel

### Removing the I/O Panel

**⚠ CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

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

1. [Shut down the computer](#) through the **Start** menu.
2. Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.

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

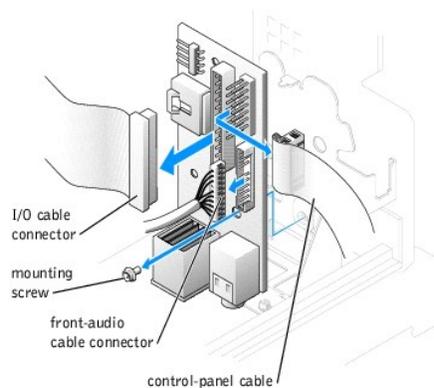
3. Disconnect any telephone or telecommunication lines from the computer.
4. Disconnect your computer and all attached devices from electrical outlets and press the power button to ground the system board.
5. [Remove the computer stand](#), if it is attached.

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

**🔄 NOTICE:** Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.

6. [Open the computer cover](#).
7. To access the screw that holds the I/O panel to the computer, [remove the hard drive](#).
8. Disconnect all cables that are connected to the I/O panel.

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



9. From inside the computer cover, remove the mounting screw that secures the I/O panel to the computer.
10. Remove the I/O panel from the computer.

### Replacing the I/O Panel

To replace the I/O panel, follow the removal procedures in the reverse order.



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## Adding Memory

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."

 **NOTE:** DDR 333 memory operates at 320 MHz when used with an 800-MHz front-side bus microprocessor.

## DDR Memory Overview

DDR memory modules should be installed in *pairs of matched memory size*. This means that if you purchased your computer with 256 MB of memory installed and you want to upgrade to 512 MB of memory, you should replace the present memory with two 256-MB modules. If the DDR memory modules are not installed in matched pairs, the computer will continue to operate, but with a slight reduction in performance.

 **NOTE:** Always install DDR memory modules in the order indicated on the system board.

The recommended memory configurations are:

1. Install a pair of matched memory modules in connectors DDR\_A0 and DDR\_B0.
1. Do not install ECC memory modules.
1. Be sure to install a single memory module in connector DDR\_A0 or the connector closest to the processor before you install modules in the other connectors.

 **NOTICE:** If you remove your original memory modules from the computer during a memory upgrade, keep them separate from any new modules that you may have, even if you purchased the new modules from Dell. You should install your original memory modules in pairs in connectors DDR\_A0 and DDR\_B0. If possible, *do not* pair an original memory module with a new memory module. Otherwise, your computer may not function at optimal performance.

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

## Installing Memory

 **CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

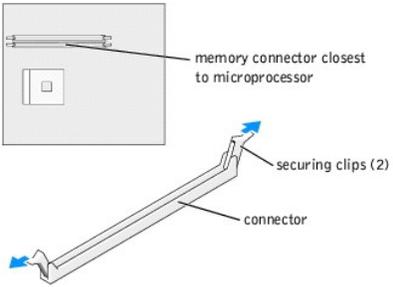
1. [Shut down the computer](#) through the **Start** menu.
2. Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.

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

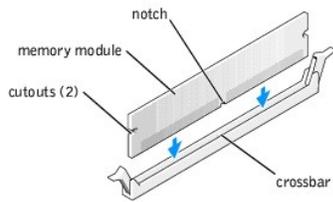
3. Disconnect any telephone or telecommunication lines from the computer.
4. Disconnect your computer and all attached devices from their electrical outlets, and then press the power button to ground the system board.
5. [Remove the computer stand](#), if it is attached.

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

6. [Open the computer cover](#).
7. Press out the securing clip at each end of the memory module connector.



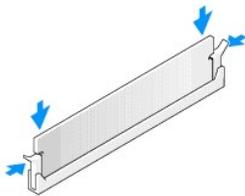
- Align the notch on the bottom of the module with the crossbar in the connector.



- NOTICE:** To avoid damage to the memory module, press the module straight down into the connector while you apply equal force to each end of the module.

- Insert the module into the connector until the module snaps into position.

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



- [Close the computer cover.](#)
- [Attach the computer stand](#) (optional).

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

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

## Removing Memory

- CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

- NOTE:** Memory purchased from Dell is covered under your computer warranty.

- [Shut down the computer](#) through the **Start** menu.
- Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut

down your computer, turn them off now.

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

3. Disconnect any telephone or telecommunication lines from the computer.
4. Disconnect your computer and all attached devices from their electrical outlets, and then press the power button to ground the system board.
5. [Remove the computer stand](#), if it is attached.

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

6. [Open the computer cover](#).
7. Press out the securing clip at each end of the memory module connector.
8. 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.

9. [Close the computer cover](#).
10. [Attach the computer stand](#) (optional).

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## Removing and Installing Parts

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## Adding PC Cards (Optional)

**⚠ CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

You can add PC Cards to computers with integrated PC Card connectors.

### PC Card Types

**📌 NOTE:** "Type" of card refers to its thickness, not its functionality.

The PC Card slot has two connectors that support the following four combinations of cards.

**📌 NOTE:** Your computer is designed for either 5-V or 3.3-V 16-bit PCMCIA cards. Some cards are keyed for 3.3 V only but will not fit into the PC slot. Cards are keyed to prevent incorrect insertion into the slot. If card orientation is not clear, see the documentation supplied with the card.

- 1 A single Type I or Type II card (using either the upper or lower PC Card connector)
- 1 One Type I card and one Type II card (using either connector)
- 1 Two Type I cards or two Type II cards
- 1 One Type III card (using the lower connector)

Both PC Card connectors support extended PC Cards.

### Installing a PC Card

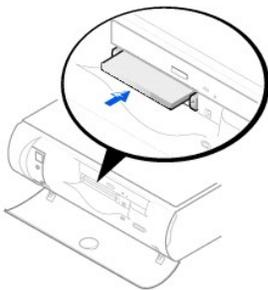
**📌 NOTE:** The length of some PC Cards may prevent the front-panel door from closing.

PC Cards are generally marked with a symbol (such as a triangle or an arrow) to indicate which end to insert into the slot, and the cards are keyed to prevent incorrect insertion. If card orientation is not clear, see the documentation supplied with the card.

1. Hold the card with its orientation symbol pointing into the slot and the top side of the card facing up.

**📌 NOTE:** A PC Card is not a bootable device.

**📌 NOTE:** Insert the card into the slot, and press firmly until the card is completely seated in the internal PC Card connector.

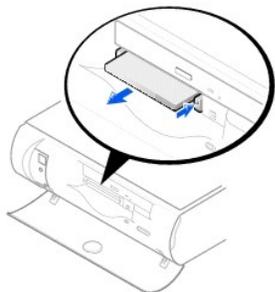


2. If you encounter too much resistance when you insert the card, do not force the card. Check the card's orientation, and try again.
3. Your computer recognizes most PC Cards and automatically loads the appropriate device driver for use with the computer. If the configuration program tells you to load the manufacturer's drivers, install them with the CD that came with the PC Card.

## Removing a PC Card

- ➔ **NOTICE:** Use the PC Card configuration utility on the taskbar to select and stop a card from functioning before you remove it from the computer. If you do not remove the card in the configuration utility, you could lose data from open programs.
- ☒ **NOTE:** Press the button with the upper dot to eject the top card and the button with the lower dot to eject the bottom card.
- ➔ **NOTICE:** Do not attempt to eject a card by pulling its dongle, if one is attached.

