Dell™ OptiPlex™ GX280 Systems User's Guide

[Small Form-Factor Computer](#)

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Dell™ OptiPlex™ GX280 Systems User's Guide

Small Form-Factor Computer

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- Specifications
- Cleaning Your Computer

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- Manageability
- Security
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- System Setup
- Booting to a USB Device
- Clearing Forgotten Passwords
- Clearing CMOS Settings
- Hyper-Threading
- Power Management

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- Reinstalling Drivers and the Operating System
- Getting Help

Additional Information

- Microsoft® Windows® XP Features
- Glossary
- Warranty
- FCC Notices (U.S. Only)

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 "Glossary."

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

The *Drivers and Utilities* CD (ResourceCD), operating system media, and *Quick Reference Guides* are optional, and as such may not ship with all computers.

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Models: DHP, DHS, DCNE, DHM, and DCSM

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Small Desktop Computer

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Desktop Computer

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Small Mini-Tower Computer

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Mini-Tower Computer

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Finding Information

Dell™ OptiPlex™ GX280 Systems User's Guide

What Are You Looking For?	Find it Here
• A diagnostic program for my computer • Drivers for my computer • My computer documentation • My device documentation	**Drivers and Utilities CD (also known as the ResourceCD)** Documentation and drivers are already installed on your computer. You can use the CD to reinstall drivers, run the Dell Diagnostics, or access your documentation. Readme files may be included on your CD to provide last-minute updates about technical changes to your computer or advanced technical-reference material for technicians or experienced users. **NOTE:** The *Drivers and Utilities* CD is optional and may not ship with all computers.
• How to set up my computer • Troubleshooting information • How to run the Dell Diagnostics • Error codes and diagnostic lights • Tools and utilities	**Quick Reference Guide** **NOTE:** This document is available as a PDF at **support.dell.com**. **NOTE:** The Quick Reference Guide is optional and may not ship with all computers.
• Warranty information • Safety instructions • Regulatory information • Ergonomics information • End User License Agreement	**Dell™ Product Information Guide**
• How to remove and replace parts • Technical specifications • How to configure	**User's Guide** **Microsoft® Windows® XP Help and Support Center**

system settings • How to troubleshoot and solve problems	1. Click the **Start** button and click **Help and Support.** 2. Click **User's and system guides** and click **User's guides**.
• Operating system updates and patches	**Desktop System Software (DSS)** The DSS is located on the *Drivers and Utilities* CD and on the Dell Support website.
• Service Tag and Express Service Code • Microsoft Windows License Label	**Service Tag and Microsoft Windows License** These labels are located on your computer. • Use the Service Tag to identify your computer when you use **support.dell.com** or contact technical support. • Enter the Express Service Code to direct your call when contacting technical support. The Express Service Code is not available in all countries. • Use the number on the Microsoft Windows License Label if you reinstall your operating system.
• Latest drivers for my computer • Answers to technical service and support questions • Online discussions with other users and technical support • Documentation for my computer	**Dell Support Website — support.dell.com** The Dell Support website provides several online tools, including: • Solutions — Troubleshooting hints and tips, articles from technicians, and online courses • Community — Online discussion with other Dell customers • Upgrades — Upgrade information for components, such as memory, the hard drive, and the operating system • Customer Care — Contact information, order status, warranty, and repair information • Downloads — Drivers, patches, and software updates • Reference — Computer documentation, product specifications, and white papers
• Service call status and support history • Top technical issues for my computer • Frequently asked questions • File downloads • Details on my computer configuration • Service contract for my computer	**Dell Premier Support Website — premiersupport.dell.com** The Dell Premier Support website is customized for corporate, government, and education customers. This website may not be available in all regions.
• How to use Windows XP • Documentation for my computer • Documentation for devices (such as a modem)	**Windows Help and Support Center** 1. Click the **Start** button and click **Help and Support**. 2. Type a word or phrase that describes your problem and click the arrow icon. 3. Click the topic that describes your problem. 4. Follow the instructions on the screen.
• How to reinstall my operating system	**Operating System CD** The operating system is already installed on your computer. To reinstall your operating system, use the *Operating System* CD. See "Reinstalling Microsoft Windows XP" for reinstallation instructions. After you reinstall your operating system, use the *Drivers and Utilities CD* to reinstall drivers for the devices that came with your computer. Your operating system license label is located on your computer.

	NOTE: The operating system media is optional and may not ship with all computers

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Specifications

Dell™ OptiPlex™ GX280 Systems User's Guide

Microprocessor	
Microprocessor type	Intel® Pentium® 4; design provides for future Dell-supported upgrades.
Level 1 (L1) cache	32 KB
Level 2 (L2) cache	1 MB pipelined-burst, eight-way set associative, write-back SRAM

Memory	
Type	400 & 533 MHz DDR2 SDRAM
Memory connectors	small form-factor computer: 2 small desktop computer: 4 desktop computer: 4 small mini-tower computer: 4 mini-tower computer: 4
Memory capacities	128 MB, 256 MB, 512 MB, or 1 GB non-ECC
Minimum memory	dual-channel: 256 MB single-channel: 128 MB
Maximum memory	small form-factor computer: 2 GB small desktop computer: 4 GB desktop computer: 4 GB small mini-tower computer: 4 GB mini-tower computer: 4 GB
BIOS address	F0000h

Computer Information	
Chipset	Intel Grantsdale
Data bus width	64 bits
Address bus width	32 bits
DMA channels	eight
Interrupt levels	24
BIOS chip (NVRAM)	4-Mb
Memory speed	400 & 533 MHz
NIC	integrated network interface with ASF 1.03 support as defined by DMTF. Capable of 10/100/1000 communication: • Green — A good connection exists between a 10-Mbps network and the computer. • Orange — A good connection exists between a 100-Mbps network and the computer. • Yellow — A good connection exists

	between a 1 Gb (or 1000-Mbps) network and the computer. • Off — The computer is not detecting a physical connection to the network.

Video	
Type	integrated Intel Extreme Graphics or PCI Express x16 DVI video card

Audio	
Type	AC97, Sound Blaster emulation
Stereo conversion	16-bit analog-to-digital; 20-bit digital-to-analog

Controllers	
Drives	small form-factor: one serial ATA controller supporting one device and one parallel Ultra ATA/100 IDE supporting two devices per channel with one channel small desktop: one serial ATA controllers supporting one device each and one parallel Ultra ATA/100 IDE supporting two devices per channel with one channel desktop: two serial ATA controllers supporting one device each and one parallel Ultra ATA/100 IDE supporting two devices per channel with one channel. small mini-tower: two serial ATA controllers supporting one device each and one parallel Ultra ATA/100 IDE supporting two devices per channel with one channel mini-Tower: two serial ATA controllers supporting one device each and one parallel Ultra ATA/100 IDE supporting two devices per channel with one channel

Expansion Bus	
Bus type	PCI 2.2 SATA 1.0a USB 2.0 PCI Express 1.0a
Bus speed	PCI: 33 MHz SATA: 1.5 Gbps USB: 480 Mbps PCI Express x1: 5 Gbps PCI Express x16: 80 Gbps
Small Form-Factor computer	low-profile cards supported
PCI	
connector	one

connector size	120 pins
connector data width (maximum)	32 bits
PCI Express	
connector	one x16
connector size	164 pins
connector data width (maximum)	16 PCI Express lanes
Small Desktop computer	half-length cards supported
PCI	
connectors	one or two (depending on purchase)
connector size	120 pins
connector data width (maximum)	32 bits
PCI Express	
connector	one x16 and an optional x1
connector size	120 pins (x16) and an optional 36 pins (x1)
connector data width (maximum)	16 PCI Express lanes (x16) and an optional one PCI Express lane (x1)
Desktop computer	half-height cards supported half-length, full-height cards supported with optional with card cage
PCI	
connectors	two (without card cage) two (with card cage)
connector size	120 pins
connector data width (maximum)	32 bits
PCI Express	
connectors	one x16
connector size	120 pins (x16)
connector data width	16 PCI Express lanes (x16)
Small Mini-Tower	full-height cards supported
PCI	
connectors	three
connector size	120 pins
connector data width (maximum)	32 bits
PCI Express	
connector	one x1 and one x16
connector size	36 pins (x1) and 120 pins (x16)
connector data width (maximum)	one PCI Express lane (x1) and 16 PCI Express lanes (x16)
Mini-Tower	full-height cards supported
PCI	
connectors	two

connector size	120 pins
connector data width (maximum)	32 bits
PCI Express	
connectors	one x1 and one x16
connector size	36 pins (x1) and 120 pins (x16)
connector date width (maximum)	one PCI Express lane (x1) and 16 PCI Express lanes (x16)

Drives	
Externally accessible:	
Small Form-Factor computer	one bay for a slimline floppy drive one bay for a slimline CD/DVD drive
Small Desktop computer	one 3.5-inch bay one 5.25-inch bay
Desktop computer	one 3.5-inch drive one bay for CD/DVD or optional second Hard Drive
Small Mini-Tower computer	two 3.5-inch drive bays two 5.25-inch drive bays
Mini-Tower computer	one 3.5-inch drive bay two 5.25-inch drive bays
Internally accessible:	
Small Form-Factor computer	one bay for a 1-inch-high hard drive
Small Desktop computer	one bay for a 1-inch-high hard drive
Desktop computer	one bay for a 1-inch-high hard drive
Small Mini-Tower computer	two bays for 1-inch high hard drives
Mini-Tower computer	two bays for 1-inch high hard drives

Connectors	
External connectors:	
Serial	9-pin connector; 16550C-compatible
Parallel	25-hole connector (bidirectional)
Video	15-hole connector
Network adapter	RJ45 connector
Optional PS/2 with secondary serial port adapter	small form-factor computer: one 6-pin mini-DIN with a Y-adapter small desktop, small mini-tower, desktop, and mini-tower: two 6-pin mini-DINs
USB	two front-panel and six back-panel USB 2.0–compliant connectors
Audio	three connectors for line-in, line-out, and microphone; one front-panel connector for headphones
System board connectors:	

Primary IDE drive	40-pin connector
Serial ATA	small form-factor computer: one 7-pin connector small desktop computer: one 7-pin connectors desktop computer: two 7-pin connectors small mini-tower: two 7-pin connectors mini-tower: two 7-pin connectors
Floppy drive	34-pin connector
Serial	12-pin connector for optional second serial port card
Fan	5-pin connector
PCI 2.2	120-pin connector
CD drive audio interface	4-pin connector
Front audio	10-pin connector (For the optional audio customer kit)
Front panel	40-pin connector

Key Combinations	
<Ctrl><Alt><Del>	If running Microsoft® Windows® XP, brings up the Windows Security window. If in MS-DOS® mode, restarts (reboots) the computer
<F2> or <Ctrl><Alt><Enter>	starts embedded system setup (during start-up only)
<Ctrl><Alt><b>	automatically starts the computer from the network environment specified by the remote boot environment (PXE) rather than from one of the devices in the system setup Boot Sequence option (during start-up only)
<F12> or <Ctrl><Alt><F8>	displays a boot device menu that allows the user to enter a device for a single boot (during start-up only) as well as options to run hard-drive and system diagnostics

Controls and Lights	
Power control	push button
Power light	green light—blinking green in sleep state; solid green for power-on state amber light—blinking amber indicates a problem with an installed device; solid amber indicates an internal power problem (see Power Problems)
Hard-drive access light	green
Link integrity light (on integrated network adapter)	green light for 10-Mb operation; orange light for 100-Mb operation; yellow light for a 1000-Mb (1-Gb) operation
Activity light (on integrated network adapter)	yellow blinking light
Diagnostic lights	small form-factor, small desktop, and

	small mini-tower computers: four lights on the back panel desktop and mini-towercomputers: four lights on the front panel
Standby power light	AUX_PWR on the system board

Power	
DC power supply:	
Wattage	small form-factor computer: 160 W small desktop computer: 210 W desktop computer: 280 W small mini-tower computer with processor speeds of 3.2 GHz or lower: 250 W small mini-tower computer with processor speeds of 3.4 GHz or higher: 305 W mini-tower computer: 305 W
Heat dissipation	small form-factor computer: 546 BTU/hr small desktop computer: 717 BTU/hr desktop computer: 150W max small mini-tower computer with processor speeds of 3.2 GHz or lower: 853 BTU/hr small mini-tower computer with processor speeds of 3.4 GHz or higher: 1041 BTU/hr mini-tower computer: 150W max
Voltage	fixed-voltage power supply—110 V at 50/60 Hz manual selection and auto-sensing power supplies—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 lithium coin cell

Physical	
Small Form-Factor computer:	
Height	9.0 cm (3.57 inches)
Width	31.9 cm (12.54 inches)
Depth	35.4 cm (13.93 inches)
Weight	6 kg (14 lbs)
Small Desktop computer:	
Height	10.6 cm (4.2 inches)
Width	38.9 cm (15.3 inches)
Depth	43.2 cm (17 inches)
Weight	9.9 kg (22 lbs)
Desktop computer	
Height	11.4 cm (4.5 inches)
Width	39.9 cm (15.7 inches)
Depth	35.3 cm (13.9) inches
Weight	10.4 kg (23 lbs)
Small Mini-Tower computer:	

Height	42.5 cm (16.7 inches)
Width	18.1 cm (7.1 inches)
Depth	44.7 cm (17.6 inches)
Weight	12.7 kg (28 lbs)
Mini-Tower computer	
Height	41.4 cm (16.3 inches)
Width	18.5 cm (7.3 inches)
Depth	43.9 cm (17.3 inches)
Weight	12.34 kg (27.2 lbs)

Environmental	
Temperature:	
Operating	10° to 35°C (50° to 95°F) **NOTE:** 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 0.5 octave/min
Storage	0.5 G at 3 to 200 Hz at 1 octave/min
Maximum shock:	
Operating	bottom half-sine pulse with a change in velocity of 20 inches/sec (50.8 cm/sec)
Storage	27-G faired square wave with a velocity change of 200 inches/sec (508 cm/sec)
Altitude:	
Operating	–15.2 to 3048 m (–50 to 10,000 ft)
Storage	–15.2 to 10,668 m (–50 to 35,000 ft)

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Cleaning Your Computer

Dell™ OptiPlex™ GX280 Systems User's Guide

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

Computer, Keyboard, and Monitor

CAUTION: 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.

- Use a vacuum cleaner with a brush attachment to gently remove dust from the slots and holes on your computer and from between the keys on the keyboard.

NOTICE: Do not wipe the display screen with any soap or alcohol solution. Doing so may damage the antiglare coating.

- To clean your monitor screen, lightly dampen a soft, clean cloth with water. If possible, use a special screen-cleaning tissue or solution suitable for the monitor's antistatic coating.
- Wipe the keyboard, computer, and plastic part of the monitor with a soft cleaning cloth moistened with a solution of three parts water and one part dish washing detergent.

Do not soak the cloth or let water drip inside your computer or keyboard.

Mouse

If your screen cursor skips or moves abnormally, clean the mouse. To clean a non-optical mouse:

1. Turn the retainer ring on the underside of your mouse counterclockwise, and then remove the ball.
2. Wipe the ball with a clean, lint-free cloth.
3. Blow carefully into the ball cage to dislodge dust and lint.
4. If the rollers inside the ball cage are dirty, clean the rollers with a cotton swab moistened lightly with isopropyl alcohol.
5. Re-center the rollers in their channels if they are misaligned. Ensure that fluff from the swab is not left on the rollers.
6. Replace the ball and retainer ring, and turn the retainer ring clockwise until it clicks into place.

Floppy Drive

NOTICE: Do not attempt to clean drive heads with a swab. You might accidentally mis-align the heads, which prevents the drive from operating.

Clean your floppy drive using a commercially available cleaning kit. These kits contain pretreated floppy disks to remove contaminants that accumulate during normal operation.

CDs and DVDs

NOTICE: Always use compressed air to clean the lens in the CD/DVD drive, and follow the instructions that come with the compressed air. Never touch the lens in the drive.

If you notice problems, such as skipping, with the playback quality of your CDs or DVDs, try cleaning the discs.

1. Hold the disc by its outer edge. You can also touch the inside edge of the center hole.

NOTICE: To prevent damaging the surface, do not wipe in a circular motion around the disc.

2. With a soft, lint-free cloth, gently wipe the bottom of the disc (the unlabeled side) in a straight line from the center to the outer edge of the disc.

   For stubborn dirt, try using water or a diluted solution of water and mild soap. You can also purchase commercial products that clean discs and provide some protection from dust, fingerprints, and scratches. Cleaning products for CDs are safe to use on DVDs.

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LegacySelect Technology Control

LegacySelect technology control offers legacy-full, legacy-reduced, or legacy-free solutions based on common platforms, hard-drive images, and help desk procedures. Control is provided to the administrator through system setup, Dell OpenManage™ IT Assistant, or Dell™ custom factory integration.

LegacySelect allows administrators to electronically activate or deactivate connectors and media devices that include serial and USB connectors, a parallel connector, a floppy drive, PCI slots, and a PS/2 mouse. Connectors and media devices that are deactivated make resources available. You must restart the computer to effect the changes.

Manageability

Alert Standard Format

ASF is a DMTF management standard that specifies "pre-operating system" or "operating system-absent" alerting techniques. The standard is designed to generate an alert on potential security and fault conditions when the operating system is in a sleep state or the system is powered down. ASF is designed to supersede previous operating system-absent alerting technologies.

Your computer supports the following ASF version 1.03 alerts and remote capabilities:

Alert	Description
Chassis: Chassis Intrusion – Physical Security Violation/Chassis Intrusion – Physical Security Violation Event Cleared	The computer chassis with the chassis intrusion feature installed and enabled has been opened or the chassis intrusion alert has been cleared.
CPU: Emergency Shutdown Event	The processor temperature is too hot and the power supply has shut down.
Cooling Device: Generic Critical Fan Failure/Generic Critical Fan Failure Cleared	The fan speed (rpm) is out of limits or the fan speed (rpm) problem has been resolved.
Temperature: Generic Critical Temperature Problem/Generic Critical Temperature Problem Cleared	The computer temperature is out of limits or the computer temperature problem has been resolved.
Battery Low	The system battery has reached a voltage of 2.2V or lower.

For more information about Dell's ASF implementation, see the *ASF User's Guide* and the *ASF Administrator's Guide*, which are available on the Dell Support website at **support.dell.com**.

Dell OpenManage IT Assistant

IT Assistant configures, manages, and monitors computers and other devices on a corporate network. IT Assistant manages assets, configurations, events (alerts), and security for computers equipped with industry-standard management software. It supports instrumentation that conforms to SNMP, DMI, and CIM industry standards.

Dell OpenManage Client instrumentation, which is based on DMI and CIM, is available for your computer. For information on IT Assistant, see the *Dell OpenManage IT Assistant User's Guide* available on the Dell Support website at **support.dell.com**.

Dell OpenManage Client Instrumentation

Dell OpenManage Client Instrumentation is software that enables remote management programs such as IT Assistant to do the following:

- Access information about your computer, such as how many processors it has and what operating system it is running
- Monitor the status of your computer, such as listening for thermal alerts from temperature probes or hard-drive failure alerts from storage devices
- Change the state of your computer, such as updating its BIOS or shutting it down remotely

A managed system is one that has Dell OpenManage Client Instrumentation set up on a network that uses IT Assistant. For information about Dell OpenManage Client Instrumentation, see the *Dell OpenManage Client Instrumentation User's Guide* available on the Dell Support website at **support.dell.com**.

Security

Chassis Intrusion Detection

NOTE: When the admin password is enabled, you must know the admin password before you can reset the **Chassis Intrusion** setting.

This feature, if installed and enabled, detects that the chassis was opened and alerts the user. To change the **Chassis Intrusion** setting:

1. Enter system setup.
2. Press the down-arrow keys to move to the **System Security** option.
3. Press <Enter> to access the **System Security** option's pop-up menu.
4. Press the down-arrow key to move to the **Chassis Intrusion** setting.
5. Press <Enter> to select an option setting.
6. Press <Enter> again after you update the option setting.
7. Exit and save system setup.

Option Settings

- **On** — If the computer cover is opened, the setting changes to **Detected**, and the following alert message displays during the boot routine at the next computer start-up:

  ```
  Alert! Cover was previously removed.
  ```

  To reset the **Detected** setting, enter system setup. In the **Chassis Intrusion** option, press the left- or right-arrow key to select **Reset**, and then choose **On**, **On-Silent**, or **Off**.

- **On-Silent** (default) — If the computer cover is opened, the setting changes to **Detected**. No alert message appears during the boot sequence at the next computer start-up.
- **Off** — No intrusion monitoring occurs and no messages appear.

Padlock Ring and Security Cable Slot

Use one of the following methods to secure your computer:

- Use a padlock alone or a padlock and looped security cable with the padlock ring.

  A padlock alone prevents the computer from being opened.

  A security cable looped around a stationary object is used in conjunction with a padlock to prevent unauthorized movement of the computer.

- Attach a commercially available antitheft device to the security cable slot on the back of the computer.

NOTE: Before you purchase an antitheft device, make sure that it works with the security cable slot on your computer.

Antitheft devices usually include a segment of metal-stranded cable with an attached locking device and key. The documentation that comes with the device contains instructions for installing it.

Password Protection

NOTICE: Although passwords provide security for the data on your computer, they are not foolproof. If your data requires more security, it is your responsibility to obtain and use additional forms of protection, such as data encryption programs.

System Password

NOTICE: If you leave your computer running and unattended without having a system password assigned, or if you leave your computer unlocked so that someone can disable the password by changing a jumper setting, anyone can access the data stored on your hard drive.

Option Settings

You cannot change or enter a new system password if either of the following two options is displayed:

- **Set** — A system password is assigned.
- **Disabled —** The system password is disabled by a jumper setting on the system board.

You can only assign a system password when the following option is displayed:

- **Not Set** — No system password is assigned and the password jumper on the system board is in the enabled position (the default).

Assigning a System Password

To escape from the field without assigning a system password, press <Tab> or the <Shift><Tab> key combination to move

to another field, or press <Esc> at any time before you complete step 5.

1. Enter system setup and verify that **Password Status** is set to **Unlocked**.
2. Highlight **System Password**, and then press the left- or right-arrow key.

   The option heading changes to **Enter Password**, followed by an empty 32-character field in square brackets.
3. Type your new system password.

   You can use up to 32 characters. To erase a character when entering your password, press <Backspace> or the left-arrow key. The password is not case sensitive.

   Certain key combinations are not valid. If you enter one of these combinations, the speaker emits a beep.

   As you press each character key (or the spacebar for a blank space), a placeholder appears in the field.
4. Press <Enter>.

   If the new system password is less than 32 characters, the whole field fills with placeholders. Then the option heading changes to **Verify Password**, followed by another empty 32-character field in square brackets.
5. To confirm your password, type it a second time and press <Enter>.

   The password setting changes to **Set**.
6. Exit system setup.

   Password protection takes effect when you restart the computer.

Typing Your System Password

When you start or restart your computer, one of the following prompts appears on the screen.

If **Password Status** is set to **Unlocked**:

```
Type in the password and
- press <ENTER> to leave password security enabled.
- press <CTRL><ENTER> to disable password security.
Enter password:
```

If **Password Status** is set to **Locked**:

```
Type the password and press <Enter>.
```

If you have assigned an admin password, the computer accepts your admin password as an alternate system password.

If you type a wrong or incomplete system password, the following message appears on the screen:

```
** Incorrect password. **
```

If you again type an incorrect or incomplete system password, the same message appears on the screen. The third and subsequent times you type an incorrect or incomplete system password, the computer displays the following message:

```
** Incorrect password. **
Number of unsuccessful password attempts: 3
System halted! Must power down.
```

Even after your computer is turned off and on, the previous message is displayed each time you type an incorrect or incomplete system password.

NOTE: You can use **Password Status** in conjunction with **System Password** and **Admin Password** to further protect your computer from unauthorized changes.

Deleting or Changing an Existing System Password

1. Enter system setup and verify that **Password Status** is set to **Unlocked**.
2. Restart your computer.
3. When prompted, type the system password.
4. Press <Ctrl><Enter> to disable the existing system password.
5. Confirm that **Not Set** is displayed for the **System Password** option.

   If **Not Set** is displayed, the system password is deleted. If **Not Set** is not displayed, press <Alt><b> to restart the computer, and then repeat step 3 through step 5.

   To assign a new password, follow the procedure in "Assigning a System Password."
6. Exit system setup.

Admin Password

Option Settings

You cannot change or enter a new admin password if either of the following two options is displayed:

- **Set** — An admin password is assigned.
- **Disabled —** The admin password is disabled by a jumper setting on the system board.

You can only assign an admin password when the following option is displayed:

- **Not Set** — No admin password is assigned and the password jumper on the system board is in the enabled position (the default).

Assigning an Admin Password

The admin password can be the same as the system password.

NOTE: If the two passwords are different, the admin password can be used as an alternate system password. However, the system password cannot be used in place of the admin password.

1. Enter system setup and verify that **Admin Password** is set to **Not Set.**
2. Highlight **Admin Password** and press the left- or right-arrow key.

   The computer prompts you to type and verify the password. If a character is not permitted, the computer emits a beep.
3. Type and then verify the password.

   After you verify the password, the **Admin Password** setting changes to **Set**. The next time you enter system setup, the computer prompts you for the admin password.
4. Exit system setup.

   A change to **Admin Password** becomes effective immediately (no need to restart the computer).

Operating Your Computer With an Admin Password Enabled

When you enter system setup, the **Admin Password** option is highlighted, prompting you to type the password.

If you do not type the correct password, the computer lets you view, but not modify, system setup options.

NOTE: You can use **Password Status** in conjunction with **Admin Password** to protect the system password from unauthorized changes.

Deleting or Changing an Existing Admin Password

To change an existing admin password, you must know the admin password.

1. Enter system setup.
2. Type the admin password at the prompt.
3. Highlight **Admin Password** and press the left- or right-arrow key to delete the existing admin password.

   The setting changes to **Not Set**.

   To assign a new admin password, perform the steps in "Assigning an Admin Password."
4. Exit system setup.

Disabling a Forgotten Password and Setting a New Password

To reset system and/or admin passwords, see "Clearing Forgotten Passwords."

System Setup

Overview

Use system setup as follows:

- To change the system configuration information after you add, change, or remove any hardware in your computer
- To set or change a user-selectable option such as the user password
- To read the current amount of memory or set the type of hard drive installed

Before you use system setup, it is recommended that you write down the system setup screen information for future reference.

Entering System Setup

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.

System Setup Screens

The system setup screen displays current or changeable configuration information for your computer. Information on the screen is divided into three areas: the options list, active options field, and key functions.

<table>
<tr><td rowspan="2">Options List — This field appears on the left side of the system setup window. The field is a scrollable list containing features that define the configuration of your computer, including installed hardware, power conservation, and security features.

Scroll up and down the list by using the up and down arrow keys. As an option is highlighted, the Option Field displays more information about that option and the option's current and available settings.</td><td>Option Field — This field contains information about each option. In this field you can view your current settings and make changes to your settings.

Use the right and left arrow keys to highlight an option. Press <Enter> to make that selection active.</td></tr>
<tr><td>Key Functions — This field appears below the Option Field and lists keys and their functions within the active system setup field.</td></tr>
</table>

System Setup Options

NOTE: Depending on your computer and installed devices, the items listed in this section may or may not appear.

System	
System Info	Lists the computer name, BIOS version, and service tag.
CPU Info	Identifies whether the computer's processor supports Hyper-threading and identifies the CPU speed, bus speed, clock speed, and L2 cache.
Memory Info	Indicates amount of installed memory, computer memory speed, amount of video memory, size of the display cache, and channel mode (dual or single).
Date/Time	Displays current date and time settings.
Boot Sequence	The computer attempts to boot from the sequence of devices specified in this list.
Drives	
Diskette Drive	This option enables or disables the floppy drive. The options are **Off**, **Internal**, **USB**, and **Read Only**.
Drive 0 through Drive *n*	Identifies and enables and disables the drives attached to the SATA or IDE connectors on the system board and lists the capacities for the hard drives. **NOTE:** These options appear as **Drive 0** through **Drive 3** for the small form-factor, small desktop and desktop computers and **Drive 0** though **Drive 5** for the small mini-tower and tower computers.

Drive Controller	Configures the serial ATA controller's operating mode. **Normal** enables the serial ATA controller to operate in its serial ATA native mode only. **Compatible** enables the serial ATA controller to operate in serial/parallel ATA combination mode.
Error Reporting	This setting determines whether hard drive errors are reported or not during system setup.
Onboard Devices	
Audio Controller	Enables or disables the onboard audio controller
Mouse Port	Enables or disables the serial mouse port. (This setting appears only if an optional serial port adapter is installed.)
NIC Controller	You can set the NIC to **On** (default), **Off**, or **On w/ PXE**. When the **On w/ PXE** setting is active (available only for the future boot process), the computer prompts the user to press <Ctrl><Alt><b>. Pressing this key combination causes a menu to display that allows you to select a method for booting from a network server. If a boot routine is not available from the network server, the system attempts to boot from the next device in the boot sequence list.
	This option sets the operating mode for the built-in parallel port. The settings are **Off**, **AT**, **PS/2** (default), **EPP**, and **ECP**. • **AT** - the port is configured

LPT Port Mode	for IBM AT compatibility • **PS/2** - the port is configured for IBM PS/2 compatibility • **EPP** - enhanced parallel port protocol • **ECP** - extended capability port protocol
LPT Port Address	This option sets the address that the built-in parallel port uses. The settings are **378h** (default), **278h**, and **3BCh**.
PCI Slots	Enables or disables the PCI slots.
Serial Port #1	**Auto**, the default setting, automatically configures a connector to a particular designation (**COM1** or **COM3**).
Serial Port #2	**Auto**, the default setting, automatically configures a connector to a particular designation (**COM1** or **COM3**). (This setting appears only if an optional serial port adapter is installed.)
USB	USB devices are detected and supported in the operating system when this option is set to **On**.
USB Disable	Enables or disables the front USB connectors. The default setting is **On**. To disable the front connectors, select **Off**.
Performance	
Hyper-threading	If your computer's processor supports hyper-threading, this option appears in the **Options List**.

HDD Acoustic Mode	• **Quiet** - the hard drive operates at its most quiet setting. • **Performance -** the hard drive operates at its maximum speed. • **Bypass** (default) - your computer does not test or change the current acoustics mode setting. • **Suggested** - the hard drive operates at the level suggested by the drive manufacturer. **NOTE:** Switching to performance mode may cause the drive to be noisier, but its performance is not affected. Changing the acoustics setting does not alter your hard drive image.
Security	This section displays available system security options. See "Security" for more information.
Admin Password	This option provides restricted access to the computer's System Setup program in the same way that access to the system can be restricted with the System Password option. The settings are **Set**, **Not Set**, and **Disabled**. If the option is to **Set**, an admin password is assigned. If the option is to **Not Set**, no admin password is assigned and the password jumper on

	the system board is in the enabled position (the default). If the option is to **Disabled**, the admin password is disabled by a jumper setting on the system board. To disable the admin password, enter the password at the prompt and hit <Ctrl><Enter>.
System Password	Displays the current status of the system's password security feature and allows a new system password to be assigned and verified. The settings are **Set**, **Not Set**, and **Disabled**. If the option is to **Set**, a system password is assigned. If the option is to **Not Set**, no system password is assigned and the password jumper on the system board is in the enabled position (the default). If the option is to **Disabled**, the system password is disabled by a jumper setting on the system board. To disable the system password, enter the password at the prompt and hit <Ctrl><Enter>.
Drive Password	Set this password to prevent unauthorized users from accessing the hard drive. **NOTE:** The option appears for each installed hard drive.
	This option locks the system password

Password Status	field with the admin password. When the field is locked, the option to disable password security by pressing <Ctrl><Enter> when the computer starts is no longer available.
Chassis Intrusion	When installed and enabled, this option alerts the user, during the next computer start-up, that the computer cover has been opened. The settings are **On**, **On-Silent** (default), and **Off**.
Intrusion Status	This option appears in system setup only if a chassis intrusion event occurred. The settings are **Clear** and **Detected** (default). Select **Clear** to clear the chassis intrusion status
Power Management	
AC Recovery	Determines what happens when AC power is restored to the computer.
Auto Power On	Sets time and days of week to automatically turn on the computer. Choices are **Everyday** or **Weekdays**. The default setting is **Off**. This feature does not work if you turn off your computer using a power strip or surge protector.
Auto Power Time	Sets the specific time to automatically turn on the computer. Time is kept in a 24-hour format (*hours:minutes*). Change the start-up time by pressing the right- or left-arrow key to increase or decrease the numbers, or type numbers in both the

	date and time fields. Use this setting in conjunction with the **Auto Power On** setting.
Low Power Mode	When **Low Power Mode** is selected, remote wakeup events no longer power up from **Hibernate** or **Off** unless an additional NIC card is installed. **NOTE:** This setting affects only the integrated network controller.
Remote Wake-Up	This option allows the system to power up when a Network Interface Controller or Remote Wakeup-capable modem receives a wake up signal. **Off** is the default setting. **On w/ Boot to NIC** will allow the computer to attempt to boot from a network prior to using the boot sequence. **NOTE:** Normally, the system can be powered up remotely from suspend mode, hibernate mode, or when powered off. When **Low Power Mode** (in the **Power Management** menu) is enabled, the system can only be powered up remotely from **Suspend**.
Suspend Mode	The options are **S1**, a suspend state where the computer is running in a low-power mode, and **S3**, a standby state where the power is reduced or turned off for most components, however, system

	memory remains active.
Maintenance	
CMOS Defaults	This setting will restore the computer's factory-installed default settings. The options are **Cancel** and **Continue/Reset CMOS**.
Event Log	Displays the system event log.
BIOS Update	Select the location of the BIOS update file. The options are **Floppy Disk** or **Hard Drive**.
Video	
Primary Video	This setting specifies which video controller is primary when two video controllers are present on the computer.
POST Behavior	
Fastboot	When set to **On** (default), your computer will start more quickly since it will skip certain configurations and tests.
Numlock Key	This option involves the rightmost bank of keys on your keyboard. When set to **On** (default), this option activates the numeric and mathematical features shown at the top of each key. When set to **Off**, this option activates the cursor-control functions labeled on the bottom of each key.
OS Install	This setting turns the OS Install Mode either **On** or **Off** (default).
POST Hotkeys	This setting specifies whether keystroke sequences are displayed when the computer starts. The default setting is **Setup & Boot**

	Menu.
Keyboard Errors	This option disables or enables keyboard error reporting when the computer starts.

Boot Sequence

This feature allows you to change the boot sequence for devices.

Option Settings

- **Onboard or USB Floppy Drive —** The computer attempts to boot from the floppy drive. If the floppy disk in the drive is not bootable, or if no floppy disk is in the drive, the computer generates an error message.
- **Onboard SATA Hard Drive** — The computer attempts to boot from the primary serial ATA hard drive. If no operating system is on the drive, the computer generates an error message.
- **Onboard IDE Hard Drive** — The computer attempts to boot from the primary IDE hard drive, if applicable. If no operating system is on the drive, the computer generates an error message.
- **Onboard or USB CD-ROM Drive** — The computer attempts to boot from the CD drive. If no CD is in the drive, or if the CD has no operating system, the computer generates an error message.

Changing Boot Sequence for the Current Boot

You can use this feature, for example, to tell the computer to boot from the CD drive so that you can run the Dell Diagnostics on the *Drivers and Utilities* CD, but you want the computer to boot from the hard drive when the diagnostic tests are complete. You can also use this feature to restart your computer to a USB device such as a floppy drive, memory key, or CD drive.

NOTE: If you are booting to a USB floppy drive, you must first set the floppy drive to USB in system setup.

1. If you are booting to a USB device, connect the USB device to a USB connector.
2. Turn on (or restart) your computer.
3. When `F2 = Setup, F12 = Boot Menu` appears in the upper-right corner of the screen, press <F12>.

   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.

   The **Boot Device Menu** appears, listing all available boot devices. Each device has a number next to it.
4. At the bottom of the menu, enter the number of the device that is to be used for the current boot only.

   For example, if you are booting to a USB memory key, highlight **USB Device** and press <Enter>.

NOTE: To boot to a USB device, the device must be bootable. To make sure your device is bootable, check the device documentation.

Changing Boot Sequence for Future Boots

1. Enter system setup.
2. Use the arrow keys to highlight the **Boot Sequence** menu option and press <Enter> to access the pop-up menu.

NOTE: Write down your current boot sequence in case you want to restore it.

3. Press the up- and down-arrow keys to move through the list of devices.
4. Press the spacebar to enable or disable a device (enabled devices have a checkmark).
5. Press <Shift><Up Arrow> or <Shift><Down Arrow> to move a selected device up or down the list.

Booting to a USB Device

NOTE: To boot to a USB device, the device must be bootable. To ensure that your device is bootable, check the device documentation.

Memory Key

1. Insert the memory key into a USB port and restart the computer.
2. When F12 = Boot Menu appears in the upper-right corner of the screen, press <F12>.

   The BIOS detects the device and adds the USB device option to the boot menu.
3. From the boot menu, select the number that appears next to the USB device.

   The computer boots to the USB device.

Floppy Drive

1. In system setup, set the **Diskette Drive** option to **USB**.
2. Save and exit system setup.
3. Connect the USB floppy drive, insert a bootable floppy, and re-boot the system.

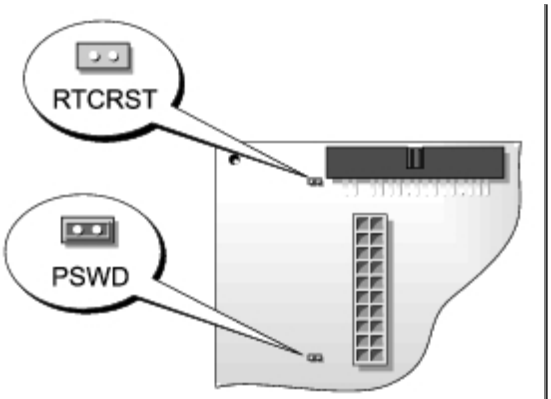
Clearing Forgotten Passwords

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

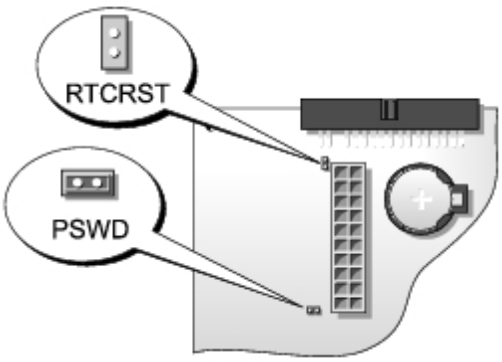
NOTICE: This process erases both the system and admin passwords.

1. Follow the procedures in "Before You Begin."
2. Locate the 2-pin password jumper (PSWD) on the system board, and remove the jumper to clear the password.

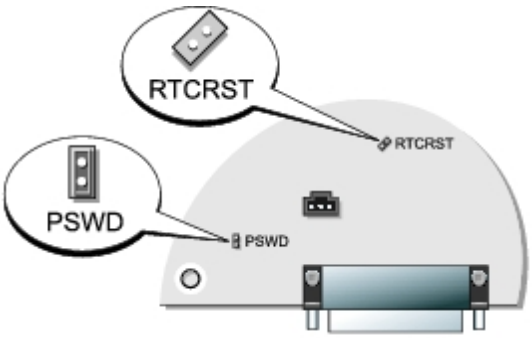
Small Form-Factor Computer



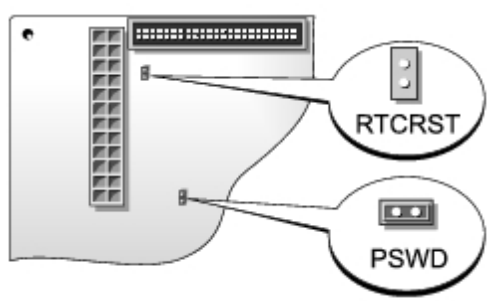
Small Desktop Computer



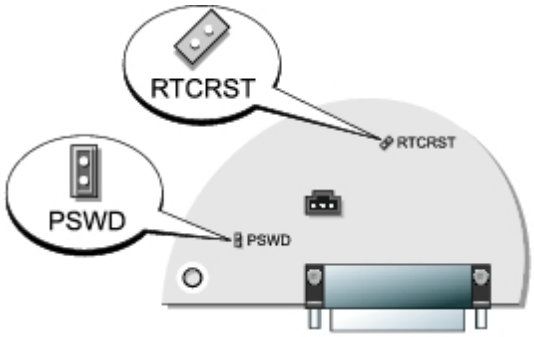
Desktop Computer



Small Mini-Tower Computer



Mini-Tower Computer



Jumper	Setting	Description
PSWD	(default)	Password features are enabled.
		Password features are disabled.
RTCRST		Real-time clock reset.

jumpered
unjumpered

3. Close the computer cover.
4. Connect your computer and monitor to electrical outlets, and turn them on.
5. After the Microsoft® Windows® desktop appears on your computer, shut down your computer.
6. Turn off the monitor and disconnect it from the electrical outlet.
7. Disconnect the computer power cable from the electrical outlet, and press the power button to ground the system board.
8. Open the computer cover.
9. Locate the 2-pin password jumper on the system board and attach the jumper to reenable the password feature.
10. Replace 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 electrical outlets, and turn them on.

NOTE: This procedure enables the password feature. When you enter system setup, both system and admin password options appear as **Not Set**—meaning that the password feature is enabled but no password is assigned.

12. Assign a new system and/or admin password.

Clearing CMOS Settings

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

1. Follow the procedures in "Before You Begin."
2. Reset the current CMOS settings:
    a. Locate the password (PSWD) and CMOS (RTC_RST) jumpers on the system board.
    b. Remove the password jumper plug from its pins.
    c. Place the password jumper plug on the RTC_RST pins and wait approximately 5 seconds.
    d. Remove the jumper plug from the RTC_RST pins and place it back on the password pins.
3. Close the computer cover.
4. Attach the computer stand, if used.

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.

Hyper-Threading

Hyper-Threading is an Intel® technology that can enhance overall computer performance by allowing one physical processor to function as two logical processors, capable of performing certain tasks simultaneously. It is recommended that you use the Microsoft® Windows® XP Service Pack 1 (SP1) or higher operating system because Windows XP is optimized to take advantage of Hyper-Threading technology. While many programs can benefit from Hyper-Threading, some programs have not been optimized for Hyper-Threading and may require an update from the software manufacturer. Contact the software manufacturer for updates and information about using Hyper-Threading with your software.

To determine if your computer is using Hyper-Threading technology:

1. Click the **Start** button, right-click **My Computer**, and then click **Properties**.
2. Click **Hardware** and click **Device Manager**.
3. In the **Device Manager** window, click the plus (+) sign next to the processor type. If Hyper- Threading is enabled, the processor is listed twice.

You can enable or disable Hyper-Threading through system setup.

Power Management

Your computer can be set to use less power when you are not working. You control the power usage through the operating system installed on your computer and certain option settings in system setup. These periods of reduced power are called "sleep states":

- **Standby**. In this sleep state, power is reduced or turned off for most components, including the cooling fans. However, system memory remains active.

  This state is not supported by Windows NT 4.0.

NOTE: All components installed in the computer must support this feature and have the appropriate drivers loaded to enter standby. For more information, see the manufacturer's documentation for each component.

- **Hibernate**. This sleep state reduces power consumption to a minimum by writing all data in system memory to a hard drive and then removing system power. Waking up from this state restarts the computer, and the memory contents are restored. Operation then resumes where the computer left off when it entered the hibernation state.

  This state is not supported by Windows NT 4.0.

NOTE: All components installed in the computer must support this feature and have the appropriate drivers loaded to enter hibernation. For more information, see the manufacturer's documentation for each component.

- **Shutdown**. This sleep state removes all power from the computer except a small auxiliary amount. As long as the computer remains connected to an electrical outlet, it can be automatically or remotely started. For example, the **Auto Power On** option in system setup allows the computer to automatically start at a specified time. Also, your network administrator can remotely start your computer using a power management event such as Remote Wake Up.

The following table lists the sleep states and the methods you can use to wake the computer from each state.

Sleep State	Wake-Up Methods (Windows 2000 and XP)
Standby	• Press the power button • Auto power on • Move or click the mouse • Type on the keyboard • USB device activity • Power management event
Hibernate	• Press the power button • Auto power on • Power management event
Shutdown	• Press the power button • Auto power on • Power management event

NOTE: For more information on power management, see your operating system documentation.

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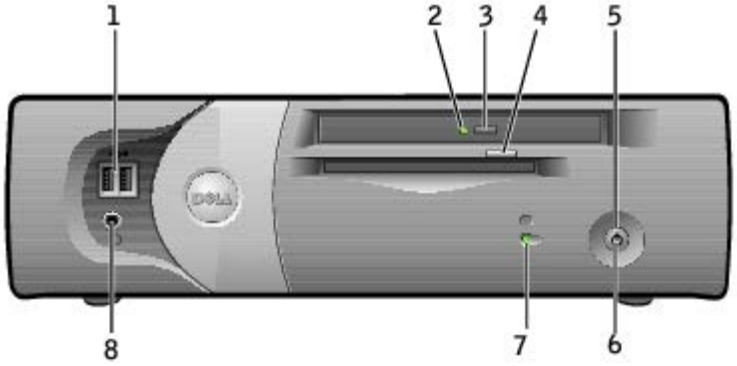
About Your Small Form-Factor Computer

Dell™ OptiPlex™ GX280 Systems User's Guide

- Front View
- Back View
- Inside Your Computer
- System Board Components
- Attaching and Removing the Computer Stand

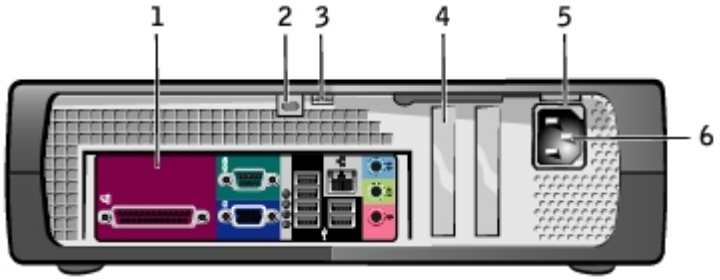
Front View



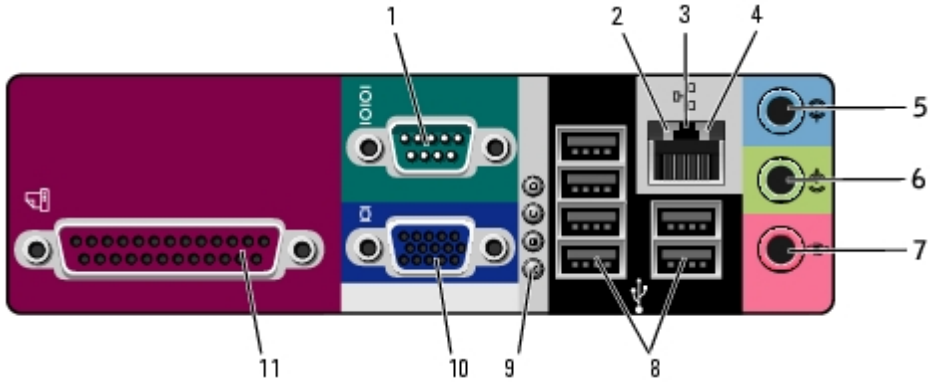
1	USB 2.0 connectors (2)	Use the front USB connectors for devices that you connect occasionally, such as joysticks or cameras (see "System Setup" for more information on booting to a USB device). It is recommended that you use the back USB connectors for devices that typically remain connected, such as printers and keyboards.
2	CD/DVD drive-activity light	The drive activity light is on when the computer reads data from the CD or DVD drive.
3	CD/DVD drive eject button	Press to eject a CD/DVD from the drive.
4	floppy-drive eject button	Press to eject a floppy disk from the floppy drive.
5	power button	Press to turn on the computer. **NOTICE:** To avoid losing data, do not use the power button to turn off the computer. Instead, perform an operating system shutdown. **NOTE:** If your operating system has ACPI enabled, when you press the power button the computer will perform an operating system shutdown.
6	power light	The power light illuminates and blinks or remains solid to indicate different states: ◦ No light — The computer is turned off. (S4, S5, or mechanical OFF) ◦ Steady green — The computer is in a normal operating state. ◦ Blinking green — The computer is in a power-saving state. (S1 or

		S3) ◦ Blinking or solid amber — See "Power Problems." To exit from a power-saving state, press the power button or use the keyboard or the mouse if it is configured as a wake device in the Windows Device Manager. For more information about sleep states and exiting from a power-saving state, see "Power Management." See "Diagnostic Lights" for a description of light codes that can help you troubleshoot problems with your computer.
7	hard-drive activity light	The hard drive light is on when the computer reads data from or writes data to the hard drive. The light might also be on when a device such as your CD player is operating.
8	headphone connector	Use the headphone connector to attach headphones and most kinds of speakers.

Back View



1	back panel connectors	Plug serial, USB, and other devices into the appropriate connector.
2	security cable slot	Use a security cable with the slot to help secure your computer.
3	padlock ring	Insert a padlock to lock the computer cover.
4	card slots	Access connectors for any installed PCI and PCI Express cards.
5	voltage selection switch (may not be available on all computers)	See the safety instructions in the *Product Information Guide* for more information.
6	power connector	Insert the power cable.



1	serial connector	Connect a serial device, such as a handheld device, to the serial port. The default designations are COM1 for serial connector 1 and COM2 for serial connector 2. For more information, see "System Setup Options."

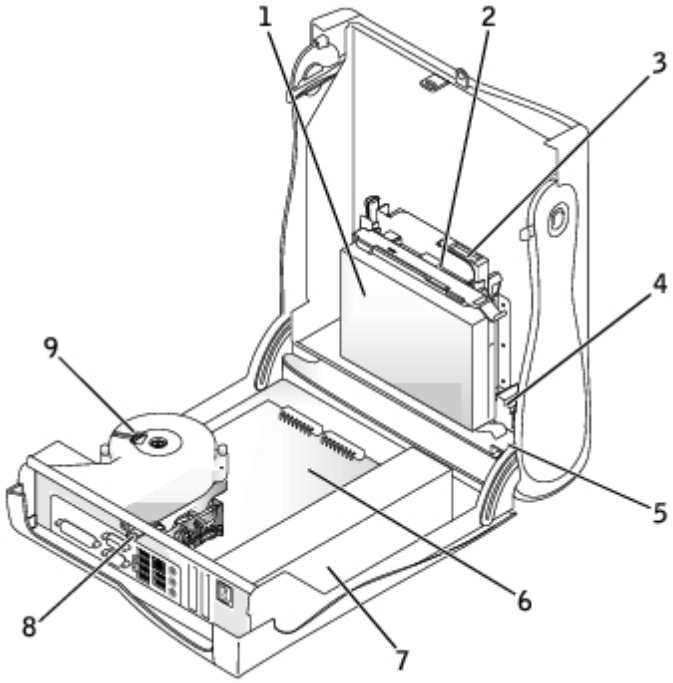
2	link integrity light	• Green — A good connection exists between a 10-Mbps network and the computer. • Orange — A good connection exists between a 100-Mbps network and the computer. • Yellow — A good connection exists between a 1-Gbps (or 1000-Mbps) network and the computer. • Off — The computer is not detecting a physical connection to the network.
3	network adapter connector	To attach your computer to a network or broadband device, connect one end of a network cable to either a network jack or your network or broadband device. Connect the other end of the network cable to the network adapter connector on the back panel of your computer. A click indicates that the network cable has been securely attached. **NOTE:** Do not plug a telephone cable into the network connector. On computers with a network connector card, use the connector on the card. It is recommended that you use Category 5 wiring and connectors for your network. If you must use Category 3 wiring, force the network speed to 10 Mbps to ensure reliable operation.
4	network activity light	Flashes a yellow light when the computer is transmitting or receiving network data. A high volume of network traffic may make this light appear to be in a steady "on" state.
5	line-in connector	Use the blue line-in connector (available on computers with integrated sound) to attach a record/playback device such as a cassette player, CD player, or VCR. On computers with a sound card, use the connector on the card.
6	line-out connector	Use the green line-out connector (available on computers with integrated sound) to attach headphones and most speakers with integrated amplifiers. On computers with a sound card, use the connector on the card.
7	microphone connector	Use the pink microphone connector (available on computers with integrated sound) to attach a personal computer microphone for voice or musical input into a sound or telephony program. On computers with a sound card, the microphone connector is on the card.
8	USB 2.0 connectors (6)	Use the back USB connectors for devices that typically remain connected, such as printers and keyboards. It is recommended that you use the front USB connectors for devices that you connect occasionally, such as joysticks or cameras, or for bootable USB devices.
9	diagnostic lights	Use the lights to help you troubleshoot a computer problem based on the diagnostic code. For more information, see "Diagnostic Lights."
10	video connector	Plug the cable from your VGA-compatible monitor into the blue connector. **NOTE:** If you purchased an optional graphics card, this connector will be covered by a cap. Connect your monitor to the connector on the graphics card. Do not remove the cap. **NOTE:** If you are using a graphics card that supports dual monitors, use the y-cable that came with your computer.
11	parallel connector	Connect a parallel device, such as a printer, to the parallel connector. If you have a USB printer, plug it into a USB connector. **NOTE:** The integrated parallel connector is automatically disabled if the computer detects an installed card containing a parallel connector configured to the same address. For more information, see "System Setup Options."

Inside Your Computer

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

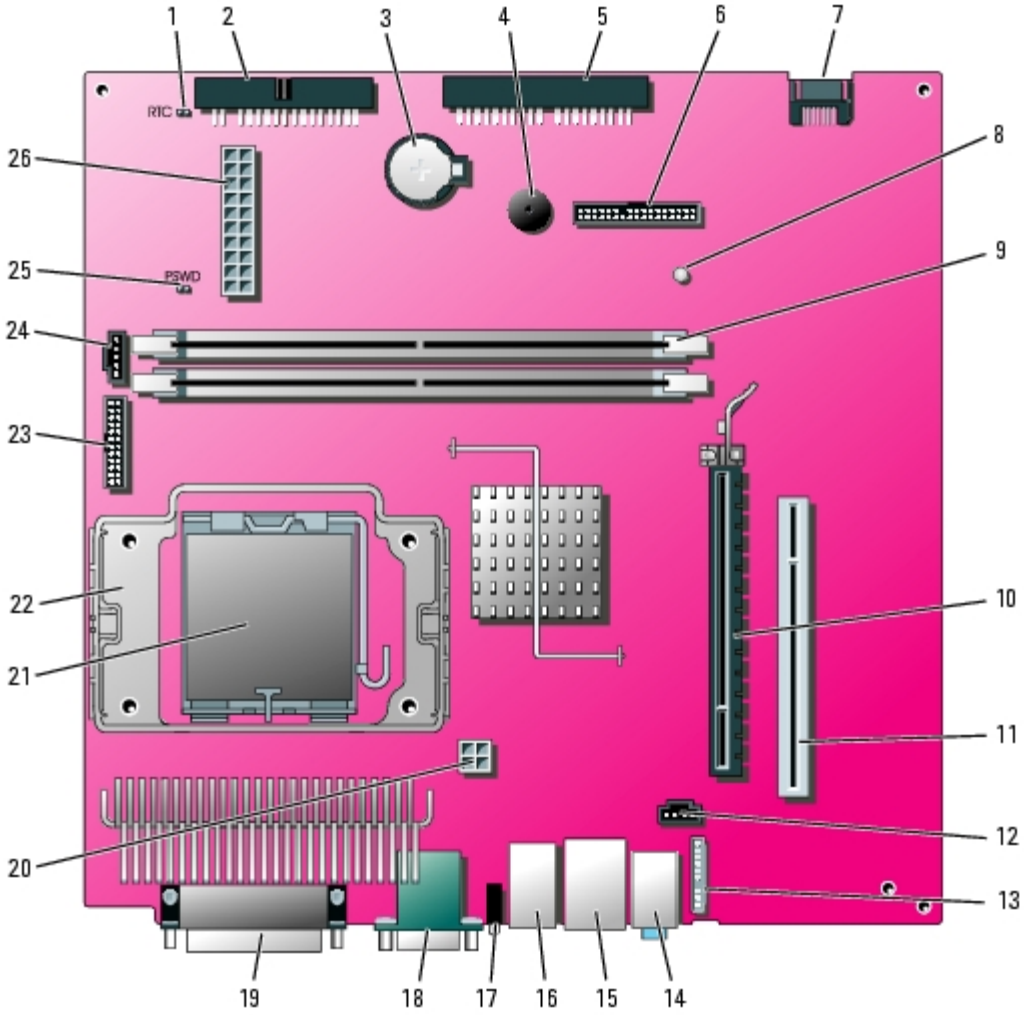
CAUTION: To avoid electrical shock, always unplug your computer from the electrical outlet before opening the cover.

NOTICE: Be careful when opening the computer cover to ensure that you do not accidentally disconnect cables from the system board.



1	hard drive	6	system board
2	floppy drive	7	power supply
3	CD/DVD drive	8	padlock ring
4	internal speaker	9	heat sink and blower assembly
5	chassis intrusion switch		

System Board Components

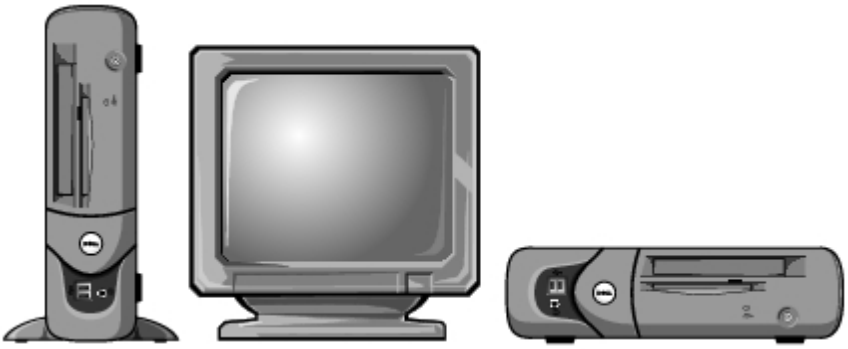


1	RTC reset jumper (RTCRST)	**14**	line-in, line-out, and microphone connectors (AUDIO)
2	floppy drive connector (DSKT)	**15**	network connector (NIC) and USB connector (USB2)
3	battery socket (BATTERY)	**16**	USB connectors (USB1)
4	internal speaker (SPEAKER)	**17**	diagnostic lights (DIAG LED)
5	CD/DVD drive connector (IDE)	**18**	serial port connector (SER1) and video connector (VGA)
6	front-panel connector (FRONTPANEL)	**19**	parallel port connector (PAR)
7	serial ATA drive 0 connector (SATA0)	**20**	power connector (12VPOWER)
8	standby power light (AUX_PWR)	**21**	processor and heat-sink connector (CPU)
9	memory module connectors (DIMM1 and DIMM2)	**22**	heat sink/blower retention pad
10	PCI Express x16 connector (PEG)	**23**	serial port 2 connector (SER_PS2)
11	PCI riser connector (PCI)	**24**	fan connector (FAN)
12	CD drive analog audio cable connector for optional analog audio cable (CD_IN)	**25**	password jumper (PSWD)
13	front-panel audio cable connector (FRONTAUDIO)	**26**	power connector (POWER)

Attaching and Removing the Computer Stand

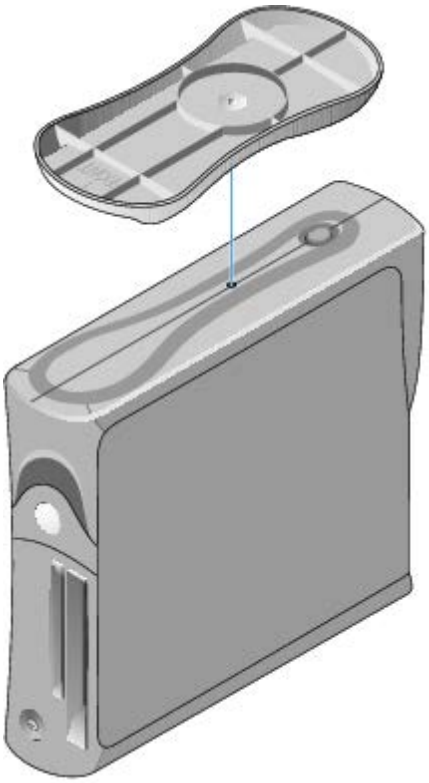
NOTE: Place your computer on a soft surface to prevent scratching the top cover.

Your computer can be used in either a vertical or horizontal position.



To use the computer in a vertical position, you must attach the computer stand:

1. Place the computer on its right side so that the drive bays are at the bottom.
2. Fit the stand onto what was the left side of the computer.
    a. Position the stand as shown in the following illustration by aligning the large round hole in the stand with the securing button on the side of the cover and aligning the captive screw in the stand with the screw hole in the cover.
    b. When the stand is in place, tighten the thumbscrew.
3. Rotate the computer so that the stand is at the bottom and the drives are at the top.



To remove the stand:

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

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Before You Begin

Dell™ OptiPlex™ GX280 Systems User's Guide

This chapter provides procedures for removing and installing the components in your computer. Unless otherwise noted, each procedure assumes that the following conditions exist:

- You have performed the steps in "Turning Off Your Computer" and "Before Working Inside Your Computer."
- You have read the safety information in your Dell™ *Product Information Guide.*
- A component can be replaced by performing the removal procedure in reverse order.

Recommended Tools

The procedures in this document may require the following tools:

- Small flat-blade screwdriver
- Phillips screwdriver
- Flash BIOS update program floppy disk or CD

Turning Off Your Computer

NOTICE: To avoid losing data, save and close any open files and exit any open programs before you turn off your computer.

1. Shut down the operating system:
    a. Save and close any open files, exit any open programs, click the **Start** button, and then click **Turn Off Computer**.
    b. In the **Turn off computer** window, click **Turn off**.

    The computer turns off after the operating system shutdown process finishes.
2. Ensure that the computer and any attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, turn them off now.

Before Working Inside Your Computer

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

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

CAUTION: 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 processor by its edges, not by its pins.

NOTICE: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

NOTICE: 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 you disconnect 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.

NOTICE: To avoid damaging the computer, perform the following steps before you begin working inside the computer.

1. Turn off your computer.

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

2. Disconnect any telephone or telecommunication lines from the computer.
3. Disconnect your computer and all attached devices from their electrical outlets, 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.

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.

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Opening the Computer Cover

Dell™ OptiPlex™ GX280 Systems User's Guide

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

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

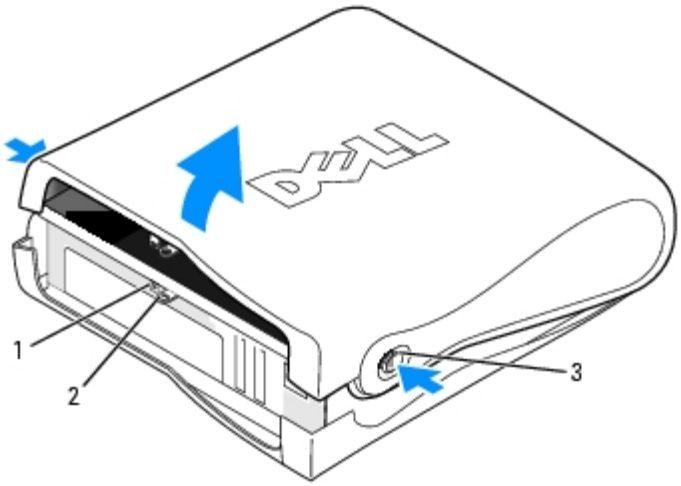
1. Follow the procedures in "Before You Begin."
2. Remove the computer stand, if it is attached.
3. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.

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

4. 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.



1	security cable slot
2	padlock ring
3	release buttons (one on each side)

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Battery

Dell™ OptiPlex™ GX280 Systems User's Guide

Replacing the Battery

Replacing the Battery

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

NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

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

The battery may need replacing if an incorrect time or date is displayed during the boot routine along with a message such as:

```
Time-of-day not set - please run SETUP program
```

or

```
Invalid configuration information -
please run SETUP program
```

or

```
Strike the F1 key to continue,
F2 to run the setup utility
```

To determine whether you need to replace the battery, reenter the time and date in system setup and exit the program to save the information. Turn off your computer and disconnect it from the electrical outlet for a few hours; then reconnect the computer, turn it on, and enter system setup. If the date and time are not correct in system setup, replace the battery.

You can operate your computer without a battery; however, without a battery, the configuration information is erased if the computer is turned off or unplugged from the electrical outlet. In this case, you must enter system setup and reset the configuration options.

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 remove the battery:

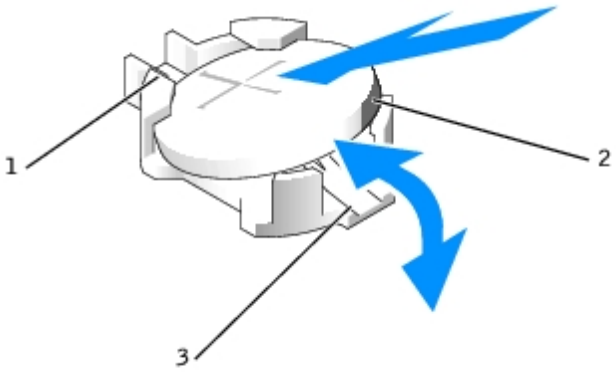
1. If you have not already done so, make a copy of your configuration information, found in system setup.
1. Follow the procedures in "Before You Begin."
2. Locate the battery socket.

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.

NOTICE: To avoid damage to the battery connector, you must firmly support the connector while removing the battery.

3. Remove the system battery.
    a. Support the battery connector by pressing down firmly on the positive side of the connector.

b. While supporting the battery connector, press the battery toward the positive side of the connector and pry it up out of the securing tabs at the negative side of the connector.



1	positive side of battery connector
2	system battery
3	negative side of battery connector

NOTICE: To avoid damage to the battery connector, you must firmly support the connector while replacing the battery.

1. Install the new system battery.
   a. Support the battery connector by pressing down firmly on the positive side of the connector.
   b. Hold the battery with the "+" facing up, and slide it under the securing tabs at the positive side of the connector.
   c. Press the battery straight down into the connector until it snaps into place.
2. Close the computer cover.
3. Attach the computer stand, if it is used.

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 electrical outlets, and turn them on.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

5. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

6. Enter system setup and restore the settings you recorded in step 1.
7. Properly dispose of the old battery as described in the *Product Information Guide*.

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Chassis Intrusion Switch

Dell™ OptiPlex™ GX280 Systems User's Guide

- Removing the Chassis Intrusion Switch
- Replacing the Chassis Intrusion Switch

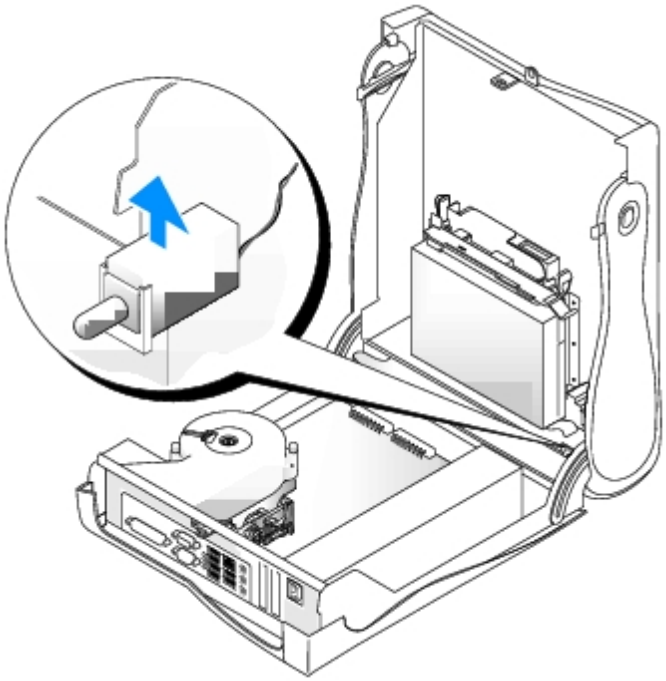
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

Removing the Chassis Intrusion Switch

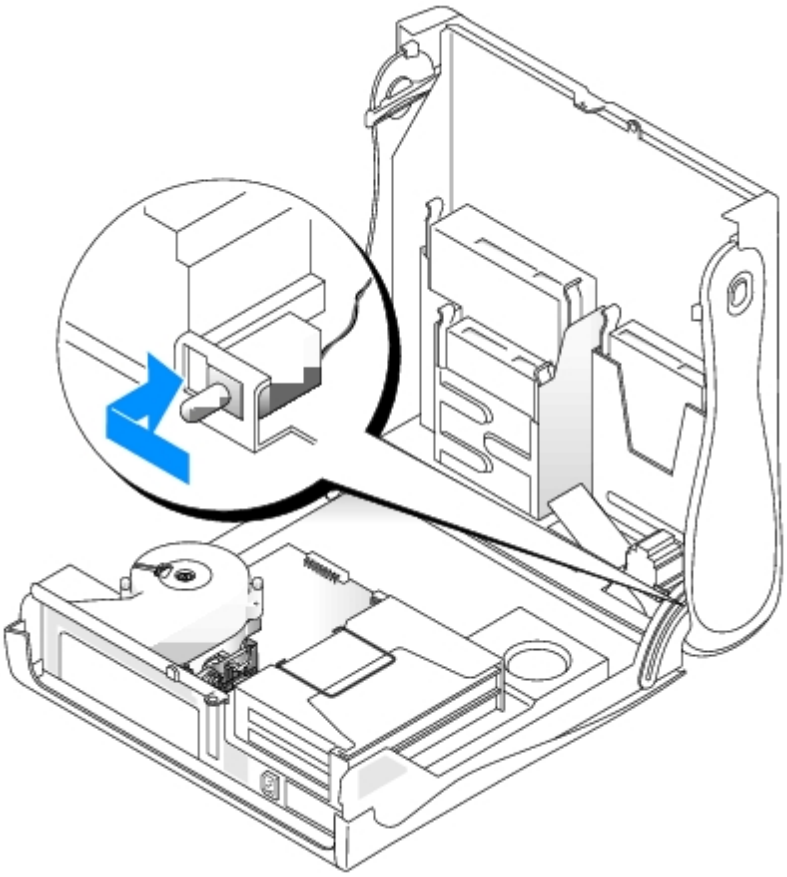
1. Follow the procedures in "Before You Begin."
2. Disconnect the chassis intrusion switch cable from the system board.

   Note the routing of the chassis intrusion cable as you remove it from the chassis. Chassis hooks may hold the cable in place inside the chassis.
3. Using a flat blade screwdriver, gently slide the chassis intrusion switch out of its slot, and remove the switch and its attached cable from the computer.

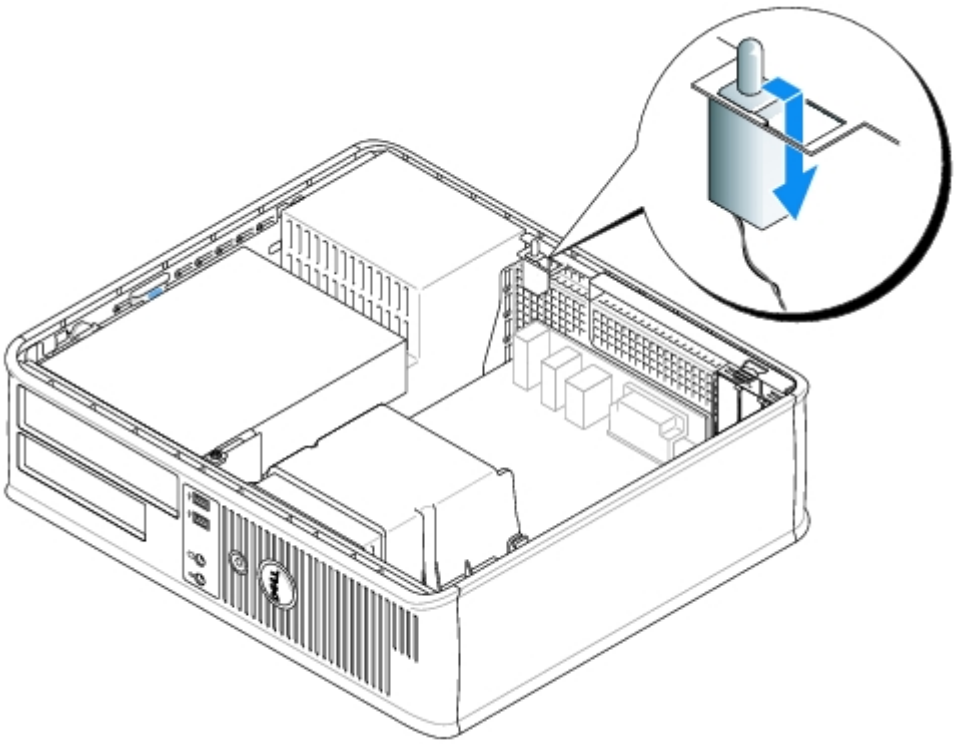
Small Form Factor Computer



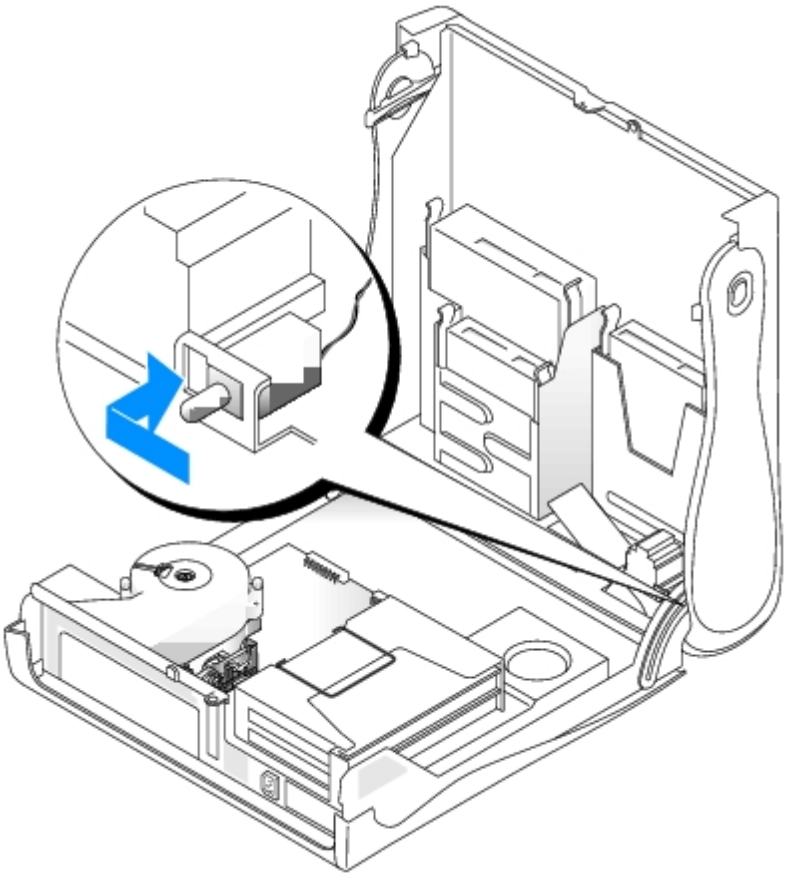
Small Desktop Computer



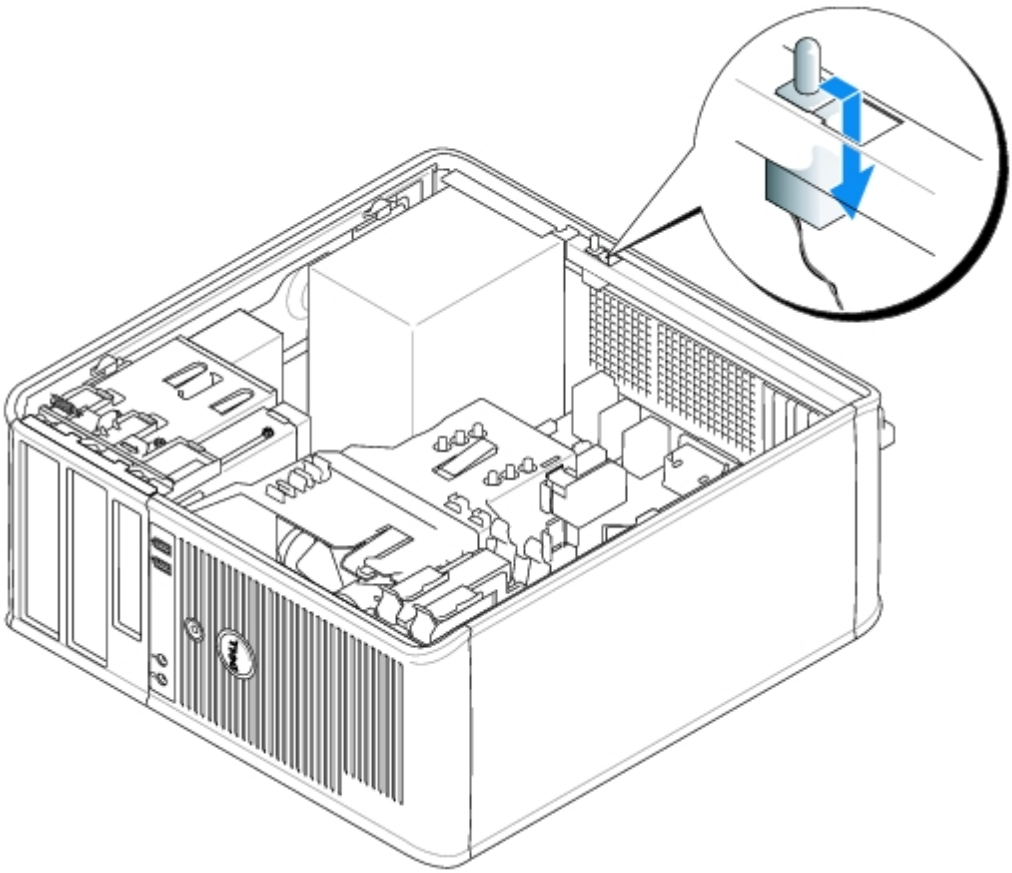
Desktop Computer



Small Mini-Tower Computer



Mini-Tower Computer



Replacing the Chassis Intrusion Switch

1. Gently slide the chassis intrusion switch into its slot and reconnect the cable to the system board.
2. Close the computer cover.
3. Attach the computer stand, if it is used.

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 electrical outlets, and turn them on.

Resetting the Chassis Intrusion Detector

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.
3. Select the **Chassis Intrusion** option and then press the left- or right-arrow key to select **Reset**. Change the setting to **On**, **On-Silent**, or **Disabled**.

NOTE: The default setting is **On-Silent**.

4. Press <Alt><B> to restart the computer and implement your changes.

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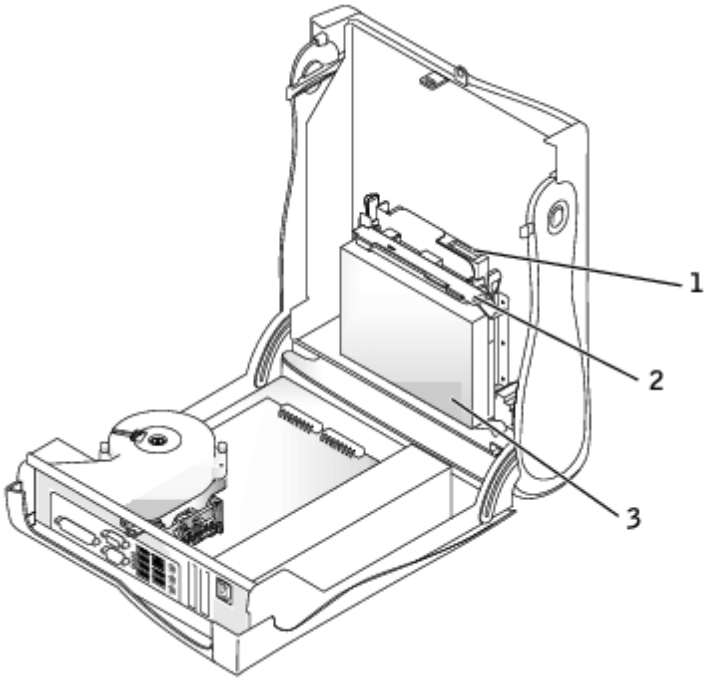
Drives

Dell™ OptiPlex™ GX280 Systems User's Guide

- General Installation Guidelines
- Hard Drive
- Front-Panel Inserts
- Floppy Drive
- CD/DVD Drive
- Cable Routing

Your computer supports:

- One serial ATA hard drive
- One optional floppy drive
- One optional CD or DVD drive



1	CD/DVD drive
2	floppy drive
3	hard drive

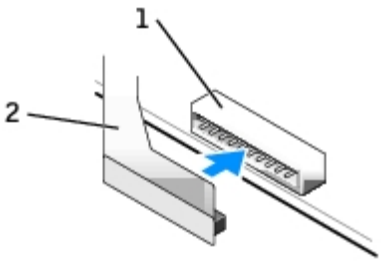
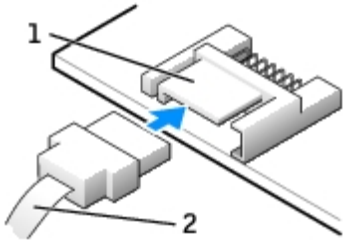
General Installation Guidelines

Connect CD/DVD drives to the connector labeled "IDE" on the system board. Serial ATA hard drives should be connected to the connector labeled "SATA0" on the system board.

Connecting Drive Cables

When you install a drive, you connect two cables—a DC power cable and a data cable—to the back of the drive and to the system board.

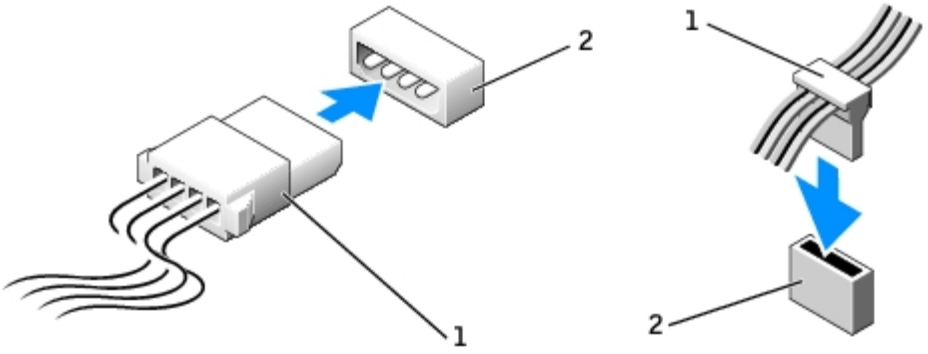
Drive Interface Connectors

IDE Drive Connector	Serial ATA Connector
	

1	interface connector
2	interface cable

Most interface connectors are keyed for correct insertion; that is, a notch or a missing pin on one connector matches a tab or a filled-in hole on the other connector. Keyed connectors ensure that the pin-1 wire in the cable goes to the pin-1 end of the connector. The pin-1 end of a connector on a board or a card is usually indicated by a silk-screened "1" printed directly on the board or card.

Power Cable Connector



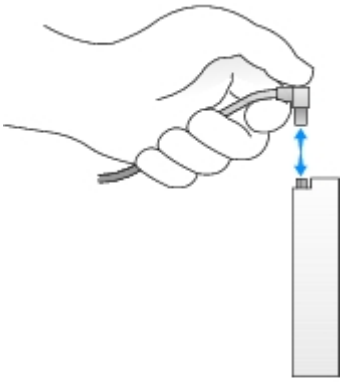
1	power cable
2	power input connector

Connecting and Disconnecting Drive Cables

When removing an IDE drive data cable, grasp the colored pull tab and pull until the connector detaches.

When connecting and disconnecting a serial ATA data cable, hold the cable by the black connector at each end.

Like IDE connectors, the serial ATA interface connectors are keyed for correct insertion; that is, a notch or a missing pin on one connector matches a tab or a filled-in hole on the other connector.



Hard Drive

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

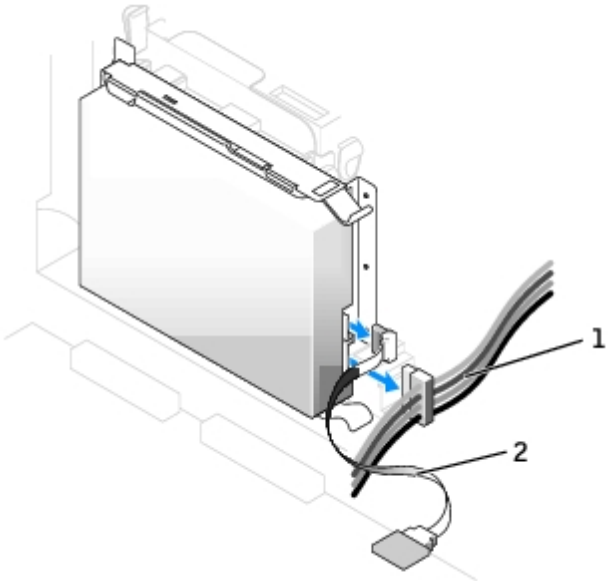
CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

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. Follow the procedures in "Before You Begin."

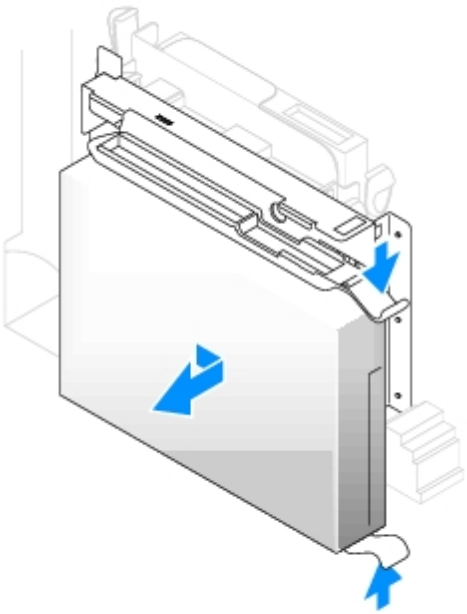
Removing a Hard Drive

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



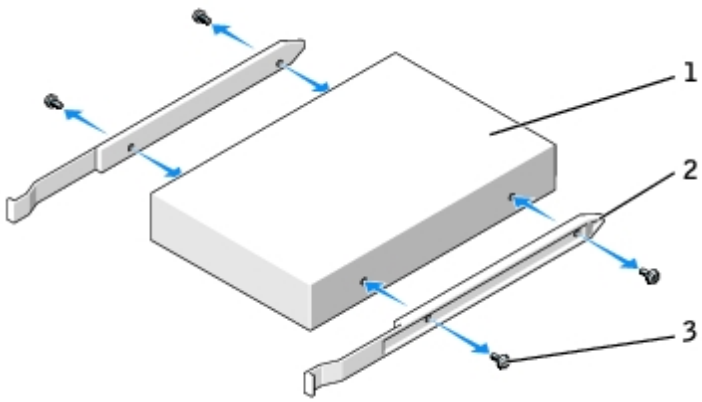
1	power cable
2	hard-drive cable

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



Installing a Hard Drive

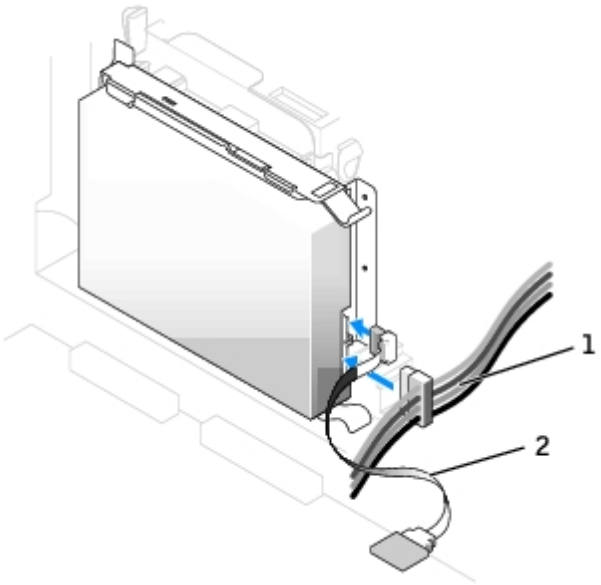
1. Unpack the replacement hard drive, and prepare it for installation.
2. If your replacement hard drive does not have the bracket rails attached, remove the rails from the old drive by removing the two screws that secure each rail to the drive. Attach the bracket rails to the new drive by aligning the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



1	drive
2	bracket rails (2)

3	screws (4)

3. Gently slide the drive into place until you hear a click or feel the drive securely installed.
4. Connect the power and hard-drive cables to the drive.



1	power cable
2	hard-drive cable

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.

   See the documentation that came with the drive for instructions on installing any software required for drive operation.
9. If the drive you just installed is the primary drive, insert a bootable medium into your boot drive.
10. Turn on the computer.
11. After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```
12. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

13. Enter system setup and update the appropriate primary **Drive** option (**0** or **1**).
14. Exit system setup, and reboot the computer.

15. Partition and logically format your drive before you proceed to the next step.

    For instructions, see the documentation that came with your operating system.

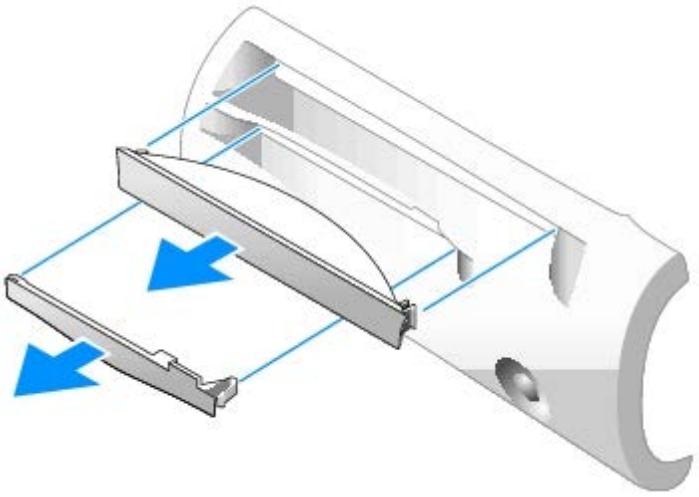
16. Test the hard drive by running the Dell Diagnostics.

17. If the drive you just installed is the primary drive, install your operating system on the hard drive.

    For instructions, see the documentation that came with your operating system.

Front-Panel Inserts

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



Floppy Drive

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

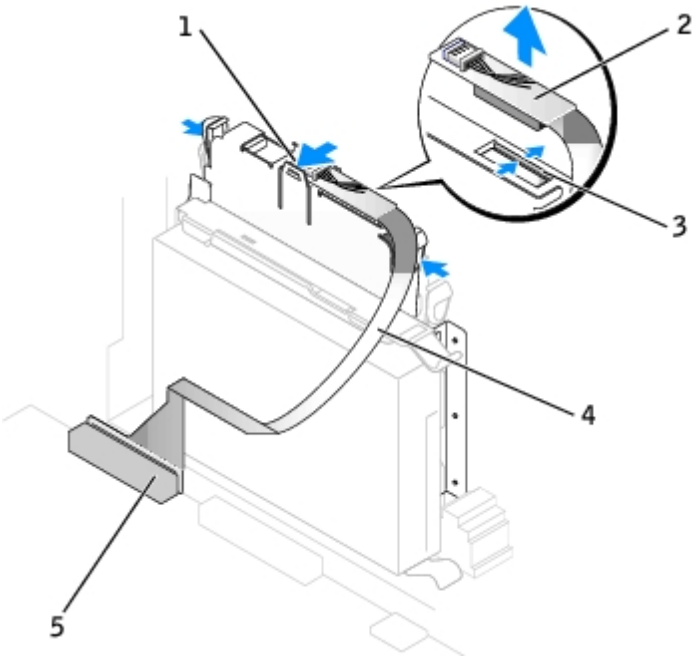
⚠ **CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.**

1. Follow the procedures in "Before You Begin."
2. If you are installing a new floppy drive rather than replacing a drive, remove the front-panel inserts.

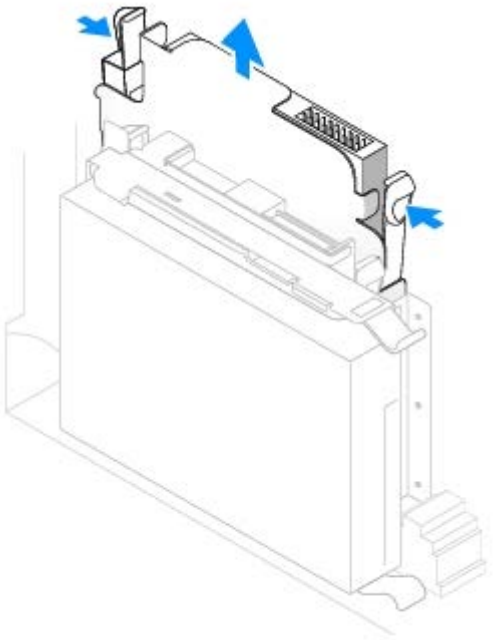
Removing a Floppy Drive

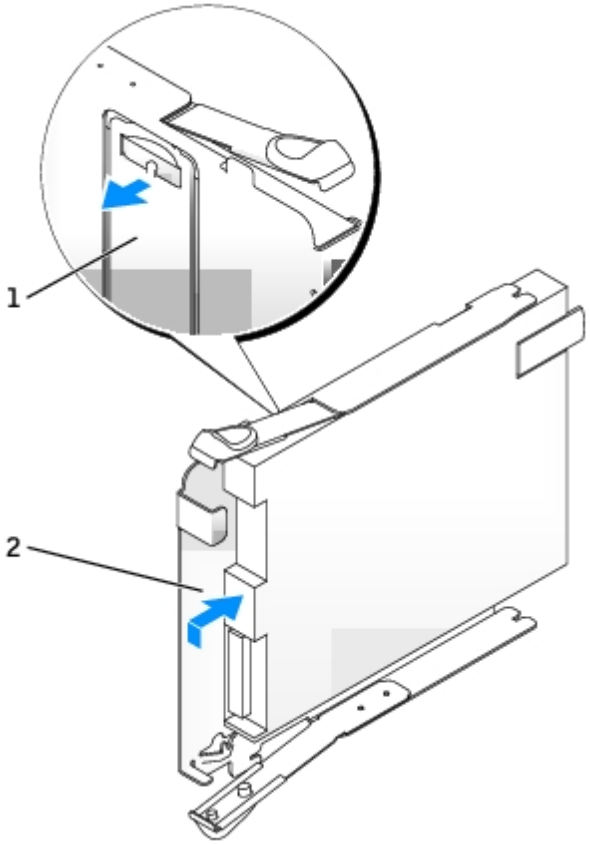
1. Disconnect the floppy-drive cable from the system board connector (DSKT).
2. Remove the power cable from the interposer board.
3. Remove or raise the drive by pressing the green tabs on either side of the drive and lifting the drive up.
4. Remove the floppy-drive cable from the floppy drive:
    a. Remove the interposer board from the floppy drive by pressing on the tab and rotating the interposer board.
    b. To release the floppy-drive cable from the connector, slide the lever until it is fully extended, and then lift the

cable away.



1	tab
2	interposer board
3	lever
4	floppy-drive cable
5	system board floppy-drive connector (DSKT)



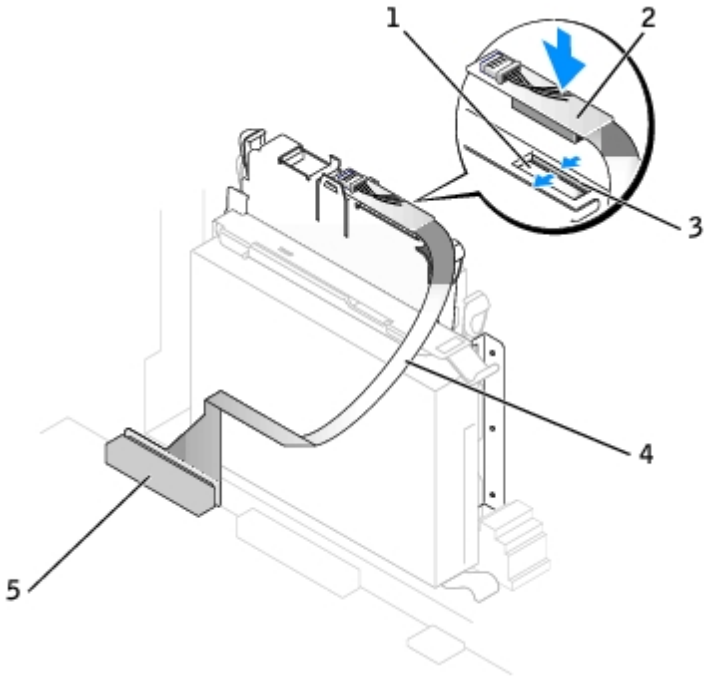


1	sled tab
2	sled

5. Remove the floppy drive from its sled by pulling the sled tab out while pushing the drive upand then sliding the drive out of the sled.

Installing a Floppy Drive

1. Snap the replacement drive into the sled and ensure that it is secure in the sled.
2. Connect the interposer board to the floppy drive:
    a. Slide the floppy-drive cable into the connector.
    b. Close the lever so that the cable is secure in the connector.
    c. Line up the hole on the bottom of the interposer board with the notch on the connector, and snap the interposer board onto the drive.
3. Gently slide the drive into place until you hear a click or feel the drive securely installed.



1	floppy-drive connector
2	interposer board
3	lever
4	floppy-drive cable
5	system board floppy-drive connector (DSKT)

4. Attach the power cable to the interposer board on the floppy drive.
5. Connect the floppy-drive cable to the DSKT connector on the system board.
6. Check all cable connections, and fold cables out of the way to provide airflow for the fan and cooling vents.
7. Close the computer cover.
8. 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.

9. 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.

10. After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```

11. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

    NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

12. Enter system setup and use the **Diskette Drive** option to enable your new floppy drive.
13. Verify that your computer works correctly by running the Dell Diagnostics.

CD / DVD Drive

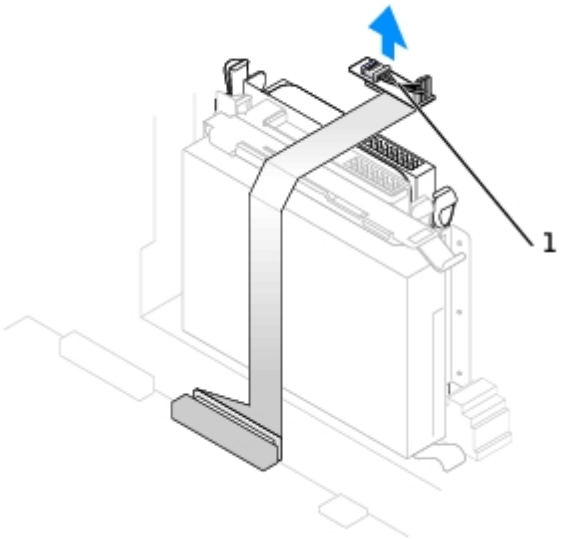
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.

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

1. Follow the procedures in "Before You Begin."
2. If you are installing a new CD/DVD drive rather than replacing a drive, remove the front- panel inserts.

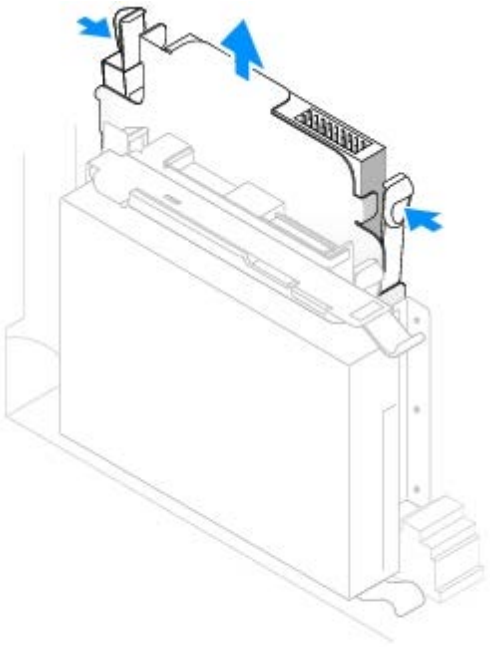
Removing a CD / DVD Drive

1. Disconnect the power cable from the interposer board.
2. Remove the interposer board from the drive.



1	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.

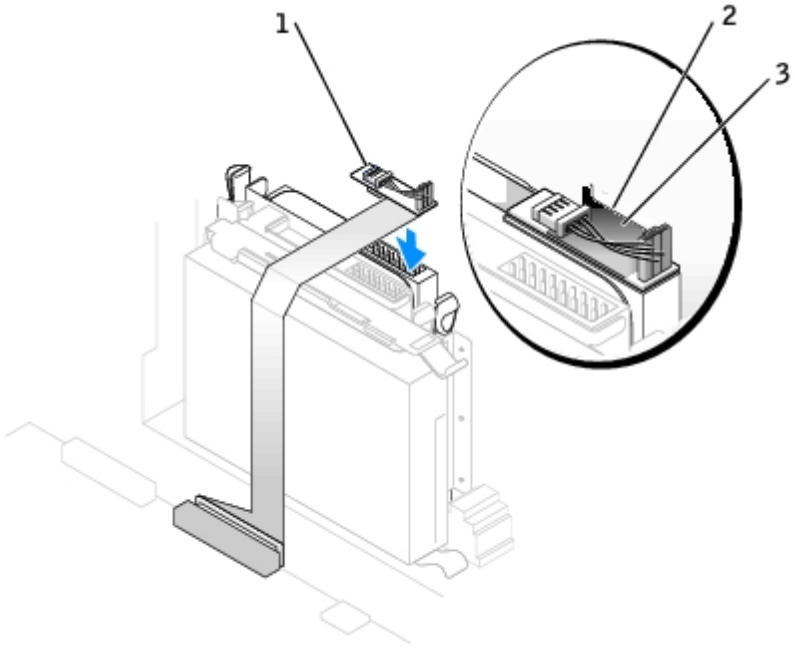
   Check the documentation that accompanied the drive to verify that the drive is configured for your computer. If you are installing an IDE drive, configure the drive for the cable select setting.

2. Gently slide the drive into place until you hear a click or feel the drive securely installed.

3. Connect the interposer board to the CD 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.



1	interposer board
2	notch on inside of cover
3	interposer board tab

If your computer came with an IDE CD drive, use the spare connector on the existing interface cable. Otherwise, use the IDE interface cable provided in the drive kit.

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.

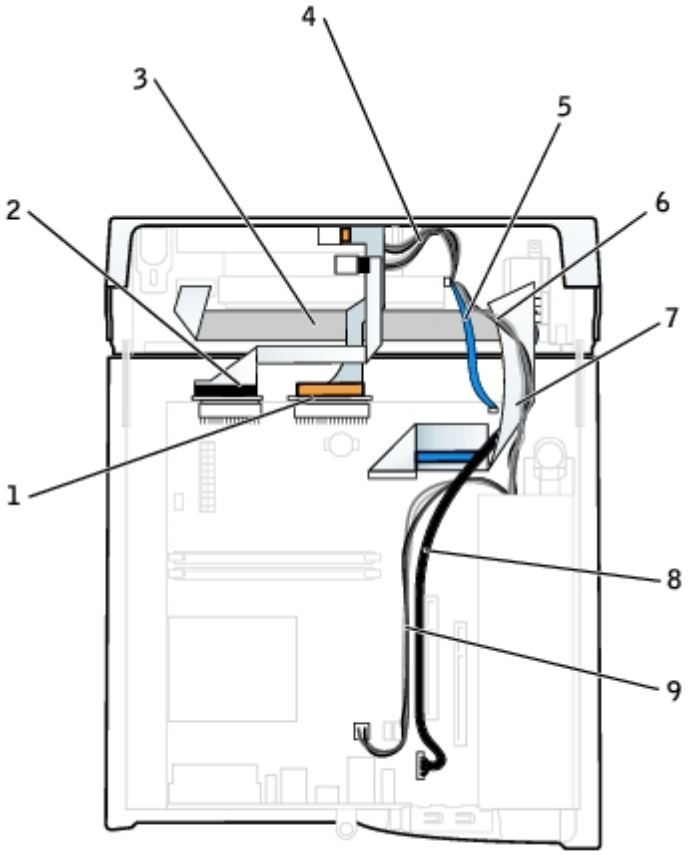
   See the documentation that came with the drive for instructions on installing any software required for drive operation.
9. After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```
10. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

11. Update your configuration information by setting the appropriate **Drive** option (**0** or **1**) under **Drives**. See "System Setup" for more information.
12. Verify that your computer works correctly by running the Dell Diagnostics.