Press the eject button, and gently remove the card.



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## Power Supply

### Removing the Power Supply

**⚠ CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

1. [Shut down the computer](#) through the **Start** menu.
2. Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.

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

3. Disconnect any telephone or telecommunication lines from the computer.
4. Disconnect your computer and all attached devices from their electrical outlets, and then press the power button to ground the system board.
5. [Remove the computer stand](#), if it is attached.

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

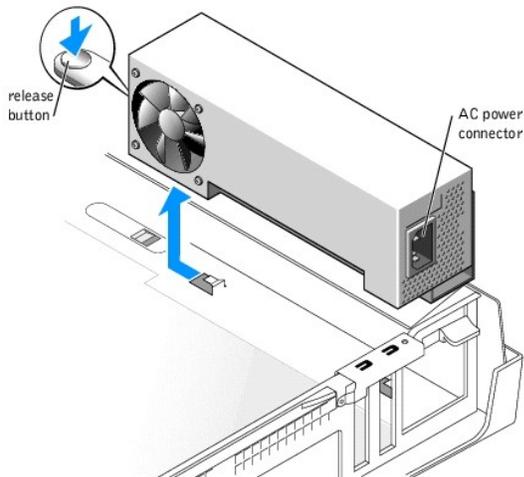
6. [Open the computer cover](#).

**➡ NOTICE:** Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.

7. Disconnect the AC power cable from the power supply connector.
8. 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. You must route these cables properly when you replace them to prevent their being pinched or crimped.

9. Press the release button located on the floor of the computer frame.



10. Slide the power supply approximately 1 inch toward the front of the computer.
11. Lift the power supply up and out of the computer.

### Replacing the Power Supply

1. Slide the power supply into place.
2. Reconnect the DC power cables.
3. Connect the AC power cable to the power supply connector.
4. Run the cables underneath the clips, and press the clips to close them over the cables.
5. [Close the computer cover.](#)
6. [Attach the computer stand](#) (optional).

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

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

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## Reattaching the Front Door

To prevent damage to your computer, the front door is designed to "break away" if it is opened too far. To reattach the front door:

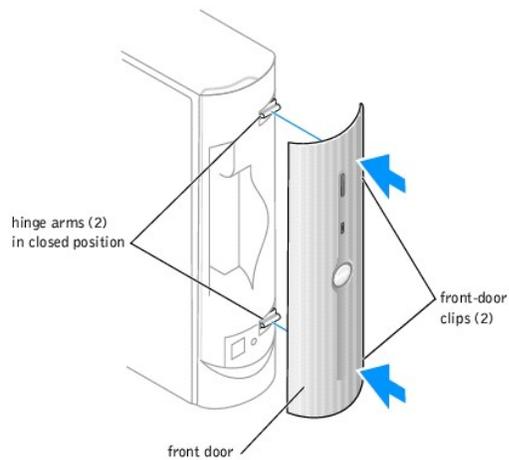
1. [Shut down the computer](#) through the **Start** menu.
2. Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.

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

3. Disconnect any telephone or telecommunication lines from the computer.
4. Disconnect your computer and all attached devices from their electrical outlets, and then press the power button to ground the system board.

📌 **NOTE:** The top hinge arm clicks when it is moved to the closed position—the bottom hinge arm does not.

5. Move the hinge arms to the closed position.
6. Align the two clips on the inside of the front door with the two hinge arms.
7. Press inward on the front door until it clips to both hinge arms.



## AGP Card

**⚠ CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

Your Dell™ computer provides a connector for an AGP card.

1. [Shut down the computer](#) through the **Start** menu.
2. Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.

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

3. Disconnect any telephone or telecommunication lines from the computer.
4. Disconnect your computer and all attached devices from their electrical outlets, and then press the power button to ground the system board.
5. [Remove the computer stand](#), if it is attached.

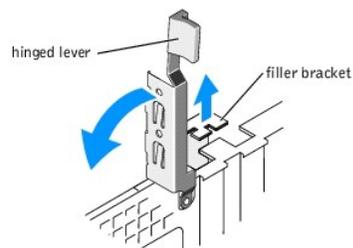
**⚠ CAUTION:** To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

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

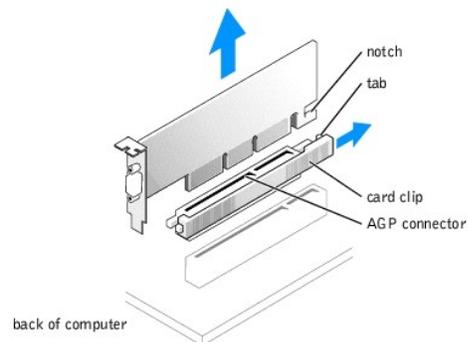
**➡ NOTICE:** Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.

## Removing an AGP Card

1. Remove the filler bracket by raising the hinged lever and sliding the filler bracket up.



2. Slide the card clip toward the front of the computer until the tab is out of the notch on the card.
3. Pull the card up and out of the AGP connector.



## Installing an AGP Card

 **NOTE:** If you purchased the optional video card, ensure that you connected your monitor cable to the correct video connector.

 **NOTICE:** You must use low-profile cards for your computer. A full-size card can damage the computer or the card.

1. To add or replace the card, slide the card clip toward the front of the computer to ensure that the clip is unlocked.
2. Gently press the card into the AGP connector until it is fully seated.
3. Slide the card clip toward the back of the computer, ensuring that the tab fits into the notch on the front end of the card.
4. Secure the card by lowering the hinged lever on the back panel.
5. [Close the computer cover.](#)
6. [Attach the computer stand](#) (optional).
7. Connect the monitor cable to the card's video connector.

 **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.

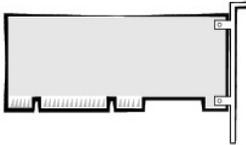
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## Cards

**CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

Your Dell™ computer provides a slot for one low-profile, 32-bit, 33-MHz card.



If you are installing or replacing a card, follow the procedures in the next section. If you are removing but not replacing a card, skip to "[Removing a Card](#)."

1. If you are replacing a card, remove the current driver for the card from the operating system.
2. [Shut down the computer](#) through the **Start** menu.
3. Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.

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

4. Disconnect any telephone or telecommunication lines from the computer.
5. Disconnect your computer and all attached devices from their electrical outlets, and then press the power button to ground the system board.
6. [Remove the computer stand](#), if it is attached.

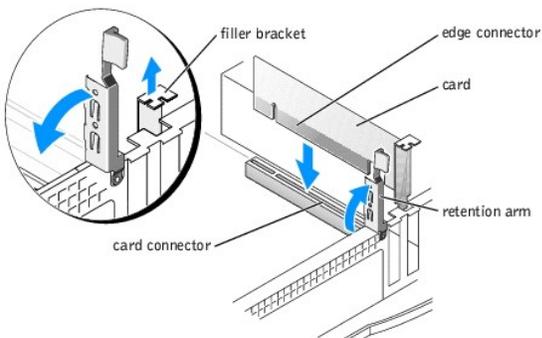
**CAUTION:** To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

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

**NOTICE:** Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.

### Installing a Card

1. Raise the retention arm.



2. If you are installing a new card, remove the filler bracket to create an empty card-slot opening. Then continue with [step 4](#).
3. 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.