Cable Routing



1	CD/DVD drive data cable	6	IDE drive power cable
2	floppy drive data cable	7	front input/output data cable
3	control panel cable	8	front input/output audio cable
4	CD/DVD and floppy drive power cables	9	12V power cable
5	serial ATA drive data cable		

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I/O Panel

Dell™ OptiPlex™ GX280 Systems User's Guide

- Removing the I/O Panel (Small Form-Factor, Small Desktop, and Small Mini-Tower Computers)
- Removing the I/O Panel (Desktop Computer)
- Removing the I/O Panel (Mini-Tower Computer)
- Replacing the I/O Panel

Removing the I/O Panel (Small Form-Factor, Small Desktop, and Small Mini-Tower Computers)

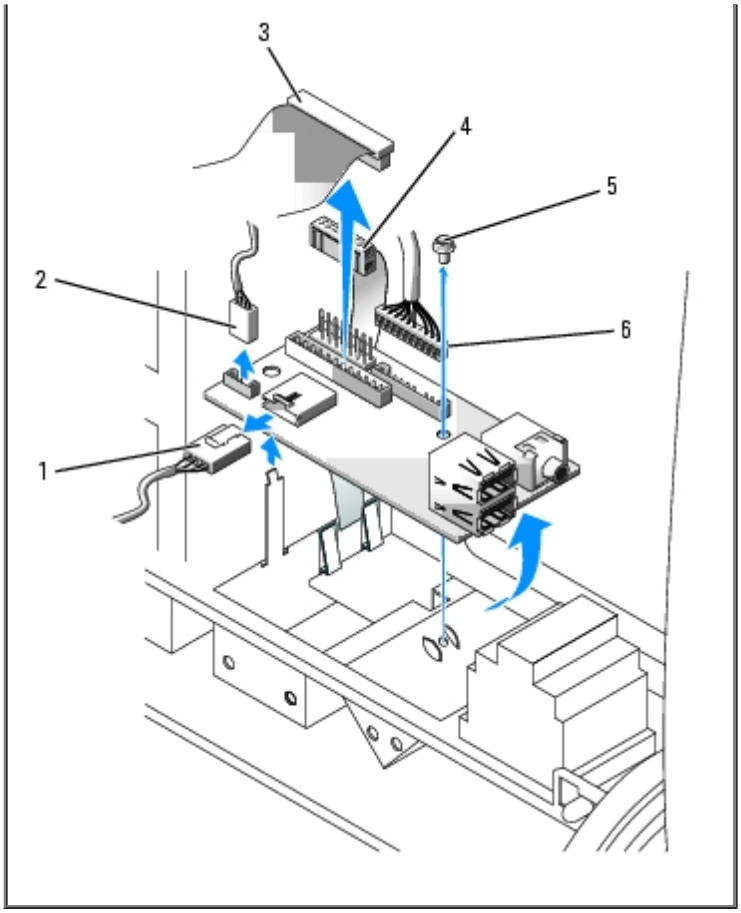
⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.**

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

1. Follow the procedures in "Before You Begin."
2. To access the screw that holds the I/O panel to the small form-factor computer, remove the hard drive.
3. Disconnect the hard-drive data cable on the small desktop computer.
4. Disconnect all cables that are connected to the I/O panel.

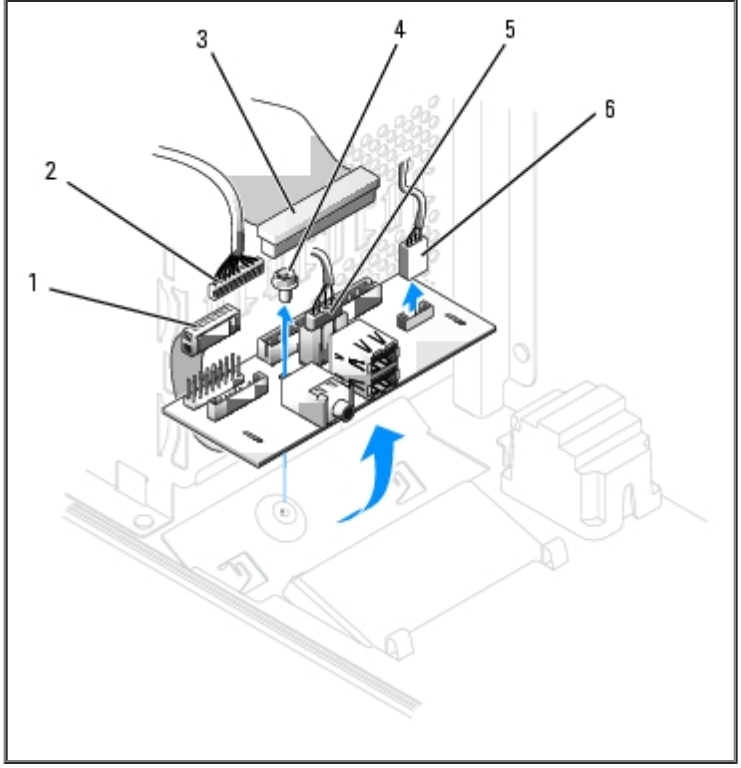
Note the routing of the control panel cable as you remove it from the computer so that you can replace it correctly.

Small Form-Factor and Small Desktop Computer



1	chassis-intrusion switch cable connector	4	control-panel cable connector
2	internal speaker cable connector	5	securing screw
3	I/O cable connector	6	front-audio cable connector

Small Mini-Tower Computer



1	control-panel cable connector	4	securing screw
2	front-audio cable connector	5	chassis-intrusion switch cable connector
3	I/O cable connector	6	internal speaker cable connector

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

Removing the I/O Panel (Desktop Computer)

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

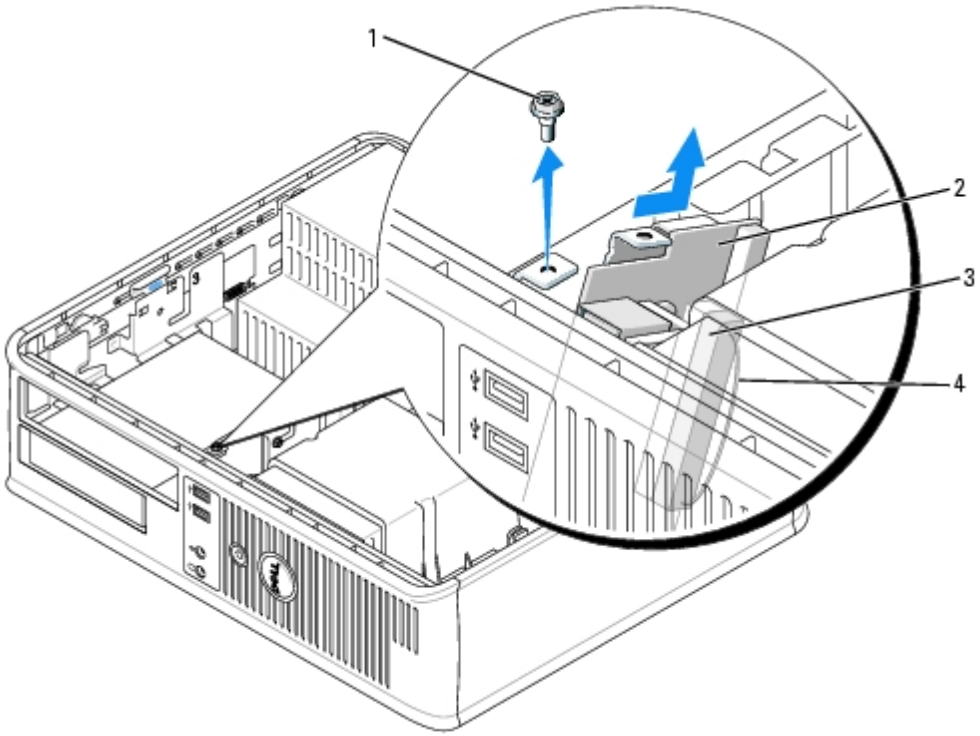
CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

NOTE: Note the routing of all cables before disconnecting them, so that you can re route them correctly when installing the new I/O panel.

1. Follow the procedures in "Before You Begin."
2. Remove the **CD/DVD** drive.
3. Remove the cable from the I/O panel by pulling on the pull loop.
4. Remove the screw that secures the I/O panel to the desktop computer.

NOTICE: When sliding the I/O card out of the computer, be extremely careful. Carelessness may result in damage to the cable connectors and the cable routing clips.

5. Gently rotate and slide the I/O card away from the computer.



1	securing screw
2	I/O panel
3	I/O connector
4	I/O connector pull loop

Removing the I/O Panel (Mini-Tower Computer)

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

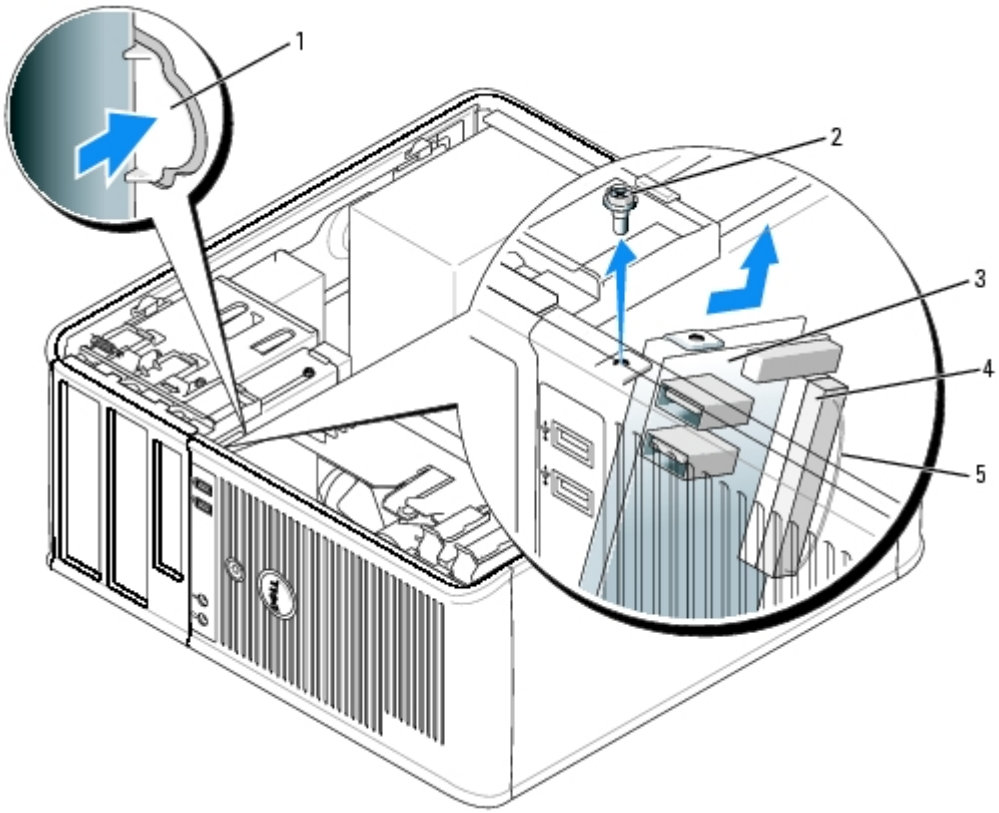
CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

NOTE: Note the routing of all cables as you remove disconnecting them, so that you can re route them correctly when installing the new I/O panel.

1. Follow the procedures in "Before You Begin.

NOTICE: When sliding the I/O card out of the computer, be extremely careful. Carelessness my result in damage to the cable connectors and the cable routing clips.

2. Remove the screw that secures the I/O panel. Press on the release button and pull on the loop to slide the card away from the computer.
3. Disconnect all of the cables from the I/O card, and remove the card from the computer.



1	I/O panel release button
2	securing screw

3	I/O panel
4	I/O connector
5	I/O connector pull loop

Replacing the I/O Panel

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

NOTE: Use the guides on the I/O panel bracket to help position the I/O card in place and use the notch on the I/O panel bracket to help seat the card.

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Memory

Dell™ OptiPlex™ GX280 Systems User's Guide

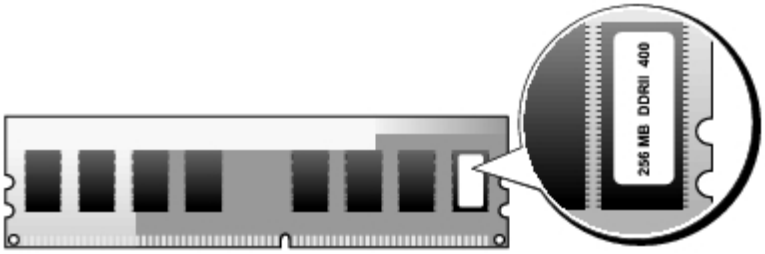
- DDR2 Memory Overview
- Addressing Memory With 4-GB Configurations
- Replacing/Adding Additional Memory

For information on the type of memory supported by your computer, look under "Memory" in "Specifications."

NOTICE: Before you install new memory modules, download the most recent BIOS for your computer from the Dell Support website at **support.dell.com**.

DDR2 Memory Overview

- Dual-channel DDR2 memory modules should be installed in *pairs of matched memory size, speed, and technology*. If the DDR2 memory modules are not installed in matched pairs, the computer will continue to operate, but with a slight reduction in performance. See the label in the upper-right corner of the module to determine the module's capacity.



NOTE: Always install DDR2 memory modules in the order indicated on the system board.

The recommended memory configurations are:

- A memory module installed in connector DIMM1

or

- A pair of matched memory modules installed in connectors DIMM1 and DIMM2

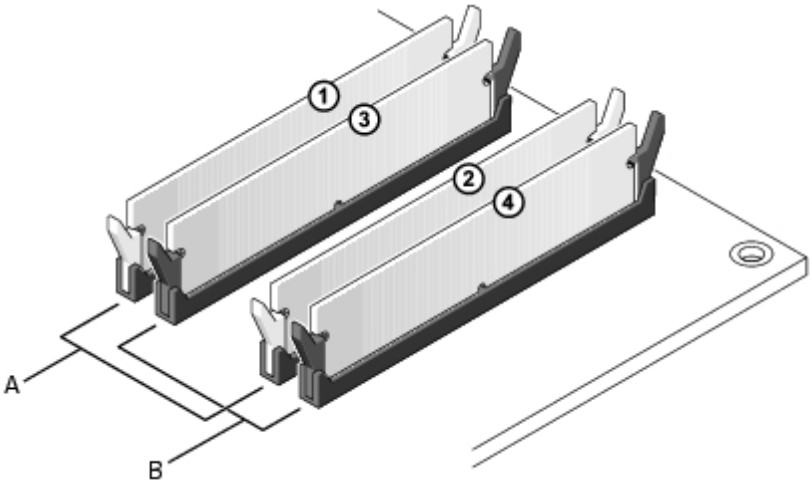
or

- A pair of matched memory modules installed in connectors DIMM1 and DIMM2 and another matched pair installed in connectors DIMM3 and DIMM4

NOTICE: Do not install ECC memory modules. Doing so may cause the system not to boot or affect performance.

Be sure to install a single memory module in DIMM1, the connector closest to the processor, before you install modules in the other connectors.

NOTE: The small form-factor computer has two slots which are considered an interleaved pair.



A	matched pair of memory modules in connectors DIMM1 and DIMM2 (white securing clips)
B	matched pair of memory modules in connectors DIMM3 and DIMM4 (black securing clips)

Addressing Memory With 4-GB Configurations

The small-desktop, desktop, small mini-tower, and mini-tower computers support a maximum of 4 GB of memory when you use four 1-GB DIMMs. Current operating systems, such as Microsoft® Windows® 2000 and Windows XP, can only use a maximum of 4 GB of address space; however, the amount of memory available to the operating system is slightly less than 4 GB. Certain components within the computer require address space in the 4-GB range. Any address space reserved for these components cannot be used by computer memory.

The following components require memory address space:

- System ROM
- APIC(s)
- Integrated PCI devices, such as network connectors and SCSI controllers
- PCI cards

At start-up, the BIOS identifies the components that require address space. The BIOS dynamically calculates the amount of reserved address space required. The BIOS then subtracts the reserved address space from 4 GB to determine the amount of usable space.

- If the total installed computer memory is less than the usable space, all installed computer memory is available for use only by the operating system.
- If the total installed computer memory is equal to or greater than the usable address space, a small portion of installed memory is available for use by the operating system.

Removing Memory

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

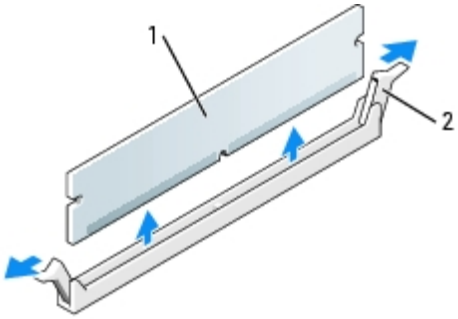
NOTICE: If you remove your original memory modules from the computer during a memory upgrade, keep them separate from any new modules that you may have, even if you purchased the new modules from Dell. If possible, *do not* pair an original memory module with a new memory module. Otherwise, your computer may not start properly. You should install your original memory modules in pairs either in connectors DIMM1 and DIMM2 or connectors DIMM3 and DIMM4.

NOTICE: If applicable, removing memory modules from DIMM2 and DIMM4 on the desktop computer requires you to remove the optical drive (see section on Drives). Failure to do so may cause damage to the memory module and the DIMM socket.

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

NOTE: On the desktop system, it is necessary to remove the CD/DVD drive in order to remove or replace DIMM 2 and DIMM 4.

1. Follow the procedures in "Before You Begin."
2. Carefully press out the securing clip at each end of the memory module connector.



1	memory module
2	securing clip (2)

3. Remove the memory module.

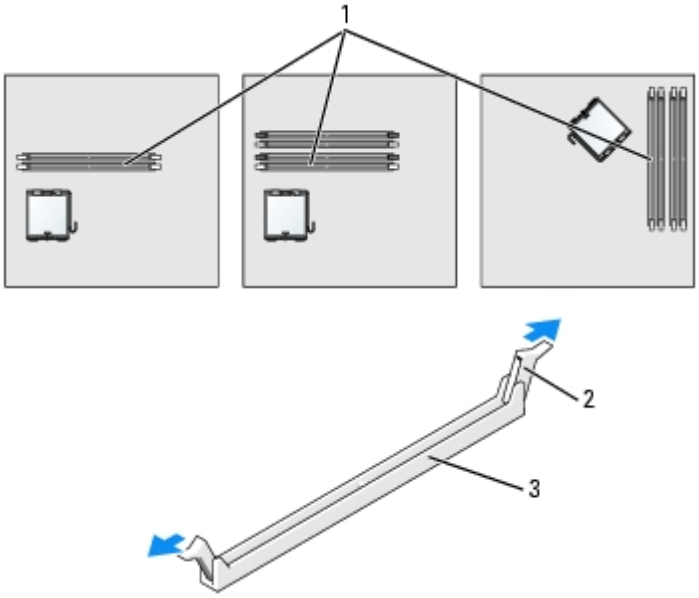
Replacing / Adding Additional Memory

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

NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

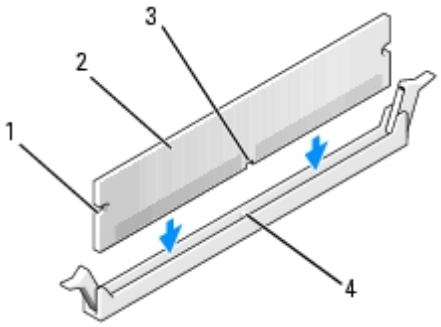
NOTE: Memory purchased from Dell is covered under your computer warranty.

1. Follow the procedures in "Before You Begin."
2. Press out the securing clip at each end of the memory module connector.



1	memory connector closest to processor
2	securing clips (2)
3	connector

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

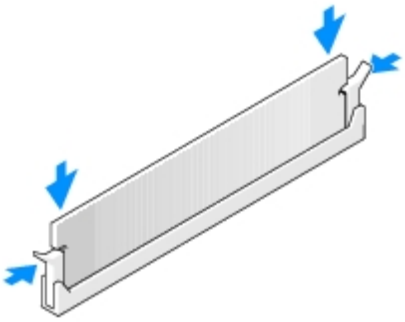


1	cutouts (2)
2	memory module
3	notch
4	crossbar

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.

4. 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.



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.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

8. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

9. The computer detects that the new memory does not match the existing configuration information and generates the following message:

   ```
   The amount of system memory has changed.
   Strike the F1 key to continue, F2 to run the setup utility
   ```

10. Press <F2> to enter system setup and check the value for **System Memory**.

    The computer should have changed the value of **System Memory** to reflect the newly installed memory. Verify the new total. If it is correct, skip to step 12.

11. If the memory total is incorrect, turn off and disconnect your computer and devices from their electrical outlets. Open the computer cover and check the installed memory modules to ensure that they are seated properly in their sockets. Then repeat steps 5, 6, and 7.
12. When the **System Memory** total is correct, press <Esc> to exit system setup.
13. Run the Dell Diagnostics to verify that the memory modules are operating properly.

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PCI and PCI Express Cards and Serial Port Adapters

Dell™ OptiPlex™ GX280 Systems User's Guide

- PCI Cards
- PCI Express Cards
- Serial Port Adapters

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

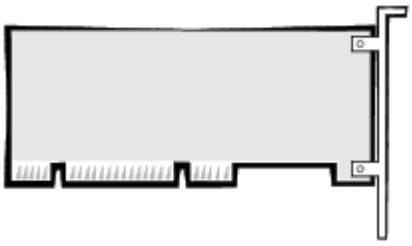
NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

Your Dell™ computer provides the following slots for PCI and PCI Express cards or serial port adapter:

- one PCI card slot
- one PCI Express x16 card slot

NOTE: Your Dell computer uses only PCI and PCI Express slots. ISA cards are not supported.

PCI Cards

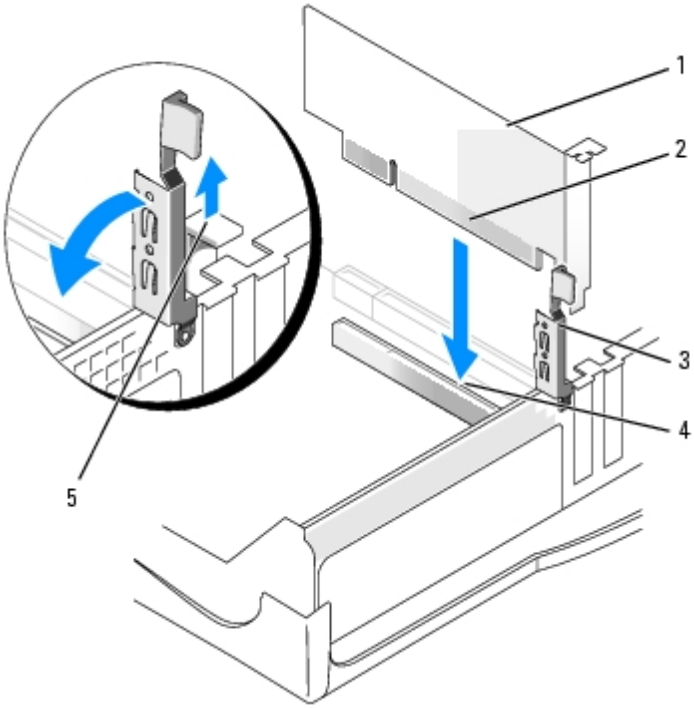


If you are installing or replacing a card, follow the procedures in the next section. If you are removing but not replacing a card, skip to "Removing a PCI Card."

If you are replacing a card, remove the current driver for the card from the operating system.

Installing a PCI Card

1. Follow the procedures in "Before You Begin."
2. Raise the retention arm.



1	card	4	card connector
2	edge connector	5	filler bracket
3	retention arm		

3. If you are installing a new card, remove the filler bracket to create a empty card-slot opening. Then continue with step 5.
4. If you are replacing a card that is already installed in the computer, remove the card.

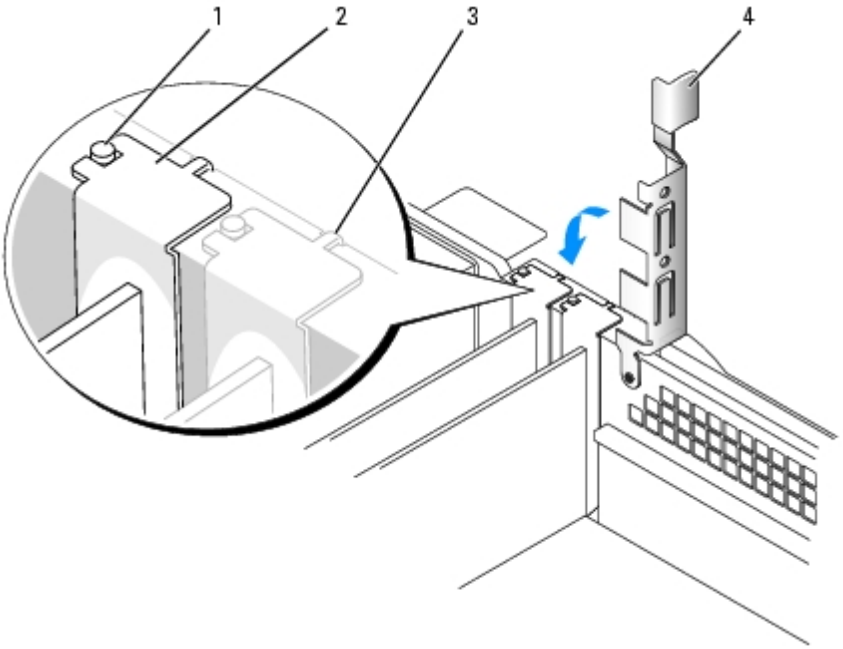
   If necessary, disconnect any cables connected to the card. Grasp the card by its top corners, and ease it out of its connector.
5. Prepare the card for installation.

   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.

6. Place the card on 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.
7. 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.
8. Press the retention arm into place, securing the card(s) in the computer.



1	alignment guide
2	filler bracket
3	alignment bar
4	retention arm

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.

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

   See the documentation for 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.

10. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

    After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    `ALERT! Cover was previously removed.`

11. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

12. If you installed a sound card:

    a. Enter system setup, select **Audio Controller**, and change the setting to **Off**.

    b. Connect external audio devices to the sound card's connectors. Do not connect external audio devices to the microphone, speaker/headphone, or line-in connectors on the back panel.

13. If you installed an add-in network adapter and want to turn off the integrated network adapter:

    a. Enter system setup, select **Network Controller**, and change the setting to **Off**.

b. Connect the network cable to the add-in network adapter's connectors. Do not connect the network cable to the integrated connector on the back panel.

14. Install any drivers required for the card as described in the card documentation.

Removing a PCI Card

1. Follow the procedures in "Before You Begin."
2. Press the lever on the card retention arm and raise the retention arm.
3. If necessary, disconnect any cables connected to the card.
4. Grasp the card by its top corners, and ease it out of its connector.
5. 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.

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.

6. Lower the retention arm and press it into place.

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

7. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

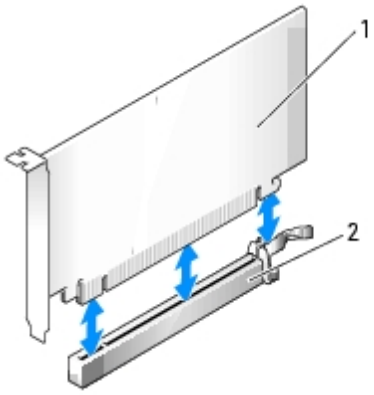
8. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

9. Remove the card's driver from the operating system.
10. If you removed a sound card:
    a. Enter system setup, select **Audio Controller**, and change the setting to **On**.
    b. Connect external audio devices to the audio connectors on the computer back panel.
11. If you removed an add-in network connector:
    a. Enter system setup, select **Network Controller**, and change the setting to **On**.
    b. Connect the network cable to the integrated connector on the computer back panel.

PCI Express Cards

Your computer supports one PCI Express x16 card.



1	PCI Express x16 card
2	PCI Express x16 card slot

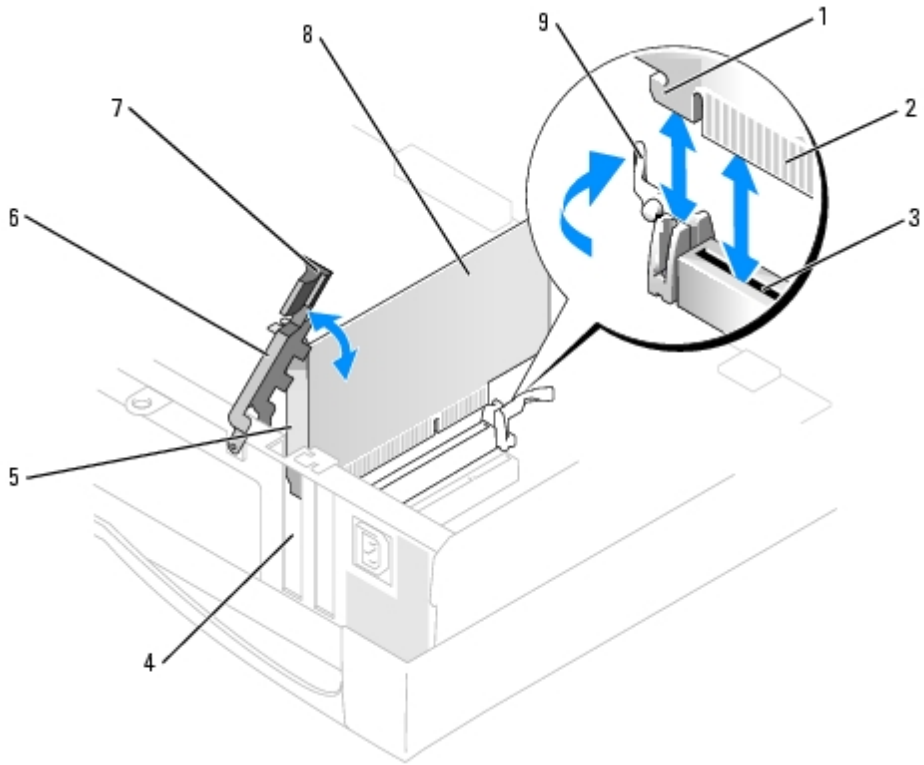
If you are installing or replacing a PCI Express card, follow the procedures in the next section. If you are removing but not replacing a card, see "Removing a PCI Express Card."

If you are replacing a card, remove the current driver for the card from the operating system.

If you are installing or replacing a PCI card, see "Installing a PCI Card."

Installing a PCI Express Card

1. Follow the procedures in "Before You Begin."
2. Press the lever on the card retention arm and raise the retention arm.



1	securing slot (not all cards)	6	retention arm
2	edge connector	7	lever
3	card connector	8	PCI Express x16 card

4	card opening	9	securing tab
5	filler bracket		

3. If you are installing a new card, remove the filler bracket to create a card-slot opening. Then continue with step 5.
4. If you are replacing a card that is already installed in the computer, remove the card.

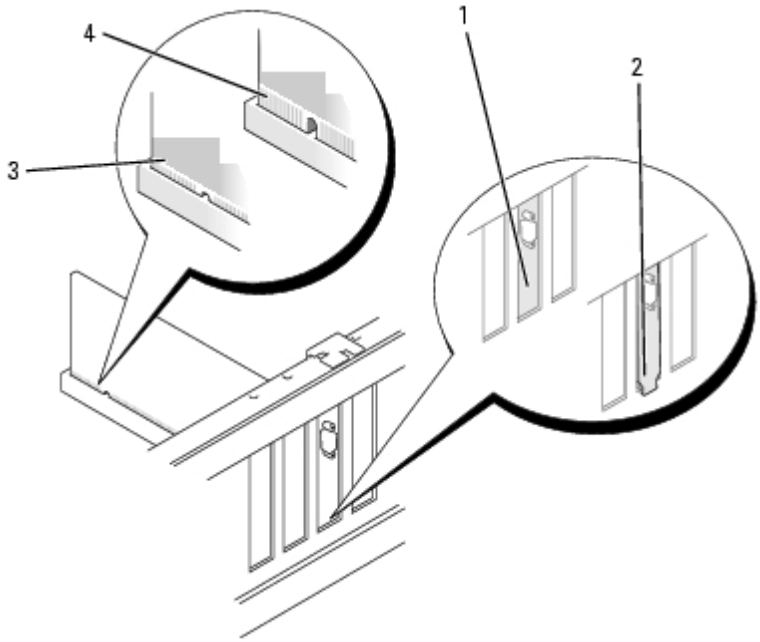
   If necessary, disconnect any cables connected to the card. Gently pull the securing tab, grasp the card by its top corners, and ease it out of its connector.
5. Prepare the card for installation.

   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.

6. When installing the card into the x16 card connector, position the card so the securing slot is aligned with the securing tab, and gently pull the securing tab.
7. Place the card in the connector and press down firmly. Ensure that the card is fully seated in the slot.

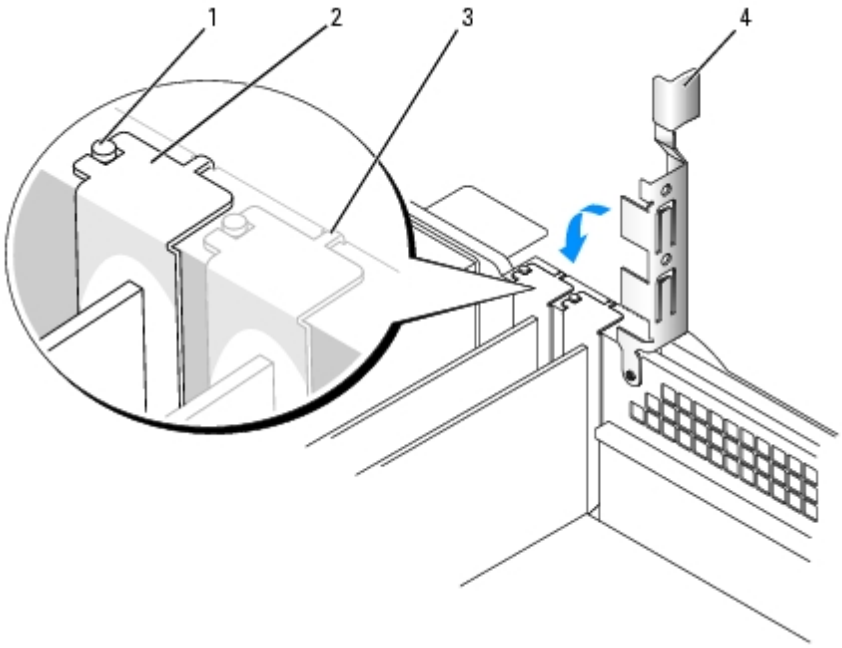
   If the card is full-length, insert the end of the card into the card guide bracket as you lower the card toward its connector on the system board. Insert the card firmly into the card connector on the system board.



1	bracket within slot
2	bracket caught outside of slot
3	fully seated card
4	not fully seated card

8. 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.

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



1	alignment guide
2	filler bracket
3	alignment bar
4	retention arm

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.

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

    See the documentation for 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.

11. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

    After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```

12. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

13. If you installed a sound card:

    a. Enter system setup, select **Audio Controller**, and change the setting to **Off**.

    b. Connect external audio devices to the sound card's connectors. Do not connect external audio devices to the microphone, speaker/headphone, or line-in connectors on the back panel.

14. If you installed an add-in network adapter and want to turn off the integrated network adapter:

a. Enter system setup, select **Network Controller**, and change the setting to **Off**.

b. Connect the network cable to the add-in network adapter's connectors. Do not connect the network cable to the integrated connector on the back panel.

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

Removing a PCI Express Card

1. Follow the procedures in "Before You Begin."
2. Press the lever on the card retention arm and raise the retention arm.
3. If necessary, disconnect any cables connected to the card.
4. Gently pull back the securing tab, grasp the card by its top corners, and ease it out of its connector.
5. 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.

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.

6. Lower the retention arm and press it into place.

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

7. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

8. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

9. Remove the card's driver from the operating system.
10. If you removed a sound card:

    a. Enter system setup, select **Audio Controller**, and change the setting to **On**.

    b. Connect external audio devices to the audio connectors on the computer back panel.

11. If you removed an add-in network connector:

    a. Enter system setup, select **Network Controller**, and change the setting to **On**.

    b. Connect the network cable to the integrated connector on the computer back panel.

Serial Port Adapters

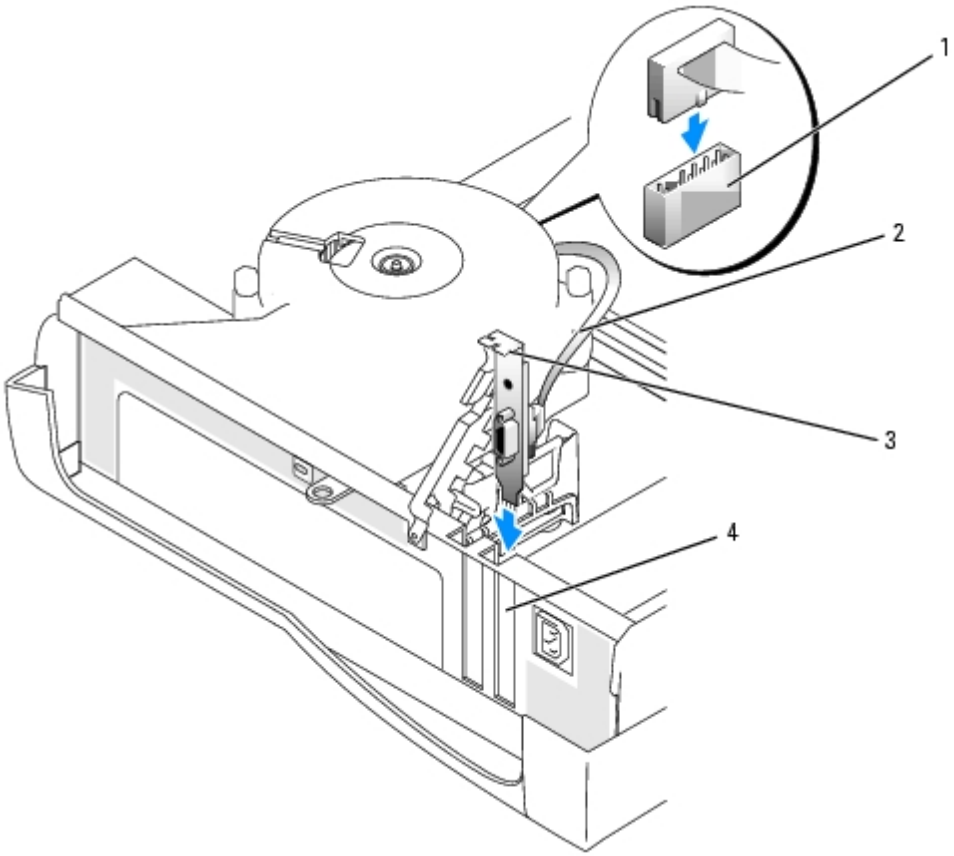
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.

NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

NOTE: The serial port adapter for your small form-factor computer also includes one PS/2 connector.

Installing a Serial Port Adapter

1. Follow the procedures in "Before You Begin."
2. Raise the retention arm.
3. Remove the filler bracket.
4. Slide the serial port adapter bracket down over the card slot opening, and lower the retention arm, ensuring 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.



1	SER_PS2 system board connector
2	serial adapter cable
3	serial port adapter bracket
4	card slot opening

5. Remove the microprocessor heat sink as explained in "Processor."
6. Attach the serial adapter cable to the connector labeled "SER_PS2" on the system board.

7. Replace the microprocessor heat sink as explained in "Processor."
8. Press the arm into place, securing the card(s) in the computer.
9. Proceed with step 7 in the next procedure.

Removing a Serial Port Adapter

1. Follow the procedures in "Before You Begin."
2. Disconnect the serial adapter cable from the connector on the system board.
3. Raise the retention arm.
4. Lift and remove the serial port adapter bracket.
5. If you are removing the adapter permanently, install a filler bracket in the empty card-slot opening.

   If you need a filler bracket, contact Dell.

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.

6. Lower the retention arm and press it into place.

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

7. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

8. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

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Power Supply

Dell™ OptiPlex™ GX280 Systems User's Guide

- Replacing the Power Supply
- DC Power Connectors

Replacing the Power Supply

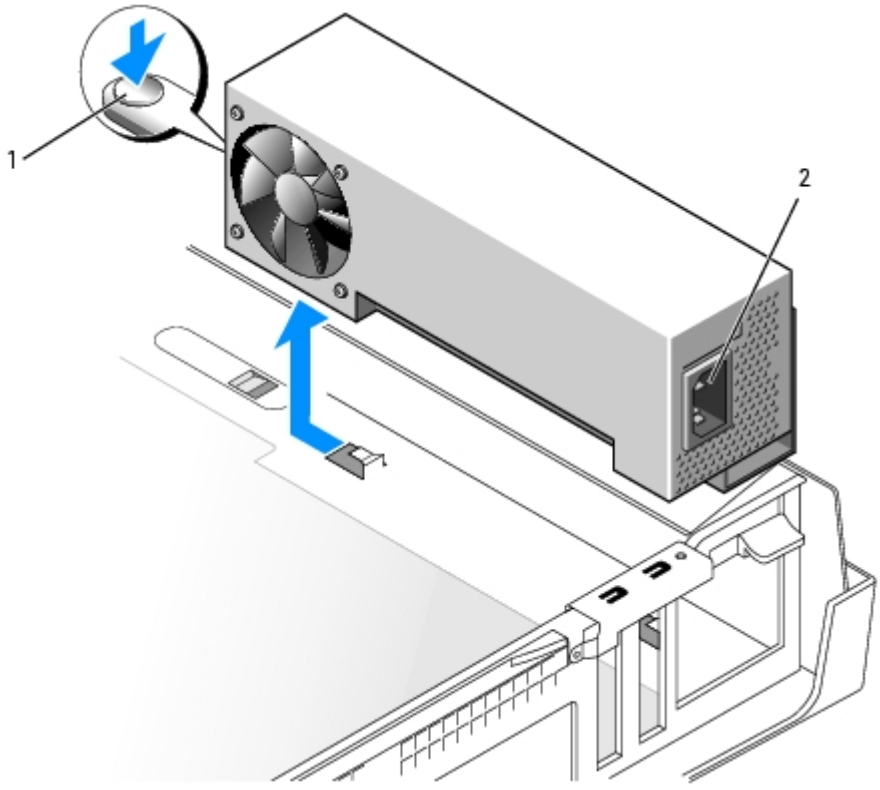
NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

Small Form-Factor Computer

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

1. Follow the procedures in "Before You Begin."
2. 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.
3. Press the release button located on the floor of the computer frame.



1	release button
2	AC power connector

4. Slide the power supply toward the front of the computer approximately 1 inch.
5. Lift the power supply up and out of the computer.
6. Slide the replacement power supply into place.
7. Reconnect the DC power cables.
8. Connect the AC power cable to the connector.
9. Close the computer cover.
10. Attach the computer stand, if used.

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

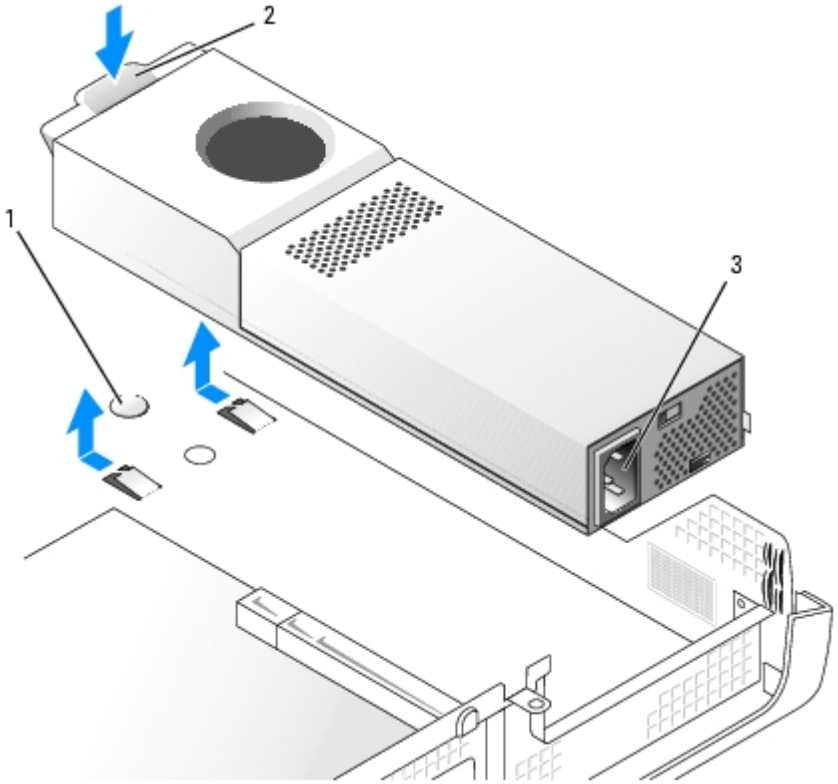
11. Connect your computer and devices to electrical outlets, and turn them on.

Small Desktop Computer

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

1. Follow the procedures in "Before You Begin."
2. 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.
3. Remove the card cage and remove the power cables from the side of the hard drive. To remove the power cables, use the cables as leverage and pull away from the clips while you pull on the metal clips with your fingers.
4. Press down on the handle, which in turn presses the release button.



1	release button
2	handle
3	AC power connector

5. Slide the power supply toward the front of the computer approximately 1 inch.
6. Lift the power supply up and out of the computer.
7. Slide the replacement power supply into place.
8. Reconnect the DC power cables.
9. Replace the card cage.
10. Connect the AC power cable to the connector.
11. Close the computer cover.
12. Attach the computer stand, if used.

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.

Desktop Computer

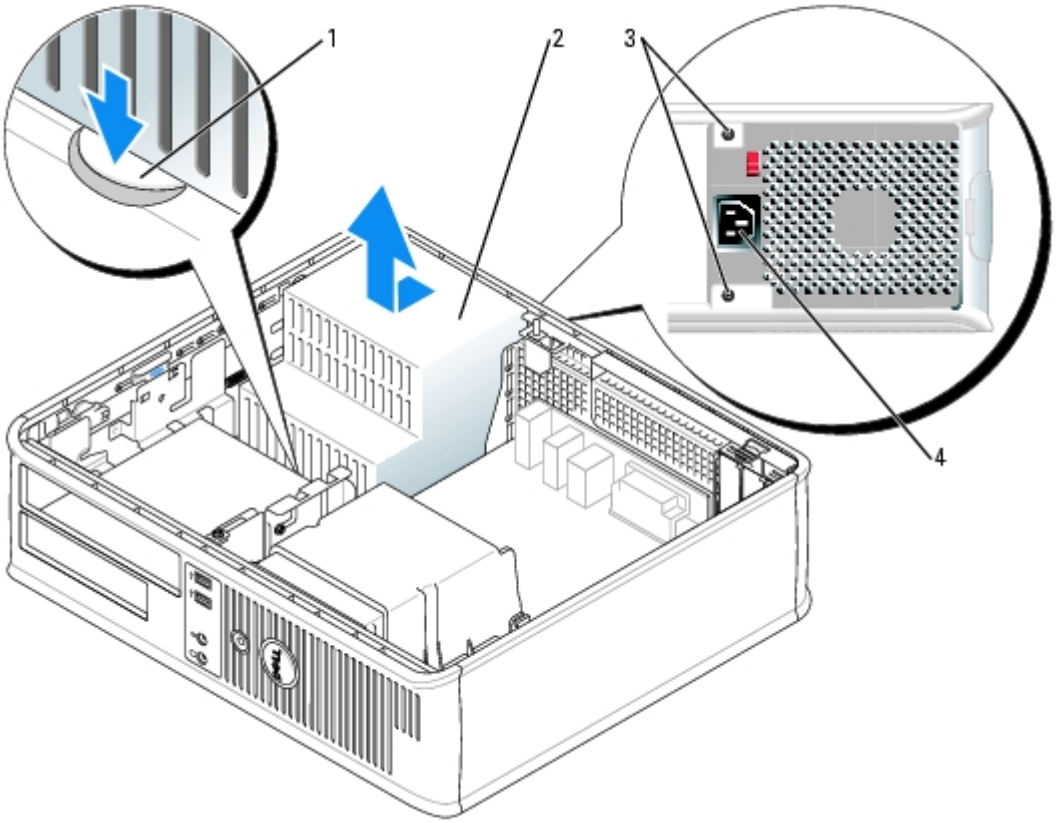
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide.*

1. Follow the procedures in "Before You Begin."

2. 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.

3. Remove the two screws that attach the power supply to the back of the computer frame.
4. Remove the **CD/DVD** drive, the floppy drive, and the hard drive.
5. Press the release button located on the floor of the computer frame.



1	release button
2	power supply
3	screws (2)
4	AC power connector

6. Slide the power supply toward the front of the computer approximately 1 inch.
7. Lift the power supply up and out of the computer.
8. Slide the replacement power supply into place.
9. Replace the screws that secure the power supply to the back of the computer frame.
10. Reconnect the DC power cables.
11. Replace the hard drive, floppy drive, and CD/DVD drive.
12. Connect the AC power cable to the connector.
13. 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.

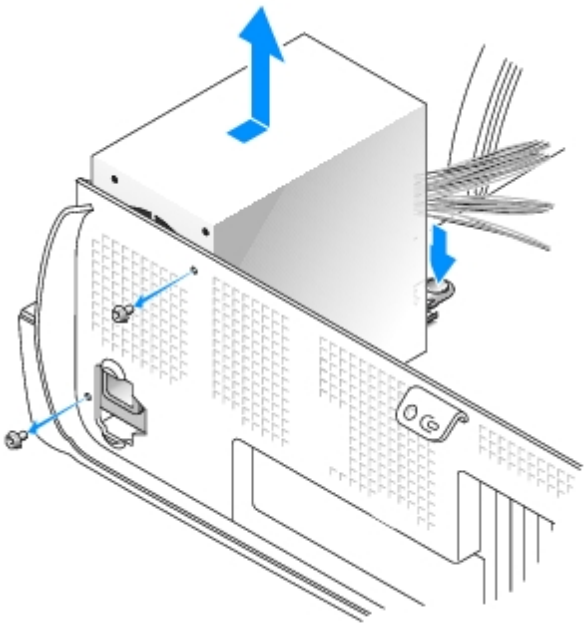
14. Connect your computer and devices to electrical outlets, and turn them on.

Small Mini-Tower Computer

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

1. Follow the procedures in "Before You Begin."
2. 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.
3. Remove the two screws that attach the power supply to the back of the computer frame.
4. Press the release button located on the floor of the computer frame.



1	screws (2)
2	release button
3	power supply

5. Slide the power supply toward the front of the computer approximately 1 inch.
6. Lift the power supply up and out of the computer.
7. Slide the replacement power supply into place.
8. Replace the screws that secure the power supply to the back of the computer frame.
9. Reconnect the DC power cables.
10. Connect the AC power cable to the connector.

11. Close the computer cover.
12. Attach the computer stand, if used.

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

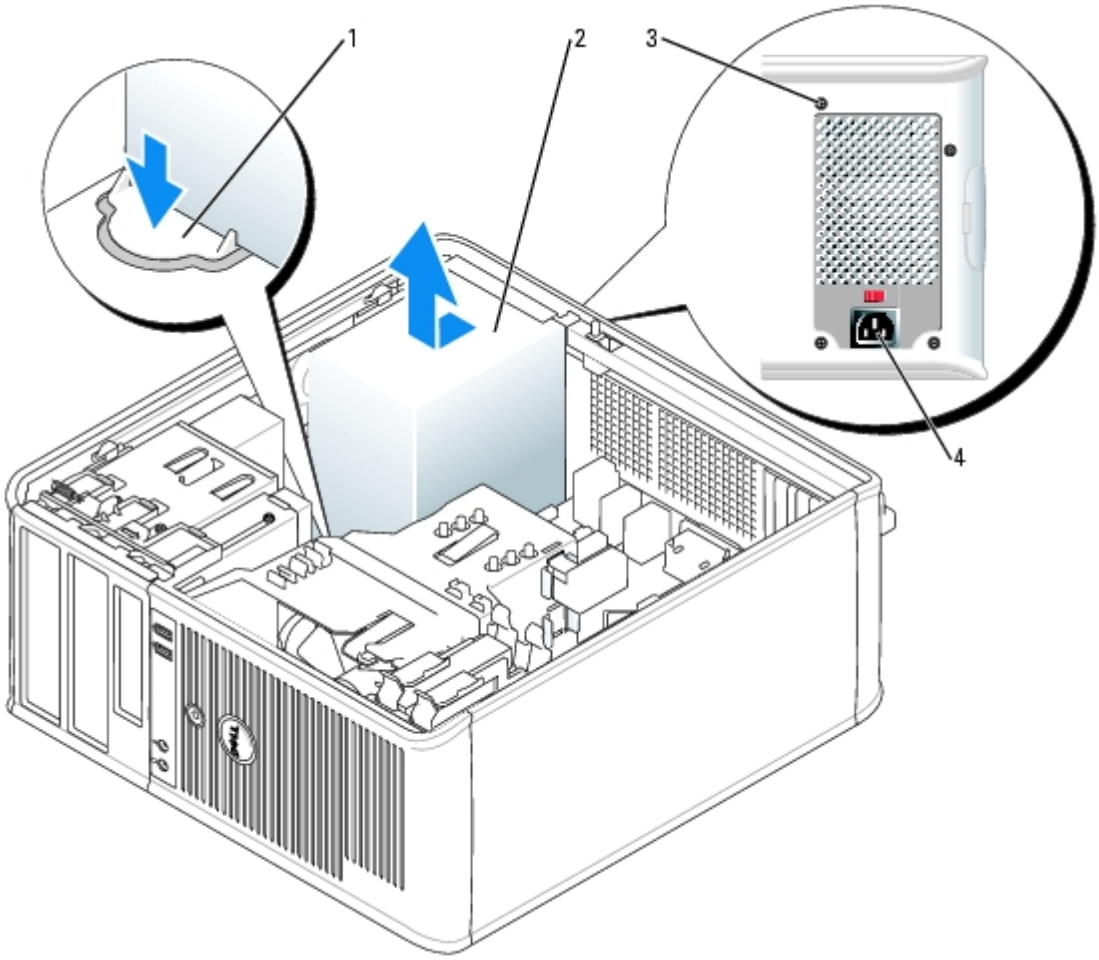
13. Connect your computer and devices to electrical outlets, and turn them on.

Mini Tower Computer

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

1. Follow the procedures in "Before You Begin."
2. 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.
3. Remove the four screws that attach the power supply to the back of the computer frame.
4. Press the release button located on the floor of the computer frame.



1	release button
2	power supply
3	screws (4)
4	AC power connector

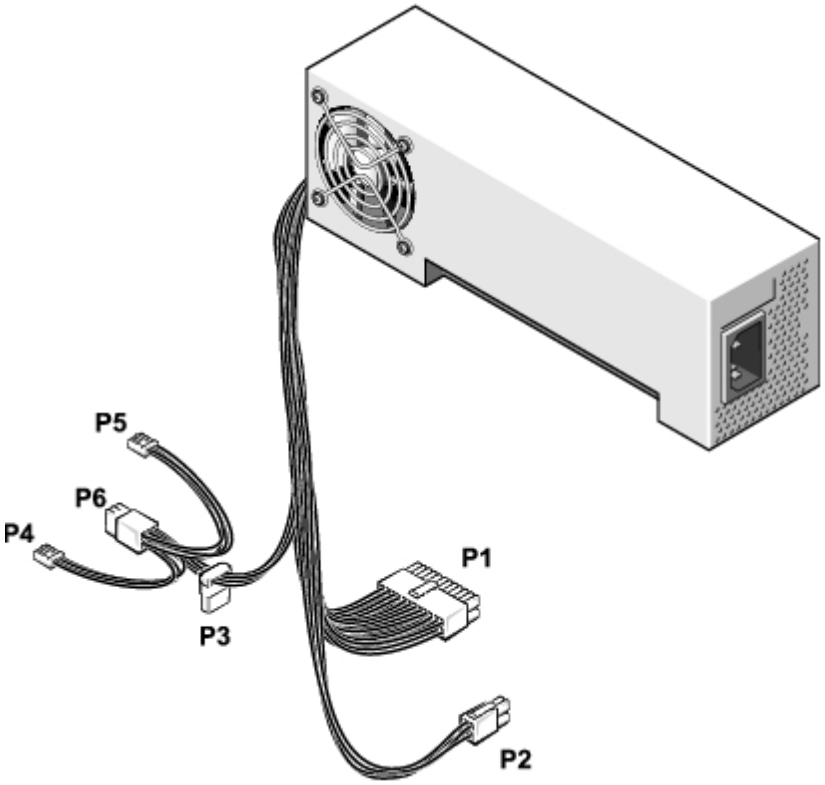
5. Slide the power supply toward the front of the computer approximately 1 inch.
6. Lift the power supply up and out of the computer.
7. Slide the replacement power supply into place.
8. Replace the screws that secure the power supply to the back of the computer frame.
9. Reconnect the DC power cables.
10. Connect the AC power cable to the connector.
11. Close the computer cover.
12. Attach the computer stand, if used.

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

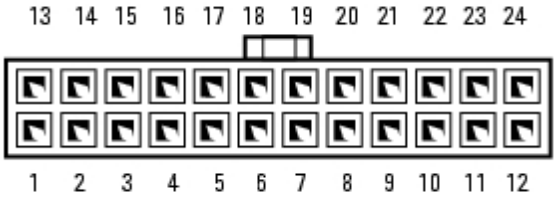
13. Connect your computer and devices to electrical outlets, and turn them on.

DC Power Connectors

Small Form-Factor 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	N/C	N/C
19	+5 VCD	Red
20	+5 VCD	Red
*Sense connector.		

DC Power Connector P2

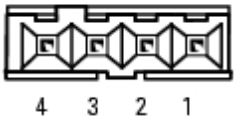
Pin Number	Signal Name	18-AWG Wire
1	COM	Black
2	COM	Black
3	+12 VDC	Yellow

4	+12 VDC	Yellow

DC Power Connectors P3

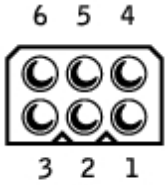
Pin Number	Signal Name	18-AWG Wire
1	+3.3 VDC	Orange
2	COM	Black
3	+5 VDC	Red
4	COM	Black
5	+12 VDC	Yellow

DC Power Connector P4 and P5



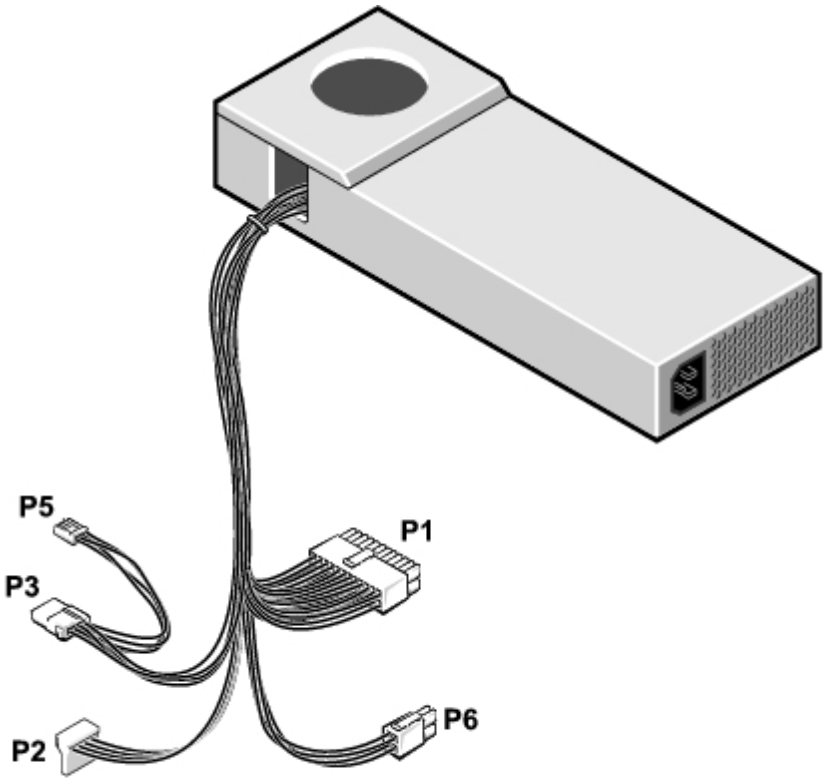
Pin Number	Signal Name	22-AWG Wire
1	+5 VCD	Red
2	COM	Black
3	COM	Black
4	+12 VDC	Yellow

DC Power Connector P6

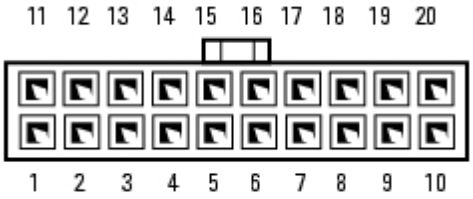


Pin Number	Signal Name	18-AWG Wire
1		N/C
2	COM	Black
3	COM	Black
4	+3.3 VDC	Orange
5	+5 VDC	Red
6	+12 VDC	Yellow

Small Desktop Power Supply DC Connector Pin Assignments



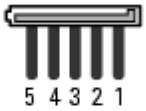
DC Power Connector P1



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

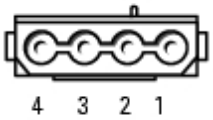
18	N/C	N/C
19	+5 VDC	Red
20	+5 VDC	Red
* Use 22-AWG wire instead of 18-AWG wire.		

DC Power Connector P2



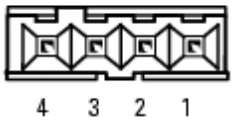
Pin Number	Signal Name	18-AWG Wire
1	+3.3 VDC	Orange
2	COM	Black
3	+5 VDC	Red
4	COM	Black
5	+12 VDC	Yellow

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 Connector P5



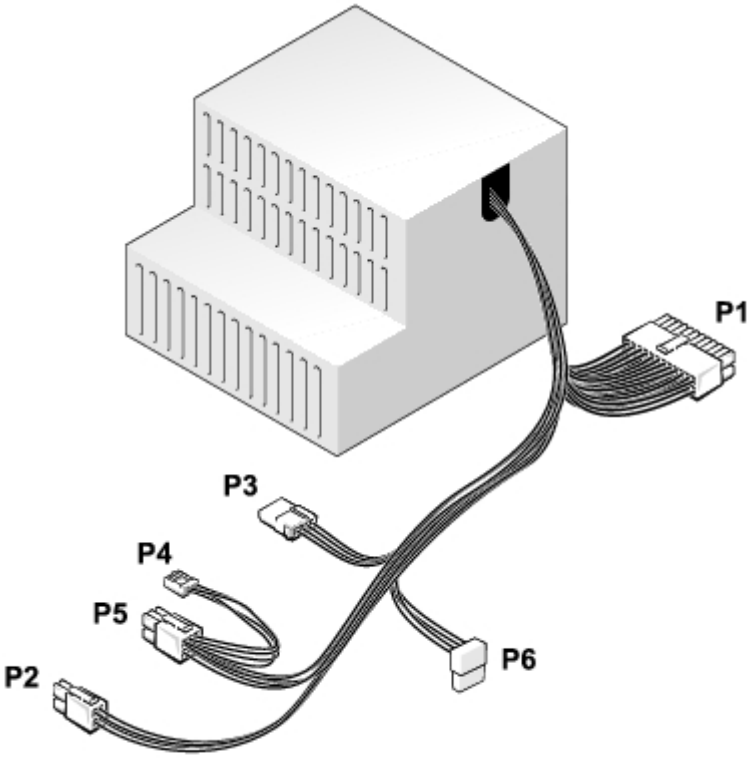
Pin Number	Signal Name	22-AWG Wire
1	+5 VDC	Red
2	COM	Black
3	COM	Black
4	+12 VDC	Yellow

DC Power Connector P6

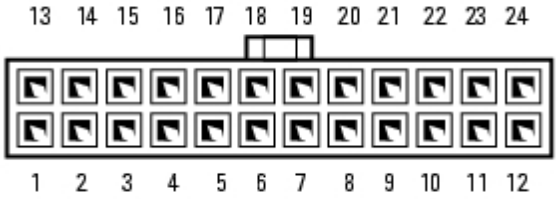
Pin Number	Signal Name	18-AWG Wire
1	COM	Black
2	COM	Black
3	+12 VDC	Yellow

4	+12 VDC	Yellow

Desktop Power Supply DC Connector Pin Assignments



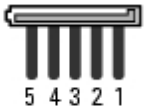
DC Power Connector P1



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		Red
7		Black
8		Gray
9		Purple
10		Yellow
11		Orange
12		Blue
13		Black
14		Green

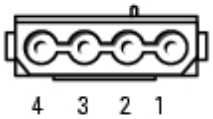
15		Black
16		Black
17		Black
18		N/C
19		Red
20		Red
*Sense connector.		

DC Power Connector P2



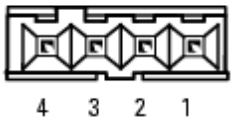
Pin Number	Signal Name	18-AWG Wire
1	+3.3 VDC	Orange
2	COM	Black
3	+5 VDC	Red
4	COM	Black
5	+12 VDC	Yellow

DC Power Connectors P3 and P4



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

DC Power Connector P5



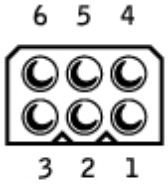
Pin Number	Signal Name	22-AWG Wire
1	+5 VDC	Red
2	COM	Black
3	COM	Black
4	+12 VDC	Yellow

DC Power Connector P6

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

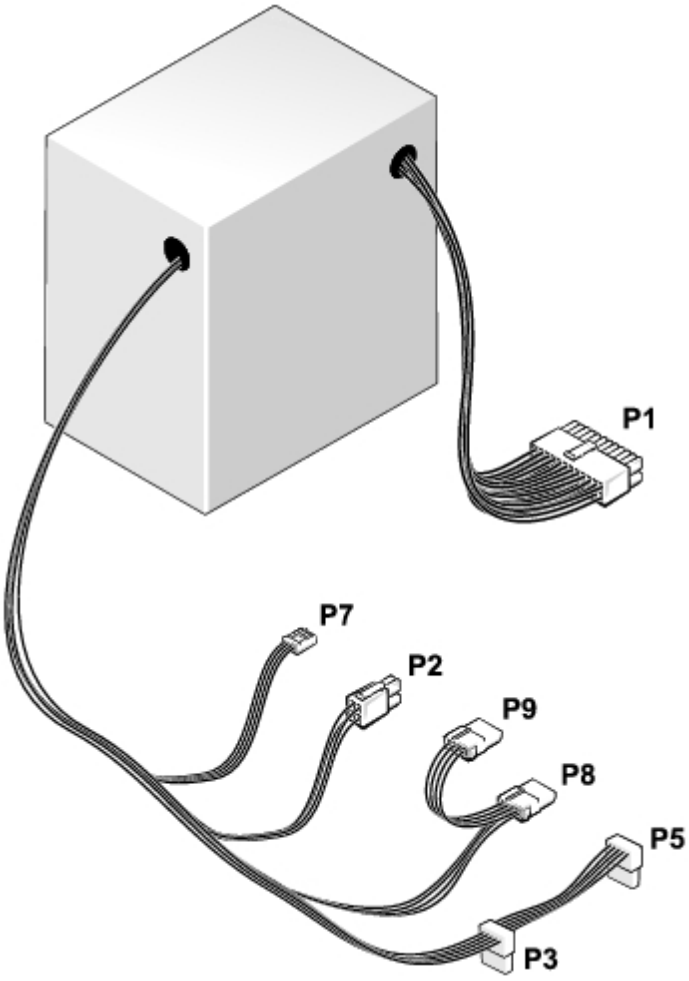
DC Power Connector P7

.



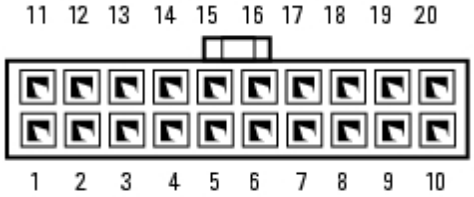
Pin Number	Signal Name	18-AWG Wire
1		N/C
2	COM	Black
3	COM	Black
4	+3.3 VDC	Orange
5	+5 VDC	Red
6	+12 VDC	Yellow

Small Mini Tower Power Supply DC Connector Pin Assignments



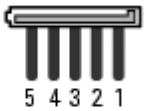
DC Power Connector P1

Pin Number	Signal name	18-AWG Wire
1	+3.3 VDC	Orange



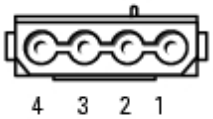
2	+3.3 VDC	Orange
3	COM	Black
4		Red
5		Black
6		Red
7		Black
8		Gray
9		Purple
10		Yellow
11		Orange
12		Blue
13		Black
14		Green
15		Black
16		Black
17		Black
18		N/C
19		Red
20		Red
*Sense connector.		

DC Power Connector P2



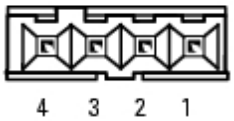
Pin Number	Signal Name	18-AWG Wire
1	+3.3 VDC	Orange
2	COM	Black
3	+5 VDC	Red
4	COM	Black
5	+12 VDC	Yellow

DC Power Connectors P3 and P4



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

DC Power Connector P5



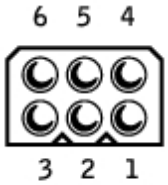
Pin Number	Signal Name	22-AWG Wire
1	+5 VDC	Red
2	COM	Black
3	COM	Black
4	+12 VDC	Yellow

DC Power Connector P6

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

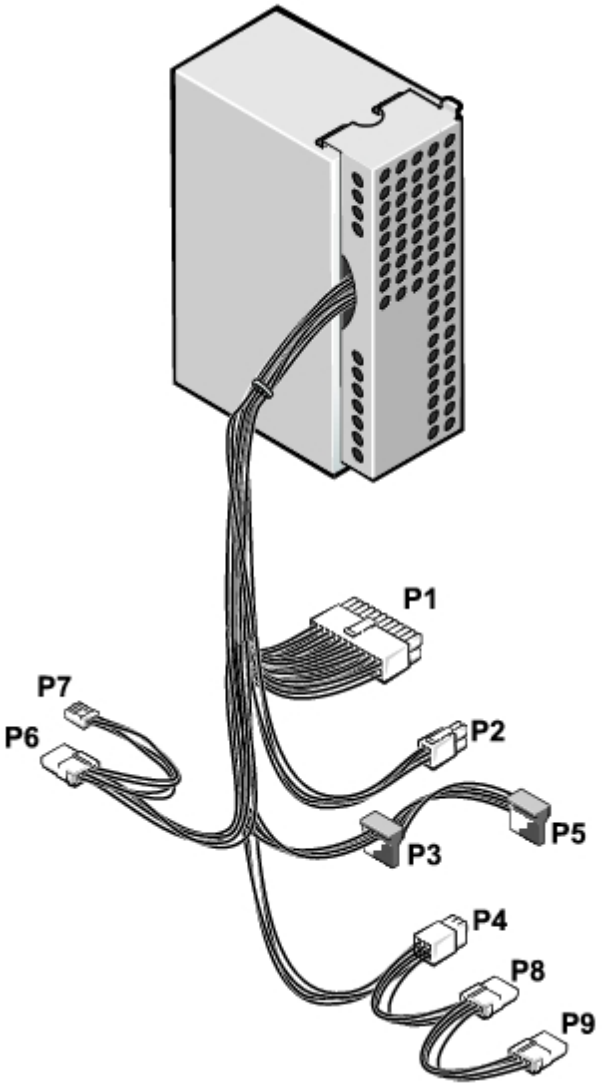
DC Power Connector P7

.

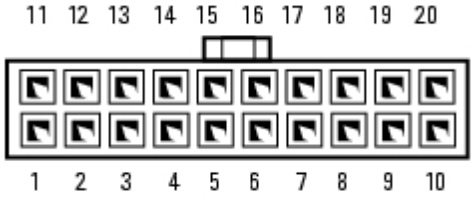


Pin Number	Signal Name	18-AWG Wire
1		N/C
2	COM	Black
3	COM	Black
4	+3.3 VDC	Orange
5	+5 VDC	Red
6	+12 VDC	Yellow

Mini-Tower 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	N/C	N/C
19	+5 VCD	Red
20	+5 VCD	Red
*Sense connector.		

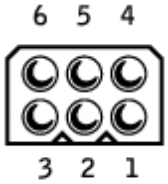
DC Power Connector P2

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

DC Power Connectors P3

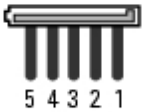
Pin Number	Signal Name	18-AWG Wire
1	+3.3 VDC	Orange
2	COM	Black
3	+5 VDC	Red
4	COM	Black
5	+12 VDC	Yellow

DC Power Connector P4



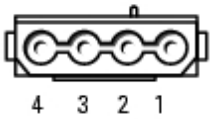
Pin Number	Signal Name	18-AWG Wire
1		N/C
2	COM	Black
3	COM	Black
4	+3.3 VDC	Orange
5	+5 VDC	Red
6	+12 VDC	Yellow

DC Power Connector P5



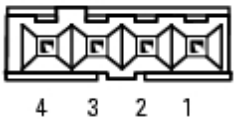
Pin Number	Signal Name	18-AWG Wire
1	+3.3 VDC	Orange
2	COM	Black
3	+5 VDC	Red
4	COM	Black
5	+12 VDC	Yellow

DC Power Connectors P6, P8, and P9



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

DC Power Connector P7



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

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Back to Contents Page

Processor

Dell™ OptiPlex™ GX280 Systems User's Guide

Replacing the Processor

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

CAUTION: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

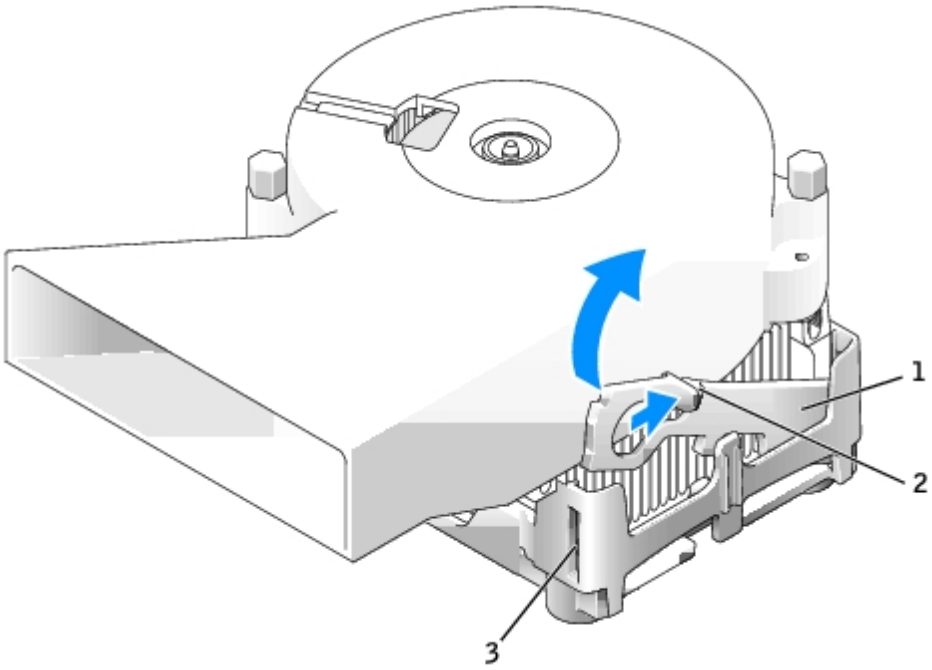
Replacing the Processor

1. Follow the procedures in "Before You Begin."
2. Disconnect the cooling fan power cable from the FAN connector on the system board.
3. Disconnect the power cable from the 12VPOWER connector on the system board.

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

4. Remove the heat sink:
   a. Press the tab on the green securing clip to remove the clip from the retention base.

NOTE: Your computer's heat sink may differ in appearance than illustrated below, but is removed and reinstalled in the same manner.



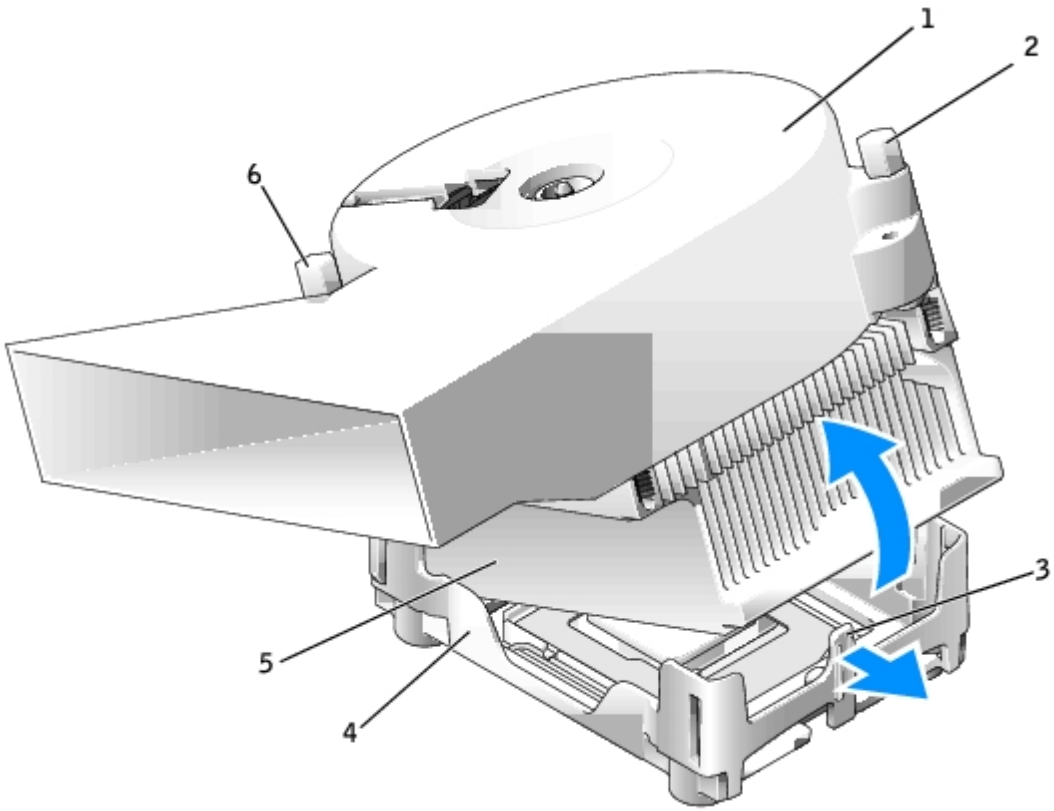
1	securing clip

2	tab
3	retention base

b. Remove the heat sink by pressing the tab while lifting one end of the heat sink.

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

NOTE: Your computer's heat sink may differ in appearance than illustrated below, but is removed and reinstalled in the same manner.

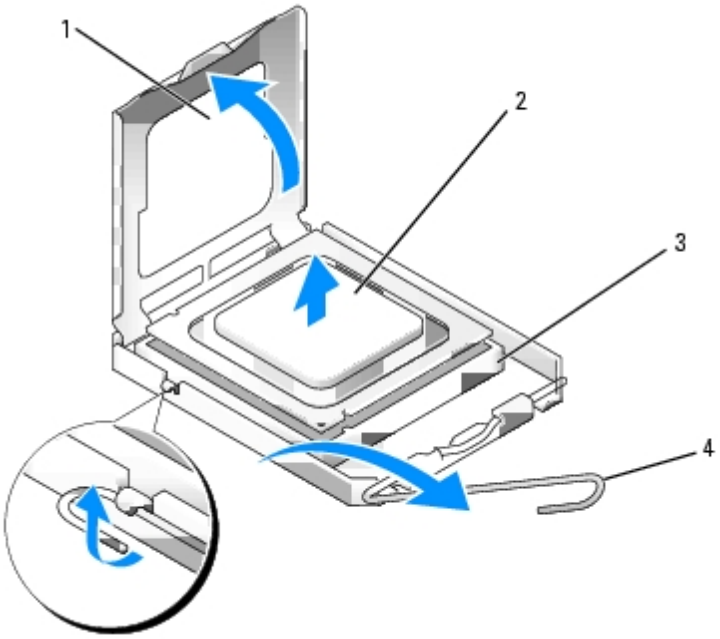


1	heat-sink/blower assembly	4	retention base
2	screw	5	heat sink
3	tab	6	screw

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

NOTICE: If you are installing a processor upgrade kit from Dell, discard the original heat sink. If you are *not* installing a processor upgrade kit from Dell, reuse the original heat sink when you install your new processor.

6. Open the processor cover.



1	processor cover
2	processor
3	socket
4	release lever

NOTICE: When replacing the processor, do not touch any of the pins inside the socket or allow any objects to fall on the pins in the socket.

7. Remove the processor from the socket.

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

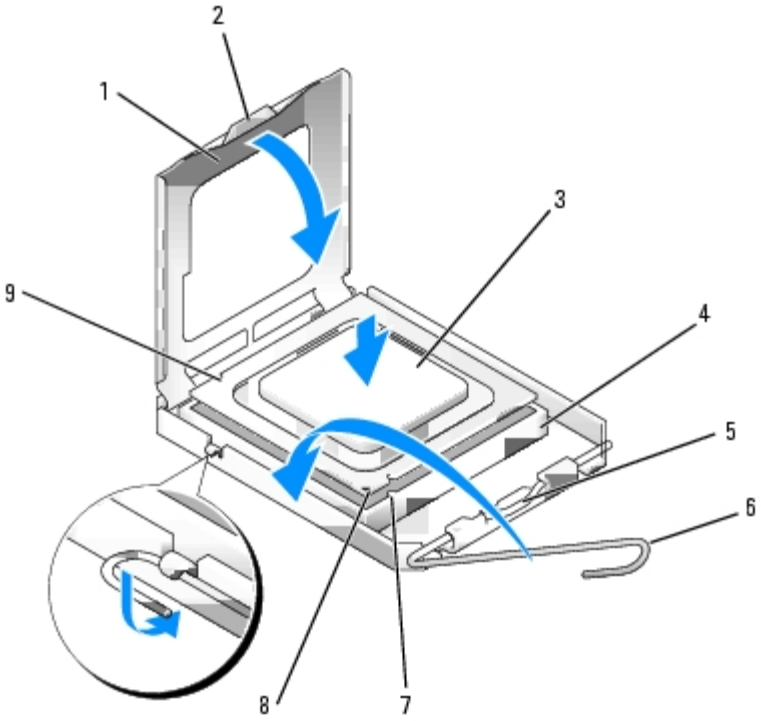
NOTICE: Ground yourself by touching an unpainted metal surface on the back of the computer.

NOTICE: When replacing the processor, do not touch any of the pins inside the socket or allow any objects to fall on the pins in the socket.

8. Unpack the new processor, being careful not to touch the underside of the processor.

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

9. If the release lever on the socket is not fully extended, move it to that position.
10. Orient the front and rear alignment notches on the processor with the front and rear alignment notches on the socket.
11. Align the pin-1 corners of the processor and socket.



1	processor cover	6	release lever
2	tab	7	front alignment notch
3	processor	8	socket and processor pin-1 indicator
4	socket	9	rear alignment notch
5	center cover latch		

NOTICE: To avoid damage, ensure that the processor aligns properly with the socket, and do not use excessive force when you install the processor.

12. Set the processor lightly in the socket and ensure that the processor is positioned correctly.
13. When the processor is fully seated in the socket, close the processor cover.

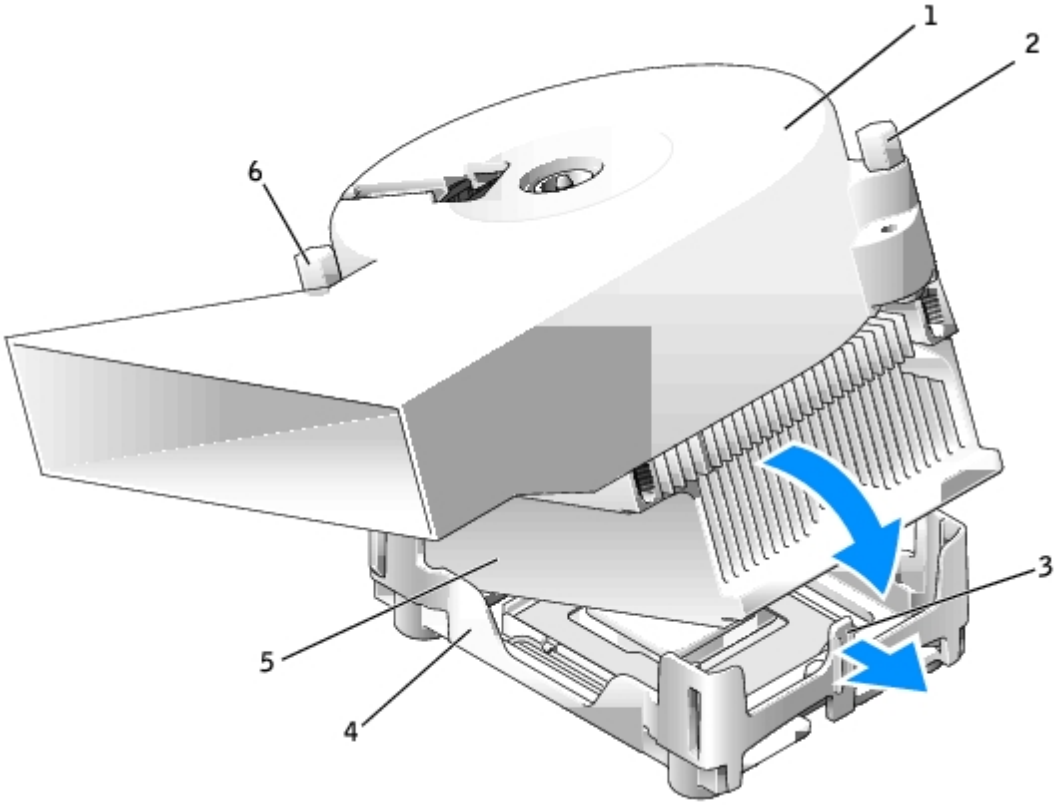
    Ensure that the tab on the processor cover is positioned underneath the center cover latch on the socket.
14. Pivot the socket release lever back toward the socket and snap it into place to secure the processor.

NOTICE: If you are *not* installing a processor upgrade kit from Dell, reuse the original heat sink assembly when you replace the processor.

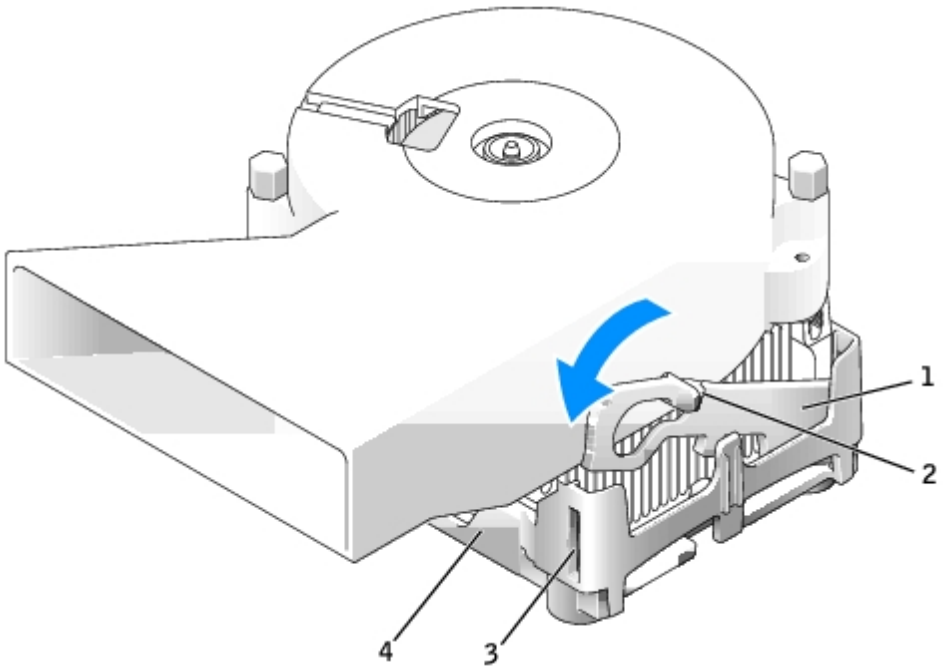
If you installed a processor replacement kit from Dell, return the original heat sink assembly and processor to Dell in the same package in which your replacement kit was sent.

15. Reinstall the two screws that attach the blower to the heat sink.
16. Install the heat sink/blower assembly:
    a. Place one end of the heat sink under the tab on one side of the retention base.
    b. Lower the heat sink 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 the securing clip tab and lower the securing clip into place. Ensure that the notched ends of the securing clip are secured in the retention base slots.

NOTE: Your computer's heat sink may differ in appearance than illustrated below, but is removed and reinstalled in the same manner.



1	heat-sink/blower assembly	4	retention base
2	screw	5	heat sink
3	tab	6	screw



1	securing clip

2	tab
3	slot
4	retention base

17. Reconnect the cooling fan power cable to the FAN connector on the system board.
18. Reconnect the power cable to the 12VPOWER connector on the system board.
19. 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.

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

    After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```

21. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

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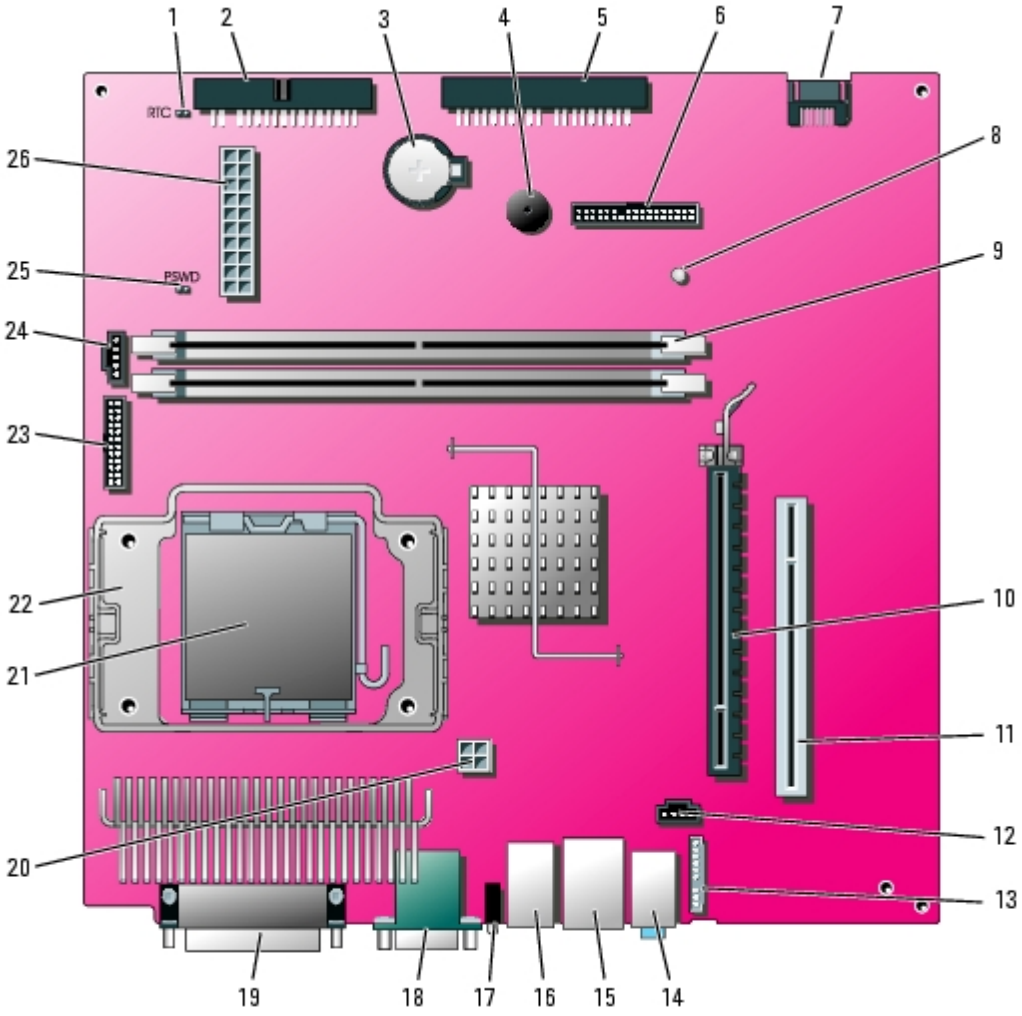
System Board

Dell™ OptiPlex™ GX280 Systems User's Guide

- Small Form-Factor System Board
- Small Desktop System Board
- Desktop System Board
- Small Mini-Tower System Board
- Tower System Board
- Replacing the System Board

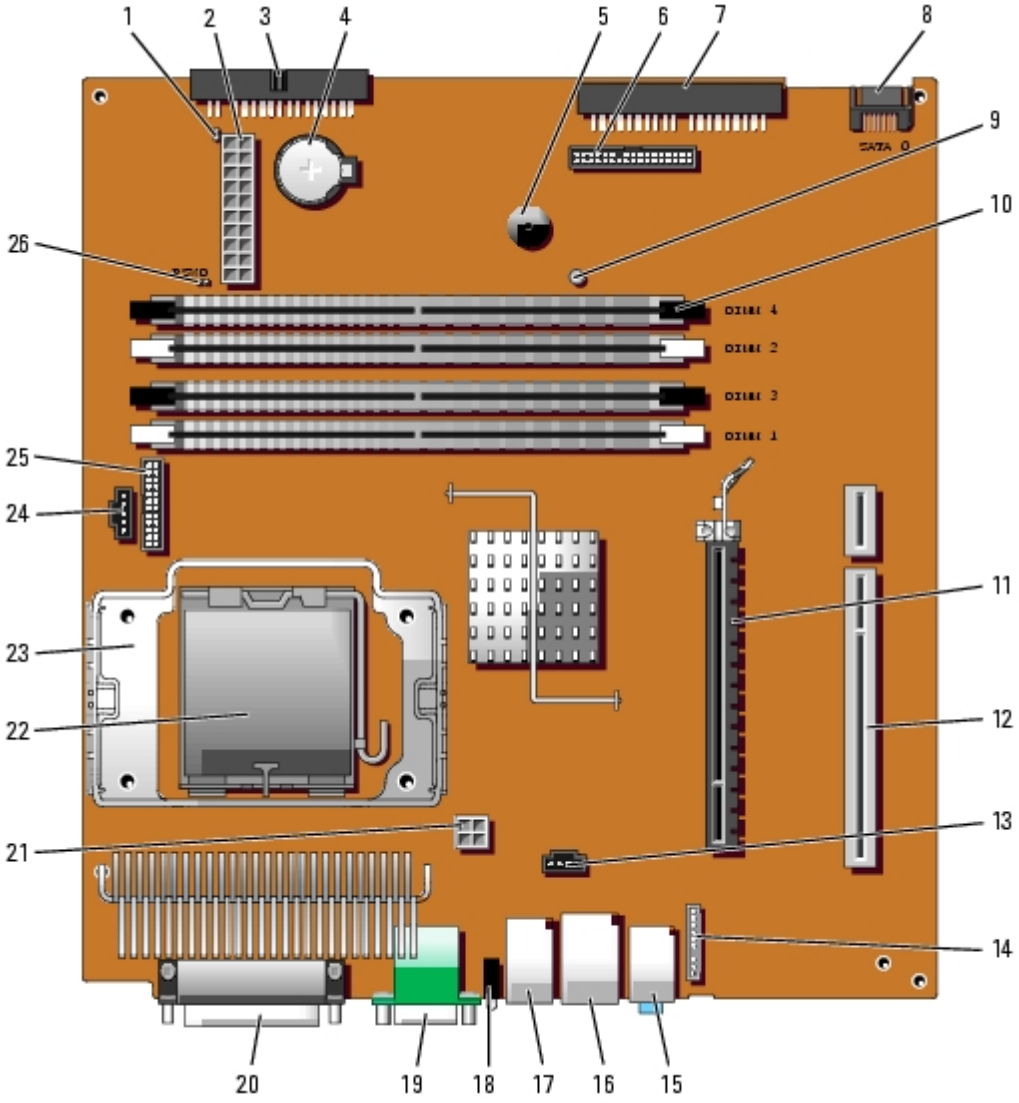
Small Form-Factor System Board



1	RTC reset jumper (RTCRST)	14	line-in, line-out, and microphone connectors (AUDIO)
2	floppy drive connector (DSKT	15	network connector (NIC) and USB connector (USB2)
3	battery socket (BATTERY)	16	USB connectors (USB1)

4	internal speaker (SPEAKER)	17	diagnostic lights (DIAG LED)
5	CD/DVD drive connector (IDE)	18	serial port connector (SER1) and video connector (VGA)
6	front-panel connector (FRONTPANEL)	19	parallel port connector (PAR)
7	serial ATA drive 0 connector (SATA0)	20	power connector (12VPOWER)
8	standby power light (AUX_PWR)	21	processor and heat-sink connector (CPU)
9	memory module connectors (DIMM1 and DIMM2)	22	heat sink/blower retention pad
10	PCI Express x16 connector (PEG)	23	serial port 2 connector (SER_PS2)
11	PCI riser connector (PCI)	24	fan connector (FAN)
12	CD drive analog audio cable connector for optional analog audio cable (CD_IN)	25	password jumper (PSWD)
13	front-panel audio cable connector (FRONTAUDIO)	26	power connector (POWER)

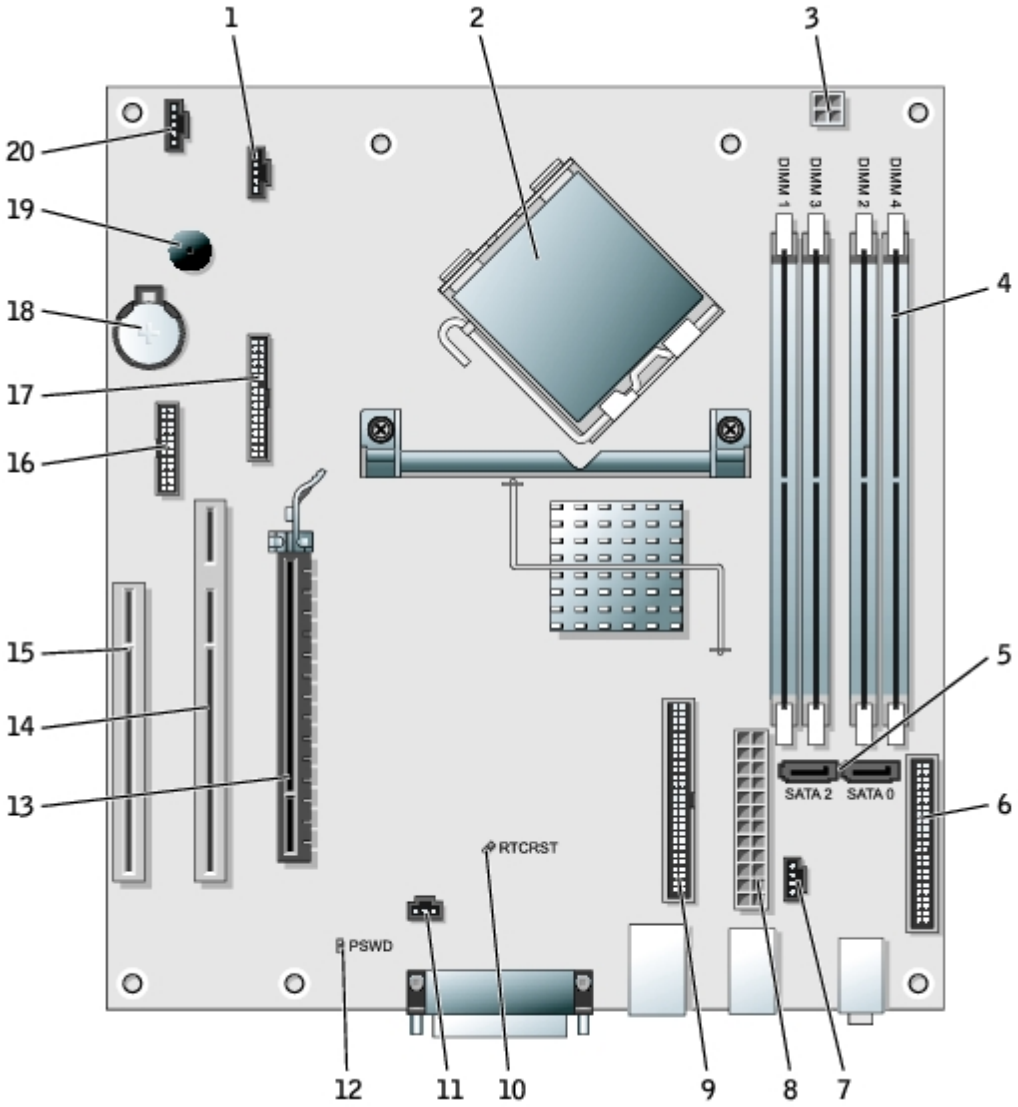
Small Desktop System Board



1	RTC reset jumper (RTCRST)	**14**	front-panel audio cable connector (FRONTAUDIO)

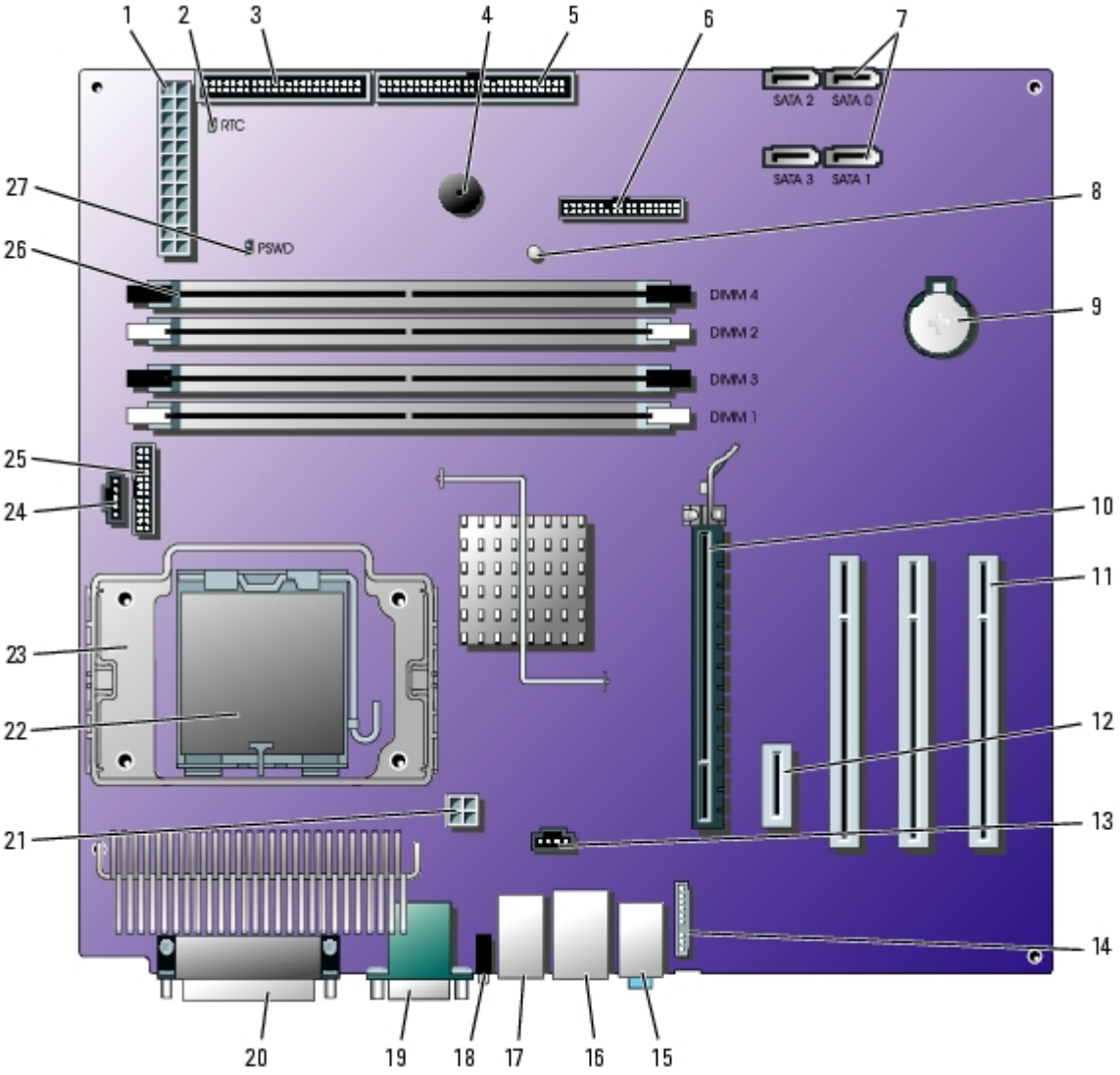
2	power connector (POWER)	**15**	line-in, line-out, and microphone connectors (AUDIO)
3	floppy drive connector (DSKT)	**16**	network connector (NIC) and USB connector (USB2)
4	battery socket (BATTERY)	**17**	USB connectors (USB1)
5	internal speaker (SPEAKER)	**18**	diagnostic lights (DIAG LED)
6	front-panel connector (FRONT PANEL)	**19**	serial port connector (SER1) and video connector (VGA)
7	CD/DVD drive connector (IDE)	**20**	parallel port connector (PAR)
8	serial ATA drive 0 connector (SATA0)	**21**	power connector (12VPOWER)
9	standby power light (AUX_PWR)	**22**	processor connector (CPU)
10	memory module connectors (DIMM1, DIMM2, DIMM3, DIMM4)	**23**	heat-sink/blower retention pad
11	PCI Express x16 connector (PEG)	**24**	fan connector (FAN)
12	PCI riser connector (PCI2)	**25**	serial port 2 connector (SER_PS2)
13	CD drive analog audio cable connector for optional analog audio cable (CD_IN)	**26**	password jumper (PSWD)