4. Prepare the card for installation.

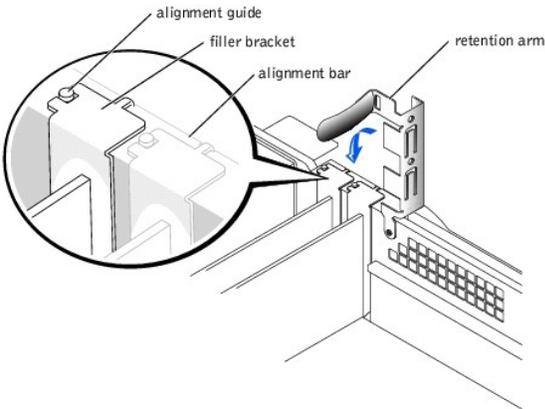
See the documentation that came with the card for information on configuring the card, making internal connections, or otherwise customizing it for your computer.

**⚠ CAUTION:** Some network adapters automatically start the computer when they are connected to a network. To guard against electrical shock, be sure to unplug your computer from its electrical outlet before installing any cards.

5. 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.

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

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

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

9. [Close the computer cover.](#)
10. [Attach the computer stand](#) (optional).

**➡ 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 electrical outlets, and turn them on.
12. Install any drivers required for the card as described in the card documentation.

## Removing a Card

1. Press the lever on the card retention arm and raise the retention arm.
2. If necessary, disconnect any cables connected to the card.
3. Grasp the card by its top corners, and ease it out of its connector.

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

If you need a filler bracket, see "Contacting Dell" in your *Owner's Manual*.

 **NOTE:** 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.

5. Lower the retention arm and press it into place.
6. [Close the computer cover.](#)
7. [Attach the computer stand](#) (optional).

 **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.
9. Remove the card's driver from the operating system.

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## Drives

Your computer supports:

- 1 One hard drive (IDE, serial ATA)
- 1 One optional PC Card module
- 1 One CD or DVD drive

## Hard Drive

 **CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

 **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. Check the documentation for the drive to verify that it is configured for your computer.
3. [Shut down the computer](#) through the **Start** menu.
4. Turn off your computer and any attached devices.
5. 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.

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

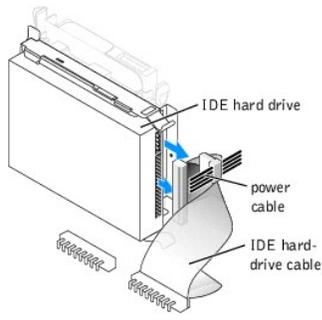
6. Disconnect your computer and devices from their power sources. Also, disconnect any telephone or telecommunication lines from the computer.
7. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.
8. [Remove the computer stand](#), if it is attached.

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

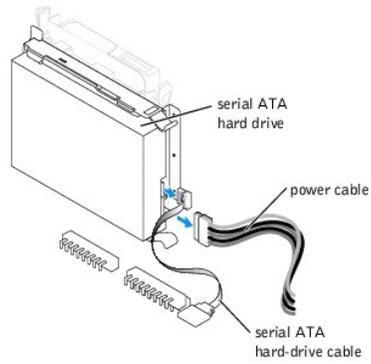
9. [Open the computer cover](#).

## Removing a Hard Drive

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

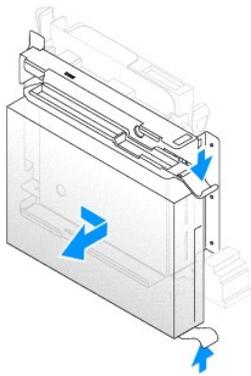


IDE hard drive example



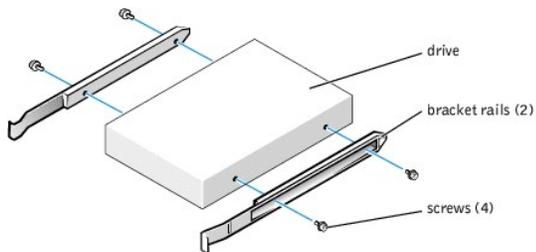
serial ATA hard drive example

2. Press in on the tabs on each side of the drive, slide the drive toward the I/O panel, and then remove the drive from the computer.

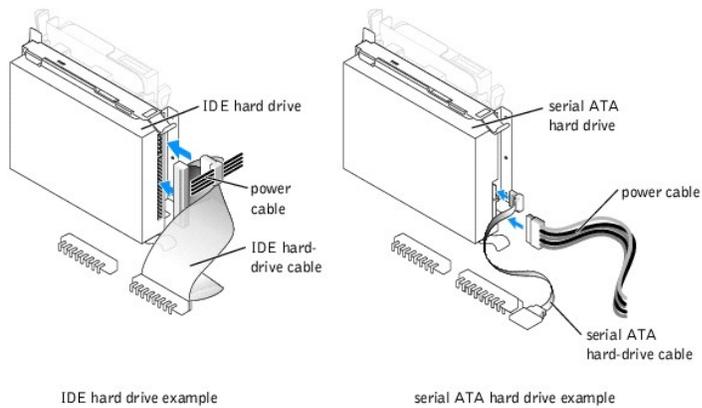


## Installing a Hard Drive

1. Unpack the replacement hard drive and prepare it for installation.
2. 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).



3. Install the hard drive into the computer by gently sliding the drive into place until you hear it securely click.
4. Connect the power and hard-drive cables to the drive.



IDE hard drive example

serial ATA hard drive example

5. Check all connectors to be certain that they are properly cabled and firmly seated.
6. [Close the computer cover.](#)
7. [Attach the computer stand](#) (optional).

➡ **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.

## PC Card Module (Optional)

⚠ **CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

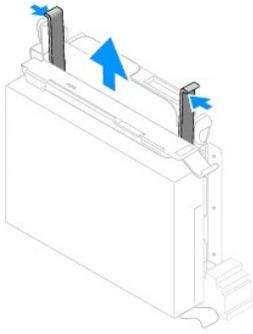
⚠ **CAUTION:** To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

1. [Shut down the computer](#) through the **Start** menu.
2. Turn off your computer and any attached devices.
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.

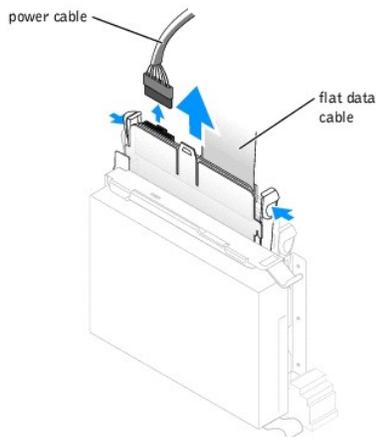
➡ **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

4. Disconnect your computer and devices from their power sources. Also, disconnect any telephone or telecommunication lines from the computer.
5. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.
6. [Remove the computer stand](#), if it is attached.
7. [Open the computer cover.](#)
8. If you are installing a new PC Card module instead of replacing a module, remove the front-panel insert by pressing the tabs on either side of the insert and lifting the insert up.



## Removing a PC Card Module

1. [Remove the interposer board from the CD/DVD drive.](#)
2. Remove the power cable from the PC Card module's power connector.
3. Remove the PC Card module by pressing the green tabs on either side of the drive and lifting the module up.
4. Remove the PC Card module's flat data cable.