Desktop System Board



1	fan connector (FAN)	11	intrusion switch connector (INTRUDER)
2	processor connector (CPU)	12	password jumper (PSWD)
3	power connector (12VPOWER)	13	PCI Express x16 connector (PEG)
4	memory module connectors (DIMM1, DIMM2, DIMM3, DIMM4)	14	PCI riser connector (PCI1)
5	serial ATA drive 0 and 2 connectors (SATA0, SATA2)	15	PCI connector (PCI3)
6	front-panel connector (FRONT PANEL)	16	serial connector (SER_PS2)
7	CD drive analog audio cable connector for optional analog audio cable (CD_IN)	17	floppy drive connector (FLOPPY)
8	power connector (POWER)	18	battery socket (BATTERY)
9	CD/DVD drive connector (IDE)	19	internal speaker (SPEAKER)
10	RTC reset jumper (RTCRST)	20	external speaker connector (EXT_SPKR)

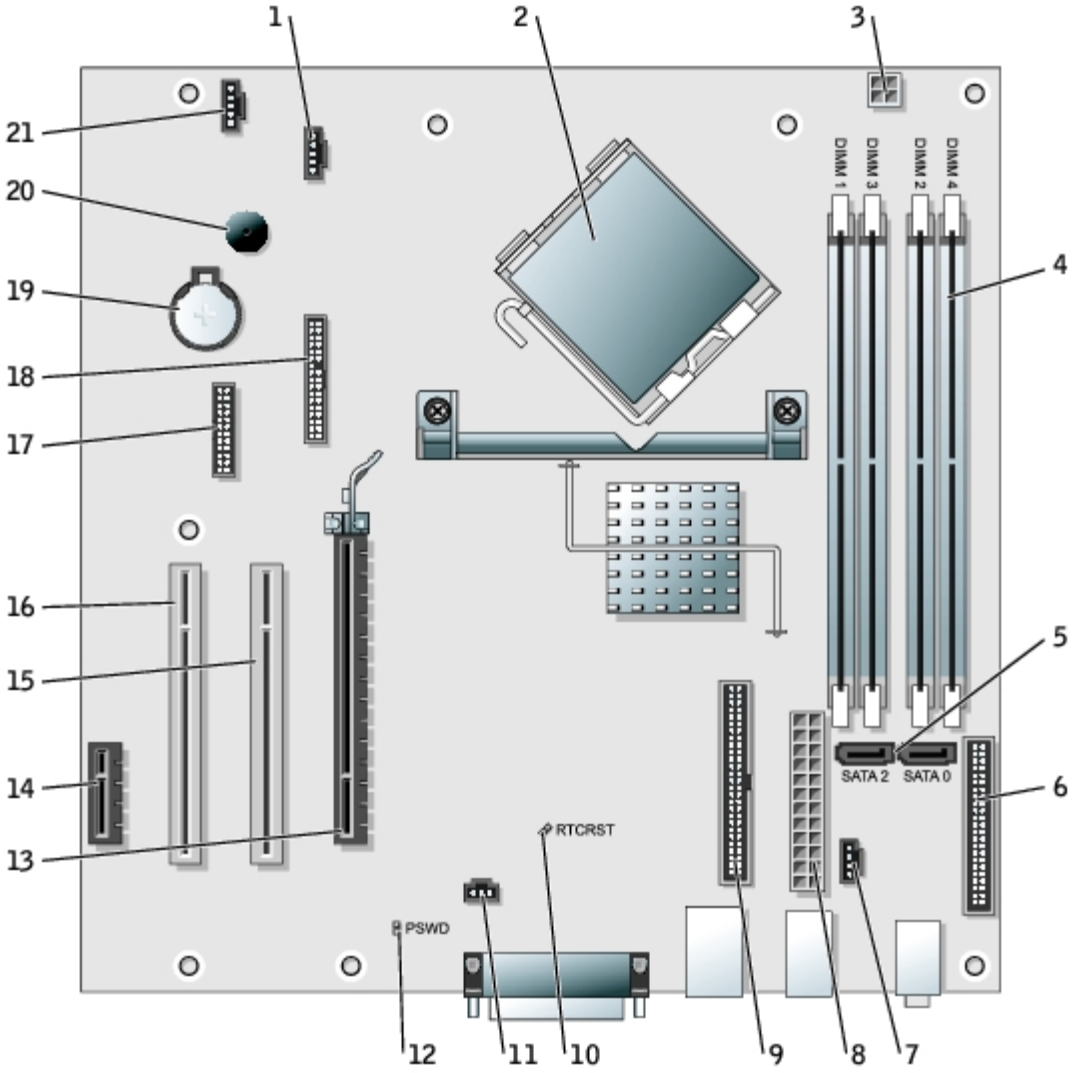
Small Mini-Tower System Board



1	power connector (POWER)	15	line-in, line-out, and microphone connectors (AUDIO)
2	RTC reset jumper (RTCRST)	16	network connector (NIC) and USB connector (USB2)
3	floppy drive connector (DSKT)	17	USB connectors (USB1)
4	internal speaker (SPEAKER)	18	diagnostic lights (DIAG LED)
5	CD/DVD drive connector (IDE)	19	serial port connector (SER1) and video connector (VGA)
6	front-panel connector (FRONTPANEL)	20	parallel port connector (PAR)
7	serial ATA drive connectors (SATA0, SATA1, SATA2, SATA3)	21	power connector (12VPOWER)
8	standby power light (AUX_PWR)	22	processor connector (CPU)
9	battery socket (BATTERY)	23	heat-sink/blower retention pad
10	PCI Express x16 connector (PEG)	24	fan connector (FAN)
11	PCI connectors (PCI0, PCI1, PCI2)	25	serial port 2 connector (SER_PS2)
12	PCI Express x1 connector (PE1)	26	memory module connectors (DIMM1, DIMM2, DIMM3, DIMM4)
13	CD drive analog audio cable connector for optional analog audio cable (CD_IN)	27	password jumper (PSWD)

14	front-panel audio cable connector (FRONTAUDIO)		

Tower System Board

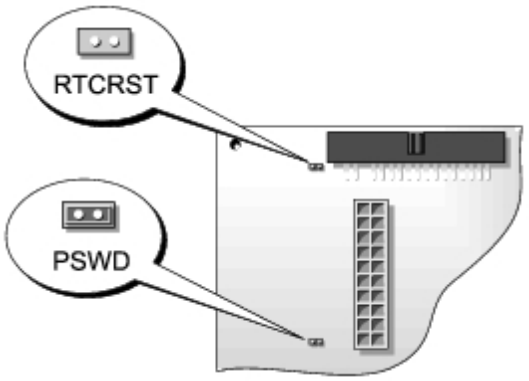


1	fan connector (FAN)	12	password jumper (PSWD)
2	processor connector (CPU)	13	PCI Express x16 connector (PEG)
3	power connector (12VPOWER)	14	PCI Express x1 connector (PCIE1)
4	memory module connectors (DIMM1, DIMM2, DIMM3, DIMM4)	15	PCI connector (PCI1)
5	serial ATA drive 0 and 2 connectors (SATA0, SATA2)	16	PCI connector (PCI2)
6	front-panel connector (FRONT PANEL)	17	serial connector (SER_PS2)
7	CD drive analog audio cable connector for optional analog audio cable (CD_IN)	18	floppy drive connector (FLOPPY)
8	power connector (POWER)	19	battery socket (BATTERY)
9	CD/DVD drive connector (IDE)	20	internal speaker (SPEAKER)
10	RTC reset jumper (RTCRST)	21	external speaker connector (EXT_SPKR)
11	intrusion switch connector (INTRUDER)		

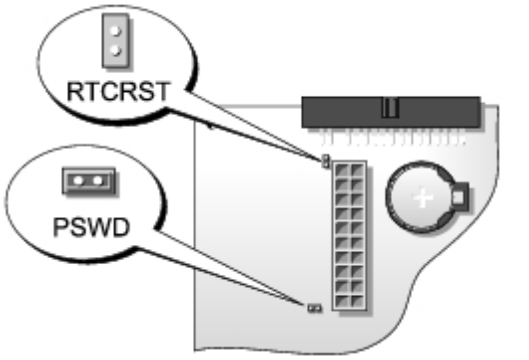
Jumper Settings

The jumper locations on the small form-factor, small desktop, desktop, small mini-tower, and mini-tower computers are shown below.

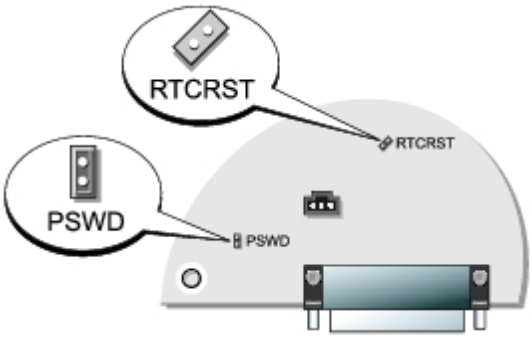
Small Form-Factor Computer



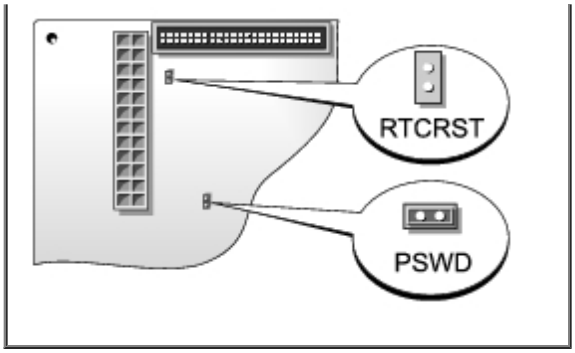
Small Desktop Computer



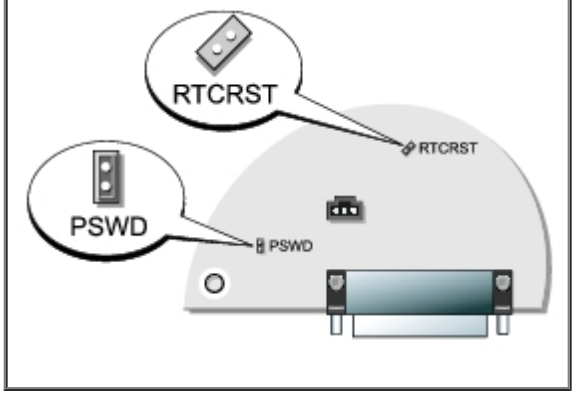
Desktop Computer



Small Mini-Tower Computer



Mini-Tower Computer



Jumper	Setting	Description
PSWD	(default)	Password features are enabled.
		Password features are disabled.
RTCRST		Real-time clock reset.
jumpered *unjumpered*		

Replacing the System Board

Removing the System Board: Small Form-Factor, Small Desktop, Small Mini-Tower Computers

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.

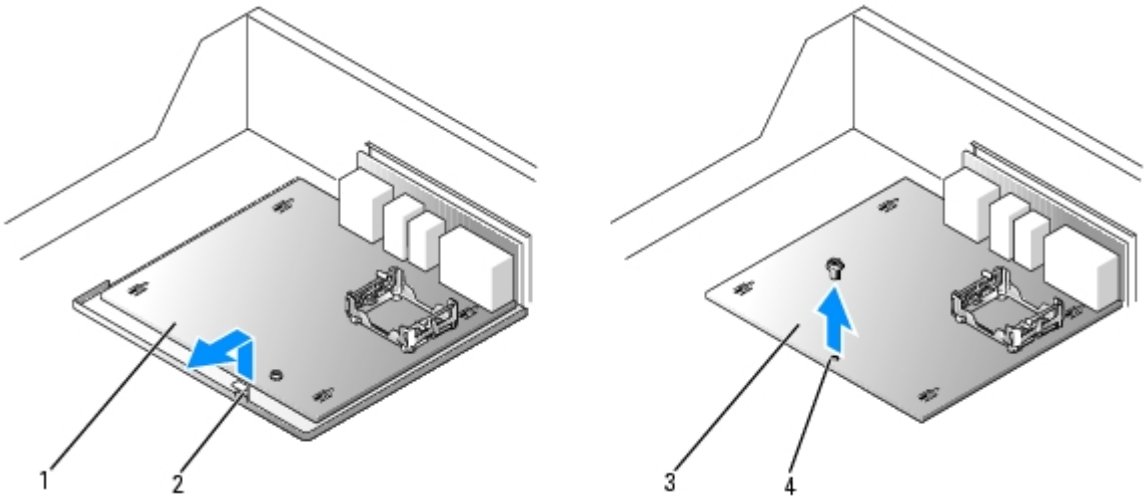
NOTICE: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.

7. 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 examine the existing system board to determine the chassis configuration:
    a. If a green tab is present on the front of the system board, your computer uses a metal tray to attach the system board to the chassis.

NOTE: If your original system board is attached to a metal tray, you will transfer the replacement board to the metal tray before you install the new board. See step 1 in the next procedure.

    b. If a green tab is not present on the front of the system board, your computer uses a mounting plate to attach the system board to the chassis.

10. Remove the system board:
    a. If your system board is mounted to the chassis using a metal tray, remove the tray and the board as one piece:
        - Pull up on the tab and slide the system board assembly toward the front of the computer, and then lift the board away.
    b. If your system board is mounted to the chassis using a mounting plate, remove the system board and mounting plate as one piece:
        - Remove the retention screw at the front of the computer.
        - Slide the system board assembly toward the front of the computer, detaching it from the hooks on the floor of the chassis, and then lift the board away.



1	system board/metal tray assembly removal
2	tab
3	system board/mounting plate assembly removal
4	retention screw

Removing the System Board: Desktop and Mini-Tower Computers

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.

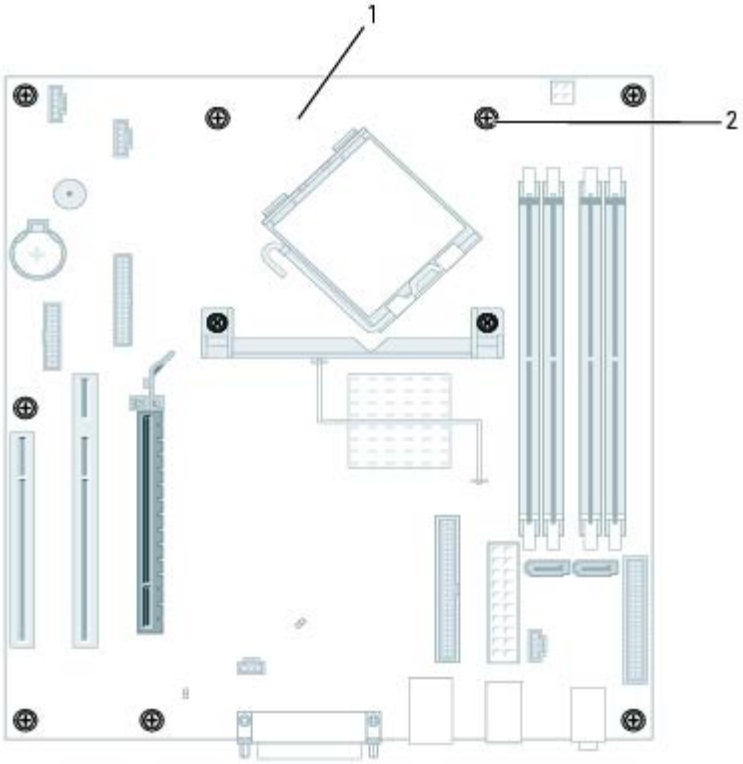
3. Disconnect any telephone or telecommunication lines from the computer.
4. Disconnect your computer and all attached devices from their electrical outlets, and then press the power button to ground the system board.

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

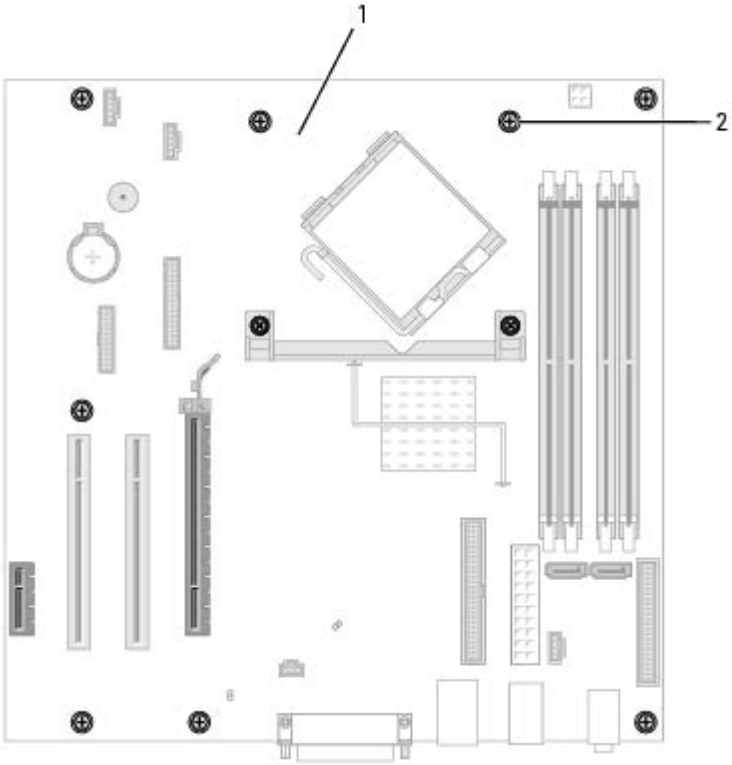
5. Open the computer cover.

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.

6. Remove any components that restrict access to the system board (CD/DVD drive(s), floppy drive, hard drive, I/O panel).
7. Remove the heat sink assembly and processor.
8. Disconnect all cables from the system board.
9. Remove the 10 screws from the system board (see illustrations below for screw locations).
10. Slide the system board assembly toward the front of the computer, and then lift the board up and away.



1	desktop system board
2	screws (10)



1	mini-tower system board
2	screws (10)

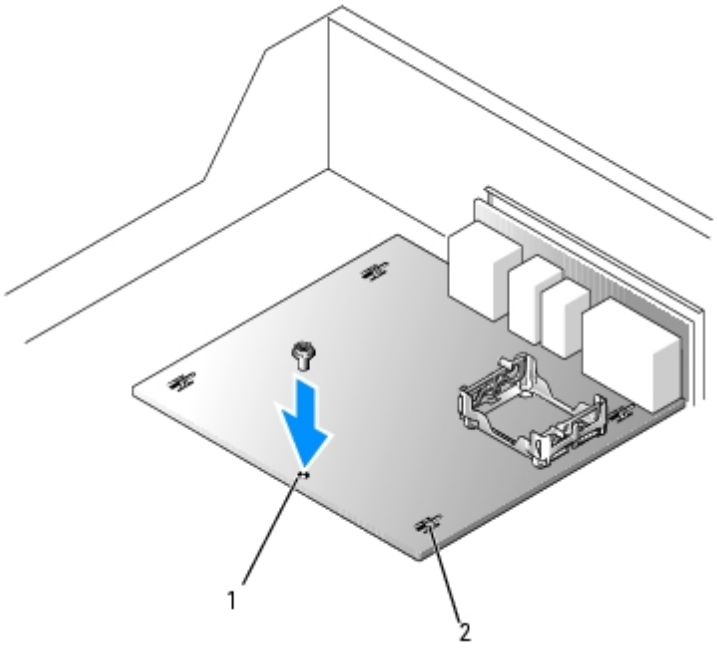
11. Place the system board assembly that you just removed next to the replacement system board to ensure it is identical.

Replacing the System Board: Small Form-Factor, Small Desktop, and Small Mini-Tower Computers

1. If your original system board uses a mounting plate rather than a tray to attach to the chassis, replace the existing system board with the replacement system board:

    a. Slide the system board assembly toward the back of the computer, attaching it to the hooks on the floor of the chassis.

    b. Replace the retention screw at the front of the computer.

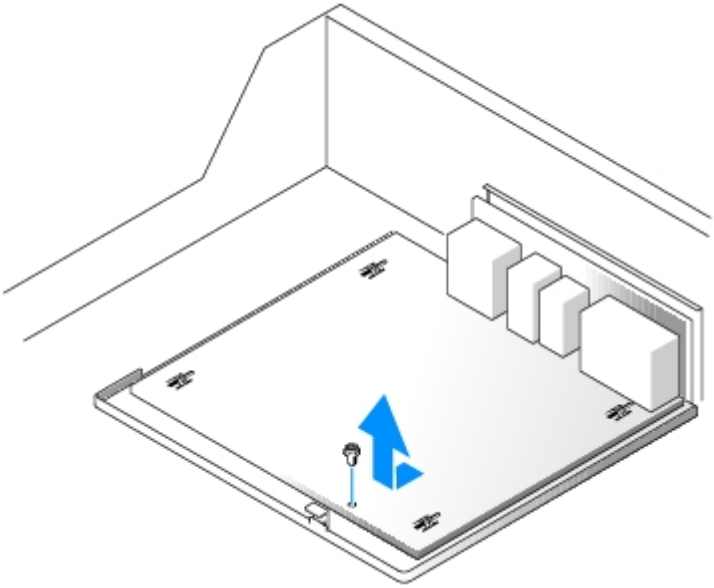


1	retention screw
2	hooks (4)

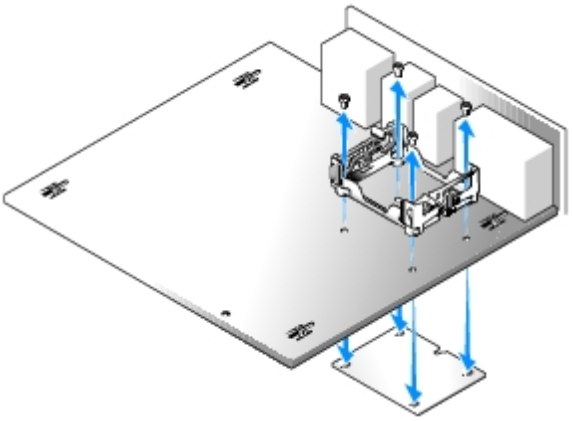
2. If your original system board uses a metal tray rather than a mounting plate to attach to the chassis:

    a. Detach the system board from the metal tray:

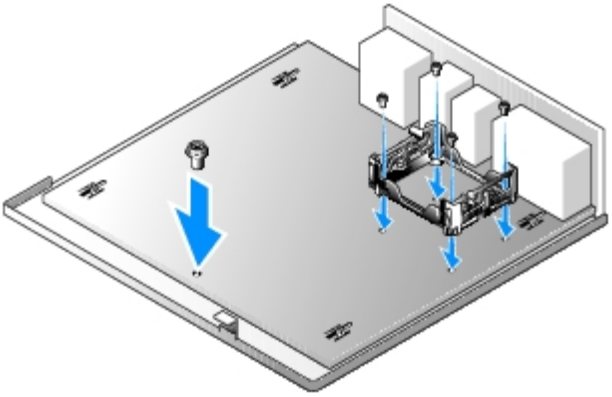
    - Remove the screw that secures the original board to the metal tray.
    - Remove the four mounting screws from the heat-sink retention base, and then remove the system board by sliding the board back and detaching it from the hooks on the metal tray.



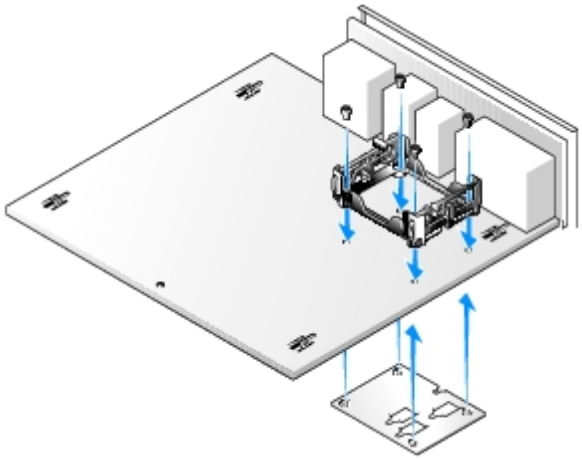
b. Detach the replacement system board from its mounting plate by removing the four mounting screws from the heat-sink retention base. Set the mounting plate aside for later installation on the old system board prior to shipping back to Dell.



c. Install the replacement system board onto the metal tray by sliding the replacement system board forward to attach the board to the hooks on the metal tray. Install the retention base using the four mounting screws, and then replace the screw at the front of the system board.



d. Install the mounting plate on the original system board using the retention base and the four mounting screws.



3. Transfer components from the existing system board to the replacement system board:

    a. Remove the memory modules from the existing system board and install them on the replacement board.

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

    b. Remove the heat-sink assembly and processor from the existing system board and transfer them to the replacement system board.

4. Configure the settings of the replacement system board.
5. 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 than the corresponding connectors on the existing system board.

6. Orient the replacement board by aligning the notches on the bottom to the tabs on the computer.
7. Replace the system board:

    a. If your system board is attached to a metal tray, slide the system board assembly toward the back of the computer until the board clicks into position.

    b. If your chassis is attached to a mounting plate, slide the system board into position and replace the retention screw.

8. Replace any components and cables that you removed from the system board.
9. Reconnect all cables to their connectors at the back of the computer.
10. Close the computer cover.
11. Attach the computer stand.

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.

Replacing the System Board: Desktop and Mini-Tower Computers

1. Gently align the board into the chassis and slide it toward the back of the computer.

2. Replace the screws on the system board.
3. Replace any components and cables that you removed from the system board.
4. Reconnect all cables to their connectors at the back of the computer.
5. 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.

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

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Closing the Computer Cover

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

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. To close the cover on the small-form factor, small desktop, and small mini tower:
   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. To close the cover on the desktop and mini tower:
   a. Align the bottom of the cover with the tabs located along the bottom of edge of the computer.
   b. Using the tabs as leverage, rotate the cover downward and close.
   c. Snap the cover into place by pulling back on the cover release latch, and then releasing the latch when the cover is properly seated.
   d. Ensure the cover is seated correctly before moving the computer to the upright position.

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.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```
6. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

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Troubleshooting Tools and Utilities

Dell™ OptiPlex™ GX280 Systems User's Guide

- Dell Diagnostics
- System Lights
- Diagnostic Lights
- Beep Codes
- Error Messages
- Resolving Software and Hardware Incompatibilities

Dell Diagnostics

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

NOTE: The *Drivers and Utilities* CD (ResourceCD) is optional, and as such, may not ship with all computers.

When to Use the Dell Diagnostics

If you experience a problem with your computer, perform the checks in this section and run the Dell Diagnostics before you contact Dell for technical assistance.

It is recommended that you print these procedures before you begin.

NOTICE: The Dell Diagnostics works only on Dell™ computers.

Enter system setup, review your computer's configuration information, and ensure that the device you want to test displays in system setup and is active.

Start the Dell Diagnostics from either your hard drive or from the *Drivers and Utilities CD* (also known as the ResourceCD - optional).

Starting the Dell Diagnostics From Your Hard Drive

1. Turn on (or restart) your computer.
2. When the DELL™ logo appears, press <F12> immediately.

NOTE: If you see a message stating that no diagnostics utility partition has been found, run the Dell Diagnostics from your *Drivers and Utilities* CD (optional).

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.

3. When the boot device list appears, highlight **Boot to Utility Partition** and press <Enter>.
4. When the Dell Diagnostics **Main Menu** appears, select the test you want to run.

Starting the Dell Diagnostics From the Drivers and Utilities CD (optional)

1. Insert the *Drivers and Utilities* CD (optional).
2. Shut down and restart the computer.

   When the DELL logo appears, press <F12> immediately.

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

NOTE: The next steps change the boot sequence for one time only. On the next start-up, the computer boots according to the devices specified in system setup.

3. When the boot device list appears, highlight **IDE CD-ROM Device** and press <Enter>.
4. Select the **IDE CD-ROM Device** option from the CD boot menu.
5. Select the **Boot from CD-ROM** option from the menu that appears.
6. Type 1 to start the ResourceCD menu.
7. Type 2 to start the Dell Diagnostics.
8. Select **Run the 32 Bit Dell Diagnostics** from the numbered list. If multiple versions are listed, select the version appropriate for your computer.
9. When the Dell Diagnostics **Main Menu** appears, select the test you want to run.

Dell Diagnostics Main Menu

1. After the Dell Diagnostics loads and the **Main Menu** screen appears, click the button for the option you want.

Option	Function
Express Test	Performs a quick test of devices. This test typically takes 10 to 20 minutes and requires no interaction on your part. Run **Express Test** first to increase the possibility of tracing the problem quickly.
Extended Test	Performs a thorough check of devices. This test typically takes an hour or more and requires you to answer questions periodically.
Custom Test	Tests a specific device. You can customize the tests you want to run.
Symptom Tree	Lists the most common symptoms encountered and allows you to select a test based on the symptom of the problem you are having.

2. If a problem is encountered during a test, a message appears with an error code and a description of the problem. Write down the error code and problem description and follow the instructions on the screen.

   If you cannot resolve the error condition, contact Dell

NOTE: The Service Tag for your computer is located at the top of each test screen. If you contact Dell, technical support will ask for your Service Tag. Your computer's Service Tag is listed in the **System Info** option in system setup.

3. If you run a test from the **Custom Test** or **Symptom Tree** option, click the applicable tab described in the following table for more information.

Tab	Function
Results	Displays the results of the test and any error conditions encountered.

Errors	Displays error conditions encountered, error codes, and the problem description.
Help	Describes the test and may indicate requirements for running the test.
Configuration	Displays your hardware configuration for the selected device. The Dell Diagnostics obtains configuration information for all devices from system setup, memory, and various internal tests, and it displays the information in the device list in the left pane of the screen. The device list may not display the names of all the components installed on your computer or all devices attached to your computer.
Parameters	Allows you to customize the test by changing the test settings.

4. When the tests are completed, if you are running the Dell Diagnostics from the *Drivers and Utilities CD*, remove the CD.

5. Close the test screen to return to the **Main Menu** screen. To exit the Dell Diagnostics and restart the computer, close the **Main Menu** screen.

System Lights

Your power button light and hard-drive light may indicate a computer problem.

Power Light	Problem Description	Suggested Resolution
Solid green	Power is on, and the computer is operating normally. On the desktop computer, a solid green light indicates a network connection.	No corrective action is required.
Blinking green	The computer is in the suspended state (Microsoft® Windows® 2000 and Windows XP).	Press the power button, move the mouse, or press a key on the keyboard to wake the computer.
Blinks green several times and then turns off	A configuration error exists.	Check the diagnostic lights to see if the specific problem is identified.
Solid yellow	The Dell Diagnostics is running a test, or a device on the system board may be faulty or incorrectly installed.	If the Dell Diagnostics is running, allow the testing to complete. Check the diagnostic lights to see if the specific problem is identified. If the computer does not boot, contact Dell for technical assistance.
Blinking yellow	A power supply or system board failure has occurred.	Check the diagnostic lights to see if the specific problem is identified. Also, see "Power Problems."
Solid green and a beep code during POST	A problem was detected while the BIOS was executing.	See "Beep Codes" for instructions on diagnosing the beep code. Also, check the diagnostic lights to see if the specific problem is identified.
Solid green power light and no beep code and no video during POST	The monitor or the graphics card may be faulty or incorrectly installed.	Check the diagnostic lights to see if the specific problem is identified. See "Video and Monitor Problems."
Solid green power light and no beep code but the computer locks up during POST	An integrated system board device may be faulty.	Check the diagnostic lights to see if the specific problem is identified. If the problem is not identified, contact Dell for technical assistance.

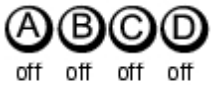
Diagnostic Lights

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

To help you troubleshoot a problem, your small form factor, small desktop, and small mini-tower computers have four lights labeled "A," "B," "C," and "D" on the back panel. The lights can be yellow or green. When the computer starts normally, the patterns or codes on the lights change as the boot process completes. If the POST portion of system boot completes successfully, all four lights display solid green. If the computer malfunctions during the POST process, the pattern displayed on the LEDs may help identify where in the process the computer halted.

NOTE: The orientation of the diagnostic lights may vary depending on the system type. The diagnostic lights can appear either vertical or horizontal.

Y = Yellow
G = Green

Light Pattern	Problem Description	Suggested Resolution
	The computer is in a normal off condition or a possible pre-BIOS failure has occurred.	Plug the computer into a working electrical outlet and press the power button.
	A possible BIOS failure has occurred; the computer is in the recovery mode.	Run the BIOS Recovery utility, wait for recovery completion, and then restart the computer.
	A possible processor failure has occurred.	Reinstall the processor and restart the computer.
	Memory modules are detected, but a memory failure has occurred.	• If you have one memory module installed, reinstall it and restart the computer. (see "Memory" for instructions on how to remove and install memory modules.) • If you have two or more memory modules installed, remove the modules, reinstall one module, 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. • If available, install properly working memory of the same type into your computer. • If the problem persists, contact Dell.
	A possible expansion card failure has occurred.	• Determine if a conflict exists by removing a card (not the graphics card) and then restarting the computer. • If the problem persists, reinstall the card that you removed, remove a different card, and then restart the computer. • 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"). • Move each card one at a time to a different PCI slot and restart the computer after each move. • If the problem persists, contact Dell.
	A possible graphics card failure has occurred.	• If the computer has a graphics card, remove the card, reinstall it, and then restart the computer. • If the problem still exists, install a graphics card that you know works and restart the computer. • If the problem persists or the computer has integrated graphics, contact Dell.
	A possible floppy or hard drive failure has	Reseat all power and data cables and restart the computer.

	occurred.	
	A possible USB failure has occurred.	Reinstall all USB devices, check cable connections, and then restart the computer.
	No memory modules are detected.	• If you have one memory module installed, reinstall it and restart the computer. (see "Memory" for instructions on how to remove and install memory modules.) • If you have two or more memory modules installed, remove the modules, reinstall one module, 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. • If available, install properly working memory of the same type into your computer. • If the problem persists, contact Dell.
	Memory modules are detected, but a memory configuration or compatibility error exists.	• Ensure that no special memory module/memory connector placement requirements exist. • Verify that the memory modules that you are installing are compatible with your computer. • If the problem persists, contact Dell.
	Other failure has occurred.	• Ensure that the cables are properly connected to the system board from the hard drive, CD drive, and DVD drive. • Check the computer message that appears on your monitor screen. • If the problem persists, contact Dell.
	The computer is in a normal operating condition after POST.	None.

Light Pattern	Problem Description	Suggested Resolution

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.

If your computer beeps during start-up:

1. Write down the beep code on the Diagnostics Checklist.
2. Run the Dell Diagnostics to identify a more serious cause.
3. Contact Dell for technical assistance.

Code	Cause
1-1-2	Microprocessor register failure
1-1-3	NVRAM read/write failure
1-1-4	ROM BIOS checksum failure

1-2-1	Programmable interval timer failure
1-2-2	DMA initialization failure
1-2-3	DMA page register read/write failure
1-3	Video Memory Test failure
1-3-1 through 2-4-4	Memory not being properly identified or used
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	Invalid 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 timer tick
4-2-2	Shutdown failure
4-2-3	Gate A20 failure
4-2-4	Unexpected interrupt in protected mode
4-3-1	Memory failure above address 0FFFFh
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
4-4-2	Failure to decompress code to shadowed memory
4-4-3	Math-coprocessor test failure
4-4-4	Cache test failure

Error Messages

Fill out the Diagnostics Checklist as you complete these checks.

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

If the message is not listed, see the documentation for the operating system or the program that was running when the message appeared.

A filename cannot contain any of the following characters: \ / : * ? " < > | — Do not use these characters in filenames.
A required .DLL file was not found — The program that you are trying to open is missing an essential file. To remove and then reinstall the program:

1. Click the **Start** button, click **Control Panel**, and then click **Add or Remove Programs**.
2. Select the program you want to remove.
3. Click the **Change or Remove Program** icon.
4. See the program documentation for installation instructions.

Alert! Previous attempts at booting this system have failed at checkpoint [*nnnn*]. For help in resolving this problem, please note this checkpoint and contact Dell Technical Support — Contact Dell and report the checkpoint code (*nnnn*) to the support technician.

Attachment failed to respond — See "Drive Problems."

Bad command or file name — Ensure that you spelled the command correctly, put spaces in the proper place, and used the correct pathname.

Bad error-correction code (ECC) on disk read — See "Drive Problems."

Controller has failed — See "Drive Problems."

Data error — See "Drive Problems."

Decreasing available memory —

See "Lockups and Software Problems."

Diskette drive 0 seek failure — See "Drive Problems."

Diskette read failure —

See "Drive Problems."

Diskette subsystem reset failed — Run the Dell Diagnostics.

Diskette write protected — Slide the write-protect notch to the open position.

Drive not ready — Put a floppy disk in the drive.

Gate A20 failure —

See "Lockups and Software Problems."

Hard-disk configuration error —

Hard-disk controller failure —

Hard-disk drive failure —

Hard-disk drive failure —

See "Drive Problems."

Insert bootable media — Insert a bootable floppy disk or CD.

Invalid configuration information - please run SETUP program — Enter system setup and correct the computer configuration information.

Keyboard failure — See "Keyboard Problems."

Memory address line failure at *address*, **read** *value* **expecting** *value* **—** See "Lockups and Software Problems."

Memory allocation error —

1. Turn off the computer, wait 30 seconds, and then restart the computer.
2. Try to run the program again.
3. If the error message appears again, see the software documentation for additional troubleshooting suggestions.

Memory data line failure at *address*, **read** *value* **expecting** *value* **—**

Memory double word logic failure at *address*, **read** *value* **expecting** *value* **—**

Memory odd/even logic failure at *address*, **read** *value* **expecting** *value* **—**

Memory write/read failure at *address*, **read** *value* **expecting** *value* **—**

Memory size in CMOS invalid —

See "Lockups and Software Problems."

No boot device available —

- If the floppy drive is your boot device, ensure that a bootable floppy disk is in the drive.
- If the hard drive is your boot device, ensure that the cables are connected and that the drive is installed properly and partitioned as a boot device.
- Enter system setup and ensure that the boot sequence information is correct.

No boot sector on hard-disk drive — Enter system setup and ensure that the computer configuration information for the hard drive is correct.

No timer tick interrupt — Run the Dell Diagnostics.

Non-system disk or disk error — Replace the floppy disk with one that has a bootable operating system or remove the floppy disk from drive A and restart the computer.

Not a boot diskette — Insert a bootable floppy disk and restart your computer.

Not enough memory or resources. Close some programs and try again — Close all windows and open the program that you want to use. In some cases, you might have to restart your computer to restore computer resources. If so, run the program that you want to use first.

Operating system not found — Contact Dell.

Plug and Play Configuration Error —

1. Turn your computer off, unplug it from the electrical outlet, and then remove all but one of the cards.
2. Plug in your computer and reboot it.
3. If the message reappears, the installed card might be malfunctioning. If the message does not reappear, turn off the computer and reinsert one of the other cards.
4. Repeat this process until you identify which card is malfunctioning.

Read fault — **Requested sector not found —** **Reset failed —** See "Drive Problems."
Sector not found — • Run the Windows error-checking utility to check the file structure on the floppy disk or hard drive. See Windows Help for instructions. • If a large number of sectors are defective, back up the data (if possible), and then reformat the floppy disk or hard drive.
Seek error — See "Drive Problems."
Shutdown failure — Run the Dell Diagnostics.
Time-of-day clock stopped — **Time-of-day not set-please run the System Setup program —** Enter system setup and correct the date or time. If the problem persists, replace the battery.
Timer chip counter 2 failed — Run the Dell Diagnostics.
Unexpected interrupt in protected mode — Run the Dell Diagnostics.
WARNING: Dell's Disk Monitoring System has detected that drive [0/1] on the [primary/secondary] EIDE controller is operating outside of normal specifications. It is advisable to immediately back up your data and replace your hard drive by calling your support desk or Dell — If no replacement drive is immediately available and the drive is not the only bootable drive, enter system setup and change the appropriate drive setting to **None**. Then remove the drive from the computer.
Write fault — **Write fault on selected drive —** See "Drive Problems."
***<drive letter>*:\ is not accessible. The device is not ready —** The selected drive cannot read its medium. Depending on its medium type, insert a floppy, CD, or ZIP disk into the drive and try again.

Resolving Software and Hardware Incompatibilities

If a device is either not detected during the operating system setup or is detected but incorrectly configured, you can use Device Manager or the Hardware Troubleshooter to resolve the incompatibility.

Microsoft® Windows® XP

To resolve incompatibilities using Device Manager:

1. Click the **Start** button and click **Control Panel**.
2. Click **Performance and Maintenance** and click **System**.
3. Click the **Hardware** tab and click **Device Manager**.
4. In the **Device Manager** list, check for devices that are incorrectly configured.

   Incorrectly configured devices are indicated by a yellow exclamation point (!) or a red X if the device has been disabled.
5. Double-click any device marked with an exclamation point to display the **Properties** window.

   The **Device** status area in the **Properties** window reports the devices that need to be re-configured.
6. Reconfigure the devices or remove the devices from the **Device Manager**. See the documentation that came with the device for information on configuring the device.

To resolve incompatibilities using the Windows XP Hardware Troubleshooter:

1. Click the **Start** button and click **Help and Support**.
2. Type `hardware troubleshooter` in the **Search** field and click the arrow to start the search.
3. Click **Hardware Troubleshooter** in the **Search Results** list.
4. In the **Hardware Troubleshooter** list, click **I need to resolve a hardware conflict on my computer**, and click **Next**.

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Solving Problems

Dell™ OptiPlex™ GX280 Systems User's Guide

- Battery Problems
- Drive Problems
- Keyboard Problems
- Lockups and Software Problems
- Memory Problems
- Mouse Problems
- Network Problems
- Power Problems
- Printer Problems
- Restoring Default Settings
- Serial or Parallel Device Problems
- Sound and Speaker Problems
- Video and Monitor Problems

Battery Problems

Fill out the Diagnostics Checklist as you complete these checks.

⚠ **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. Discard used batteries according to the manufacturer's instructions.**

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.**

Replace the battery — If you have to repeatedly reset time and date information after turning on the computer, or if an incorrect time or date displays during start-up, replace the battery. If the battery still does not work properly, contact Dell.

Drive Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.**

Fill out the Diagnostics Checklist as you complete these checks.

Test the drive — • Insert another floppy disk, CD, or DVD to eliminate the possibility that the original one is defective. • Insert a bootable floppy disk and restart the computer.
Clean the drive or disk — See "Cleaning Your Computer."
Check the cable connections
Check for software and hardware conflicts
Run the Dell Diagnostics

CD and DVD drive problems

NOTE: Because of different regions worldwide and different disc formats, not all DVD titles work in all DVD drives.

Adjust the Windows volume control —

- Click the speaker icon in the lower-right corner of your screen.
- Ensure that the volume is turned up by clicking the slidebar and dragging it up.
- Ensure that the sound is not muted by clicking any boxes that are checked.

Check the speakers and subwoofer — See "Sound and Speaker Problems."

Problems writing to a CD/DVD-RW drive

Close other programs — The CD/DVD-RW drive must receive a steady stream of data when writing. If the stream is interrupted, an error occurs. Try closing all programs before you write to the CD/DVD-RW.

Turn off Standby mode in Windows before writing to a CD/DVD-RW disc — See "Power Management."

Hard drive problems

Running the Dell IDE Hard Drive Diagnostics —

The Dell IDE Hard Drive Diagnostics is a utility that tests the hard drive to troubleshoot or confirm a hard drive failure.

1. Turn on your computer (if your computer is already on, restart it).
2. When F2 = Setup appears in the upper-right corner of the screen, press <Ctrl><Alt><d>.
3. Follow the instructions on the screen.

Run Check Disk —

Windows XP

1. Click the **Start** button and click **My Computer**.
2. Right-click **Local Disk C:**.
3. Click **Properties**.
4. Click the **Tools** tab.
5. Under **Error-checking**, click **Check Now**.
6. Click **Scan for and attempt recovery of bad sectors**.
7. Click **Start**.

Windows 2000

1. Double-click **My Computer** on the Windows desktop.
2. Click the **Tools** tab.
3. Under **Error-checking**, click **Check Now**.
4. Click **Start**.

MS-DOS®
Type scandisk *x*: at an MS-DOS prompt, where *x* is the hard drive letter, and then press <Enter>. Click the **Start** button and click **My Computer**.

Keyboard Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

Check the keyboard cable — • Ensure that the keyboard cable is firmly connected to the computer. • Shut down the computer, reconnect the keyboard cable as shown in the *Quick Reference Guide* for your computer, and then restart the computer. • Check the cable connector for bent or broken pins and for damaged or frayed cables. Straighten bent pins. • Remove keyboard extension cables and connect the keyboard directly to the computer.
Test the keyboard — Connect a properly working keyboard to the computer, and try using the keyboard. If the new keyboard works, the original keyboard is faulty.
Run the Dell Diagnostics
Check for software and hardware conflicts

Lockups and Software Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

NOTE: If you installed a unique image on your computer or if you had to reinstall your operating system, run the DSS utility. DSS is available on your *Drivers and Utilities CD* and at **support.dell.com**.

NOTE: You must use Microsoft® Windows® XP Service Pack 1 or later when you reinstall Windows XP.

The computer does not start up

Check the Diagnostic Lights
Ensure that the power cable is firmly connected to the computer and to the electrical outlet

The computer stops responding

NOTICE: You might lose data if you are unable to perform an operating system shutdown.

Turn the computer off — If you are unable to get a response by pressing a key on your keyboard or moving your mouse, press and hold the power button for at least 8 to 10 seconds until the computer turns off. Then restart your computer.

A program stops responding

End the program —

Windows XP, Windows 2000

1. Press <Ctrl><Shift><Esc> simultaneously.
2. Click **Applications**.
3. Click the program that is no longer responding.
4. Click **End Task**.

A program crashes repeatedly

NOTE: Software usually includes installation instructions in its documentation or on a floppy disk or CD.

Check the software documentation — If necessary, uninstall and then reinstall the program.

A solid blue screen appears

Ensure that the original installed version of Windows XP is installed on your computer

Turn the computer off — If you are unable to get a response by pressing a key on your keyboard or moving your mouse, press and hold the power button for at least 8 to 10 seconds until the computer turns off. Then restart your computer.

Other software problems

Check the software documentation or contact the software manufacturer for troubleshooting information —

- Ensure that the program is compatible with the operating system installed on your computer.
- Ensure that your computer meets the minimum hardware requirements needed to run the software. See the software documentation for information.
- Ensure that the program is installed and configured properly.
- Verify that the device drivers do not conflict with the program.
- If necessary, uninstall and then reinstall the program.

Back up your files immediately

Use a virus-scanning program to check the hard drive, floppy disks, or CDs

Save and close any open files or programs and shut down your computer through the Start menu

Run the Dell Diagnostics — If all tests run successfully, the error condition is related to a software problem.

Memory Problems

NOTE: Your computer might emit a series of beeps (beep code) during start-up if the monitor cannot display errors or problems. This series of beeps identifies a problem. See "Beep Codes" for more information.

Fill out the Diagnostics Checklist as you complete these checks.

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

If you receive an insufficient memory message —

- Save and close any open files and exit any open programs you are not using to see if that resolves the problem.
- See the software documentation for minimum memory requirements. If necessary, install additional memory.
- Reseat the memory modules to ensure that your computer is successfully communicating with the memory.
- Run the Dell Diagnostics.

If you experience other memory problems —

- Reseat the memory modules to ensure that your computer is successfully communicating with the memory.
- Ensure that you are following the memory installation guidelines.
- Run the Dell Diagnostics.

Mouse Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

Check the mouse cable —

1. Check the cable connector for bent or broken pins and for damaged or frayed cables. Straighten bent pins.
2. Remove mouse extension cables, if used, and connect the mouse directly to the computer.
3. Shut down the computer, reconnect the mouse cable as shown in the *Quick Reference Guide* for your computer, and then restart the computer.

Restart the computer —

1. Simultaneously press <Ctrl><Esc> to display the **Start** menu.
2. Type u, press the keyboard arrow keys to highlight **Shut down** or **Turn Off**, and then press <Enter>.
3. After the computer turns off, reconnect the mouse cable as shown on the in the *Quick Reference Guide* for your computer.
4. Start the computer.

Test the mouse — Connect a properly working mouse to the computer, and try using the mouse. If the new mouse works, the original mouse is faulty.

Check the mouse settings —

Windows XP

1. Click the **Start** button, click **Control Panel**, and then click **Printers and Other Hardware**.
2. Click **Mouse**.
3. Try adjusting the settings.

Windows 2000

1. Click the **Start** button, point to **Settings**, and then click **Control Panel**.
2. Double-click the **Mouse** icon.
3. Try adjusting the settings.

If you are using a PS/2 mouse

1. Enter system setup and ensure that the **Mouse Port** option is set to **On**.
2. Exit system setup and restart the computer.

Reinstall the mouse driver

Run the Dell Diagnostics

Check for software and hardware conflicts

Network Problems

Fill out the Diagnostics Checklist as you complete these checks.

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.**

Check the network cable connector — Ensure that the network cable is firmly inserted into both the network connector on the back of the computer and the network jack.

Check the network lights on the front or back of the computer depending on system chassis type. — No connection speed light indicates that no network communication exists. Replace the network cable.

Restart the computer and log on to the network again

Check your network settings — Contact your network administrator or the person who set up your network to verify that your network settings are correct and that the network is functioning.

Check for software and hardware conflicts

Power Problems

Fill out the Diagnostics Checklist as you complete these checks.

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.**

If the power light is green and the computer is not responding — See "Diagnostic Lights."

If the power light is blinking green — The computer is in standby mode. Press a key on the keyboard or move the mouse to resume normal operation.

If the power light is off — The computer is either turned off or is not receiving power.

- Reseat the power cable into both the power connector on the back of the computer and the electrical outlet.
- If the computer is plugged into a power strip, ensure that the power strip is plugged into an electrical outlet and that the power strip is turned on. Also bypass power protection devices, power strips, and power extension cables to verify that the computer turns on properly.
- Ensure that the electrical outlet is working by testing it with another device, such as a lamp.
- Ensure that the main power cable and front panel cable are securely connected to the system board.

If the power light is amber and green or steady amber — A device might be malfunctioning or incorrectly installed.

- Remove and then reinstall the memory modules.
- Remove and then reinstall any cards.
- Remove and then reinstall the graphics card, if applicable.

If the power light is blinking amber —

The computer is receiving electrical power, but an internal power problem might exist.

- Ensure that the voltage selection switch is set to match the AC power at your location (if applicable).
- Ensure that the processor power cable is securely connected to the system board.

Eliminate interference — Some possible causes of interference are:

- Power, keyboard, and mouse extension cables
- Too many devices on a power strip
- Multiple power strips connected to the same electrical outlet

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Printer Problems

Fill out the Diagnostics Checklist as you complete these checks.

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

NOTE: If you need technical assistance for your printer, contact the printer's manufacturer.

Check the printer documentation — See the printer documentation for setup and troubleshooting information.

Ensure that the printer is turned on

Check the printer cable connections —

- See the printer documentation for cable connection information.
- Ensure that the printer cables are securely connected to the printer and the computer.

Test the electrical outlet — Ensure that the electrical outlet is working by testing it with another device, such as a lamp.

Verify that the printer is recognized by Windows —

Windows XP

1. Click the **Start** button, click **Control Panel**, and then click **Printers and Other Hardware**.
2. Click **View installed printers or fax printers**.

   If the printer is listed, right-click the printer icon.

3. Click **Properties** and click the **Ports** tab. For a parallel printer, ensure that the **Print to the following port(s):** setting is **LPT1 (Printer Port)**. For a USB printer, ensure that the **Print to the following port(s):** setting is **USB**.