## Installing a PC Card Module

1. Attach the PC Card module's flat data cable to the module's data connector.
2. If you are installing a new PC Card module instead of replacing one, [remove the interposer board from the CD/DVD drive.](#)
3. Gently slide the PC Card module into the computer until the green tabs securely click into position.
4. Attach the power cable to the PC Card module's power connector.
5. [Attach the interposer board to the CD/DVD drive.](#)
6. If you are installing a new PC Card module instead of replacing one:
  - a. Attach the flat data cable and the power cable to the card that came with the PC Card module.
  - b. [Install the card into an empty card slot.](#)
7. Check all cable connections, and fold cables out of the way to provide airflow for the fan and cooling vents.
8. [Close the computer cover.](#)
9. [Attach the computer stand](#) (optional).

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

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

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

## CD/DVD Drive

**⚠ CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

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

1. [Shut down the computer](#) through the **Start** menu.
2. Turn off your computer and any devices.
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.

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

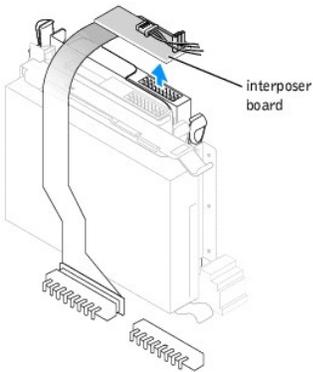
4. Disconnect your computer and devices from their electrical outlets. Also, disconnect any telephone or telecommunication lines from the computer.
5. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.
6. [Remove the computer stand](#), if it is attached.

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

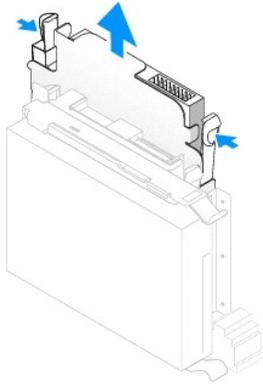
7. [Open the computer cover](#).

## Removing a CD/DVD Drive

1. Remove the interposer board from the drive.



2. Disconnect the power cable from the interposer board.
3. 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.

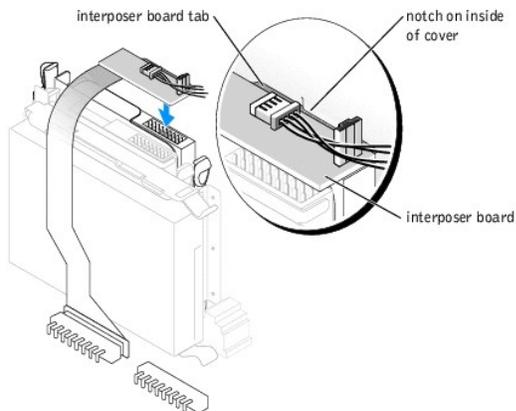


## Installing a CD/DVD Drive

1. 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. Gently slide the drive into place until the tabs securely click into position.
3. Connect the interposer board to the drive:
  - a. Ensure that the interposer board tab fits securely under the notch on the inside of the cover.
  - b. Attach the power cable to the interposer board.



4. If you are installing a drive that has its own controller card, install the controller card in an expansion slot.
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.](#)
7. [Attach the computer stand](#) (optional).

**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.

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## Microprocessor

### Removing the Microprocessor

**⚠ CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

1. [Shut down the computer](#) through the **Start** menu.
2. Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.

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

3. Disconnect any telephone or telecommunication lines from the computer.
4. Disconnect your computer and all attached devices from their electrical outlets, and then press the power button to ground the system board.
5. [Remove the computer stand](#), if it is attached.

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

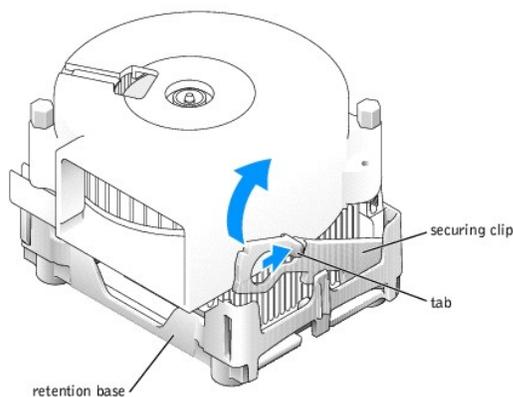
6. [Open the computer cover](#).

**➡ NOTICE:** Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.

7. Disconnect the cooling fan power cable from the [FAN1 connector](#) on the system board.
8. Disconnect the power cable from the [12VPOWER1 connector](#) on the system board.

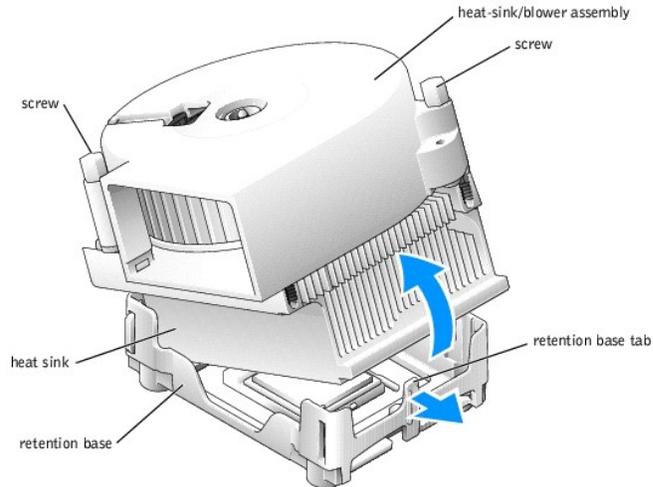
**⚠ CAUTION:** The heat sink assembly can get very hot during normal operation. Be sure that the assembly has had sufficient time to cool before you touch it.

9. Remove the heat-sink/blower assembly:
  - a. Press in the tab on the green securing clip to remove the clip from the retention base.



- b. Remove the heat-sink/blower assembly by pulling out the retention base tab while you lift one end of the heat sink.

**➡ NOTICE:** Lay the heat sink down with the thermal material facing upward.

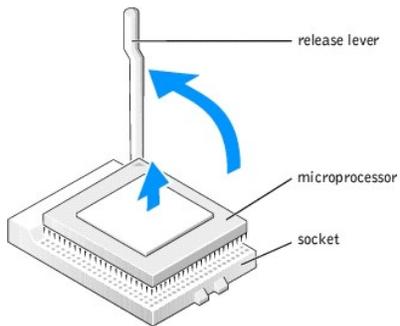


10. Remove the two screws on the blower to remove it from the heat sink.

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

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

11. Pull the release lever straight up until the microprocessor is released, and then remove the microprocessor from the socket.



## Installing the Microprocessor

➔ **NOTICE:** Ground yourself by touching an unpainted metal surface on the back of the computer.

➔ **NOTICE:** Be careful not to bend any of the pins when you unpack the new microprocessor. Bending the pins can permanently damage the microprocessor. If any of the pins on the microprocessor appears to be bent, contact Dell for instructions on obtaining technical assistance.

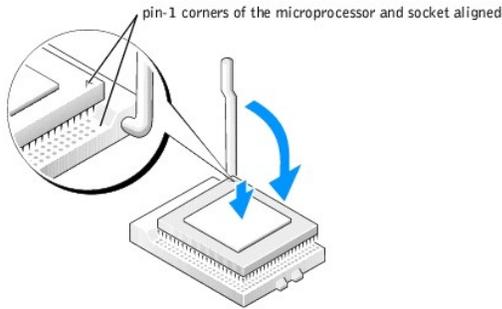
1. Unpack the new microprocessor.