Windows 2000

1. Click the **Start** button, point to **Settings**, and then click **Printers**.

   If the printer is listed, right-click the printer icon.

2. Click **Properties** and click the **Ports** tab.

   For a parallel printer, ensure that the **Print to the following port(s):** setting is **LPT1 (Printer Port)**. For a USB printer, ensure that the **Print to the following port(s):** setting is **USB**.

Reinstall the printer driver — See the printer documentation for instructions

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Restoring Default Settings

To restore the computer's system settings to their default values —

1. Turn on or restart your computer.
2. When `Press <F2> to Enter Setup` appears in the upper-right corner of the screen, press <F2> immediately.

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

3. Under System Management, select the Maintenance option and follow the directions on the screen.

Serial or Parallel Device Problems

Fill out the Diagnostics Checklist as you complete these checks.

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

NOTE: If you are having a problem with a printer, see "Printer Problems."

Check the option setting — See the device's documentation for the recommended settings. Then enter system setup and ensure that the **Serial Port #1** setting (or the **Serial Port #2** settings if you have an optional serial port adapter installed) or the **LPT Port Mode** setting matches the recommended settings.

Run the Dell Diagnostics

Sound and Speaker Problems

Fill out the Diagnostics Checklist as you complete these checks.

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

No sound from speakers

NOTE: The volume control in some MP3 players overrides the Windows volume setting. If you have been listening to MP3 songs, ensure that you did not turn the player volume down or off.

Check the speaker cable connections — Ensure that the speakers are connected as shown on the setup diagram supplied with the speakers. If you purchased an audio card, ensure that the speakers are connected to the card.

Ensure that the subwoofer and the speakers are turned on — See the setup diagram supplied with the speakers. If your speakers have volume controls, adjust the volume, bass, or treble to eliminate distortion.

Adjust the Windows volume control — Click or double-click the speaker icon in the lower-right corner of your screen. Ensure that the volume is turned up and that the sound is not muted.

Disconnect headphones from the headphone connector — Sound from the speakers is automatically disabled when headphones are connected to the computer's front-panel headphone connector.

Test the electrical outlet — Ensure that the electrical outlet is working by testing it with another device, such as a lamp.

Enable digital mode — Your speakers do not work if the CD drive is operating in analog mode.

Windows XP

1. Click the **Start** button, click **Control Panel**, and then click **Sounds, Speech, and Audio Devices**.
2. Click **Sounds and Audio Devices**.
3. Click the **Hardware** tab.
4. Double-click the name of your CD drive.
5. Click the **Properties** tab
6. Check the **Enable digital CD audio for this CD-ROM device** box.

Windows 2000

1. Click the **Start** button, point to **Settings® Control Panel**, and then click **Sounds and Multimedia**.
2. Click the **Hardware** tab.
3. Click the name of your CD drive and click **Properties**.
4. Click the **Properties** tab.
5. Check the **Enable digital CD audio for this CD-ROM device** box.

Eliminate possible interference — Turn off nearby fans, fluorescent lights, or halogen lamps to check for interference.

Run the speaker diagnostics

Reinstall the audio driver

Check the device option setting — Enter system setup and ensure that the **Audio Controller** option is set to **On**. Exit system setup and restart your computer.

Run the Dell Diagnostics

Check for software and hardware conflicts

No sound from headphones

Check the headphone cable connection — Ensure that the headphone cable is securely inserted into the headphone connector.

Disable digital mode — Your headphones do not work if the CD drive is operating in digital mode.

Windows XP

1. Click the **Start** button, click **Control Panel**, and then click **Sounds, Speech, and Audio Devices**.
2. Click **Sounds and Audio Devices**.
3. Click the **Hardware** tab.
4. Double-click the name of your CD drive.
5. Click the **Properties** tab.
6. Uncheck the **Enable digital CD audio for this CD-ROM device** box.

Windows 2000

1. Click the **Start** button, point to **Settings® Control Panel**, and then click **Sounds and Multimedia**.
2. Click the **Hardware** tab.
3. Click the name of your CD drive and click **Properties**.
4. Click the **Properties** tab.
5. Uncheck the **Enable digital CD audio for this CD-ROM device** box.

Adjust the Windows volume control — Click or double-click the speaker icon in the lower-right corner of your screen. Ensure that the volume is turned up and that the sound is not muted.

Video and Monitor Problems

Fill out the Diagnostics Checklist as you complete these checks.

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

If the screen is blank

NOTE: See the monitor documentation for troubleshooting procedures.

Check the monitor cable connection —

- If you purchased a graphics card, ensure that the monitor is connected to the card.
- Ensure that your monitor is properly connected (see the *Quick Reference Guide* that came with your computer).
- If you are using a graphics extension cable and removing the cable solves the problem, the cable is defective.
- Swap the computer and monitor power cables to determine if the power cable is defective.
- Check the connector for bent or broken pins. (It is normal for monitor cable connectors to have missing pins.)

Check the monitor power light — If the power light is off, firmly press the button to ensure that the monitor is turned on. If the power light is lit or blinking, the monitor has power. If the power light is blinking, press a key on the keyboard or move the mouse.

Test the electrical outlet — Ensure that the electrical outlet is working by testing it with another device, such as a lamp.

Test the monitor — Connect a properly working monitor to the computer, and try using the monitor. If the new monitor works, the original monitor is faulty.
Check the diagnostic lights
Check the card setting — Enter system setup and ensure that **Primary Video** option is set correctly. Exit system setup and restart your computer.
Run the monitor self-test — Check the monitor documentation for more information.

If the screen is difficult to read

Check the monitor settings — See the monitor documentation for instructions on adjusting the contrast and brightness, demagnetizing (degaussing) the monitor, and running the monitor self-test.
Move the subwoofer away from the monitor — If your speaker system includes a subwoofer, ensure that the subwoofer is at least 60 cm (2 ft) away from the monitor.
Move the monitor away from external power sources — Fans, fluorescent lights, halogen lamps, and other electrical devices can cause the screen image to appear "shaky." Turn off nearby devices to check for interference.
Adjust the Windows display settings — *Windows XP* 1. Click the **Start** button, click **Control Panel**, and then click **Appearance and Themes**. 2. Click **Display** and click the **Settings** tab. 3. Try different settings for **Screen resolution** and **Color quality.** *Windows 2000* 1. Click the **Start** button, point to **Settings**, and then click **Control Panel**. 2. Double-click the **Display** icon and click the **Settings** tab. 3. Try different settings for **Screen area** or **Desktop area.**

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Reinstalling Drivers and the Operating System

Dell™ OptiPlex™ GX280 Systems User's Guide

- Drivers
- Using Microsoft Windows XP System Restore
- Reinstalling Microsoft Windows XP

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

NOTICE: You must use Microsoft® Windows® XP Service Pack 1 or later when you reinstall Microsoft Windows XP.

NOTE: If you installed a unique image on your computer or if you had to reinstall your operating system, run the DSS utility. DSS is available on your optional *Drivers and Utilities* CD and at **support.dell.com**.

NOTE: The Drivers and Utilities CD (ResourceCD) is optional, and as such, may not ship with all computers.

Drivers

What Is a Driver?

A driver is a program that controls a device such as a printer, mouse, or keyboard. All devices require a driver program.

A driver acts like a translator between the device and any other programs that use the device. Each device has its own set of specialized commands that only its driver recognizes.

Dell ships your computer to you with required drivers already installed—no further installation or configuration is needed.

NOTICE: The optional *Drivers and Utilities* CD may contain drivers for operating systems that are not on your computer. Ensure that you are installing software appropriate for your operating system.

Many drivers, such as the keyboard driver, come with your Microsoft Windows operating system. You may need to install drivers if you:

- Upgrade your operating system.
- Reinstall your operating system.
- Connect or install a new device.

Identifying Drivers

If you experience a problem with any device, identify whether the driver is the source of your problem and, if necessary, update the driver.

Windows XP

1. Click the **Start** button and click **Control Panel**.
2. Under **Pick a Category**, click **Performance and Maintenance**.
3. Click **System**.

4. In the **System Properties** window, click the **Hardware** tab.
5. Click **Device Manager**.
6. Scroll down the list to see if any device has an exclamation point (a yellow circle with a [**!**]) on the device icon.

   If an exclamation point is next to the device name, you may need to reinstall the driver or install a new driver.

Reinstalling Drivers and Utilities

NOTICE: The Dell Support website at **support.dell.com** and your *Drivers and Utilities* CD provide approved drivers for Dell™ computers. If you install drivers obtained from other sources, your computer might not work correctly.

NOTE: The *Drivers and Utilities* CD (ResourceCD) is optional, and as such, may not ship with all computers.

Using Windows XP Device Driver Rollback

If a problem occurs on your computer after you install or update a driver, use Windows XP Device Driver Rollback to replace the driver with the previously installed version.

1. Click the **Start** button and click **Control Panel**.
2. Under **Pick a Category**, click **Performance and Maintenance**.
3. Click **System**.
4. In the **System Properties** window, click the **Hardware** tab.
5. Click **Device Manager**.
6. Right-click the device for which the new driver was installed and click **Properties**.
7. Click the **Drivers** tab.
8. Click **Roll Back Driver**.

If Device Driver Rollback does not resolve the problem, then use System Restore to return your computer to the operating state that existed before you installed the new driver.

Using the Optional Drivers and Utilities CD

If using Device Driver Rollback or System Restore does not resolve the problem, then reinstall the driver from the *Drivers and Utilities* CD (also known as the Resource CD).

NOTE: The *Drivers and Utilities* CD (ResourceCD) is optional, and as such, may not ship with all computers.

NOTE: To access device drivers and user documentation, you must use the *Drivers and Utilities* CD while your computer is running Windows.

1. Insert the *Drivers and Utilities* CD.

   If this is your first time to use the *Drivers and Utilities* CD, the **Installation** window opens to inform you that the CD will begin the installation. Click **OK** and respond to the installation program prompts to complete the installation.
2. Click **Next** at the **Welcome Dell System Owner** screen.
3. Choose the appropriate selections for **System Model**, **Operating System**, **Device Type**, and **Topic**.

4. Click **My Drivers** in the **Topic** drop-down menu.

   The *Drivers and Utilities* CD scans your computer's hardware and operating system and then displays a list of device drivers for your system configuration.

5. Click the appropriate driver and follow the instructions to download the driver for your computer.

To view a list of all available drivers for your computer, click **Drivers** in the **Topic** drop-down menu.

To access the help files on the *Drivers and Utilities* CD, click the question mark button or the **Help** link at the top of the screen.

Using Microsoft Windows XP System Restore

The Microsoft Windows XP operating system provides System Restore to allow you to return your computer to an earlier operating state (without affecting data files) if changes to the hardware, software, or other system settings have left the computer in an undesirable operating state. See the Windows Help and Support Center for information on using System Restore.

NOTICE: Make regular backups of your data files. System Restore does not monitor your data files or recover them.

Creating a Restore Point

1. Click the **Start** button and click **Help and Support**.
2. Click **System Restore**.
3. Follow the instructions on the screen.

Restoring the Computer to an Earlier Operating State

NOTICE: Before you restore the computer to an earlier operating state, save and close any open files and exit any open programs. Do not alter, open, or delete any files or programs until the system restoration is complete.

1. Click the **Start** button, point to **All Programs**® **Accessories**® **System Tools**, and then click **System Restore**.
2. Ensure that **Restore my computer to an earlier time** is selected and click **Next**.
3. Click a calendar date to which you want to restore your computer.

   The **Select a Restore Point** screen provides a calendar that allows you to see and select restore points. All calendar dates with available restore points appear in boldface type.

4. Select a restore point and click **Next**.

   If a calendar date has only one restore point, then that restore point is automatically selected. If two or more restore points are available, click the restore point that you prefer.

5. Click **Next**.

   The **Restoration Complete** screen appears after System Restore finishes collecting data and then the computer restarts.

6. After the computer restarts, click **OK**.

To change the restore point, you can either repeat the steps using a different restore point, or you can undo the restoration.

Undoing the Last System Restore

NOTICE: Before you undo the last system restore, save and close all open files and exit any open programs. Do not alter, open, or delete any files or programs until the system restoration is complete.

1. Click the **Start** button, point to **All Programs**® **Accessories**® **System Tools**, and then click **System Restore**.
2. Click **Undo my last restoration** and click **Next**.
3. Click **Next**.

   The **System Restore** screen appears and the computer restarts.
4. After the computer restarts, click **OK**.

Enabling System Restore

If you reinstall Windows XP with less than 200 MB of free hard-disk space available, System Restore is automatically disabled. To see if System Restore is enabled:

1. Click the **Start** button and click **Control Panel**.
2. Click **Performance and Maintenance**.
3. Click **System**.
4. Click the **System Restore** tab.
5. Ensure that **Turn off System Restore** is unchecked.

Reinstalling Microsoft Windows XP

NOTE: The *Drivers and Utilities* CD (ResourceCD) is optional, and as such, may not ship with all computers.

NOTICE: You must use Windows XP Service Pack 1 or later when you reinstall your operating system.

Before You Begin

If you are considering reinstalling the Windows XP operating system to correct a problem with a newly installed driver, first try using Windows XP Device Driver Rollback. If Device Driver Rollback does not resolve the problem, then use System Restore to return your operating system to the operating state it was in before you installed the new device driver.

NOTICE: Before performing the installation, back up all data files on your primary hard drive. For conventional hard drive configurations, the primary hard drive is the first drive detected by the computer.

To reinstall Windows XP, you need the following items:

- Dell™ *Operating System* CD
- Dell *Drivers and Utilities* CD

NOTE: The *Drivers and Utilities* CD contains drivers that were installed during assembly of the computer. Use the

Drivers and Utilities CD to load any required drivers, including the drivers required if your computer has a RAID controller.

Reinstalling Windows XP

To reinstall Windows XP, perform all the steps in the following sections in the order in which they are listed.

The reinstallation process can take 1 to 2 hours to complete. After you reinstall the operating system, you must also reinstall the device drivers, virus protection program, and other software.

NOTICE: The *Operating System* CD provides options for reinstalling Windows XP. The options can overwrite files and possibly affect programs installed on your hard drive. Therefore, do not reinstall Windows XP unless a Dell technical support representative instructs you to do so.

NOTICE: To prevent conflicts with Windows XP, disable any virus protection software installed on your computer before you reinstall Windows XP. See the documentation that came with the software for instructions.

Booting From the Operating System CD

1. Save and close any open files and exit any open programs.
2. Insert the *Operating System* CD. Click **Exit** if `Install Windows XP` message appears.
3. Restart the computer.
4. Press <F12> immediately after the DELL™ logo appears.

   If the operating system logo appears, wait until you see the Windows desktop, and then shut down the computer and try again.
5. Press the arrow keys to select **CD-ROM**, and press <Enter>.
6. When the `Press any key to boot from CD` message appears, press any key.

Windows XP Setup

1. When the **Windows XP Setup** screen appears, press <Enter> to select **To set up Windows now**.
2. Read the information on the **Microsoft Windows Licensing Agreement** screen, and press <F8> to accept the license agreement.
3. If your computer already has Windows XP installed and you want to recover your current Windows XP data, type `r` to select the repair option, and remove the CD.
4. If you want to install a new copy of Windows XP, press <Esc> to select that option.
5. Press <Enter> to select the highlighted partition (recommended), and follow the instructions on the screen.

   The **Windows XP Setup** screen appears, and the operating system begins to copy files and install the devices. The computer automatically restarts multiple times.

NOTE: The time required to complete the setup depends on the size of the hard drive and the speed of your computer.

NOTICE: Do not press any key when the following message appears: `Press any key to boot from the CD`.

6. When the **Regional and Language Options** screen appears, select the settings for your location and click **Next**.
7. Enter your name and organization (optional) in the **Personalize Your Software** screen, and click **Next**.

8. At the **Computer Name and Administrator Password** window, enter a name for your computer (or accept the one provided) and a password, and click **Next**.
9. If the **Modem Dialing Information** screen appears, enter the requested information and click **Next**.
10. Enter the date, time, and time zone in the **Date and Time Settings** window, and click **Next**.
11. If the **Networking Settings** screen appears, click **Typical** and click **Next**.
12. If you are reinstalling Windows XP Professional and you are prompted to provide further information regarding your network configuration, enter your selections. If you are unsure of your settings, accept the default selections.

    Windows XP installs the operating system components and configures the computer. The computer automatically restarts.

NOTICE: Do not press any key when the following message appears: `Press any key to boot from the CD.`

13. When the **Welcome to Microsoft** screen appears, click **Next**.
14. When the `How will this computer connect to the Internet?` message appears, click **Skip**.
15. When the **Ready to register with Microsoft?** screen appears, select **No, not at this time** and click **Next**.
16. When the **Who will use this computer?** screen appears, you can enter up to five users.
17. Click **Next**.
18. Click **Finish** to complete the setup, and remove the CD.
19. Reinstall the appropriate drivers with the *Drivers and Utilities* CD.
20. Reinstall your virus protection software.
21. Reinstall your programs.

NOTE: To reinstall and activate your Microsoft Office or Microsoft Works Suite programs, you need the Product Key number located on the back of the Microsoft Office or Microsoft Works Suite CD sleeve.

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Getting Help

Dell™ OptiPlex™ GX280 Systems User's Guide

- Technical Assistance
- Problems With Your Order
- Product Information
- Returning Items for Warranty Repair or Credit
- Before You Call
- Contacting Dell

Technical Assistance

If you need help with a technical problem, Dell is ready to assist you.

⚠ **CAUTION: If you need to remove the computer covers, first disconnect the computer power and modem cables from all electrical outlets.**

1. Complete the procedures in "Solving Problems."
2. Run the Dell Diagnostics.
3. Make a copy of the Diagnostics Checklist and fill it out.
4. Use Dell's extensive suite of online services available at Dell Support (**support.dell.com**) for help with installation and troubleshooting procedures.
5. If the preceding steps have not resolved the problem, contact Dell.

NOTE: Call technical support from a telephone near or at the computer so that technical support can assist you with any necessary procedures.

NOTE: Dell's Express Service Code system may not be available in all countries.

When prompted by Dell's automated telephone system, enter your Express Service Code to route the call directly to the proper support personnel. If you do not have an Express Service Code, open the **Dell Accessories** folder, double-click the **Express Service Code** icon, and follow the directions.

For instructions on using the technical support service, see "Technical Support Service."

NOTE: Some of the following services are not always available in all locations outside the continental U.S. Call your local Dell representative for information on availability.

Online Services

You can access Dell Support at **support.dell.com**. Select your region on the **WELCOME TO DELL SUPPORT** page, and fill in the requested details to access help tools and information.

You can contact Dell electronically using the following addresses:

- World Wide Web

  www.dell.com/

  www.dell.com/ap/ (Asian/Pacific countries only)

www.dell.com/jp (Japan only)

www.euro.dell.com (Europe only)

www.dell.com/la/ (Latin American countries)

www.dell.ca (Canada only)

- Anonymous file transfer protocol (FTP)

  ftp.dell.com/

  Log in as user: anonymous, and use your e-mail address as your password.

- Electronic Support Service

  mobile_support@us.dell.com

  support@us.dell.com

  apsupport@dell.com (Asian/Pacific countries only)

  support.jp.dell.com (Japan only)

  support.euro.dell.com (Europe only)

- Electronic Quote Service

  sales@dell.com

  apmarketing@dell.com (Asian/Pacific countries only)

  sales_canada@dell.com (Canada only)

- Electronic Information Service

  info@dell.com

AutoTech Service

Dell's automated technical support service—AutoTech—provides recorded answers to the questions most frequently asked by Dell customers about their portable and desktop computers.

When you call AutoTech, use your touch-tone telephone to select the subjects that correspond to your questions.

The AutoTech service is available 24 hours a day, 7 days a week. You can also access this service through the technical support service. For the telephone number to call, see the contact numbers for your region.

Automated Order-Status Service

To check on the status of any Dell™ products that you have ordered, you can go to **support.dell.com**, or you can call the automated order-status service. A recording prompts you for the information needed to locate and report on your order. For the telephone number to call, see the contact numbers for your region.

Technical Support Service

Dell's technical support service is available 24 hours a day, 7 days a week, to answer your questions about Dell hardware. Our technical support staff uses computer-based diagnostics to provide fast, accurate answers.

To contact Dell's technical support service, see "Technical Assistance" and then call the number for your country as listed in "Contacting Dell."

Problems With Your Order

If you have a problem with your order, such as missing parts, wrong parts, or incorrect billing, contact Dell for customer assistance. Have your invoice or packing slip handy when you call. For the telephone number to call, see the contact numbers for your region.

Product Information

If you need information about additional products available from Dell, or if you would like to place an order, visit the Dell website at **www.dell.com**. For the telephone number to call to speak to a sales specialist, see the contact numbers for your region.

Returning Items for Warranty Repair or Credit

Prepare all items being returned, whether for repair or credit, as follows:

1. Call Dell to obtain a Return Material Authorization Number, and write it clearly and prominently on the outside of the box.

   For the telephone number to call, see the contact numbers for your region.
2. Include a copy of the invoice and a letter describing the reason for the return.
3. Include a copy of the Diagnostics Checklist indicating the tests you have run and any error messages reported by the Dell Diagnostics.
4. Include any accessories that belong with the item(s) being returned (power cables, software floppy disks, guides, and so on) if the return is for credit.
5. Pack the equipment to be returned in the original (or equivalent) packing materials.

You are responsible for paying shipping expenses. You are also responsible for insuring any product returned, and you assume the risk of loss during shipment to Dell. Collect On Delivery (C.O.D.) packages are not accepted.

Returns that are missing any of the preceding requirements will be refused at Dell's receiving dock and returned to you.

Before You Call

NOTE: Have your Express Service Code ready when you call. The code helps Dell's automated-support telephone system direct your call more efficiently.

Remember to fill out the Diagnostics Checklist. If possible, turn on your computer before you call Dell for technical assistance and call from a telephone at or near the computer. You may be asked to type some commands at the keyboard, relay detailed information during operations, or try other troubleshooting steps possible only at the computer itself. Ensure that the computer documentation is available.

CAUTION: Before working inside your computer, read the safety instructions in your *Product Information Guide.*

Diagnostics Checklist
Name:
Date:

Address:
Phone number:
Service Tag (bar code on the back of the computer):
Express Service Code:
Return Material Authorization Number (if provided by Dell support technician):
Operating system and version:
Devices:
Expansion cards:
Are you connected to a network? Yes No
Network, version, and network adapter:
Programs and versions:
See your operating system documentation to determine the contents of the system's start-up files. If the computer is connected to a printer, print each file. Otherwise, record the contents of each file before calling Dell.
Error message, beep code, or diagnostic code:
Description of problem and troubleshooting procedures you performed:

Contacting Dell

To contact Dell electronically, you can access the following websites:

- **www.dell.com**
- **support.dell.com** (technical support)
- **premiersupport.dell.com** (technical support for educational, government, healthcare, and medium/large business customers, including Premier, Platinum, and Gold customers)

For specific web addresses for your country, find the appropriate country section in the table below.

NOTE: Toll-free numbers are for use within the country for which they are listed.

When you need to contact Dell, use the electronic addresses, telephone numbers, and codes provided in the following table. If you need assistance in determining which codes to use, contact a local or an international operator.

Country (City) International Access Code Country Code City Code	**Department Name or Service Area, Website and E-Mail Address**	**Area Codes, Local Numbers, and Toll-Free Numbers**
Anguilla	General Support	toll-free: 800-335-0031
Antigua and Barbuda	General Support	1-800-805-5924
Argentina (Buenos Aires) International Access Code: **00** Country Code: **54** City Code: **11**	Website: **www.dell.com.ar**	
	Tech Support and Customer Care	toll-free: 0-800-444-0733
	Sales	0-810-444-3355
	Tech Support Fax	11 4515 7139
	Customer Care Fax	11 4515 7138
Aruba	General Support	toll-free: 800-1578
	E-mail (Australia): au_tech_support@dell.com	

	E-mail (New Zealand): nz_tech_support@dell.com	
Australia (Sydney) International Access Code: **0011** Country Code: **61** City Code: **2**	Home and Small Business	1-300-65-55-33
	Government and Business	toll-free: 1-800-633-559
	Preferred Accounts Division (PAD)	toll-free: 1-800-060-889
	Customer Care	toll-free: 1-800-819-339
	Corporate Sales	toll-free: 1-800-808-385
	Transaction Sales	toll-free: 1-800-808-312
	Fax	toll-free: 1-800-818-341
Austria (Vienna) International Access Code: **900** Country Code: **43** City Code: **1**	Website: **support.euro.dell.com**	
	E-mail: tech_support_central_europe@dell.com	
	Home/Small Business Sales	0820 240 530 00
	Home/Small Business Fax	0820 240 530 49
	Home/Small Business Customer Care	0820 240 530 14
	Preferred Accounts/Corporate Customer Care	0820 240 530 16
	Home/Small Business Technical Support	0820 240 530 14
	Preferred Accounts/Corporate Technical Support	0660 8779
	Switchboard	0820 240 530 00
Bahamas	General Support	toll-free: 1-866-278-6818
Barbados	General Support	1-800-534-3066
Belgium (Brussels) International Access Code: **00** Country Code: **32** City Code: **2**	Website: **support.euro.dell.com**	
	E-mail: tech_be@dell.com	
	E-mail for French Speaking Customers: **support.euro.dell.com/be/fr/emaildell/**	
	Technical Support	02 481 92 88
	Customer Care	02 481 91 19
	Corporate Sales	02 481 91 00
	Fax	02 481 92 99
	Switchboard	02 481 91 00
Bermuda	General Support	1-800-342-0671
Bolivia	General Support	toll-free: 800-10-0238
Brazil International Access Code: **00** Country Code: **55** City Code: **51**	Website: **www.dell.com/br**	
	Customer Support, Technical Support	0800 90 3355
	Tech Support Fax	51 481 5470
	Customer Care Fax	51 481 5480
	Sales	0800 90 3390
British Virgin Islands	General Support	toll-free: 1-866-278-6820
Brunei Country Code: **673**	Customer Technical Support (Penang, Malaysia)	604 633 4966
	Customer Service (Penang, Malaysia)	604 633 4949
	Transaction Sales (Penang, Malaysia)	604 633 4955
	Online Order Status: **www.dell.ca/ostatus**	
	AutoTech (automated technical support)	toll-free: 1-800-247-9362

Canada (North York, Ontario) International Access Code: **011**	TechFax	toll-free: 1-800-950-1329
	Customer Care (Home Sales/Small Business)	toll-free: 1-800-847-4096
	Customer Care (med./large business, government)	toll-free: 1-800-326-9463
	Technical Support (Home Sales/Small Business)	toll-free: 1-800-847-4096
	Technical Support (med./large bus., government)	toll-free: 1-800-387-5757
	Sales (Home Sales/Small Business)	toll-free: 1-800-387-5752
	Sales (med./large bus., government)	toll-free: 1-800-387-5755
	Spare Parts Sales & Extended Service Sales	1 866 440 3355
Cayman Islands	General Support	1-800-805-7541
Chile (Santiago) Country Code: **56** City Code: **2**	Sales, Customer Support, and Technical Support	toll-free: 1230-020-4823
China (Xiamen) Country Code: **86** City Code: **592**	Tech Support website: **support.dell.com.cn**	
	Tech Support E-mail: cn_support@dell.com	
	Tech Support Fax	818 1350
	Technical Support (Dimension™ and Inspiron™)	toll-free: 800 858 2969
	Technical Support (OptiPlex™, Latitude™, and Dell Precision™)	toll-free: 800 858 0950
	Technical Support (servers and storage)	toll-free: 800 858 0960
	Technical Support (projectors, PDAs, printers, switches, routers, and so on)	toll-free: 800 858 2920
	Customer Experience	toll-free: 800 858 2060
	Home and Small Business	toll-free: 800 858 2222
	Preferred Accounts Division	toll-free: 800 858 2557
	Large Corporate Accounts GCP	toll-free: 800 858 2055
	Large Corporate Accounts Key Accounts	toll-free: 800 858 2628
	Large Corporate Accounts North	toll-free: 800 858 2999
	Large Corporate Accounts North Government and Education	toll-free: 800 858 2955
	Large Corporate Accounts East	toll-free: 800 858 2020
	Large Corporate Accounts East Government and Education	toll-free: 800 858 2669
	Large Corporate Accounts Queue Team	toll-free: 800 858 2222
	Large Corporate Accounts South	toll-free: 800 858 2355
	Large Corporate Accounts West	toll-free: 800 858 2811
	Large Corporate Accounts Spare Parts	toll-free: 800 858 2621
Colombia	General Support	980-9-15-3978
Costa Rica	General Support	0800-012-0435
Czech Republic (Prague) International Access Code: **00**	Website: **support.euro.dell.com**	
	E-mail: czech_dell@dell.com	
	Technical Support	02 2186 27 27
	Customer Care	02 2186 27 11
	Fax	02 2186 27 14

Country Code: **420** City Code: **2**		
	TechFax	02 2186 27 28
	Switchboard	02 2186 27 11
Denmark (Copenhagen) International Access Code: **00** Country Code: **45**	Website: **support.euro.dell.com**	
	E-mail Support (portable computers): den_nbk_support@dell.com	
	E-mail Support (desktop computers): den_support@dell.com	
	E-mail Support (servers): Nordic_server_support@dell.com	
	Technical Support	7023 0182
	Customer Care (Relational)	7023 0184
	Home/Small Business Customer Care	3287 5505
	Switchboard (Relational)	3287 1200
	Fax Switchboard (Relational)	3287 1201
	Switchboard (Home/Small Business)	3287 5000
	Fax Switchboard (Home/Small Business)	3287 5001
Dominica	General Support	toll-free: 1-866-278-6821
Dominican Republic	General Support	1-800-148-0530
Ecuador	General Support	toll-free: 999-119
El Salvador	General Support	01-899-753-0777
Finland (Helsinki) International Access Code: **990** Country Code: **358** City Code: **9**	Website: **support.euro.dell.com**	
	E-mail: fin_support@dell.com	
	E-mail Support (servers): Nordic_support@dell.com	
	Technical Support	09 253 313 60
	Technical Support Fax	09 253 313 81
	Relational Customer Care	09 253 313 38
	Home/Small Business Customer Care	09 693 791 94
	Fax	09 253 313 99
	Switchboard	09 253 313 00
France (Paris) (Montpellier) International Access Code: **00** Country Code: **33** City Codes: **(1) (4)**	Website: **support.euro.dell.com**	
	E-mail: **support.euro.dell.com/fr/fr/emaildell/**	
	Home and Small Business	
	Technical Support	0825 387 270
	Customer Care	0825 823 833
	Switchboard	0825 004 700
	Switchboard (calls from outside of France)	04 99 75 40 00
	Sales	0825 004 700
	Fax	0825 004 701
	Fax (calls from outside of France)	04 99 75 40 01
	Corporate	
	Technical Support	0825 004 719

	Customer Care	0825 338 339
	Switchboard	01 55 94 71 00
	Sales	01 55 94 71 00
	Fax	01 55 94 71 01
Germany (Langen) International Access Code: **00** Country Code: **49** City Code: **6103**	Website: **support.euro.dell.com**	
	E-mail: tech_support_central_europe@dell.com	
	Technical Support	06103 766-7200
	Home/Small Business Customer Care	0180-5-224400
	Global Segment Customer Care	06103 766-9570
	Preferred Accounts Customer Care	06103 766-9420
	Large Accounts Customer Care	06103 766-9560
	Public Accounts Customer Care	06103 766-9555
	Switchboard	06103 766-7000
Greece International Access Code: 00 Country Code: 30	Website: **support.euro.dell.com**	
	E-mail: **support.euro.dell.com/gr/en/emaildell/**	
	Technical Support	080044149518
	Gold Technical Support	08844140083
	Switchboard	2108129800
	Sales	2108129800
	Fax	2108129812
Grenada	General Support	toll-free: 1-866-540-3355
Guatemala	General Support	1-800-999-0136
Guyana	General Support	toll-free: 1-877-270-4609
Hong Kong International Access Code: **001** Country Code: **852**	Website: **support.ap.dell.com**	
	E-mail: ap_support@dell.com	
	Technical Support (Dimension™ and Inspiron™)	2969 3189
	Technical Support (OptiPlex™, Latitude™, and Dell Precision™)	2969 3191
	Technical Support (PowerApp™, PowerEdge™, PowerConnect™, and PowerVault™)	2969 3196
	Gold Queue EEC Hotline	2969 3187
	Customer Advocacy	3416 0910
	Large Corporate Accounts	3416 0907
	Global Customer Programs	3416 0908
	Medium Business Division	3416 0912
	Home and Small Business Division	2969 3105
India	Technical Support	1600 33 8045
	Sales	1600 33 8044
	Website: **support.euro.dell.com**	
	E-mail: dell_direct_support@dell.com	
	Technical Support	1850 543 543

Ireland (Cherrywood) International Access Code: **16** Country Code: **353** City Code: **1**	U.K. Technical Support (dial within U.K. only)	0870 908 0800
	Home User Customer Care	01 204 4014
	Small Business Customer Care	01 204 4014
	U.K. Customer Care (dial within U.K. only)	0870 906 0010
	Corporate Customer Care	1850 200 982
	Corporate Customer Care (dial within U.K. only)	0870 907 4499
	Ireland Sales	01 204 4444
	U.K. Sales (dial within U.K. only)	0870 907 4000
	Fax/SalesFax	01 204 0103
	Switchboard	01 204 4444
Italy (Milan) International Access Code: **00** Country Code: **39** City Code: **02**	Website: **support.euro.dell.com**	
	E-mail: **support.euro.dell.com/it/it/emaildell/**	
	Home and Small Business	
	Technical Support	02 577 826 90
	Customer Care	02 696 821 14
	Fax	02 696 821 13
	Switchboard	02 696 821 12
	Corporate	
	Technical Support	02 577 826 90
	Customer Care	02 577 825 55
	Fax	02 575 035 30
	Switchboard	02 577 821
Jamaica	General Support (dial from within Jamaica only)	1-800-682-3639
Japan (Kawasaki) International Access Code: **001** Country Code: **81** City Code: **44**	Website: **support.jp.dell.com**	
	Technical Support (servers)	toll-free: 0120-198-498
	Technical Support outside of Japan (servers)	81-44-556-4162
	Technical Support (Dimension™ and Inspiron™)	toll-free: 0120-198-226
	Technical Support outside of Japan (Dimension and Inspiron)	81-44-520-1435
	Technical Support (Dell Precision™, OptiPlex™, and Latitude™)	toll-free:0120-198-433
	Technical Support outside of Japan (Dell Precision, OptiPlex, and Latitude)	81-44-556-3894
	Technical Support (Axim™)	toll-free: 0120-981-690
	Technical Support outside of Japan (Axim)	81-44-556-3468
	Faxbox Service	044-556-3490
	24-Hour Automated Order Service	044-556-3801
	Customer Care	044-556-4240
	Business Sales Division (up to 400 employees)	044-556-1465
	Preferred Accounts Division Sales (over 400 employees)	044-556-3433
	Large Corporate Accounts Sales (over 3500 employees)	044-556-3430
	Public Sales (government agencies, educational	

	institutions, and medical institutions)	044-556-1469
	Global Segment Japan	044-556-3469
	Individual User	044-556-1760
	Switchboard	044-556-4300
Korea (Seoul) International Access Code: **001** Country Code: **82** City Code: **2**	Technical Support	toll-free: 080-200-3800
	Sales	toll-free: 080-200-3600
	Customer Service (Seoul, Korea)	toll-free: 080-200-3800
	Customer Service (Penang, Malaysia)	604 633 4949
	Fax	2194-6202
	Switchboard	2194-6000
Latin America	Customer Technical Support (Austin, Texas, U.S.A.)	512 728-4093
	Customer Service (Austin, Texas, U.S.A.)	512 728-3619
	Fax (Technical Support and Customer Service) (Austin, Texas, U.S.A.)	512 728-3883
	Sales (Austin, Texas, U.S.A.)	512 728-4397
	SalesFax (Austin, Texas, U.S.A.)	512 728-4600 or 512 728-3772
Luxembourg International Access Code: **00** Country Code: **352**	Website: **support.euro.dell.com**	
	E-mail: tech_be@dell.com	
	Technical Support (Brussels, Belgium)	3420808075
	Home/Small Business Sales (Brussels, Belgium)	toll-free: 080016884
	Corporate Sales (Brussels, Belgium)	02 481 91 00
	Customer Care (Brussels, Belgium)	02 481 91 19
	Fax (Brussels, Belgium)	02 481 92 99
	Switchboard (Brussels, Belgium)	02 481 91 00
Macao Country Code: **853**	Technical Support	toll-free: 0800 582
	Customer Service (Penang, Malaysia)	604 633 4949
	Transaction Sales	toll-free: 0800 581
Malaysia (Penang) International Access Code: **00** Country Code: **60** City Code: **4**	Technical Support (Dell Precision, OptiPlex, and Latitude)	toll-free: 1 800 88 0193
	Technical Support (Dimension and Inspiron)	toll-free: 1 800 88 1306
	Customer Service	04 633 4949
	Transaction Sales	toll-free: 1 800 888 202
	Corporate Sales	toll-free: 1 800 888 213
Mexico International Access Code: **00** Country Code: **52**	Customer Technical Support	001-877-384-8979 or 001-877-269-3383
	Sales	50-81-8800 or 01-800-888-3355
	Customer Service	001-877-384-8979 or 001-877-269-3383
	Main	50-81-8800

		or 01-800-888-3355
Montserrat	General Support	toll-free: 1-866-278-6822
Netherlands Antilles	General Support	001-800-882-1519
Netherlands (Amsterdam) International Access Code: **00** Country Code: **31** City Code: **20**	Website: **support.euro.dell.com** E-mail (Technical Support): (Enterprise): nl_server_support@dell.com (Latitude): nl_latitude_support@dell.com (Inspiron): nl_inspiron_support@dell.com (Dimension): nl_dimension_support@dell.com (OptiPlex): nl_optiplex_support@dell.com (Dell Precision): nl_workstation_support@dell.com	
	Technical Support	020 674 45 00
	Technical Support Fax	020 674 47 66
	Home/Small Business Customer Care	020 674 42 00
	Relational Customer Care	020 674 4325
	Home/Small Business Sales	020 674 55 00
	Relational Sales	020 674 50 00
	Home/Small Business Sales Fax	020 674 47 75
	Relational Sales Fax	020 674 47 50
	Switchboard	020 674 50 00
	Switchboard Fax	020 674 47 50
New Zealand International Access Code: **00** Country Code: **64**	E-mail (New Zealand): nz_tech_support@dell.com	
	E-mail (Australia): au_tech_support@dell.com	
	Home and Small Business	0800 446 255
	Government and Business	0800 444 617
	Sales	0800 441 567
	Fax	0800 441 566
Nicaragua	General Support	001-800-220-1006
Norway (Lysaker) International Access Code: **00** Country Code: **47**	Website: **support.euro.dell.com**	
	E-mail Support (portable computers): nor_nbk_support@dell.com	
	E-mail Support (desktop computers): nor_support@dell.com	
	E-mail Support (servers): nordic_server_support@dell.com	
	Technical Support	671 16882
	Relational Customer Care	671 17514
	Home/Small Business Customer Care	23162298
	Switchboard	671 16800
	Fax Switchboard	671 16865

Panama	General Support	001-800-507-0962
Peru	General Support	0800-50-669
Poland (Warsaw) International Access Code: **011** Country Code: **48** City Code: **22**	Website: **support.euro.dell.com**	
	E-mail: pl_support_tech@dell.com	
	Customer Service Phone	57 95 700
	Customer Care	57 95 999
	Sales	57 95 999
	Customer Service Fax	57 95 806
	Reception Desk Fax	57 95 998
	Switchboard	57 95 999
Portugal International Access Code: **00** Country Code: **351**	Website: **support.euro.dell.com**	
	E-mail: **support.euro.dell.com/pt/en/emaildell/**	
	Technical Support	707200149
	Customer Care	800 300 413
	Sales	800 300 410 or 800 300 411 or 800 300 412 or 21 422 07 10
	Fax	21 424 01 12
Puerto Rico	General Support	1-800-805-7545
St. Kitts and Nevis	General Support	toll-free: 1-877-441-4731
St. Lucia	General Support	1-800-882-1521
St. Vincent and the Grenadines	General Support	toll-free: 1-877-270-4609
Singapore (Singapore) International Access Code: **005** Country Code: **65**	Technical Support	toll-free: 800 6011 051
	Customer Service (Penang, Malaysia)	604 633 4949
	Transaction Sales	toll-free: 800 6011 054
	Corporate Sales	toll-free: 800 6011 053
South Africa (Johannesburg) International Access Code: **09/091** Country Code: **27** City Code: **11**	Website: **support.euro.dell.com**	
	E-mail: dell_za_support@dell.com	
	Technical Support	011 709 7710
	Customer Care	011 709 7707
	Sales	011 709 7700
	Fax	011 706 0495
	Switchboard	011 709 7700
Southeast Asian and Pacific Countries	Customer Technical Support, Customer Service, and Sales (Penang, Malaysia)	604 633 4810
Spain (Madrid) International Access Code: **00**	Website: **support.euro.dell.com**	
	E-mail: **support.euro.dell.com/es/es/emaildell/**	
	Home and Small Business	
	Technical Support	902 100 130
	Customer Care	902 118 540
	Sales	902 118 541

Country Code: **34** City Code: **91**	Switchboard	902 118 541
	Fax	902 118 539
	Corporate	
	Technical Support	902 100 130
	Customer Care	902 118 546
	Switchboard	91 722 92 00
	Fax	91 722 95 83
Sweden (Upplands Vasby) International Access Code: **00** Country Code: **46** City Code: **8**	Website: **support.euro.dell.com**	
	E-mail: swe_support@dell.com	
	E-mail Support for Latitude and Inspiron: Swe-nbk_kats@dell.com	
	E-mail Support for OptiPlex: Swe_kats@dell.com	
	E-mail Support for Servers: Nordic_server_support@dell.com	
	Technical Support	08 590 05 199
	Relational Customer Care	08 590 05 642
	Home/Small Business Customer Care	08 587 70 527
	Employee Purchase Program (EPP) Support	20 140 14 44
	Fax Technical Support	08 590 05 594
	Sales	08 590 05 185
Switzerland (Geneva) International Access Code: **00** Country Code: **41** City Code: **22**	Website: **support.euro.dell.com**	
	E-mail: Tech_support_central_Europe@dell.com	
	E-mail for French-speaking HSB and Corporate Customers: **support.euro.dell.com/ch/fr/emaildell/**	
	Technical Support (Home and Small Business)	0844 811 411
	Technical Support (Corporate)	0844 822 844
	Customer Care (Home and Small Business)	0848 802 202
	Customer Care (Corporate)	0848 821 721
	Fax	022 799 01 90
	Switchboard	022 799 01 01
Taiwan International Access Code: **002** Country Code: **886**	Technical Support (portable and desktop computers)	toll-free: 00801 86 1011
	Technical Support (servers)	toll-free: 0080 60 1256
	Transaction Sales	toll-free: 0080 651 228
	Corporate Sales	toll-free: 0080 651 227
Thailand International Access Code: **001** Country Code: **66**	Technical Support	toll-free: 0880 060 07
	Customer Service (Penang, Malaysia)	604 633 4949
	Sales	toll-free: 0880 060 09
Trinidad/Tobago	General Support	1-800-805-8035
Turks and Caicos Islands	General Support	toll-free: 1-866-540-3355
	Website: **support.euro.dell.com**	

	Customer Care website: **support.euro.dell.com/uk/en/ECare/Form/Home.asp**	
U.K. (Bracknell) International Access Code: **00** Country Code: **44** City Code: **1344**	E-mail: dell_direct_support@dell.com	
	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees])	0870 908 0500
	Technical Support (direct/PAD and general)	0870 908 0800
	Global Accounts Customer Care	01344 373 186
	Home and Small Business Customer Care	0870 906 0010
	Corporate Customer Care	01344 373 185
	Preferred Accounts (500–5000 employees) Customer Care	0870 906 0010
	Central Government Customer Care	01344 373 193
	Local Government & Education Customer Care	01344 373 199
	Health Customer Care	01344 373 194
	Home and Small Business Sales	0870 907 4000
	Corporate/Public Sector Sales	01344 860 456
	Home and Small Business Fax	0870 907 4006
Uruguay	General Support	toll-free: 000-413-598-2521
U.S.A. (Austin, Texas) International Access Code: **011** Country Code: **1**	Automated Order-Status Service	toll-free: 1-800-433-9014
	AutoTech (portable and desktop computers)	toll-free: 1-800-247-9362
	Consumer (Home and Home Office)	
	Technical Support	toll-free: 1-800-624-9896
	Customer Service	toll-free: 1-800-624-9897
	DellNet™ Service and Support	toll-free: 1-877-Dellnet (1-877-335-5638)
	Employee Purchase Program (EPP) Customers	toll-free: 1-800-695-8133
	Financial Services website: **www.dellfinancialservices.com**	
	Financial Services (lease/loans)	toll-free: 1-877-577-3355
	Financial Services (Dell Preferred Accounts [DPA])	toll-free: 1-800-283-2210
	Business	
	Customer Service and Technical Support	toll-free: 1-800-822-8965
	Employee Purchase Program (EPP) Customers	toll-free: 1-800-695-8133
	Printers and Projectors Technical Support	toll-free: 1-877-459-7298
	Public (government, education, and healthcare)	
	Customer Service and Technical Support	toll-free: 1-800-456-3355
	Employee Purchase Program (EPP) Customers	toll-free: 1-800-234-1490
	Dell Sales	toll-free: 1-800-289-3355 or toll-free: 1-800-879-3355
	Dell Outlet Store (Dell refurbished computers)	toll-free: 1-888-798-7561
	Software and Peripherals Sales	toll-free: 1-800-671-3355
	Spare Parts Sales	toll-free: 1-800-357-3355
	Extended Service and Warranty Sales	toll-free: 1-800-247-4618

	Fax	toll-free: 1-800-727-8320
	Dell Services for the Deaf, Hard-of-Hearing, or Speech-Impaired	toll-free: 1-877-DELLTTY (1-877-335-5889)
U.S. Virgin Islands	General Support	1-877-673-3355
Venezuela	General Support	8001-3605

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Microsoft® Windows® XP Features

Dell™ OptiPlex™ GX280 Systems User's Guide

- Transferring Information to a New Computer
- User Accounts and Fast User Switching
- Setting Up a Home and Office Network

Transferring Information to a New Computer

The Microsoft Windows XP operating system provides a Files and Settings Transfer wizard to move data from the source computer to the new computer. You can move data such as:

- E-mails
- Toolbar settings
- Window sizes
- Internet bookmarks

You can transfer the data to the new computer over a network or serial connection, or you can store it on a removable medium, such as a writable CD or floppy disk.

To prepare the new computer for the file transfer:

1. Click the **Start** button, point to **All Programs**® **Accessories**® **System Tools**, and then click **Files and Settings Transfer Wizard**.
2. When the **Files and Settings Transfer Wizard** welcome screen appears, click **Next**.
3. On the **Which computer is this?** screen, click **New Computer** and click **Next**.
4. On the **Do you have a Windows XP CD?** screen, click **I will use the wizard from the Windows XP CD** and click **Next**.
5. When the **Now go to your old computer** screen appears, go to your old or source computer. *Do not* click **Next** at this time.

To copy data from the old computer:

1. On the old computer, insert the Windows XP *Operating System* CD.
2. On the **Welcome to Microsoft Windows XP** screen, click **Perform additional tasks**.
3. Under **What do you want to do?**, click **Transfer files and settings**.
4. On the **Files and Settings Transfer Wizard** welcome screen, click **Next**.
5. On the **Which computer is this?** screen, click **Old Computer** and click **Next**.
6. On the **Select a transfer method** screen, click the transfer method you prefer.
7. On the **What do you want to transfer?** screen, select the items you want to transfer and click **Next**.

   After the information has been copied, the **Completing the Collection Phase** screen appears.
8. Click **Finish**.

To transfer data to the new computer:

1. On the **Now go to your old computer** screen on the new computer, click **Next**.
2. On the **Where are the files and settings?** screen, select the method you chose for transferring your settings and files and click **Next**.

   The wizard reads the collected files and settings and applies them to your new computer.

   When all of the settings and files have been applied, the **Finished** screen appears.
3. Click **Finished** and restart the new computer.

User Accounts and Fast User Switching

Adding User Accounts

After the Microsoft Windows XP operating system is installed, the administrator or a user with administrator rights can create additional user accounts.

1. Click the **Start** button and click **Control Panel**.
2. In the **Control Panel** window, click **User Accounts**.
3. Under **Pick a task**, click **Create a new account**.
4. Under **Name the new account**, type the name of the new user and click **Next**.
5. Under **Pick an account type**, click one of the following options:
   - **Computer administrator** — You can change all computer settings.
   - **Limited** — You can change only your own personal settings, such as your password. You cannot install programs or use the Internet.

NOTE: Additional options may be available, depending on whether you are using Windows XP Home Edition or Windows XP Professional. Also, options available in Windows XP Professional vary depending on whether your computer is connected to a domain.

6. Click **Create Account**.

Fast User Switching

NOTE: Fast User Switching is unavailable if your computer is running Windows XP Professional and is a member of a computer domain, or if your computer has less than 128 MB of memory.

Fast User Switching allows multiple users to access one computer without requiring the previous user to log off.

1. Click the **Start** button and click **Log Off**.
2. In the **Log Off Windows** window, click **Switch User**.

When you use Fast User Switching, programs that previous users were using remain running in the background, which might decrease your computer's response time. Also, multimedia programs, such as games and DVD software, might not work with Fast User Switching. For more information, see the Windows Help and Support Center.

Setting Up a Home and Office Network

Connecting to a Network Adapter

Before you connect your computer to a network, the computer must have a network adapter installed and a network cable connected to it.

To connect a network cable:

NOTE: Insert the cable until it clicks into place, and then gently pull it to ensure that it is secure.

1. Connect the network cable to the network adapter connector on the back of your computer.

NOTE: Do not use a network cable with a telephone wall jack.

2. Connect the other end of the network cable to a network connection device, such as a network wall jack.

Network Setup Wizard

The Microsoft Windows XP operating system provides a Network Setup Wizard to guide you through the process of sharing files, printers, or an Internet connection between computers in a home or small office.

1. Click the **Start** button, point to **All Programs**® **Accessories**® **Communications**, and then click **Network Setup Wizard**.
2. On the welcome screen, click **Next**.
3. Click **Checklist for creating a network**.

NOTE: Selecting the connection method **This computer connects directly to the Internet** enables the integrated firewall provided with Windows XP SP1.

4. Complete the checklist and required preparations.
5. Return to the Network Setup Wizard and follow the instructions on the screen.

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Glossary

Dell™ OptiPlex™ GX280 Systems User's Guide

Terms in this Glossary are provided for informational purposes only and may or may not describe features included with your particular computer.

A

AC — alternating current — The form of electricity that powers your computer when you plug the AC adapter power cable in to an electrical outlet.

ACPI — advanced configuration and power interface — A power management specification that enables Microsoft® Windows® operating systems to put a computer in standby or hibernate mode to conserve the amount of electrical power allocated to each device attached to the computer.

AGP — accelerated graphics port — A dedicated graphics port that allows system memory to be used for video-related tasks. AGP delivers a smooth, true-color video image because of the faster interface between the video circuitry and the computer memory.

antivirus software — A program designed to identify, quarantine, and/or delete viruses from your computer.

APR — advanced port replicator — A docking device that allows you to conveniently use a monitor, keyboard, mouse, and other devices with your portable computer.

ASF — alert standards format — A standard to define a mechanism for reporting hardware and software alerts to a management console. ASF is designed to be platform- and operating system-independent.

B

backup — A copy of a program or data file on a floppy disk, CD, or hard drive. As a precaution, back up the data files from your hard drive regularly.

battery — An internal power source used to operate portable computers when not connected to an AC adapter and an electrical outlet.

battery life span — The length of time (years) during which a portable computer battery is able to be depleted and recharged.

battery operating time — The length of time (minutes or hours) that a portable computer battery holds a charge while powering the computer.

BIOS — basic input/output system — A program (or utility) that serves as an interface between the computer hardware and the operating system. Unless you understand what effect the settings have on the computer, do not change the settings for this program. Also referred to as *system setup*.

bit — The smallest unit of data interpreted by your computer.