➔ **NOTICE:** You must position the microprocessor correctly in the socket to avoid permanent damage to the microprocessor and the computer when you turn on the computer.

2. If the release lever on the socket is not fully extended, move it to that position.

3. Align the pin-1 corners of the microprocessor and socket.

➔ **NOTICE:** When you place the microprocessor in the socket, ensure that all of the pins fit into the corresponding holes on the socket.



4. Set the microprocessor lightly in the socket and ensure that all pins are headed into the correct holes. Do not use force, which could bend the pins if the microprocessor is misaligned. When the microprocessor is positioned correctly, press it with minimal pressure to seat it.
5. When the microprocessor is fully seated in the socket, pivot the release lever back toward the socket until it snaps into place to secure the microprocessor.

➡ **NOTICE:** If you are *not* installing a microprocessor upgrade kit from Dell, reuse the original heat-sink/blower assembly when you replace the microprocessor.

If you are installing a microprocessor replacement kit from Dell, return the microprocessor to Dell in the same package in which your replacement kit was sent.

6. Reinstall the two screws that attach the blower to the heat sink.
7. Install the heat-sink/blower assembly:
  - a. Place the one end of the heat-sink assembly under the tab on one side of the retention base.
  - b. Lower the assembly until the heat sink fits securely under the tab on the retention base.
  - c. Insert the securing clip by placing the notched end of the clip opposite the tab into the slot on the retention base. Press on the securing clip tab and lower the securing clip into place. Make sure that the notched ends of the securing clip are secured in the retention base slots.
8. Plug the fan cable into the [FAN1 connector](#) on the system board.
9. Plug the power cable into the [12VPOWER1 connector](#) on the system board.
10. [Close the computer cover.](#)
11. [Attach the computer stand](#) (optional).

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

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

## Technical Specifications

### Dell™ Dimension™ 4600C Service Manual

- [Microprocessor](#)
- [System Information](#)
- [Expansion Bus](#)
- [Memory](#)
- [Drives](#)
- [Ports and Connectors](#)
- [Video](#)
- [Audio](#)
- [Network](#)
- [Controls and Lights](#)
- [Power](#)
- [Physical](#)
- [Environmental](#)

Microprocessor	
Microprocessor type	Intel® Pentium® 4 with HT Technology that runs at 2.40, 2.60, 2.80, 3.00, or 3.20 GHz internally and 800 MHz externally or 2.26, 2.40, 2.53, 2.66, 2.80, or 3.06 GHz internally and 533 MHz externally  <b>NOTE:</b> Not all Pentium 4 processors support Hyper-Threading technology.  Intel Celeron® D processor 325, 330, or 335  <b>NOTE:</b> Dell™ Dimension™ 4600C computers with Intel Celeron processors are available only in Japan.
L1 cache	8 KB first-level
L2 cache	256-KB, 512-KB, or 1-MB pipelined-burst, eight-way set associative, write-back SRAM

System Information	
System chip set	Intel 865G
DMA channels	four
Interrupt levels	24 APIC mode
System BIOS chip	4 Mb (512 KB)
System clock	533- or 800-MHz quad-data rate

Expansion Bus	
Bus types	PCI and AGP
Bus speed	PCI: 33 MHz
AGP	AGP 1X, 4X, 8X
AGP connector	one low profile
AGP connector size	172 pins
AGP connector data width (maximum)	32 bits
AGP video bus protocols	4x mode at 1.5 V
PCI connectors	one low profile
PCI connector size	120 pins
PCI connector data width (maximum)	32 bits

Memory	
Architecture	DDR SDRAM
Memory connectors	two
Memory capacities	128-, 256-, 512-MB, and 1-GB non-ECC DDR SDRAM
Minimum memory	256 MB
Maximum memory	2 GB

Memory type	333-MHz DDR SDRAM (non-ECC) <b>NOTE:</b> DDR 333 memory performs at 266 MHz on 400 front- side bus processors.
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<b>Drives</b>	
Externally accessible	one slimline optical bay one slimline 3.5-inch bay
Internally accessible	one bay for 1-inch-high IDE hard drive

<b>Ports and Connectors</b>	
Externally accessible:	
Parallel	25-pin connector (bidirectional)
IEEE 1394 (optional)	two 4-hole, unpowered connectors
Video	15-pin connector
Keyboard	6-pin mini-DIN connector or USB connector
Mouse	6-pin mini-DIN connector or USB connector
USB	two front-panel and six back-panel USB 2.0-compliant connectors
Headphone	front-panel miniature connector for line-out
Audio	five back miniature connectors for line-in, line-out, microphone, and surround and center/Low-Frequency Effects (LFE) channel
S/PDIF	one back-panel digital line-out connector
Network	RJ-45 connector
Internally accessible:	
Primary IDE channel	40-pin connector on PCI local bus
Secondary IDE channel	40-pin connector on PCI local bus
Serial ATA	one 7-pin connector

<b>Video</b>	
Video controller	integrated Intel® Extreme Graphics 2 (low-profile AGP video card also supported)—4X and 8X

<b>Audio</b>	
Audio controller	ADI 1980 integrated 5.1 channel audio

<b>Network</b>	
Network controller	integrated 10/100 Ethernet

<b>Controls and Lights</b>	
Power control	push button
Power light	green light on power button—blinking green in sleep state; solid green for power-on state
Hard-drive access light	green
Diagnostic code lights	four bicolor (amber and green) located on back panel

<b>Power</b>	
DC power supply:	
Wattage	160 W
Heat dissipation	546 BTU (fully-loaded computer without monitor)
Voltage (see your <i>Owner's Manual</i> for important voltage setting information)	90 to 135 V at 50/60 Hz; 180 to 265 V at 50/60 Hz; 100 V at 50/60 Hz for Japanese computers
Backup battery	3-V CR2032 coin cell

Physical	
Height x Width x Depth	32.3 x 9.5 x 35.6 cm (12.7 x 3.8 x 14.0 inches)
(With stand)	33.8 x 18.0 x 35.6 cm (13.3 x 7.1 x 14.0 inches)
Weight	7.43 kg (16.4 lbs)

Environmental	
Temperature:	
Operating	10° to 35°C (50° to 95°F) <b>NOTE:</b> At 35°C (95°F), the maximum operating altitude is 914 m (3000 ft).
Storage	-40° to 65°C (-40° to 149°F)
Relative humidity	20% to 80% (noncondensing)
Maximum vibration:	
Operating	0.25 G at 3 to 200 Hz at 1/2 octave/min
Storage	0.5 G at 3 to 200 Hz at 1/2 octave/min
Maximum shock:	
Operating	bottom half-sine pulse with a change in velocity of 50.8 cm/sec (20 inches/sec)
Storage	23-G faired-square wave with a velocity change of 508 cm/sec (200 inches/sec)
Altitude:	
Operating	-15.2 to 3048 m (-50 to 10,000 ft) <b>NOTE:</b> At 35°C (95°F), the maximum operating altitude is 914 m (3000 ft).
Storage	-15.2 to 10,670 m (-50 to 35,000 ft)

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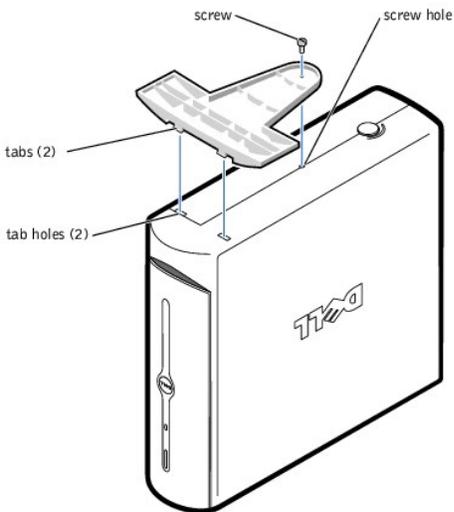
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## Attaching and Removing the Computer Stand

To attach the stand, perform the following steps.