Bluetooth™ — A wireless technology standard for short-range (9 m [29 feet]) networking devices that allows for enabled

devices to automatically recognize each other.

boot sequence — Specifies the order of the devices from which the computer attempts to boot.

bootable CD — A CD that you can use to start your computer. In case your hard drive is damaged or your computer has a virus, ensure that you always have a bootable CD or floppy disk available. Your *Drivers and Utilities* or Resource CD is a bootable CD.

bootable disk — A disk that you can use to start your computer. In case your hard drive is damaged or your computer has a virus, ensure that you always have a bootable CD or floppy disk available.

bps — bits per second — The standard unit for measuring data transmission speed.

BTU — British thermal unit — A measurement of heat output.

bus — A communication pathway between the components in your computer.

bus speed — The speed, given in MHz, that indicates how fast a bus can transfer information.

byte — The basic data unit used by your computer. A byte is usually equal to 8 bits.

C

C — Celsius — A temperature measurement system where 0° is the freezing point and 100° is the boiling point of water.

cache — A special high-speed storage mechanism which can be either a reserved section of main memory or an independent high-speed storage device. The cache enhances the efficiency of many processor operations.

L1 cache — Primary cache stored inside the processor.

L2 cache — Secondary cache which can either be external to the processor or incorporated into the processor architecture.

carnet — An international customs document that facilitates temporary imports into foreign countries. Also known as a *merchandise passport*.

CD — compact disc — An optical form of storage media, typically used for audio and software programs.

CD drive — A drive that uses optical technology to read data from CDs.

CD player — The software used to play music CDs. The CD player displays a window with buttons that you use to play a CD.

CD-R — CD recordable — A recordable version of a CD. Data can be recorded only once onto a CD-R. Once recorded, the data cannot be erased or written over.

CD-RW — CD rewritable — A rewritable version of a CD. Data can be written to a CD-RW disc, and then erased and written over (rewritten).

CD-RW drive — A drive that can read CDs and write to CD-RW (rewritable CDs) and CD-R (recordable CDs) discs. You can write to CD-RW discs multiple times, but you can write to CD-R discs only once.

CD-RW/DVD drive — A drive, sometimes referred to as a combo drive, that can read CDs and DVDs and write to CD-RW (rewritable CDs) and CD-R (recordable CDs) discs. You can write to CD-RW discs multiple times, but you can write to CD-R discs only once.

clock speed — The speed, given in MHz, that indicates how fast computer components that are connected to the system bus operate.

COA — Certificate of Authenticity — The Windows alpha-numeric code located on a sticker on your computer. You may need the COA to complete the operating system setup or reinstallation. Also referred to as the *Product Key* or *Product ID*.

Control Panel — A Windows utility that allows you to modify operating system and hardware settings, such as display settings.

controller — A chip that controls the transfer of data between the processor and memory or between the processor and devices.

CRIMM — continuity rambus in-line memory module — A special module that has no memory chips and is used to fill unused RIMM slots.

cursor — The marker on a display or screen that shows where the next keyboard, touch pad, or mouse action will occur. It often is a blinking solid line, an underline character, or a small arrow.

D

DDR SDRAM — double-data-rate SDRAM — A type of SDRAM that doubles the data burst cycle, improving system performance.

device — Hardware such as a disk drive, printer, or keyboard that is installed in or connected to your computer.

device driver — See *driver*.

DIN connector — A round, six-pin connector that conforms to DIN (Deutsche Industrie-Norm) standards; it is typically used to connect PS/2 keyboard or mouse cable connectors.

disk striping — A technique for spreading data over multiple disk drives. Disk striping can speed up operations that retrieve data from disk storage. Computers that use disk striping generally allow the user to select the data unit size or stripe width.

DMA — direct memory access — A channel that allows certain types of data transfer between RAM and a device to bypass the processor.

docking device — See *APR*.

DMTF — Distributed Management Task Force — A consortium of hardware and software companies who develop management standards for distributed desktop, network, enterprise, and Internet environments.

domain — A group of computers, programs, and devices on a network that are administered as a unit with common rules and procedures for use by a specific group of users. A user logs on to the domain to gain access to the resources.

DRAM — dynamic random-access memory — Memory that stores information in integrated circuits containing capacitors.

driver — Software that allows the operating system to control a device such as a printer. Many devices do not work properly if the correct driver is not installed in the computer.

DSL — Digital Subscriber Line — A technology that provides a constant, high-speed Internet connection through an analog telephone line.

dual display mode — A display setting that allows you to use a second monitor as an extension of your display. Also referred to as *extended display mode*.

DVD — digital versatile disc — A disc usually used to store movies. DVDs are double-sided, whereas CDs are single-sided. DVD drives read most CD media as well.

DVD drive — A drive that uses optical technology to read data from DVDs and CDs.

DVD player — The software used to watch DVD movies. The DVD player displays a window with buttons that you use to watch a movie.

DVD+RW — DVD rewritable — A rewritable version of a DVD. Data can be written to a DVD+RW disc, and then erased and written over (rewritten). (DVD+RW technology is different from DVD-RW technology.)

DVD+RW drive — A drive that can read DVDs and most CD media and write to DVD+RW (rewritable DVDs) discs.

DVI — digital video interface — A standard for digital transmission between a computer and a digital video display; the DVI adapter works through the computer's integrated graphics.

E

ECC — error checking and correction — A type of memory that includes special circuitry for testing the accuracy of data as it passes in and out of memory.

ECP — extended capabilities port — A parallel connector design that provides improved bidirectional data transmission. Similar to EPP, ECP uses direct memory access to transfer data and often improves performance.

EIDE — enhanced integrated device electronics — An improved version of the IDE interface for hard drives and CD drives.

EMI — electromagnetic interference — Electrical interference caused by electromagnetic radiation.

ENERGY STAR® — Environmental Protection Agency requirements that decrease the overall consumption of electricity.

EPP — enhanced parallel port — A parallel connector design that provides bidirectional data transmission.

ESD — electrostatic discharge — A rapid discharge of static electricity. ESD can damage integrated circuits found in computer and communications equipment.

expansion card — A circuit board that installs in an expansion slot on the system board in some computers, expanding the capabilities of the computer. Examples include video, modem, and sound cards.

expansion slot — A connector on the system board (in some computers) where you insert an expansion card, connecting it to the system bus.

Express Service Code — A numeric code located on a sticker on your Dell™ computer. Use the Express Service Code when contacting Dell for assistance. Express Service Code service may not be available in some countries.

extended display mode — A display setting that allows you to use a second monitor as an extension of your display. Also referred to as *dual display mode*.

extended PC Card — A PC Card that extends beyond the edge of the PC Card slot when installed.

F

Fahrenheit — A temperature measurement system where 32° is the freezing point and 212° is the boiling point of water.

FCC — Federal Communications Commission — A U.S. agency responsible for enforcing communications-related regulations that state how much radiation computers and other electronic equipment can emit.

floppy drive — A disk drive that can read and write to floppy disks.

folder — A term used to describe space on a disk or drive where files are organized and grouped. Files in a folder can be viewed and ordered in various ways, such as alphabetically, by date, and by size.

format — The process that prepares a drive or disk for file storage. When a drive or disk is formatted, the existing information on it is lost.

FSB — front side bus — The data path and physical interface between the processor and RAM.

FTP — file transfer protocol — A standard Internet protocol used to exchange files between computers connected to the Internet.

G

G — gravity — A measurement of weight and force.

GB — gigabyte — A measurement of data storage that equals 1024 MB (1,073,741,824 bytes). When used to refer to hard drive storage, the term is often rounded to 1,000,000,000 bytes.

GHz — gigahertz — A measurement of frequency that equals one thousand million Hz, or one thousand MHz. The speeds for computer processors, buses, and interfaces are often measured in GHz.

graphics mode — A video mode that can be defined as *x* horizontal pixels by *y* vertical pixels by *z* colors. Graphics modes can display an unlimited variety of shapes and fonts.

GUI — graphical user interface — Software that interacts with the user by means of menus, windows, and icons. Most programs that operate on the Windows operating systems are GUIs.

H

hard drive — A drive that reads and writes data on a hard disk. The terms hard drive and hard disk are often used interchangeably.

heat sink — A metal plate on some processors that helps dissipate heat.

help file — A file that contains descriptive or instructional information about a product. Some help files are associated with a particular program, such as *Help* in Microsoft Word. Other help files function as stand-alone reference sources. Help files typically have a filename extension of **.hlp** or **.chm**.

hibernate mode — A power management mode that saves everything in memory to a reserved space on the hard drive and then turns off the computer. When you restart the computer, the memory information that was saved to the hard drive is automatically restored.

HTML — hypertext markup language — A set of codes inserted into an Internet web page intended for display on an Internet browser.

HTTP — hypertext transfer protocol — A protocol for exchanging files between computers connected to the Internet.

Hz — hertz — A unit of frequency measurement that equals 1 cycle per second. Computers and electronic devices are often measured in kilohertz (kHz), megahertz (MHz), gigahertz (GHz), or terahertz (THz).

I

IC — Industry Canada — The Canadian regulatory body responsible for regulating emissions from electronic equipment, much as the FCC does in the United States.

IC — integrated circuit — A semiconductor wafer, or chip, on which thousands or millions of tiny electronic components are fabricated for use in computer, audio, and video equipment.

IDE — integrated device electronics — An interface for mass storage devices in which the controller is integrated into the hard drive or CD drive.

infrared sensor — A port that allows you to transfer data between the computer and infrared-compatible devices without using a cable connection.

integrated — Usually refers to components that are physically located on the computer's system board. Also referred to as *built-in*.

I/O — input/output — An operation or device that enters and extracts data from your computer. Keyboards and printers are I/O devices.

I/O address — An address in RAM that is associated with a specific device (such as a serial connector, parallel connector, or expansion slot) and allows the processor to communicate with that device.

IrDA — Infrared Data Association — The organization that creates international standards for infrared communications.

IRQ — interrupt request — An electronic pathway assigned to a specific device so that the device can communicate with the processor. Each device connection must be assigned an IRQ. Although two devices can share the same IRQ assignment, you cannot operate both devices simultaneously.

ISP — Internet service provider — A company that allows you to access its host server to connect directly to the Internet, send and receive e-mail, and access websites. The ISP typically provides you with a software package, user name, and access phone numbers for a fee.

K

Kb — kilobit — A unit of data that equals 1024 bits. A measurement of the capacity of memory integrated circuits.

KB — kilobyte — A unit of data that equals 1024 bytes but is often referred to as 1000 bytes.

key combination —

A command requiring you to press multiple keys at the same time.

kHz — kilohertz — A measurement of frequency that equals 1000 Hz.

L

LAN — local area network — A computer network covering a small area. A LAN usually is confined to a building or a few nearby buildings. A LAN can be connected to another LAN over any distance through telephone lines and radio waves to form a wide area network (WAN).

LCD — liquid crystal display — The technology used by portable computer and flat-panel displays.

LED — light-emitting diode — An electronic component that emits light to indicate the status of the computer.

local bus — A data bus that provides a fast throughput for devices to the processor.

LPT — line print terminal — The designation for a parallel connection to a printer or other parallel device.

M

Mb — megabit — A measurement of memory chip capacity that equals 1024 Kb.

Mbps — megabits per second — One million bits per second. This measurement is typically used for transmission speeds for networks and modems.

MB — megabyte — A measurement of data storage that equals 1,048,576 bytes. 1 MB equals 1024 KB. When used to refer to hard drive storage, the term is often rounded to 1,000,000 bytes.

MB/sec — megabytes per second — One million bytes per second. This measurement is typically used for data transfer ratings.

memory — A temporary data storage area inside your computer. Because the data in memory is not permanent, it is recommended that you frequently save your files while you are working on them, and always save your files before you shut down the computer. Your computer can contain several different forms of memory, such as RAM, ROM, and video memory. Frequently, the word memory is used as a synonym for RAM.

memory address — A specific location where data is temporarily stored in RAM.

memory mapping — The process by which the computer assigns memory addresses to physical locations at start-up. Devices and software can then identify information that the processor can access.

memory module — A small circuit board containing memory chips, which connects to the system board.

MHz — megahertz — A measure of frequency that equals 1 million cycles per second. The speeds for computer processors, buses, and interfaces are often measured in MHz.

modem — A device that allows your computer to communicate with other computers over analog telephone lines. Three types of modems include: external, PC Card, and internal. You typically use your modem to connect to the Internet and exchange e-mail.

module bay — A bay that supports devices such as optical drives, a second battery, or a Dell TravelLite™ module.

monitor — The high-resolution TV-like device that displays computer output.

mouse — A pointing device that controls the movement of the cursor on your screen. Typically you roll the mouse over a hard, flat surface to move the pointer or cursor on your screen.

ms — millisecond — A measure of time that equals one thousandth of a second. Access times of storage devices are often measured in ms.

N

network adapter — A chip that provides network capabilities. A computer may include a network adapter on its system board, or it may contain a PC Card with an adapter on it. A network adapter is also referred to as a *NIC* (network interface controller).

NIC — See *network adapter*.

notification area — The section of the Windows taskbar that contains icons for providing quick access to programs and computer functions, such as the clock, volume control, and print status. Also referred to as *system tray*.

ns — nanosecond — A measure of time that equals one billionth of a second.

NVRAM — nonvolatile random access memory — A type of memory that stores data when the computer is turned off or loses its external power source. NVRAM is used for maintaining computer configuration information such as date, time, and other system setup options that you can set.

O

optical drive — A drive that uses optical technology to read or write data from CDs, DVDs, or DVD+RWs. Example of optical drives include CD drives, DVD drives, CD-RW drives, and CD-RW/DVD combo drives.

P

parallel connector — An I/O port often used to connect a parallel printer to your computer. Also referred to as an *LPT port*.

partition — A physical storage area on a hard drive that is assigned to one or more logical storage areas known as logical drives. Each partition can contain multiple logical drives.

PC Card — A removable I/O card adhering to the PCMCIA standard. Modems and network adapters are common types of PC Cards.

PCI — peripheral component interconnect — PCI is a local bus that supports 32-and 64-bit data paths, providing a high-speed data path between the processor and devices such as video, drives, and networks.

PCMCIA — Personal Computer Memory Card International Association — The organization that establishes standards for PC Cards.

PIN — personal identification number — A sequence of numerals and/or letters used to restrict unauthorized access to computer networks and other secure systems.

PIO — programmed input/output — A method of transferring data between two devices through the processor as part of the data path.

pixel — A single point on a display screen. Pixels are arranged in rows and columns to create an image. A video resolution, such as 800 x 600, is expressed as the number of pixels across by the number of pixels up and down.

Plug-and-Play — The ability of the computer to automatically configure devices. Plug and Play provides automatic installation, configuration, and compatibility with existing hardware if the BIOS, operating system, and all devices are Plug and Play compliant.

POST — power-on self-test — Diagnostics programs, loaded automatically by the BIOS, that perform basic tests on the major computer components, such as memory, hard drives, and video. If no problems are detected during POST, the computer continues the start-up.

processor —

A computer chip that interprets and executes program instructions. Sometimes the processor is referred to as the CPU (central processing unit).

program — Any software that processes data for you, including spreadsheet, word processor, database, and game packages. Programs require an operating system to run.

PS/2 — personal system/2 — A type of connector for attaching a PS/2-compatible keyboard, mouse, or keypad.

PXE — pre-boot execution environment — A WfM (Wired for Management) standard that allows networked computers that do not have an operating system to be configured and started remotely.

R

RAID — redundant array of independent disks — A method of providing data redundancy. Some common implementations of RAID include RAID 0, RAID 1, RAID 5, RAID 10, and RAID 50.

RAM — random-access memory — The primary temporary storage area for program instructions and data. Any information stored in RAM is lost when you shut down your computer.

readme file — A text file included with a software package or hardware product. Typically, readme files provide installation information and describe new product enhancements or corrections that have not yet been documented.

read-Only — Data and/or files you can view but cannot edit or delete. A file can have read-only status if:

- It resides on a physically write-protected floppy disk, CD, or DVD.
- It is located on a network in a directory and the system administrator has assigned rights only to specific individuals.

refresh rate — The frequency, measured in Hz, at which your screen's horizontal lines are recharged (sometimes also referred to as its *vertical frequency*). The higher the refresh rate, the less video flicker can be seen by the human eye.

resolution — The sharpness and clarity of an image produced by a printer or displayed on a monitor. The higher the resolution, the sharper the image.

RFI — radio frequency interference — Interference that is generated at typical radio frequencies, in the range of 10 kHz to 100,000 MHz. Radio frequencies are at the lower end of the electromagnetic frequency spectrum and are more likely to have interference than the higher frequency radiations, such as infrared and light.

ROM — read-only memory — Memory that stores data and programs that cannot be deleted or written to by the computer. ROM, unlike RAM, retains its contents after you shut down your computer. Some programs essential to the operation of your computer reside in ROM.

RPM — revolutions per minute — The number of rotations that occur per minute. Hard drive speed is often measured in rpm.

RTC — real time clock — Battery-powered clock on the system board that keeps the date and time after you shut down the computer.

RTCRST — real-time clock reset — A jumper on the system board of some computers that can often be used for troubleshooting problems.

S

ScanDisk — A Microsoft utility that checks files, folders, and the hard disk's surface for errors. ScanDisk often runs when you restart the computer after it has stopped responding.

SDRAM — synchronous dynamic random-access memory — A type of DRAM that is synchronized with the optimal clock speed of the processor.

serial connector — An I/O port often used to connect devices such as a handheld digital device or digital camera to your computer.

Service Tag — A bar code label on your computer that identifies your computer when you access Dell Support at **support.dell.com** or when you call Dell for customer service or technical support.

setup program — A program that is used to install and configure hardware and software. The **setup.exe** or **install.exe** program comes with most Windows software packages. *Setup program* differs from *system setup*.

shortcut — An icon that provides quick access to frequently used programs, files, folders, and drives. When you place a shortcut on your Windows desktop and double-click the icon, you can open its corresponding folder or file without having to find it first. Shortcut icons do not change the location of files. If you delete a shortcut, the original file is not affected. Also, you can rename a shortcut icon.

shutdown — The process of closing windows and exiting programs, exiting the operating system, and turning off your computer. You can lose data if you turn off your computer before completing a shutdown.

smart card — A card that is embedded with a processor and a memory chip. Smart cards can be used to authenticate a user on computers equipped for smart cards.

software — Anything that can be stored electronically, such as computer files or programs.

S/PDIF — Sony/Philips Digital Interface — An audio transfer file format that allows the transfer of audio from one file to another without converting it to and from an analog format, which could degrade the quality of the file.

standby mode — A power management mode that shuts down all unnecessary computer operations to save energy.

surge protectors — Prevent voltage spikes, such as those that may occur during an electrical storm, from entering the computer through the electrical outlet. Surge protectors do not protect against lightning strikes or against brownouts, which occur when the voltage drops more than 20 percent below the normal AC-line voltage level.

Network connections cannot be protected by surge protectors. Always disconnect the network cable from the network connector during electrical storms.

SVGA — super-video graphics array — A video standard for video cards and controllers. Typical SVGA resolutions are 800 x 600 and 1024 x 768.

The number of colors and resolution that a program displays depends on the capabilities of the monitor, the video controller and its drivers, and the amount of video memory installed in the computer.

S-video TV-out — A connector used to attach a TV or digital audio device to the computer.

SXGA — super-extended graphics array — A video standard for video cards and controllers that supports resolutions up to 1280 x 1024.

SXGA+ — super-extended graphics array plus — A video standard for video cards and controllers that supports resolutions up to 1400 x 1050.

system board — The main circuit board in your computer. Also known as the *motherboard*.

system setup — A utility that serves as an interface between the computer hardware and the operating system. System setup allows you to configure user-selectable options in the BIOS, such as date and time or system password. Unless you understand what effect the settings have on the computer, do not change the settings for this program.

system tray — See *notification area*.

T

TAPI — telephony application programming interface — Enables Windows programs to operate with a wide variety of telephony devices, including voice, data, fax, and video.

text editor — A program used to create and edit files that contain only text; for example, Windows Notepad uses a text editor. Text editors do not usually provide word wrap or formatting functionality (the option to underline, change fonts, and so on).

travel module — A plastic device designed to fit inside the module bay of a portable computer to reduce the weight of the computer.

U

UPS — uninterruptible power supply — A backup power source used when the electrical power fails or drops to an unacceptable voltage level. A UPS keeps a computer running for a limited amount of time when there is no electrical power. UPS systems typically provide surge suppression and may also provide voltage regulation. Small UPS systems provide battery power for a few minutes to enable you to shut down your computer.

USB — universal serial bus — A hardware interface for a low-speed device such as a USB-compatible keyboard, mouse, joystick, scanner, set of speakers, printer, broadband devices (DSL and cable modems), imaging devices, or storage devices. Devices are plugged directly in to a 4-pin socket on your computer or in to a multi-port hub that plugs in to your computer. USB devices can be connected and disconnected while the computer is turned on, and they can also be daisy-chained together.

UTP — unshielded twisted pair — Describes a type of cable used in most telephone networks and some computer networks. Pairs of unshielded wires are twisted to protect against electromagnetic interference, rather than relying on a metal sheath around each pair of wires to protect against interference.

UXGA — ultra extended graphics array — A video standard for video cards and controllers that supports resolutions up to 1600 x 1200.

V

video controller — The circuitry on a video card or on the system board (in computers with an integrated video controller) that provides the video capabilities—in combination with the monitor—for your computer.

video memory — Memory that consists of memory chips dedicated to video functions. Video memory is usually faster than system memory. The amount of video memory installed primarily influences the number of colors that a program can display.

video mode — A mode that describes how text and graphics are displayed on a monitor. Graphics-based software, such as Windows operating systems, displays in video modes that can be defined as *x* horizontal pixels by *y* vertical pixels by *z* colors. Character-based software, such as text editors, displays in video modes that can be defined as *x* columns by *y* rows of characters.

video resolution — See *resolution*.

virus — A program that is designed to inconvenience you or to destroy data stored on your computer. A virus program moves from one computer to another through an infected disk, software downloaded from the Internet, or e-mail attachments. When an infected program starts, its embedded virus also starts.

A common type of virus is a boot virus, which is stored in the boot sectors of a floppy disk. If the floppy disk is left in the drive when the computer is shut down and then turned on, the computer is infected when it reads the boot sectors of the floppy disk expecting to find the operating system. If the computer is infected, the boot virus may replicate itself onto all the floppy disks that are read or written in that computer until the virus is eradicated.

V — volt — The measurement of electric potential or electromotive force. One V appears across a resistance of 1 ohm when a current of 1 ampere flows through that resistance.

W

W — watt — The measurement of electrical power. One W is 1 ampere of current flowing at 1 volt.

WHr — watt-hour — A unit of measure commonly used to indicate the approximate capacity of a battery. For example, a 66-WHr battery can supply 66 W of power for 1 hour or 33 W for 2 hours.

wallpaper — The background pattern or picture on the Windows desktop. Change your wallpaper through the Windows Control Panel. You can also scan in your favorite picture and make it wallpaper.

write-protected — Files or media that cannot be changed. Use write-protection when you want to protect data from being changed or destroyed. To write-protect a 3.5-inch floppy disk, slide its write-protect tab to the open position.

X

XGA — extended graphics array — A video standard for video cards and controllers that supports resolutions up to 1024 x 768.

Z

ZIF — zero insertion force — A type of socket or connector that allows a computer chip to be installed or removed with no stress applied to either the chip or its socket.

Zip — A popular data compression format. Files that have been compressed with the Zip format are called Zip files and usually have a filename extension of **.zip**. A special kind of zipped file is a self-extracting file, which has a filename extension of **.exe**. You can unzip a self-extracting file by double-clicking it.

Zip drive — A high-capacity floppy drive developed by Iomega Corporation that uses 3.5-inch removable disks called Zip disks. Zip disks are slightly larger than regular floppy disks, about twice as thick, and hold up to 100 MB of data.

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Warranty

Dell™ OptiPlex™ GX280 Systems User's Guide

Dell Inc. ("Dell") manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry-standard practices. For information about the Dell warranty for your computer, see the *Product Information Guide* or separate paper warranty document that shipped with your computer.

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FCC Notices (U.S. Only)

Dell™ OptiPlex™ GX280 Systems User's Guide

Electromagnetic Interference (EMI) is any signal or emission, radiated in free space or conducted along power or signal leads, that endangers the functioning of a radio navigation or other safety service or seriously degrades, obstructs, or repeatedly interrupts a licensed radio communications service. Radio communications services include but are not limited to AM/FM commercial broadcast, television, cellular services, radar, air-traffic control, pager, and Personal Communication Services (PCS). These licensed services, along with unintentional radiators such as digital devices, including computer systems, contribute to the electromagnetic environment.

Electromagnetic Compatibility (EMC) is the ability of items of electronic equipment to function properly together in the electronic environment. While this computer system has been designed and determined to be compliant with regulatory agency limits for EMI, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference with radio communications services, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the computer with respect to the receiver.
- Move the computer away from the receiver.
- Plug the computer into a different outlet so that the computer and the receiver are on different branch circuits.

If necessary, consult a Dell Technical Support representative or an experienced radio/television technician for additional suggestions.

For additional regulatory information, see the *Product Information Guide* that came with your computer.

Dell™ computer systems are designed, tested, and classified for their intended electromagnetic environment. These electromagnetic environment classifications generally refer to the following harmonized definitions:

- Class A is typically for business or industrial environments.
- Class B is typically for residential environments.

Information Technology Equipment (ITE), including peripherals, expansion cards, printers, input/output (I/O) devices, monitors, and so on, that are integrated into or connected to the system should match the electromagnetic environment classification of the computer system.

A Notice About Shielded Signal Cables: Use only shielded cables for connecting peripherals to any Dell device to reduce the possibility of interference with radio communications services. Using shielded cables ensures that you maintain the appropriate EMC classification for the intended environment. For parallel printers, a cable is available from Dell. If you prefer, you can order a cable from Dell on the World Wide Web at accessories.us.dell.com/sna/category.asp?category_id=4117.

Most Dell computer systems are classified for Class B environments. However, the inclusion of certain options can change the rating of some configurations to Class A. To determine the electromagnetic classification for your system or device, see the following sections specific for each regulatory agency. Each section provides country-specific EMC/EMI or product safety information.

FCC Notices (U.S. Only)

Most Dell computer systems are classified by the Federal Communications Commission (FCC) as Class B digital devices. To determine which classification applies to your computer system, examine all FCC registration labels located on the bottom, side, or back panel of your computer, on card-mounting brackets, and on the cards themselves. If any one of the labels carries a Class A rating, your entire system is considered to be a Class A digital device. If *all* labels carry an FCC Class B rating as distinguished by either an FCC ID number or the FCC logo, (FC), your system is considered to be a Class B digital device.

Once you have determined your system's FCC classification, read the appropriate FCC notice. Note that FCC regulations provide that changes or modifications not expressly approved by Dell could void your authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

Class A

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

Class B

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

FCC Identification Information

The following information is provided on the device or devices covered in this document in compliance with FCC regulations:

- Model numbers: DHP, DHS, DCNE, DHM, DCSM
- Company name:

  Dell Inc.
  One Dell Way
  Round Rock, Texas 78682 USA
  512-338-4400

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Dell™ OptiPlex™ GX280 Systems User's Guide

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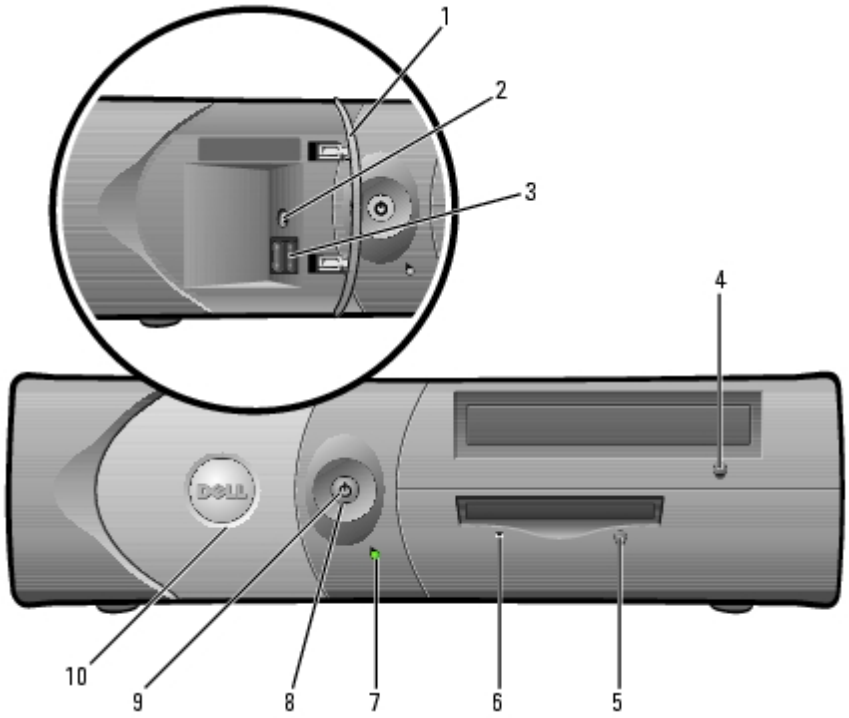
- Attaching and Removing the Computer Stand

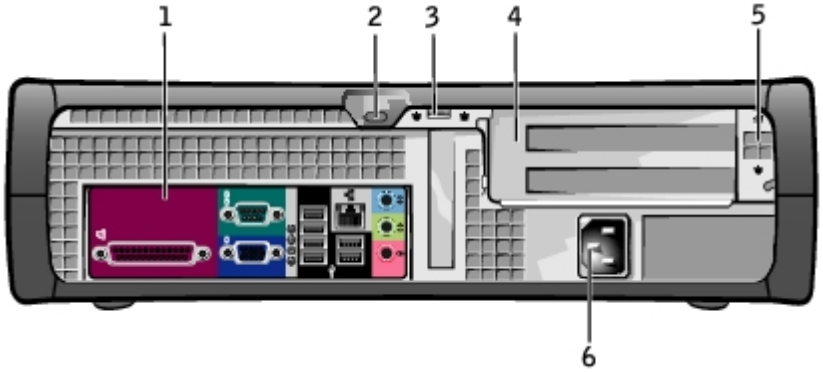
Front View



1	front-panel door	Open the door to use the front-panel connectors.
2	headphone connector	Use the headphone connector to attach headphones and most kinds of speakers.
3	USB 2.0 connectors (2)	Use the front USB connectors for devices that you connect occasionally, such as joysticks or cameras, or for bootable USB devices (see "System Setup" for more information about booting to a USB device). It is recommended that you use the back USB connectors for devices that typically remain connected, such as printers and keyboards.
4	CD/DVD drive eject button	Press to eject a CD or DVD from the drive.
5	floppy-drive eject button	Press to eject a floppy disk from the floppy drive.
6	floppy-drive	The floppy drive light is on when the computer reads data from or writes data to the floppy drive. Wait until this light turns off before you remove the floppy

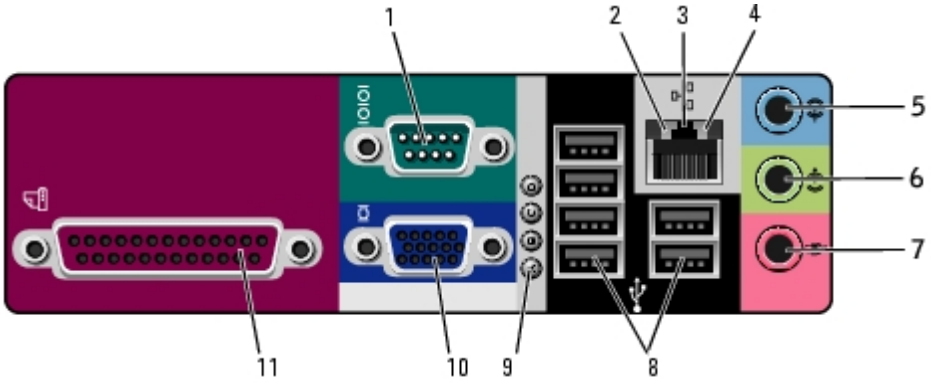
	activity light	disk from the drive.
7	hard-drive activity light	The hard drive light is on when the computer reads data from or writes data to the hard drive. The light might also be on when a device such as your CD player is operating.
8	power button	Press to turn on the computer. **NOTICE:** To avoid losing data, do not turn off the computer by pressing the power button for 6 seconds or longer. Instead, perform an operating system shutdown. **NOTICE:** If your operating system has ACPI enabled, when you press the power button the computer will perform an operating system shutdown.
9	power light	The power light illuminates and blinks or remains solid to indicate different states: ◦ No light — The computer is turned off. (S4, S5, or mechanical OFF) ◦ Steady green — The computer is in a normal operating state. ◦ Blinking green — The computer is in a power-saving state. (S1 or S3) ◦ Blinking or solid amber — See "Power Problems." To exit from a power-saving state, press the power button or use the keyboard or the mouse if it is configured as a wake device in the Windows Device Manager. For more information about sleep states and exiting from a power-saving state, see "Power Management." See "Diagnostic Lights" for a description of light codes that can help you troubleshoot problems with your computer.
10	front-panel door	Open the door to use the front-panel connectors.

Back View



1	back panel connectors	Plug serial, USB, and other devices into the appropriate connector.
2	security cable slot	Use a security cable with the slot to help secure your computer.
3	padlock ring	Insert a padlock to lock the computer cover.
4	card slots	Access connectors for any installed PCI and PCI Express cards.
5	voltage selection switch (may not be	Your computer is equipped with either an auto-sensing voltage selector or a manual voltage selection switch. Computers with an auto-sensing voltage selector do not have a voltage selection switch on the back panel

	available on all computers)	and can automatically detect the correct operating voltage. 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. **NOTICE:** 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.
6	power connector	Insert the power cable.



1	serial connector	Connect a serial device, such as a handheld device, to the serial port. The default designations are COM1 for serial connector 1 and COM2 for serial connector 2. For more information, see "System Setup Options."
2	link integrity light	• Green — A good connection exists between a 10-Mbps network and the computer. • Orange — A good connection exists between a 100-Mbps network and the computer. • Yellow — A good connection exists between a 1-Gbps (or 1000-Mbps) network and the computer. • Off — The computer is not detecting a physical connection to the network.
3	network adapter connector	To attach your computer to a network or broadband device, connect one end of a network cable to either a network jack or your network or broadband device. Connect the other end of the network cable to the network adapter connector on the back panel of your computer. A click indicates that the network cable has been securely attached. **NOTE:** Do not plug a telephone cable into the network connector. On computers with a network connector card, use the connector on the card. It is recommended that you use Category 5 wiring and connectors for your network. If you must use Category 3 wiring, force the network speed to 10 Mbps to ensure reliable operation.
4	network activity light	Flashes a yellow light when the computer is transmitting or receiving network data. A high volume of network traffic may make this light appear to be in a steady "on" state.
5	line-in connector	Use the blue line-in connector (available on computers with integrated sound) to attach a record/playback device such as a cassette player, CD player, or VCR. On computers with a sound card, use the connector on the card.

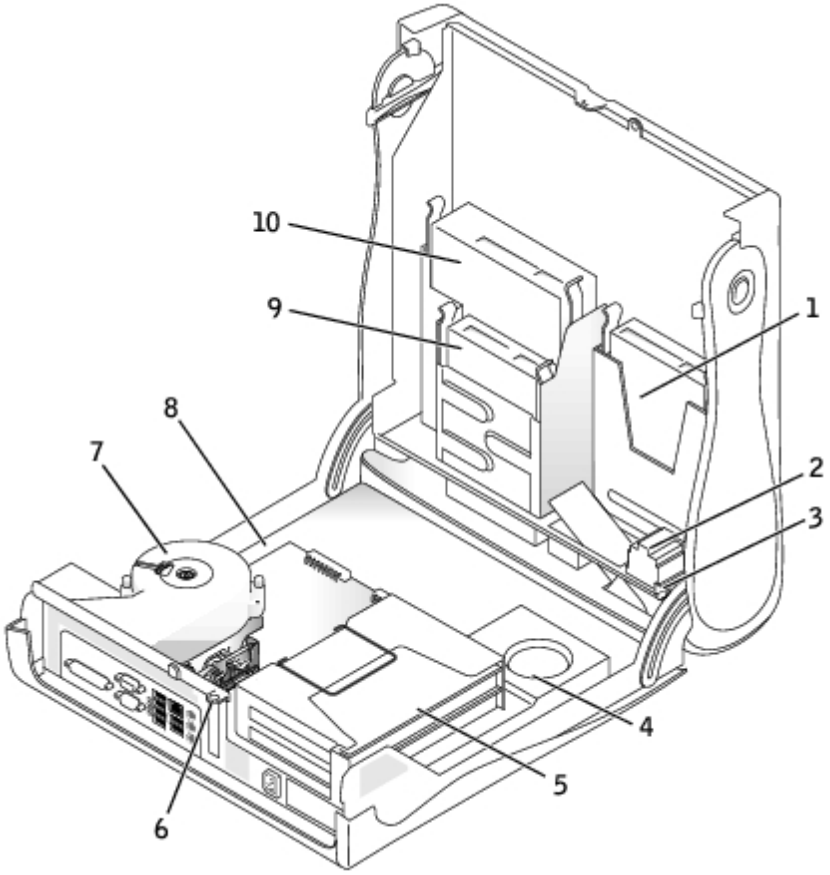
6	line-out connector	Use the green line-out connector (available on computers with integrated sound) to attach headphones and most speakers with integrated amplifiers. On computers with a sound card, use the connector on the card.
7	microphone connector	Use the pink microphone connector (available on computers with integrated sound) to attach a personal computer microphone for voice or musical input into a sound or telephony program. On computers with a sound card, the microphone connector is on the card.
8	USB 2.0 connectors (6)	Use the back USB connectors for devices that typically remain connected, such as printers and keyboards. It is recommended that you use the front USB connectors for devices that you connect occasionally, such as joysticks or cameras, or for bootable USB devices.
9	diagnostic lights	Use the lights to help you troubleshoot a computer problem based on the diagnostic code. For more information, see "Diagnostic Lights."
10	video connector	Plug the cable from your VGA-compatible monitor into the blue connector. **NOTE:** If you purchased an optional graphics card, this connector will be covered by a cap. Connect your monitor to the connector on the graphics card. Do not remove the cap. **NOTE:** If you are using a graphics card that supports dual monitors, use the y-cable that came with your computer.
11	parallel connector	Connect a parallel device, such as a printer, to the parallel connector. If you have a USB printer, plug it into a USB connector. **NOTE:** The integrated parallel connector is automatically disabled if the computer detects an installed card containing a parallel connector configured to the same address. For more information, see "System Setup Options."

Inside Your Computer

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

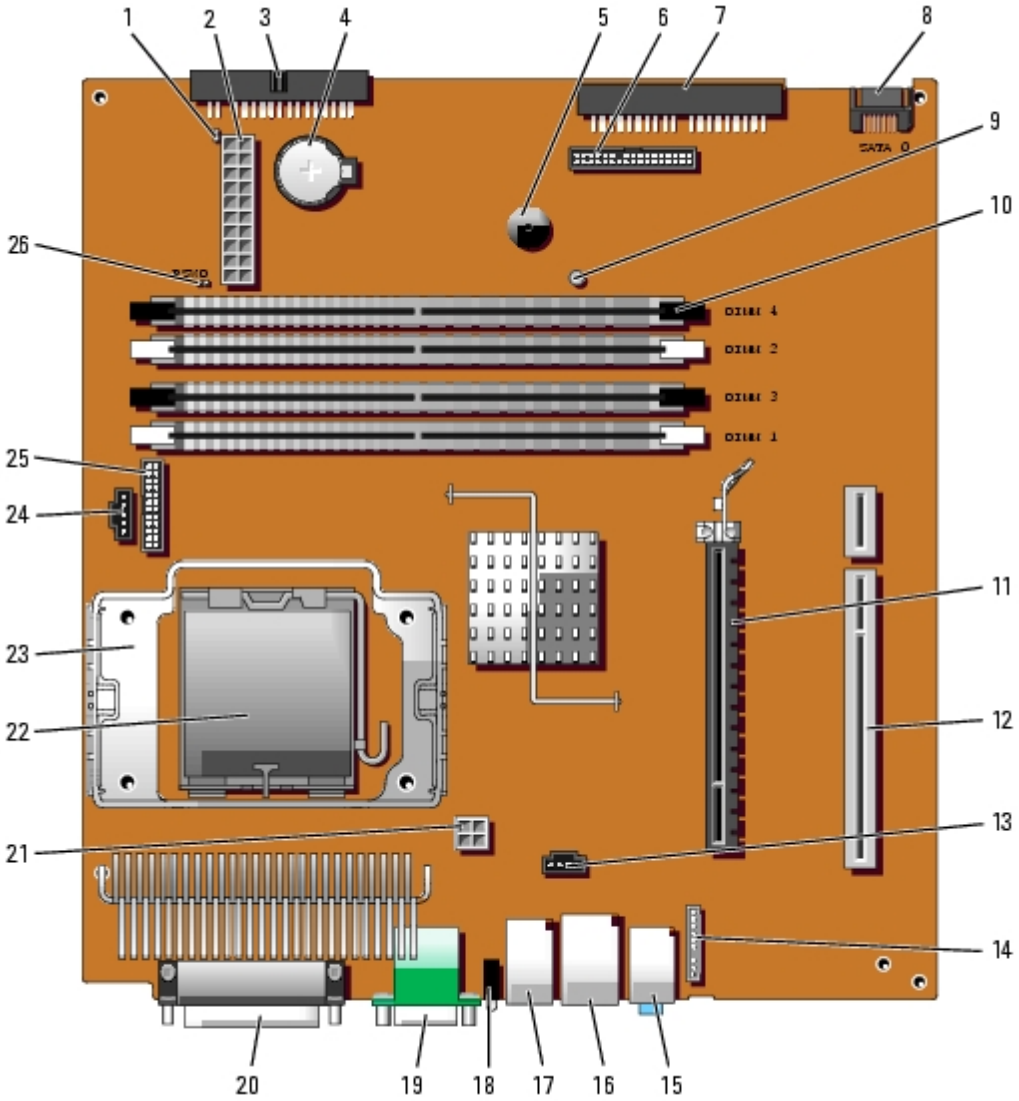
CAUTION: To avoid electrical shock, always unplug your computer from the electrical outlet before opening the cover.

NOTICE: Be careful when opening the computer cover to ensure that you do not accidentally disconnect cables from the system board.



1	hard drive	6	padlock ring
2	chassis intrusion switch	7	heat sink and blower assembly
3	internal speaker	8	system board
4	power supply	9	floppy drive
5	card cage	10	CD/DVD drive

System Board Components



1	RTC reset jumper (RTCRST)	**14**	front-panel audio cable connector (FRONTAUDIO)
2	power connector (POWER)	**15**	line-in, line-out, and microphone connectors (AUDIO)
3	floppy drive connector (DSKT)	**16**	network connector (NIC) and USB connector (USB2)
4	battery socket (BATTERY)	**17**	USB connectors (USB1)
5	internal speaker (SPEAKER)	**18**	diagnostic lights (DIAG LED)
6	front-panel connector (FRONT PANEL)	**19**	serial port connector (SER1) and video connector (VGA)
7	CD/DVD drive connector (IDE)	**20**	parallel port connector (PAR)
8	serial ATA drive 0 connector (SATA0)	**21**	power connector (12VPOWER)
9	standby power light (AUX_PWR)	**22**	processor connector (CPU)
10	memory module connectors (DIMM1, DIMM2, DIMM3, DIMM4)	**23**	heat-sink/blower retention pad
11	PCI Express x16 connector (PEG)	**24**	fan connector (FAN)
12	PCI riser connector (PCI2)	**25**	serial port 2 connector (SER_PS2)
13	CD drive analog audio cable connector for optional analog audio cable (CD_IN)	**26**	password jumper (PSWD)

Attaching and Removing the Computer Stand

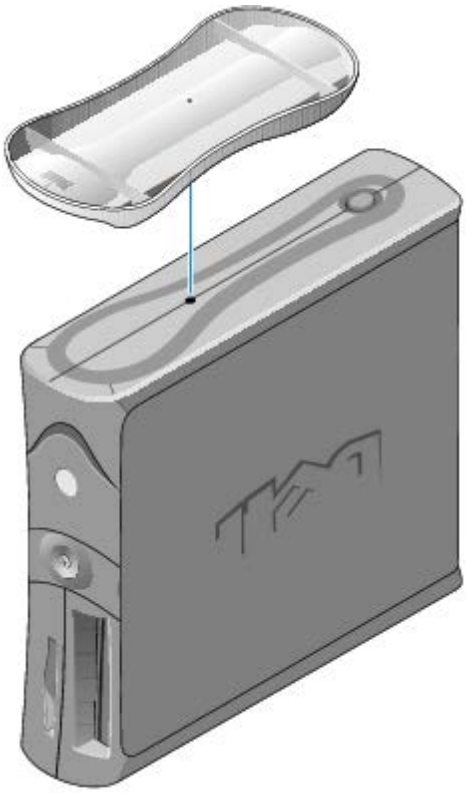
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.

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

Your computer can be used in either a vertical or horizontal position.

To use the computer in a vertical position, you must attach the computer stand:

1. Place the computer on its right side so that the drive bays are at the bottom.
2. Fit the stand onto what was the left side of the computer:
    a. Position the stand as shown in the following illustration by aligning the large round hole in the stand with the securing button on the side of the cover and aligning the captive screw in the stand with the screw hole in the cover.
    b. When the stand is in place, tighten the thumbscrew.
3. Rotate the computer so that the stand is at the bottom and the drives are at the top.



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Opening the Computer Cover

Dell™ OptiPlex™ GX280 Systems User's Guide

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

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

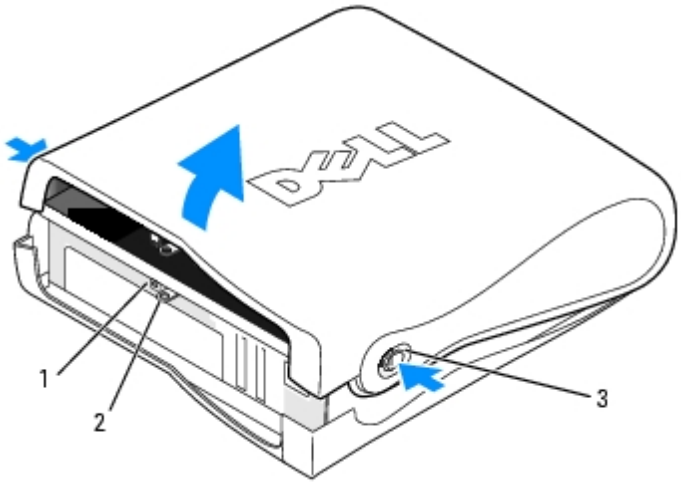
1. Follow the procedures in "Before You Begin."
2. Remove the computer stand, if it is attached.
3. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.

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

4. 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.

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



1	security cable slot
2	padlock ring
3	release buttons (one on each side)

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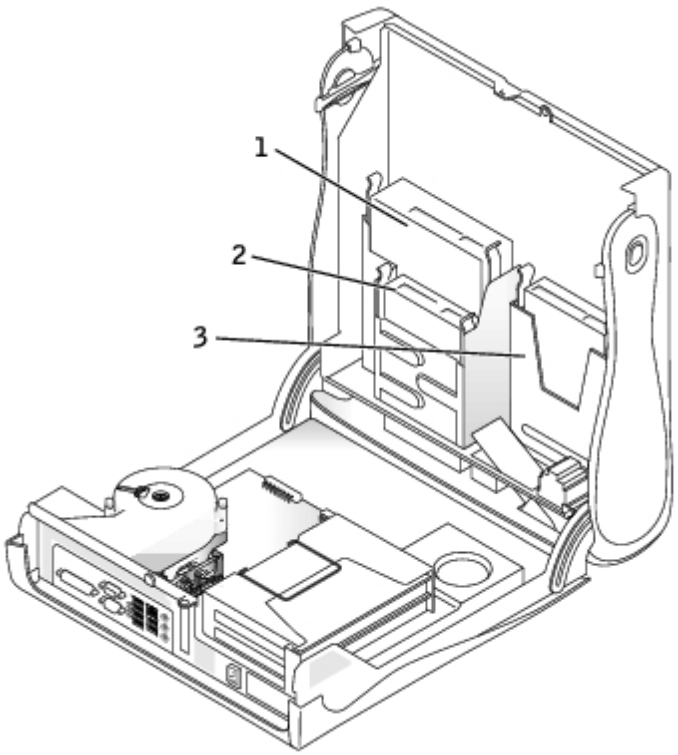
Drives

Dell™ OptiPlex™ GX280 Systems User's Guide

- General Installation Guidelines
- Hard Drive
- Front-Panel Inserts
- Floppy Drive
- CD/DVD Drive
- Cable Routing

Your computer supports:

- One serial ATA hard drive
- One optional floppy drive
- One optional CD or DVD drive



1	CD/DVD drive
2	floppy drive
3	hard drive

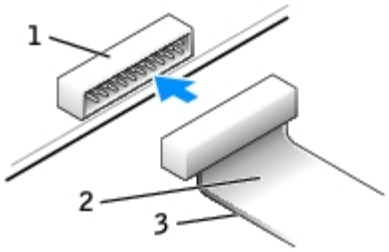
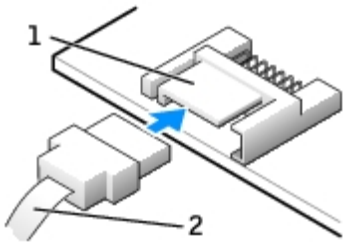
General Installation Guidelines

Connect CD/DVD drives to the connector labeled "IDE" on the system board. Serial ATA hard drives should be connected to the connectors labeled "SATA0" or "SATA1" on the system board.

Connecting Drive Cables

When you install a drive, you connect two cables—a DC power cable and a data cable—to the back of the drive and to the system board.

Drive Interface Connectors

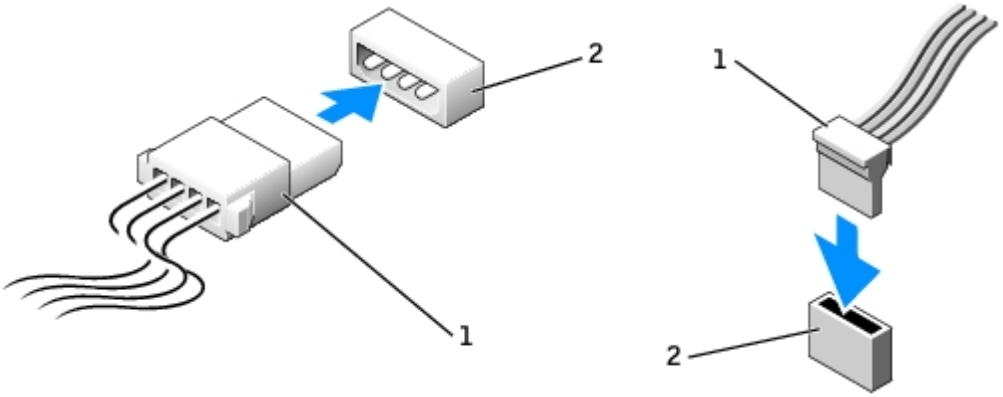
IDE Drive Connector	Serial ATA Connector
	

1	interface connector
2	interface cable
3	colored stripe on IDE cable

Most interface connectors are keyed for correct insertion; that is, a notch or a missing pin on one connector matches a tab or a filled-in hole on the other connector. Keyed connectors ensure that the pin-1 wire in the cable (indicated by the colored stripe along one edge of the IDE cable—serial ATA cables do not use a colored stripe) goes to the pin-1 end of the connector. The pin-1 end of a connector on a board or a card is usually indicated by a silk-screened "1" printed directly on the board or card.

NOTICE: When you connect an IDE interface cable, do not place the colored stripe away from pin 1 of the connector. Reversing the cable prevents the drive from operating and could damage the controller, the drive, or both.

Power Cable Connector



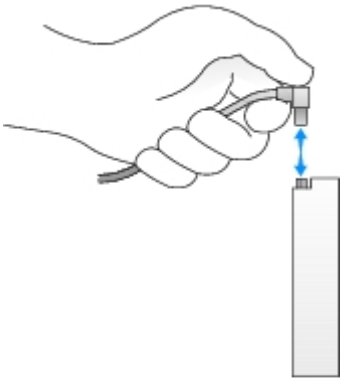
1	power cable
2	power input connector

Connecting and Disconnecting Drive Cables

When removing an IDE drive data cable, grasp the colored pull tab and pull until the connector detaches.

When connecting and disconnecting a serial ATA data cable, hold the cable by the black connector at each end.

Like IDE connectors, the serial ATA interface connectors are keyed for correct insertion; that is, a notch or a missing pin on one connector matches a tab or a filled-in hole on the other connector.