 **NOTE:** Place your computer on a soft surface to prevent scratching of the top cover.

1. Rotate the computer to an upside-down position.
2. Insert the screw into the bottom of the stand.
3. Align the two tabs and the screw in the stand with the tab holes and screw hole in the bottom of the computer.



4. Tighten the screw.
5. Place the computer in the upright position.



To remove the stand, perform the following steps.

 **NOTE:** Place your computer on a soft surface to prevent scratching of the top cover.

1. Turn the computer over so that the stand is at the top.
2. Loosen the screw and lift the stand away.
3. Place the computer in a horizontal position until you reattach the stand.



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## System Board

### Removing the System Board

**⚠ CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

1. [Shut down the computer](#) through the **Start** menu.
2. Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.

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

3. Disconnect any telephone or telecommunication lines from the computer.
4. Disconnect your computer and all attached devices from their electrical outlets, and then press the power button to ground the system board.
5. [Remove the computer stand](#), if it is attached.

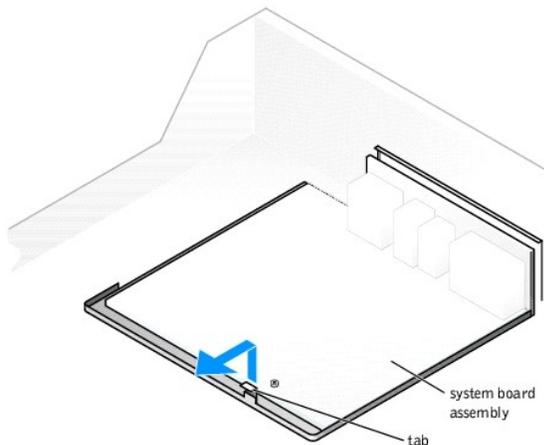
**⚠ CAUTION:** To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

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

**➡ NOTICE:** Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.

**➡ NOTICE:** The system board and metal tray are connected and are removed as one piece.

7. Remove any components that restrict access to the system board.
8. Disconnect all cables from the system board.
9. Before you remove the existing system board assembly, visually compare the replacement system board to the existing system board to make sure that you have the correct part.
10. Pull up on the tab and slide the system board assembly toward the front of the computer, and then lift the assembly up and away.



11. Place the system board assembly 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 heat-sink assembly and microprocessor package can get hot. To avoid burns, ensure that the assembly and package have had sufficient time to cool before you touch them.

- b. [Remove the 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.
3. Set the jumpers on the replacement system board so they are identical to the ones on the existing board.

 **NOTE:** Some components and connectors on the replacement system board may be in different locations from corresponding connectors on the existing system board.

4. Orient the replacement board by aligning the notches on the bottom to the tabs on the computer.
5. Slide the system board assembly toward the back of the computer until it clicks into place.
6. Replace any components and cables that you removed from the system board.
7. Reconnect all cables to their connectors at the back of the computer.
8. [Close the computer cover](#).
9. [Attach the computer stand](#) (optional).

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

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

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## System Setup Program

### Dell™ Dimension™ 4600C Service Manual

- [Overview](#)
  - [Entering the System Setup Program](#)
  - [Clearing Forgotten Passwords](#)
- 

## Overview

The system setup program contains the standard settings for your computer.

 **NOTICE:** Unless you are an expert computer user, do not change the settings for this program. Certain changes might make your computer work incorrectly.

You can use the system setup program as follows:

- 1 To change the system configuration information after you add, change, or remove any hardware in your computer
- 1 To set or change user-selectable options—for example, the user password

Dell recommends that you write down the system setup program screen information for future reference.

---

## Entering the System Setup Program

### Viewing Settings

1. Turn on (or restart) your computer.
2. When the blue DELL™ logo appears, press <F2> immediately.

If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop. Then shut down your computer and try again.

See the following figure for an example of the main program screen.

Dell - Dimension 4600C	
Intel® Pentium® 4 Processor: 3.00 GHz	BIOS Version: 1.00
Level 2 Cache: 2048 KB Integrated	Service Tag: 123456789
System Time .....00:00:00 System Date .....YY/MO/DATE/YF  Drive Configuration .....<Enter> Boot Sequence .....<Enter>  Memory Information .....<Enter> CPU Information .....<Enter>  Integrated Devices (Legacy Select Options) .....<Enter> Power Management .....<Enter> System Security .....<Enter>  Keyboard NumLock .....On Report Keyboard Errors .....Report  Auto Power On .....Disabled Fast Boot .....On OS Install Mode .....Off IDE Hard Drive Acoustics Mode .....Bypass  System Event Log .....<Enter> Asset Tag .....123456789	
↓↑ to select	SPACE, +, - to change
ESC to exit	F1 = Help

## System Setup Screens

The system setup program screens display the current configuration information for your computer. Information on the screen is divided into five areas:

- 1 Title — The box at the top of all screens that lists the computer name.
- 1 Computer data — Two boxes below the title box that display your computer processor, L2 cache, service tag, and the version number of the BIOS.
- 1 Options — A scrollable box listing options that define the configuration of your computer, including installed hardware, power conservation, and security features.

Fields to the right of the option titles contain settings or values. The fields that you can change appear bright on the screen. The fields that you cannot change (because they are set by the computer) appear light blue in color. When <Enter> appears to the right of an option title, press <Enter> to access a popup menu of additional options.

- 1 Key functions — A line of boxes across the bottom of all screens that lists keys and their functions within system setup.
- 1 Help — Press <F1> for information on the option that is selected (highlighted).

Option	Function
System Time	Displays the system time.
System Date	Displays the system date.
Drive Configuration	Displays drive configurations when <Enter> is pressed.
Boot Sequence	Displays boot sequence when <Enter> is pressed.
Memory Information	Displays amount of system memory when <Enter> is pressed.
CPU Information	Displays CPU information when <Enter> is pressed.
Integrated Devices (Legacy Select Options)	Displays integrated device options when <Enter> is pressed.
Power Management	Displays power management options when <Enter> is pressed.
System Security	Displays system security options when <Enter> is pressed.
Keyboard Numlock	Turns the <b>Keyboard NumLock</b> option on and off. The default is <b>On</b> .
Report Keyboard Errors	Displays keyboard errors when set to <b>Report</b> . The default is <b>Report</b> .
Auto Power On	Allows auto power-on. The default is <b>Disabled</b> .
Fast Boot	Turns the fast boot option on and off. The default is <b>On</b> .
OS Install Mode	Turns the OS Install Mode on and off. The default is <b>Off</b> . When set to <b>On</b> , memory is limited to 256 MB to allow the installation of older operating systems that have 2 GB memory limits.
IDE Hard Drive Acoustics Mode	Sets the performance speed of your hard drive. The default is <b>Bypass</b> .
System Event Log	Displays the system event log when <Enter> is pressed.

Asset Tag	Displays asset tag information.
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The following table shows **Drive Configuration** option information.

Diskette Drive A:	Sets the status of a floppy drive. The default is <b>3.5 inch, 1.44 MB</b> .
SATA Primary Drive:	If no device is attached as SATA primary drive, then <b>Off</b> is displayed. If a device is attached, the type of drive is displayed. If <Enter> is pressed, device information is displayed and the drive type can be set as <b>Auto</b> (default) or <b>Off</b> .
IDE Primary Drive 0:	If no device is attached as primary drive 0, then <b>Off</b> is displayed. If a device is attached, the type of drive is displayed. If <Enter> is pressed, device information is displayed and the drive type can be set as <b>Auto</b> (default) or <b>Off</b> .
IDE Primary Drive 1:	If no device is attached as primary drive 1, then <b>Off</b> is displayed. If a device is attached, the type of drive is displayed. If <Enter> is pressed, device information is displayed and the drive type can be set as <b>Auto</b> or <b>Off</b> (default).
IDE Secondary Drive 0:	If no device is attached as secondary drive 0, then <b>Off</b> is displayed. If a device is attached, the type of drive is displayed. If <Enter> is pressed, device information is displayed and the drive type can be set as <b>Auto</b> (default) or <b>Off</b> .
IDE Secondary Drive 1:	If no device is attached as secondary drive 1, then <b>Off</b> is displayed. If a device is attached, the type of drive is displayed. If <Enter> is pressed, device information is displayed and the drive type can be set as <b>Auto</b> or <b>Off</b> (default).
IDE Drive UDMA:	Turns IDE Drive UDMA on and off. The default is <b>On</b> .

The following table shows **Memory Information** option information.

Option	Function
Installed System Memory	Displays the amount of installed system memory.
System Memory Speed	Displays the speed of your system memory.
System Memory Channel Mode	Displays the mode of your system memory.
AGP Aperture	Displays the amount of aperture memory. The default is <b>128 MB</b> .

The following table shows **CPU Information** option information.

Option	Function
Hyper-Threading	Enables Hyper-Threading. The default is <b>Disabled</b> .   <b>NOTE:</b> This option is displayed only if the installed microprocessor supports Hyper-Threading.
CPU Speed	Sets the CPU speed. The default is <b>Normal</b> .
Bus Speed	Displays the bus speed.
Processor 0 ID	Displays processor ID.
Clock Speed	Displays clock speed.
Cache Size	Displays cache size.

The following table shows **Integrated Devices (Legacy Select Options)** option information.

Option	Function
Sound	Turns the integrated sound off and on. The default is <b>On</b> .
Network Interface Controller	Turns the network interface controller off and on or on with PXE support. The default is <b>On</b> .
Mouse Port	Turns the mouse port off and on. The default is <b>On</b> .
USB Emulation	Turns USB emulation off and on. The default is <b>On</b> .
USB Controller	Turns the USB controller off and on. The default is <b>On</b> .
Parallel Port	Displays parallel port settings when <Enter> is pressed. The default mode is <b>PS/2</b> and the I/O address default is <b>378h</b> .
Primary Video Controller	Sets the primary video controller. The default is <b>Auto</b> .
Onboard Video Buffer	Sets the onboard video buffer size. The default is <b>1 MB</b> .

The following table shows **Power Management** option information.

Option	Function
Suspend Mode	Displays the suspend state used by the computer. The default is <b>S3</b> .
AC Power Recovery	Enables AC power recovery to occur. The default is <b>Off</b> .

Low Power Mode	Minimizes power use when the computer is off. The default is <b>Disabled</b> .
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The following table shows **System Security** option information.

Option	Function
Password Status	Locks and unlocks the password option. The default is <b>Unlocked</b> .
System Password	Enables and disables the system password. The default is <b>Not Enabled</b> .
Setup Password	Enables and disables the setup password. The default is <b>Not Enabled</b> .
POST Hotkeys	Selects key that are active during POST. The default is <b>F2 and F12</b> .
PXE BIS Default Policy	Specifies how the computer responds to boot integrity services authentication requests when no certificate has been installed. When set to <b>Deny</b> (the default), this request is rejected. The request is accepted when set to <b>Accept</b> .

## Clearing Forgotten Passwords

 **CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

If you forget your user or setup password, you cannot operate your computer or change settings in the system setup program until you clear the forgotten password(s).

 **NOTICE:** This process erases both the system and setup passwords.

1. [Shut down the computer](#) through the **Start** menu.

 **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. [Remove the computer stand](#), if it is attached.

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

5. [Open the computer cover](#).
6. Locate password jumper PWD1 on the [system board](#) and remove the jumper plug.
7. [Close the computer cover](#), plug your computer into an electrical outlet, and then turn on the computer.

The existing password(s) will be erased.

8. [Shut down the computer](#) through the **Start** menu.

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

9. Turn off any attached devices and disconnect them from their electrical outlets.
10. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.
11. [Open the computer cover](#).
12. Reconnect the jumper plug to password jumper PWD1 on the [system board](#).
13. [Close the computer cover](#).
14. [Attach the computer stand](#) (optional).

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

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

Turning on your computer with password jumper PWD1 installed reenables the password feature.

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## Technical Overview

### Dell™ Dimension™ 4600C Service Manual

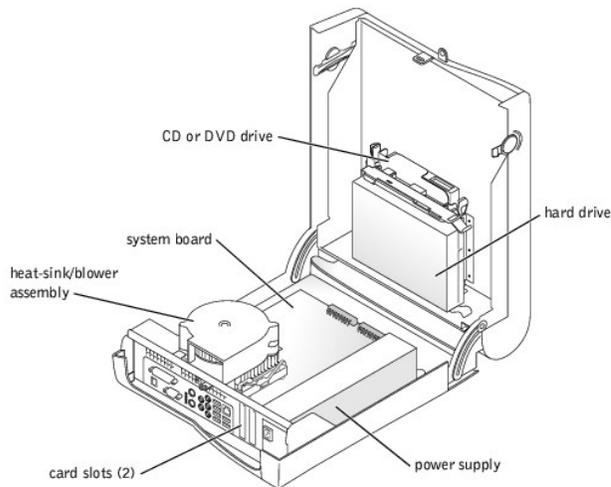
- [Internal View](#)
  - [System Board Connectors and Sockets](#)
  - [Power Supply](#)
  - [DC Power Connectors](#)
  - [IDE Interface Cable Connections for Dell-Installed Drives](#)
  - [Serial ATA Interface Cable Connections for Dell-Installed Drives \(Optional\)](#)
  - [Placement of Dell-Installed Cards](#)
- 

## Internal View

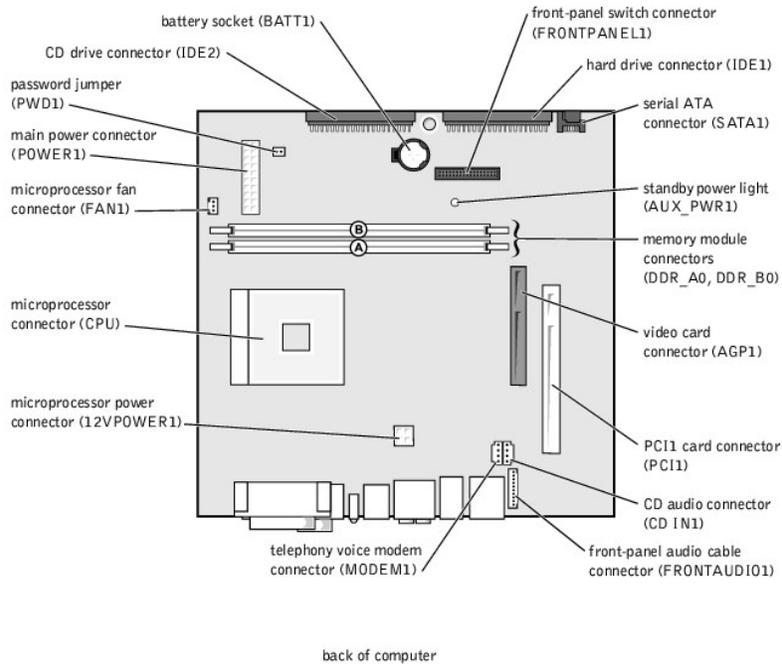
**⚠ CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in the *Owner's Manual* or *Product Information Guide*.

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

**🔧 NOTICE:** Be careful when [opening the computer cover](#) to ensure that you do not inadvertently disconnect cables from the system board.



## System Board Connectors and Sockets



## Power Supply

The 160-W power supply can operate from an AC power source supplying 90-135 VAC or 180-265 VAC at 47-63 Hz. The power supply provides the DC operating voltages and currents listed in the following table.

Output Voltage <sup>1</sup>	Regulation	Minimum Current (A)	Maximum Current (A) <sup>2</sup>
+12 VDC	+/-5%	0.0	11.0 <sup>3</sup>
+5 VDC	+/-5%	1.0/0.2 <sup>4</sup>	11.0
+3.3 VDC	+/-5%	0.1/0.0 <sup>5</sup>	9.0
-12 VDC	+/-10%	0.0	0.5
+5 VFP	+/-5%	0.0	2.0

<sup>1</sup>Outputs meet and do not exceed SELV requirements per electrical standards (UL 1950, IEC 950, or EN60950 Par. 2.3).

<sup>2</sup>Maximum continuous combined load on +5 VDC and +3.3 VDC outputs do not exceed 80 W.

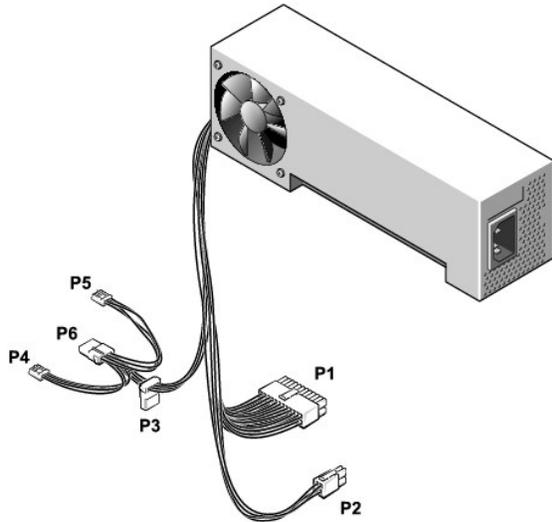
<sup>3</sup> Peak +12 VDC output power (up to 11.0 A) does not exceed 15 seconds in duration. Under this condition, tolerance on the +12 VDC output is allowed to be +/-10%.

<sup>4</sup>+5 VDC minimum load is 0.2 A when there is a minimum load of 0.3 A on the +12 VDC and 0.42 A on the +3.3 VDC outputs simultaneously. +5 V minimum load is 1 A for load transient tests.

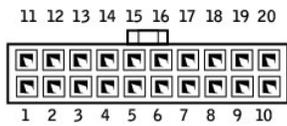
<sup>5</sup>In system configurations where +3.3 VDC is not used, all other outputs stay within regulation while the +3.3 VDC output is in a zero load condition.

## DC Power Connectors

### Power Supply DC Connector Pin Assignments



### DC Power Connector P1



Pin Number	Signal name	18-AWG Wire
1	+3.3 VDC	Orange
2	+3.3 VDC	Orange
3	COM	Black
4	+5 VDC	Red
5	COM	Black
6	+5 VDC	Red
7	COM	Black
8	POK	Gray
9	+5 VFP	Purple
10	+12 VDC	Yellow
11	+3.3 VDC*	Orange
12	-12 VDC	Blue
13	COM	Black
14	PS ON	Green
15	COM	Black
16	COM	Black
17	COM	Black
18	+5 VDC	N/C
19	+5 VCD	Red
20	+5 VCD	Red

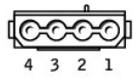
\*Sense connector.

### DC Power Connector P2



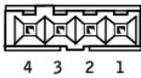
Pin Number	Signal Name	18-AWG Wire
1	COM	Black
2	COM	Black
3	+12 VDC	Yellow
4	+12 VDC	Yellow

### DC Power Connector P3



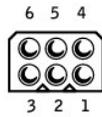
Pin Number	Signal Name	18-AWG Wire
1	+12 VDC	Yellow
2	COM	Black
3	COM	Black
4	+5 VDC	Red

### DC Power Connectors P4 and P5



Pin Number	Signal Name	22-AWG Wire
1	+5 VDC	Red
2	COM	Black
3	COM	Black
4	+12 VDC	Yellow

### DC Power Connector P6



Pin Number	Signal Name	18-AWG Wire
1	N/C	N/C
2	COM	Black
3	COM	Black
4	+3.3 VDC	Orange

5	+5 VDC	Red
6	+12 VDC	Yellow

---

## IDE Interface Cable Connections for Dell-Installed Drives

IDE Channel IDE	Connector Location	Dell-Installed Drive
Primary IDE master	End connector on IDE1 connector cable	Hard drive
Secondary IDE master	End connector on IDE2 connector cable	CD or DVD drive

---

## Serial ATA Interface Cable Connections for Dell-Installed Drives (Optional)

Serial ATA Channel	Connector Location	Dell-Installed Drive
Primary Serial ATA master	End connector on serial ATA connector cable	Hard drive

---

## Placement of Dell-Installed Cards

Card Connector	Card Description
AGP connector	Video card on non-integrated video computers
PCI1 connector	PCI Card

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## Dell™ Dimension™ 4600C Service Manual



**NOTE:** A NOTE indicates important information that helps you make better use of your computer.



**NOTICE:** A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.



**CAUTION:** A CAUTION indicates a potential for property damage, personal injury, or death.

For a complete list of abbreviations and acronyms, see the *Tell Me How* help file.

If you purchased a Dell™ n Series computer, any references in this document to Microsoft® Windows® operating systems are not applicable.

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## Dell™ Dimension™ 4600C Service Manual

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### Turning Off Your Computer

➡ **NOTICE:** To avoid losing data, turn off your computer by performing a Microsoft® Windows® operating system shutdown, as described next, rather than by pressing the power button.

📌 **NOTE:** As an alternative to turning off your computer, you can set your computer to enter standby or hibernate mode. For information on power conservation modes, see the *Tell Me How* help file, or search for the keyword *standby* or *hibernate* in the Windows Help and Support Center. To access help files, see your *Owner's Manual*.

1. Save and close any open files, exit any open programs, click the **Start** button, and then click **Turn Off Computer**.
2. In the **Turn off computer** window, click **Turn off**.

The computer turns off after the shutdown process finishes.

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