Hard Drive

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

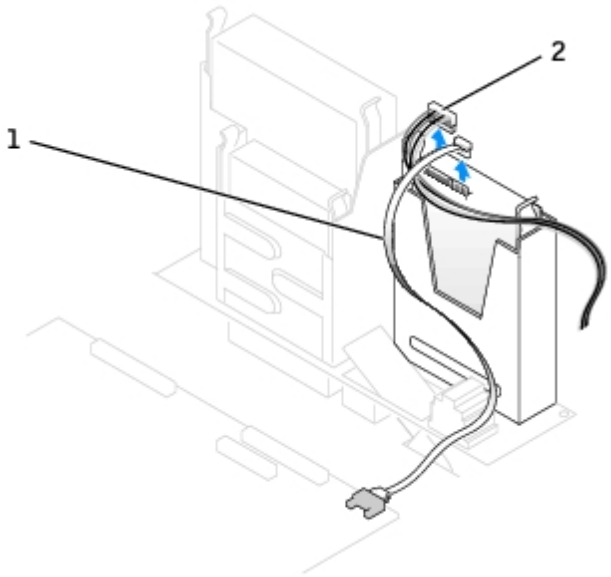
CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

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. Follow the procedures in "Before You Begin."

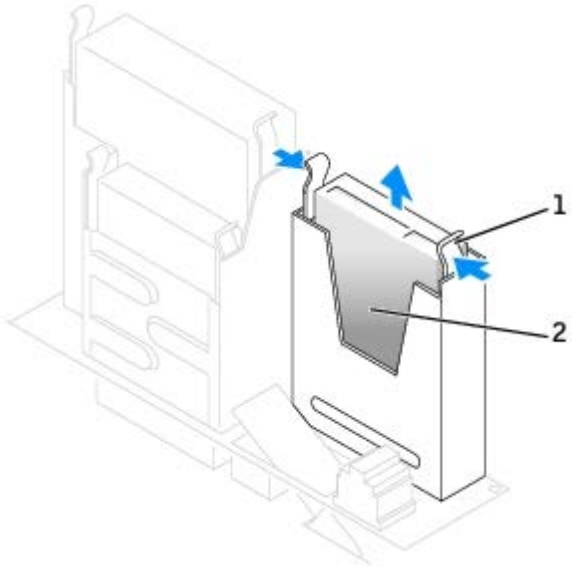
Removing a Hard Drive

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



1	hard-drive cable
2	power cable

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



1	tabs (2)
2	hard drive

Installing a Hard Drive

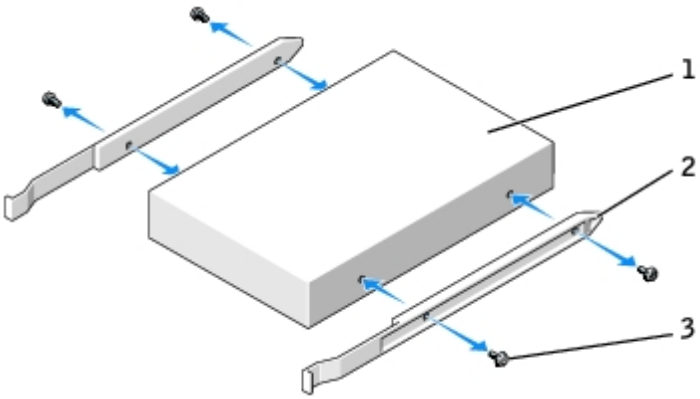
1. Check the documentation for the drive to verify that it is configured for your computer.

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.

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

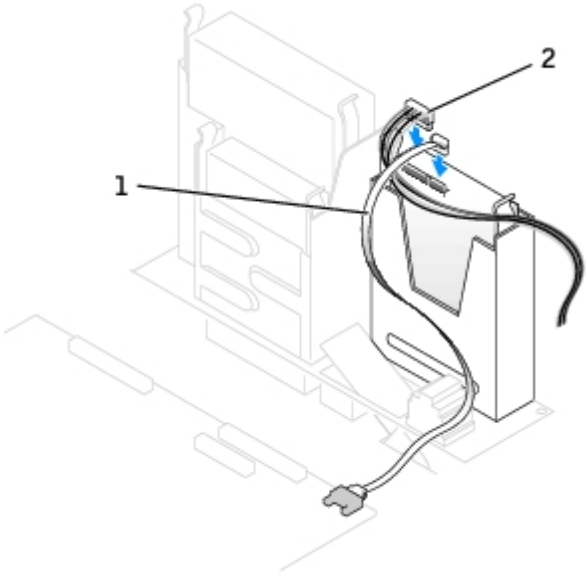
3. If your replacement hard drive does not have the bracket rails attached, remove the rails from the old drive by

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).



1	drive
2	bracket rails (2)
3	screws (4)

4. Gently slide the drive into place until you hear a click or feel the drive securely installed.
5. Connect the power and hard-drive cables to the drive.



1	hard-drive cable
2	power cable

6. Check all connectors to be certain that they are properly cabled and firmly seated.
7. Close the computer cover.
8. 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.

9. Connect your computer and devices to electrical outlets.

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

10. After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ALERT! Cover was previously removed.

11. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

12. If the drive you just installed is the primary drive, insert a bootable medium into your boot drive.
13. Turn on the computer.
14. Enter system setup and update the appropriate **Primary Drive** option (**0** or **1**).
15. Exit system setup, and reboot the computer.
16. Partition and logically format your drive before you proceed to the next step.

    For instructions, see the documentation that came with your operating system.

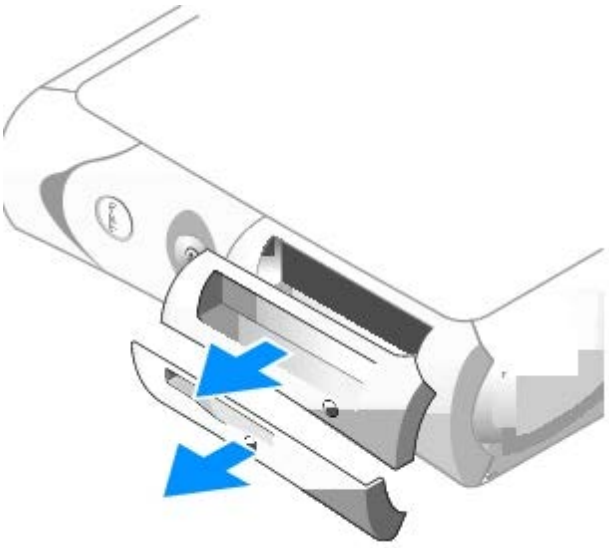
17. Test the hard drive by running the Dell Diagnostics.
18. Install your operating system on the hard drive.

    For instructions, see the documentation that came with your operating system.

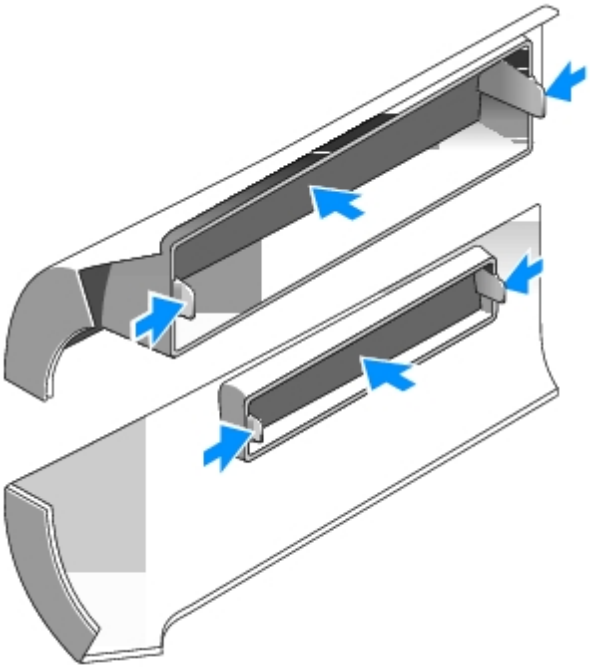
Front-Panel Inserts

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

1. Facing the front of the computer, use your fingers to remove the front-panel cover.



2. Press on the inserts until they pop free of the front-panel cover.



Floppy Drive

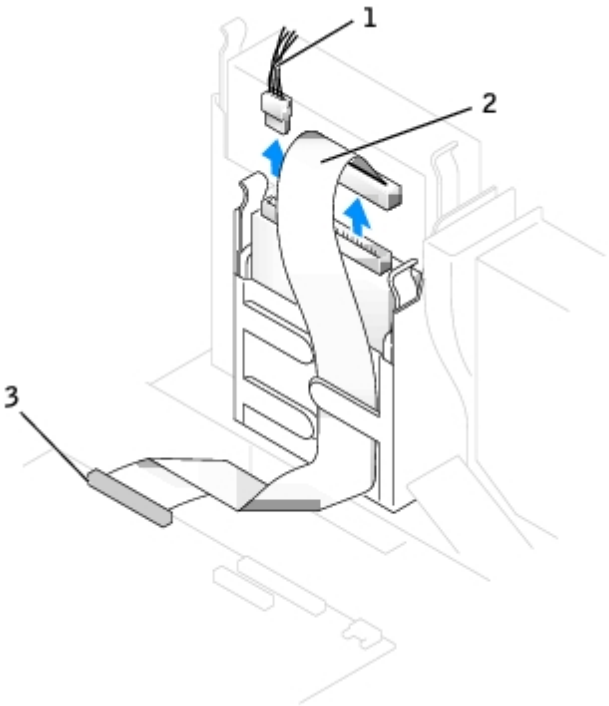
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.

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

1. Follow the procedures in "Before You Begin."
2. If you are installing a new floppy drive rather than replacing a drive, remove the front-panel inserts.

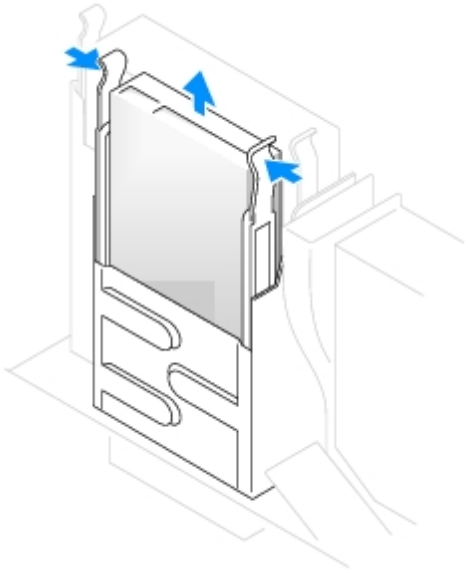
Removing a Floppy Drive

1. Disconnect the data cable from the CD/DVD drive bay located above the floppy drive.
2. Disconnect the power and floppy-drive cables from the back of the floppy drive.
3. Disconnect the floppy-drive cable from the connector labeled DSKT on the system board.



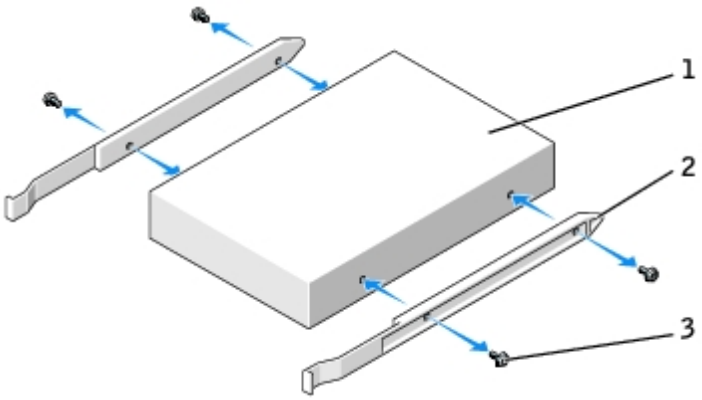
1	power cable
2	floppy-drive cable
3	floppy-drive connector (DSKT)

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



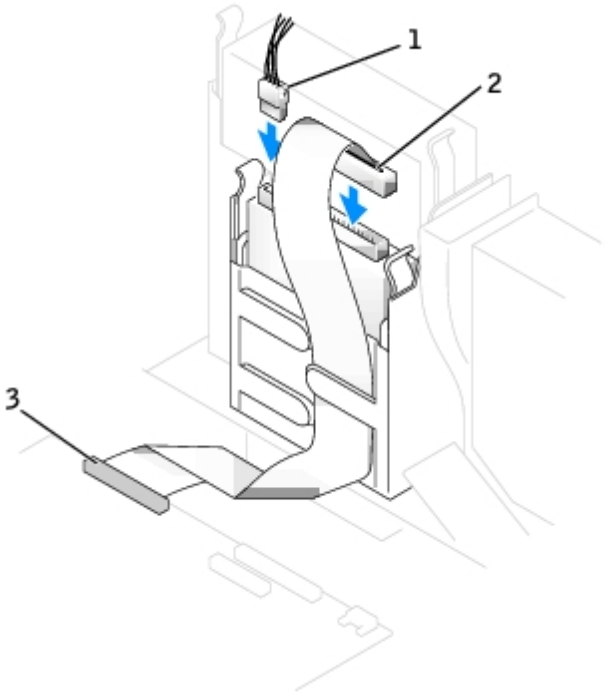
Installing a Floppy Drive

1. If the replacement 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).



1	drive
2	bracket rails (2)
3	screws (4)

2. Gently slide the drive into place until you hear a click or feel the drive securely installed.
3. Attach the power and floppy-drive cables to the floppy drive.
4. Connect the other end of the floppy-drive cable to the connector labeled DSKT on the system board.



1	power cable
2	floppy-drive cable
3	floppy-drive connector (DSKT)

5. Reconnect the data cable to the back of the drive installed in the CD/DVD drive bay located above the floppy drive.
6. Check all cable connections, and fold cables out of the way to provide airflow for the fan and cooling vents.
7. Close the computer cover.
8. 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.

9. 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.

10. After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```

11. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

12. Enter system setup and use the **Diskette Drive** option to enable your new floppy drive.
13. Verify that your computer works correctly by running the Dell Diagnostics.

CD/DVD Drive

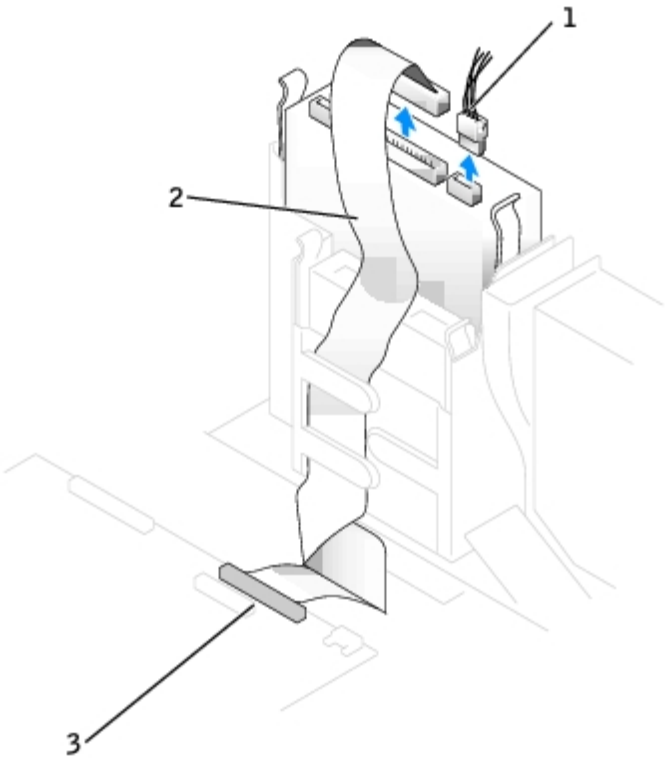
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.

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

1. Follow the procedures in "Before You Begin."
2. If you are installing a new CD/DVD drive rather than replacing a drive, remove the front- panel inserts.

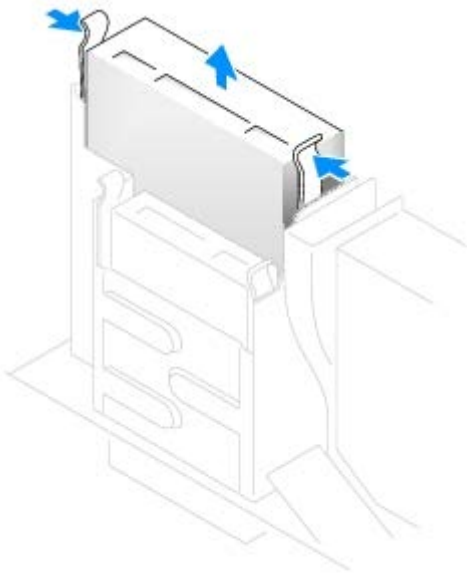
Removing a CD/DVD Drive

1. Disconnect the power and CD/DVD drive cables from the back of the drive.
2. Disconnect the other end of the CD/DVD drive cable from the IDE connector on the system board.



1	power cable
2	CD/DVD drive cable
3	IDE connector

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.



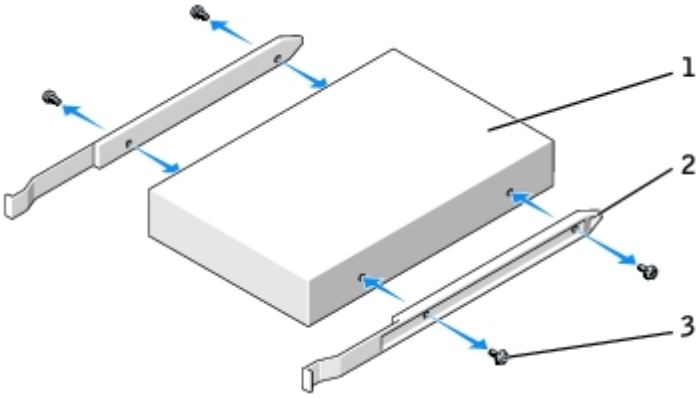
Installing a CD/DVD Drive

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

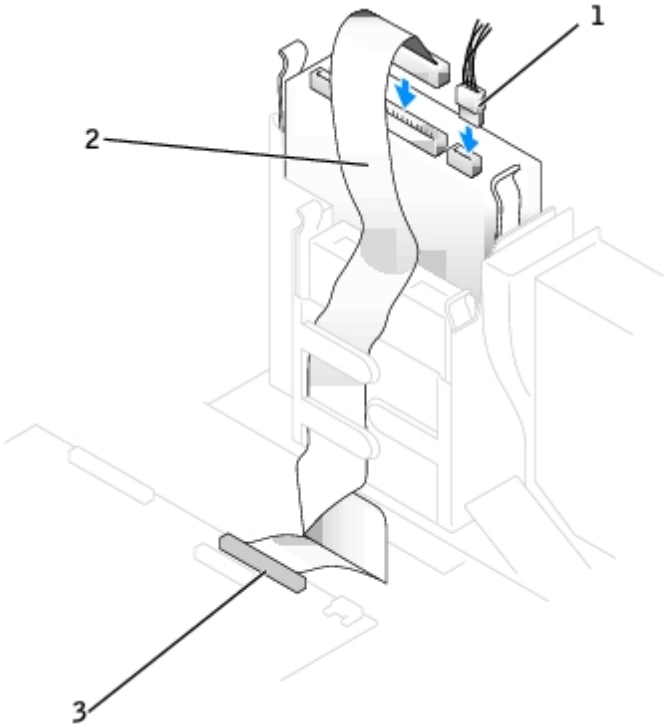
installing an IDE drive, configure the drive for the cable select setting.

2. If the replacement 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).



1	drive
2	bracket rails (2)
3	screws (4)

3. Gently slide the drive into place until you hear a click or feel the drive securely installed.
4. Connect the power and CD/DVD drive cables to the drive.
5. Connect the other end of the CD/DVD drive cable to the IDE connector on the system board.



1	power cable
2	CD/DVD drive cable
3	IDE connector

6. If you are installing a drive that has its own controller card, install the controller card in a 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 their electrical outlets, and turn them on.

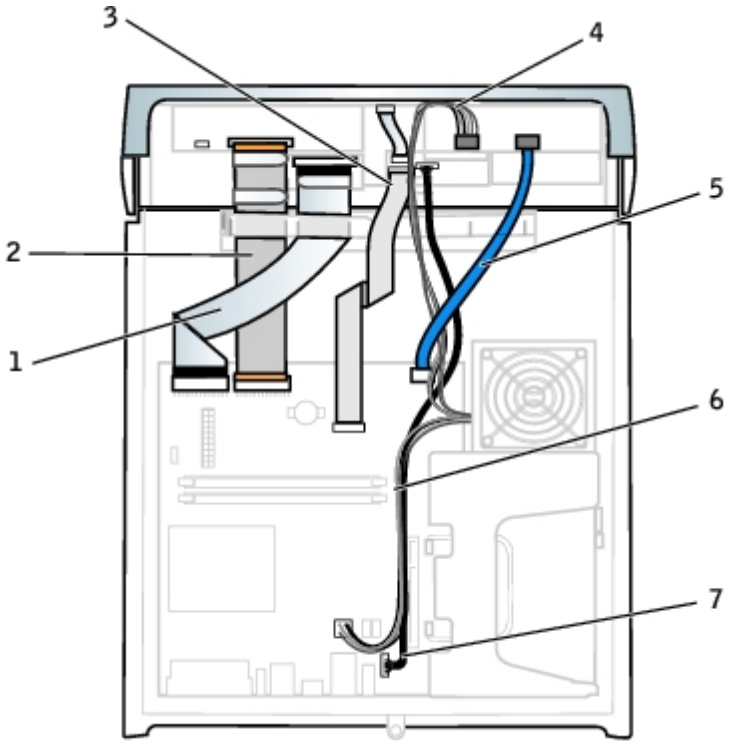
    See the documentation that came with the drive for instructions on installing any software required for drive operation.
11. After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```
12. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

13. Update your configuration information by setting the appropriate **Drive** option (**0** or **1**) under **Drives**. See "System Setup" for more information.
14. Verify that your computer works correctly by running the Dell Diagnostics.

Cable Routing



1	floppy drive data cable	5	serial ATA drive data cable

2	CD/DVD drive data cable	6	12V power cable
3	control panel cable	7	front input/audio data cable
4	serial ATA drive power cable		

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Back to Contents Page

PCI and PCI Express Cards and Serial Port Adapters

Dell™ OptiPlex™ GX280 Systems User's Guide

- PCI Cards
- PCI Express Cards
- Serial Port Adapters

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

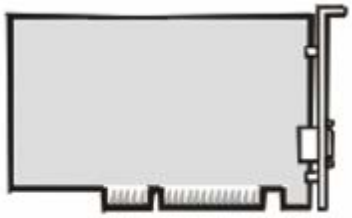
NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

Depending on your purchase, your Dell™ computer provides the following slots for PCI and PCI Express cards or a serial port adapter:

- two PCI card slots and one PCI Express x16 card slot, or
- one PCI card slot, one PCI Express x1 card slot, and one PCI Express x16 card slot

NOTE: Your Dell computer uses only PCI and PCI Express slots. ISA cards are not supported.

PCI Cards

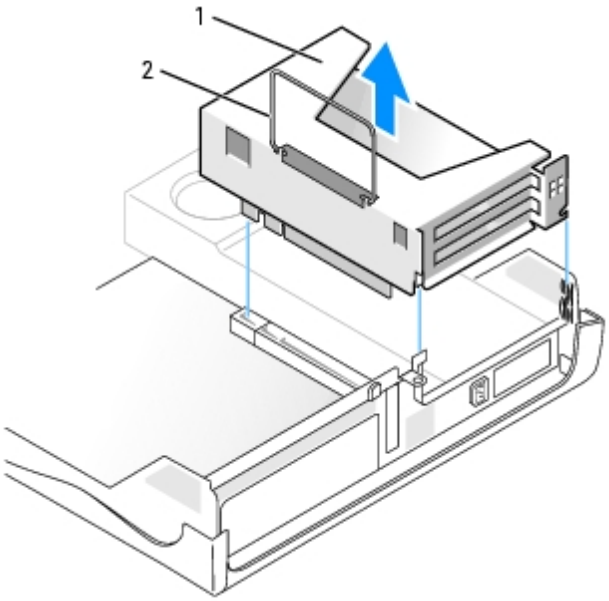


If you are installing or replacing a card, follow the procedures in the next section. If you are removing but not replacing a card, skip to "Removing a PCI Card."

If you are replacing a card, remove the current driver for the card from the operating system.

Installing a PCI Card

1. Follow the procedures in "Before You Begin."
2. Remove the card cage:
    a. Check any cables connected to cards through the back-panel openings. Disconnect any cables that will not reach the card cage once they are removed from the computer.
    b. Gently pull on the handle and lift the card cage up and away from the computer.



1	card cage
2	handle

3. If you are installing a new card, remove the filler bracket to create an empty card-slot opening

   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.

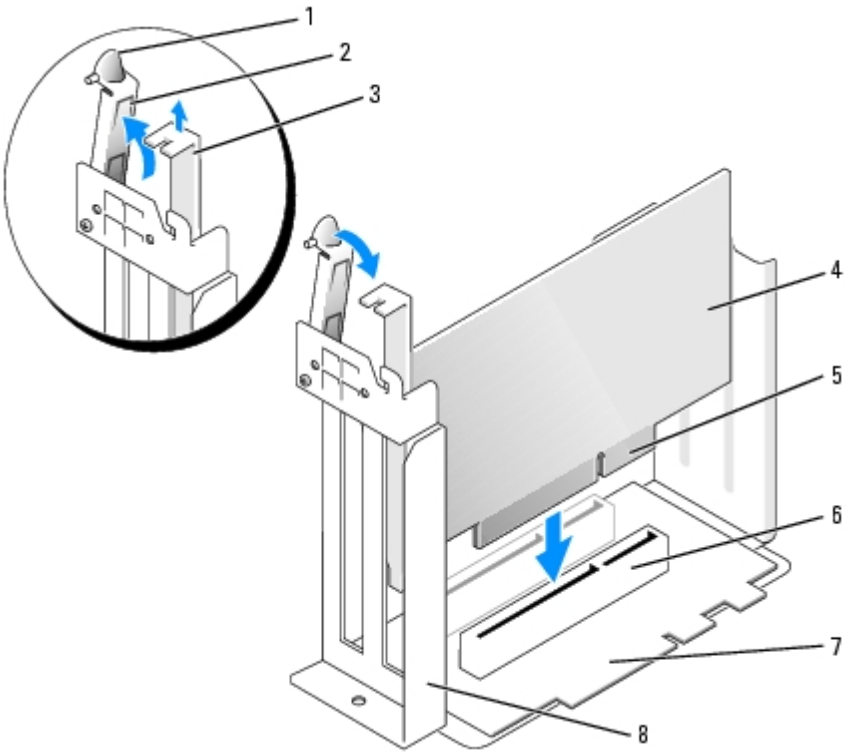
   See the documentation that came with the card for information on configuring the card, making internal connections, or otherwise customizing it for your computer.

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. Press the lever on the retention arm and raise the retention arm.

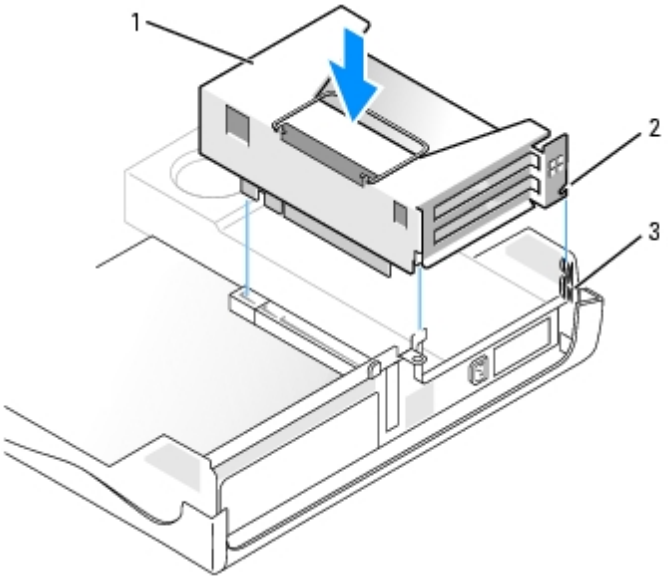
6. Insert the card into the card connector.

   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 riser board.



1	lever	5	card-edge connector
2	retention arm	6	card connector
3	filler bracket	7	riser board
4	card	8	card cage

7. Lower the retention arm and press it into place, securing the card(s) in the computer.
8. Replace the card cage:
    a. Align the tabs in the side of the card cage with the slots on the side of the computer, and slide the card cage down into place.
    b. Ensure that the riser board is fully seated in the connector on the system board.



1	card cage

2	tabs (2)
3	slots (2)

9. Reconnect any cables that you removed in step 2.
10. Connect any cables that should be attached to the card.

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

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.

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.

    After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```

14. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

15. If you installed a sound card, perform the following steps:
    a. Enter system setup, select **Audio Controller**, and change the setting to **Off**.
    b. Connect external audio devices to the sound card's connectors. Do not connect external audio devices to the microphone, speaker/headphone, or line-in connectors on the back panel.
16. If you installed an add-in network adapter and want to turn off the integrated network adapter:
    a. Enter system setup, select **Network Controller** and change the setting to **Off**.
    b. Connect the network cable to the add-in network adapter's connectors. Do not connect the network cable to the integrated connector on the back panel.
17. Install any drivers required for the card as described in the card documentation.

Removing a PCI Card

1. Follow the procedures in "Before You Begin."
2. Remove the card cage (see step 2 of the previous procedure).
3. Press the lever on the retention arm and raise the retention arm.
4. If necessary, disconnect any cables connected to the card.
5. Grasp the card by its top corners, and ease it out of its connector.
6. 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.

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.

7. Lower the retention arm and press it into place.

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

8. Replace the card cage (see step 8 of the previous procedure).
9. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

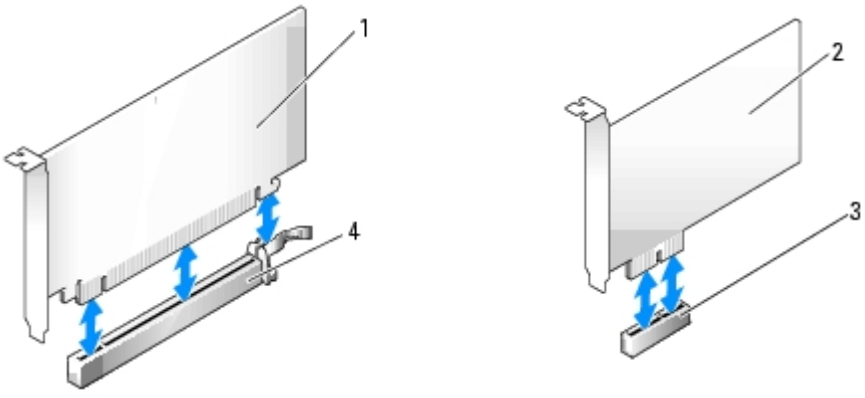
10. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

11. Remove the card's driver from the operating system.
12. If you removed a sound card:
    a. Enter system setup, select **Audio Controller**, and change the setting to **On**.
    b. Connect external audio devices to the audio connectors on the computer back panel.
13. If you removed an add-in network connector:
    a. Enter system setup, select **Network Controller**, and change the setting to **On**.
    b. Connect the network cable to the integrated connector on the computer back panel.

PCI Express Cards

Depending on your purchase, your computer supports one PCI Express x16 card and may support one PCI Express x1 card.



1	PCI Express x16 card	3	PCI Express x1 card slot
2	PCI Express x1 card	4	PCI Express x16 card slot

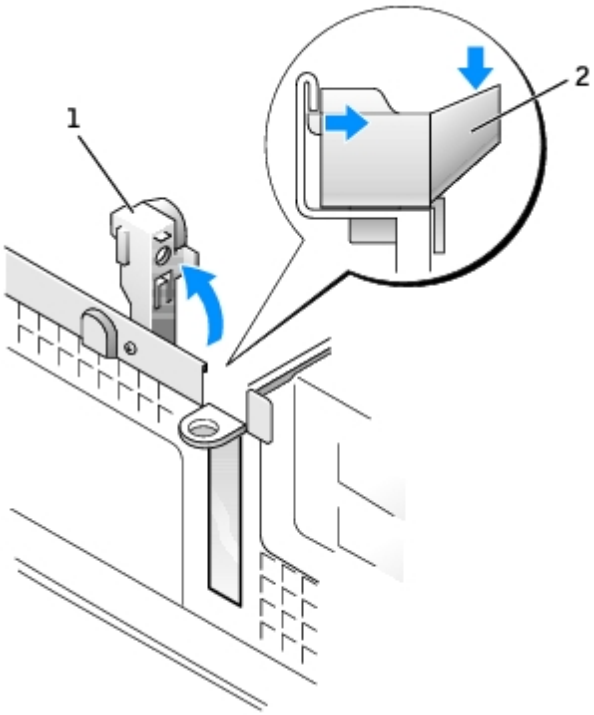
If you are installing or replacing a PCI Express x16 card, see "Installing a PCI Express x16 Card," or if you are removing the card, see "Removing a PCI Express x16 Card."

If you are installing or replacing a PCI Express x1 card, see "Installing a PCI Express x1 Card," or if you are removing the card, see " Removing a PCI Express x1 Card."

If you are replacing either type of PCI Express card, remove the current driver for the card from the operating system.

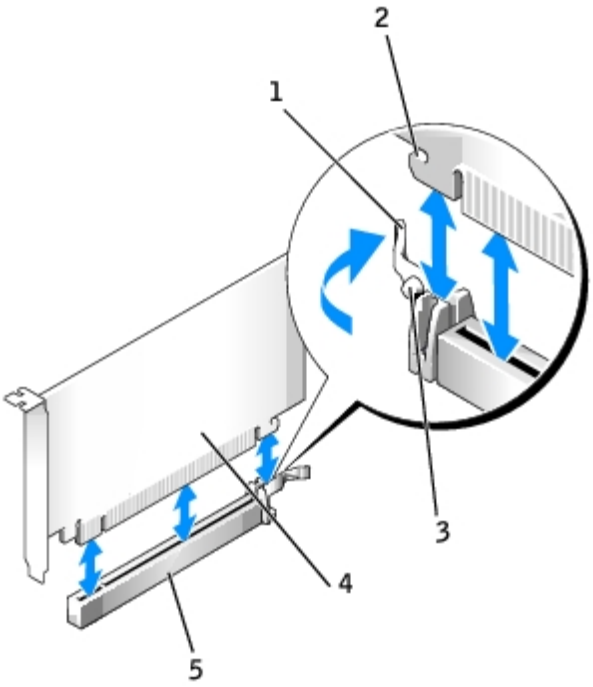
Installing a PCI Express x16 Card

1. Follow the procedures in "Before You Begin."
2. If you replacing a PCI Express x16 card, remove the installed card:
    a. Press the indented tab on the hinged lever with your thumb until you release the tab. Continue holding the lever and pull the lever up.



1	hinged lever
2	indented tab (side view)

    b. Press on the card lever away from the card connector.
    c. Pull the card up and out of the card clip.



1	lever
2	securing slot (not all cards)
3	securing tab
4	PCI Express x16 card
5	PCI Express x16 card connector

3. Prepare the card for installation.

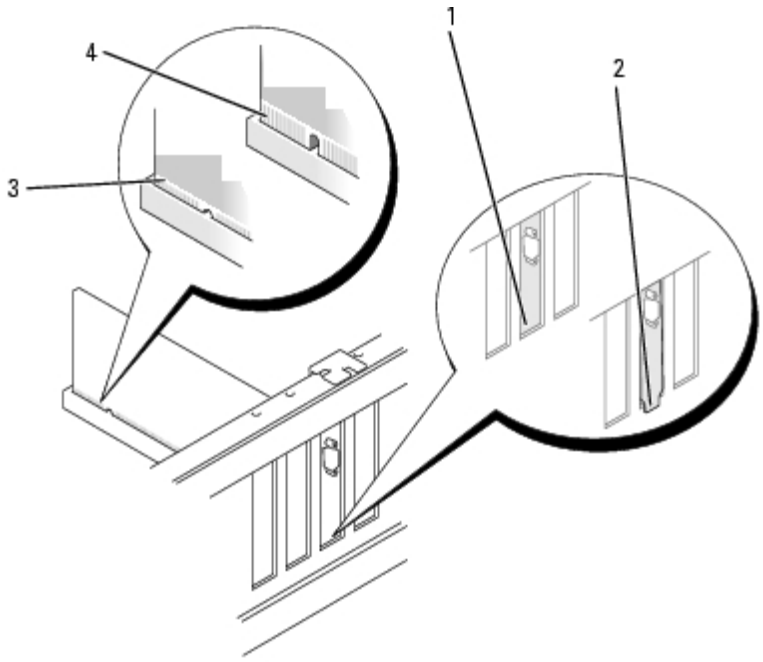
   See the documentation that came with the card for information on configuring the card, making internal connections, or otherwise customizing it for your computer.

⚠ **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.**

4. Position the card so the securing slot is aligned with the securing tab, and press the card lever away from the card connector.

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.



1	bracket within slot
2	bracket caught outside of slot
3	fully seated card
4	not fully seated card

6. Release the card lever, ensuring that the tab fits into the notch on the front end of the card.
7. Secure the card by lowering the hinged lever on the back panel.
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.

    After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```

11. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

12. If you installed a sound card, perform the following steps:

    a. Enter system setup, select **Audio Controller**, and change the setting to **Off**.

    b. Connect external audio devices to the sound card's connectors. Do not connect external audio devices to the microphone, speaker/headphone, or line-in connectors on the back panel.

13. If you installed an add-in network adapter and want to turn off the integrated network adapter:

    a. Enter system setup, select **Network Controller** and change the setting to **Off**.

b. Connect the network cable to the add-in network adapter's connectors. Do not connect the network cable to the integrated connector on the back panel.

14. Install any drivers required for the card as described in the card documentation.

Removing a PCI Express x16 Card

1. Follow the procedures in "Before You Begin."
2. If necessary, disconnect any cables connected to the card.
3. Remove the card as instructed in step 2 in the preceding section.
4. 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.

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.

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

6. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

7. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

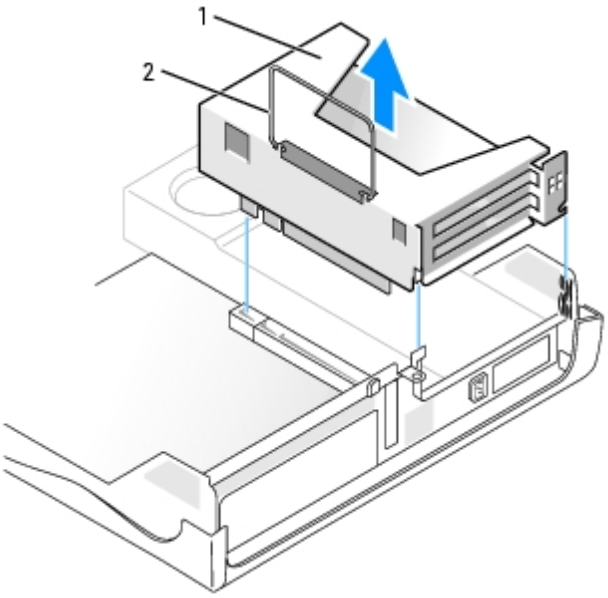
8. Remove the card's driver from the operating system.
9. If you removed a sound card:
   a. Enter system setup, select **Audio Controller**, and change the setting to **On**.
   b. Connect external audio devices to the audio connectors on the computer back panel.
10. If you removed an add-in network connector:
    a. Enter system setup, select **Network Controller**, and change the setting to **On**.
    b. Connect the network cable to the integrated connector on the computer back panel.

Installing a PCI Express x1 Card

1. Follow the procedures in "Before You Begin."
2. Remove the card cage:
   a. Check any cables connected to cards through the back-panel openings. Disconnect any cables that will not reach

the card cage once they are removed from the computer.

b. Gently pull on the handle and lift the card cage up and away from the computer.



1	card cage
2	handle

3. If you are installing a new card, remove the filler bracket to create an empty card-slot opening.

   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.

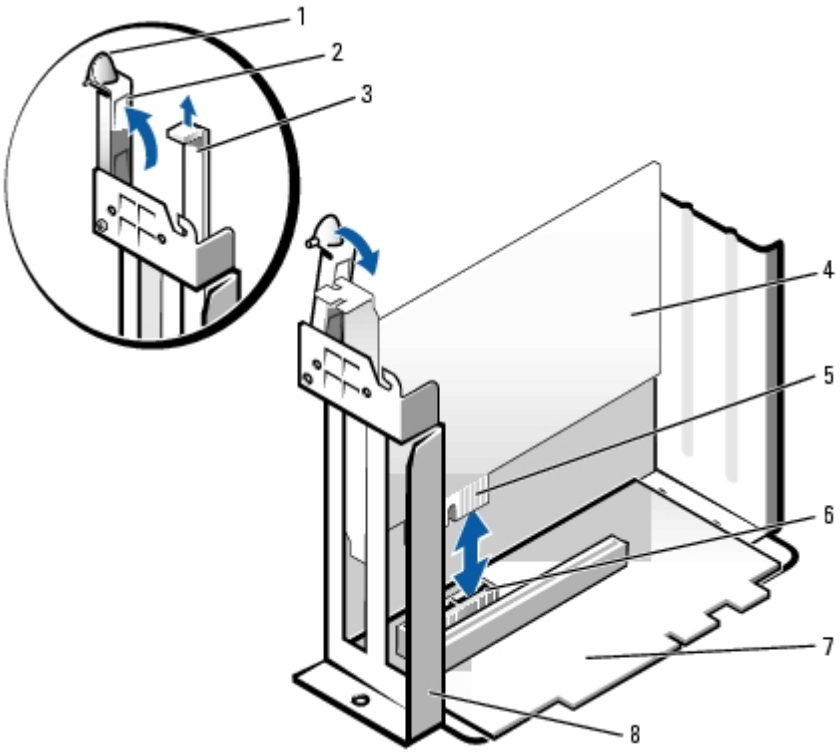
   See the documentation that came with the card for information on configuring the card, making internal connections, or otherwise customizing it for your computer.

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. Press the lever on the retention arm and raise the retention arm.

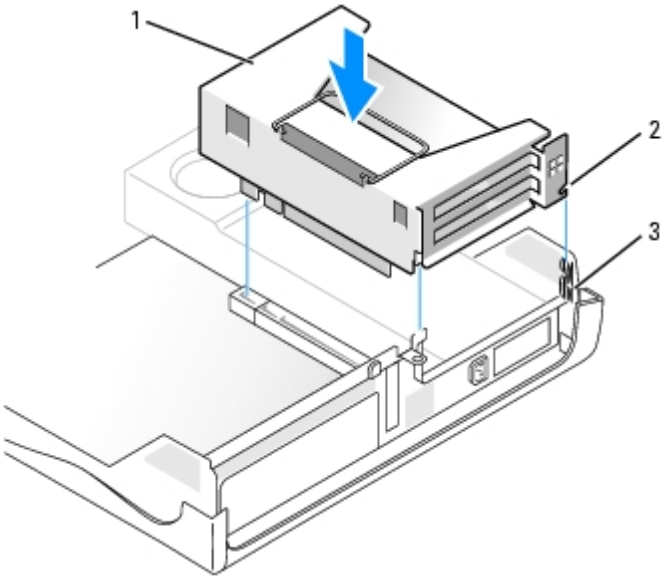
6. Insert the card into the card connector.

   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 riser board.



1	lever	**5**	card-edge connector
2	retention arm	**6**	card connector
3	filler bracket	**7**	riser board
4	PCI Express x1 card	**8**	card cage

7. Lower the retention arm and press it into place, securing the card into the card connector.
8. Replace the card cage:
    a. Align the tabs in the side of the card cage with the slots on the side of the computer, and slide the card cage down into place.
    b. Ensure that the riser board is fully seated in the connector on the system board.



1	card cage

2	tabs (2)
3	slots (2)

9. Reconnect any cables that you removed in step 2.
10. Connect any cables that should be attached to the card.

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

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.

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.

    After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```

14. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

15. If you installed a sound card, perform the following steps:
    a. Enter system setup, select **Audio Controller**, and change the setting to **Off**.
    b. Connect external audio devices to the sound card's connectors. Do not connect external audio devices to the microphone, speaker/headphone, or line-in connectors on the back panel.
16. If you installed an add-in network adapter and want to turn off the integrated network adapter:
    a. Enter system setup, select **Network Controller** and change the setting to **Off**.
    b. Connect the network cable to the add-in network adapter's connectors. Do not connect the network cable to the integrated connector on the back panel.
17. Install any drivers required for the card as described in the card documentation.

Removing a PCI Express x1 Card

1. Remove the card cage (see step 2 of the previous procedure).
2. Press the lever on the retention arm and raise the retention arm.
3. If necessary, disconnect any cables connected to the card.
4. Grasp the card by its top corners, and ease it out of its connector.
5. 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.

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.

6. Lower the retention arm and press it into place.
7. Replace the card cage as described in step 8 the preceding section.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

8. Remove the card's driver from the operating system.
9. If you removed a sound card:
    a. Enter system setup, select **Audio Controller**, and change the setting to **On**.
    b. Connect external audio devices to the audio connectors on the computer back panel.
10. If you removed an add-in network connector:
    a. Enter system setup, select **Network Controller**, and change the setting to **On**.
    b. Connect the network cable to the integrated connector on the computer back panel.

Serial Port Adapters

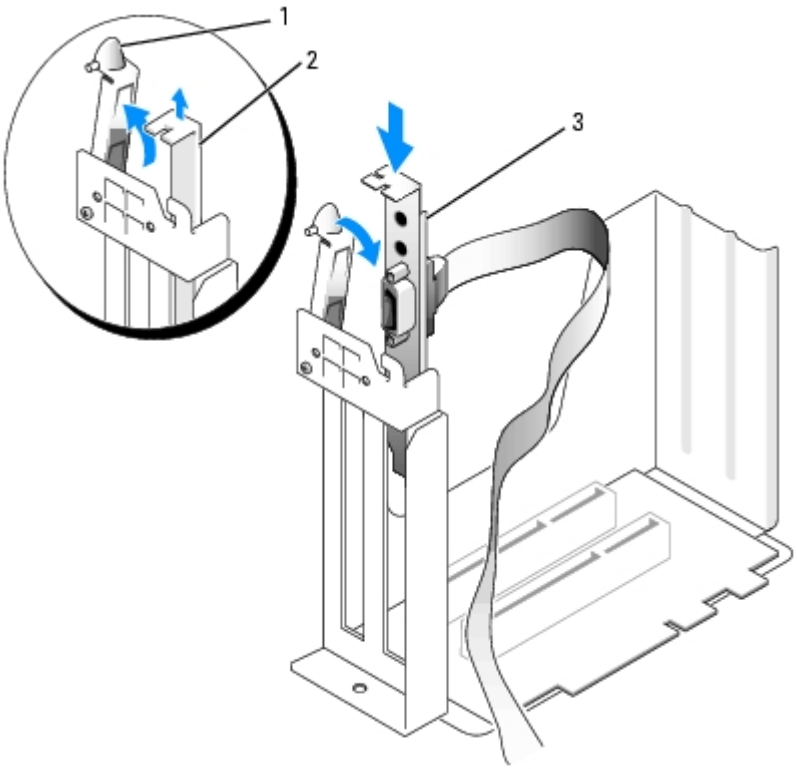
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.

NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

NOTE: The serial port adapter for your small-desktop computer also includes two PS/2 connectors.

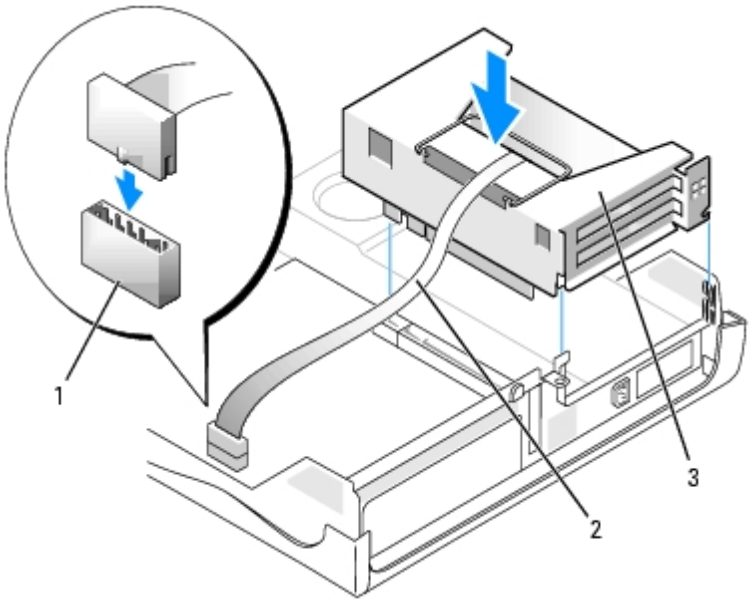
Installing a Serial Port Adapter

1. Follow the procedures in "Before You Begin."
2. Remove the card cage (see "Installing a PCI Card").
3. Press the lever on the retention arm and raise the retention arm.



1	retention arm
2	filler bracket
3	serial port adapter bracket

4. Remove the filler bracket.
5. Slide the serial port adapter bracket down over the card slot opening, and lower the retention arm, securing the bracket.
6. Remove the processor heat sink as explained in "Processor."
7. Route the serial adapter cable over the card cage, and attach the cable to the connector on the system board (labeled SER_PS2).
8. Reinstall the processor heat sink as explained in "Processor."



1	serial card system board connector (SER_PS2)
2	serial adapter cable
3	card cage

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.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

10. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

Removing a Serial Port Adapter

1. Follow the procedures in "Before You Begin."
2. Remove the processor heat sink as explained in "Processor."
3. Disconnect the serial adapter cable from the connector on the system board.
4. Reinstall the processor heat sink as explained in "Processor."
5. Remove the card cage (see "Installing a PCI Card").
6. Press the lever on the retention arm and raise the retention arm (see step 3 in the previous procedure).
7. Lift and remove the adapter bracket.
8. If you are removing the adapter permanently, install a filler bracket in the empty card-slot opening.

   If you need a filler bracket, contact Dell.

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.

9. Lower the retention arm and press it into place.

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

10. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

    After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```

11. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

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Processor

Dell™ OptiPlex™ GX280 Systems User's Guide

Replacing the Processor

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

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

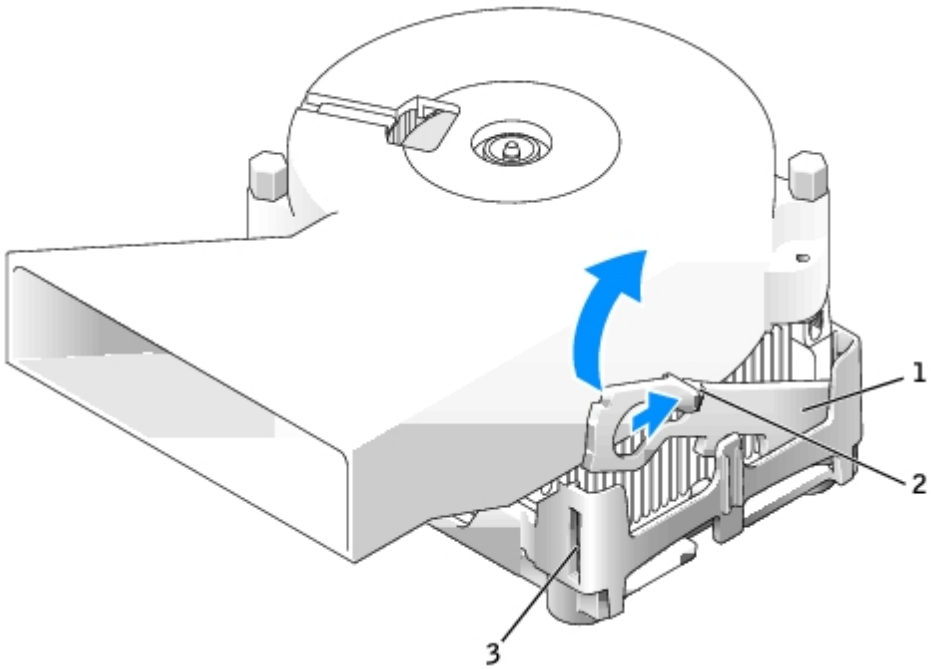
Replacing the Processor

1. Follow the procedures in "Before You Begin."
2. Disconnect the cooling fan power cable from the FAN connector on the system board.
3. Disconnect the power cable from the 12VPOWER connector on the system board.

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

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

NOTE: Your computer's heat sink may differ in appearance than illustrated below, but is removed and reinstalled in the same manner.

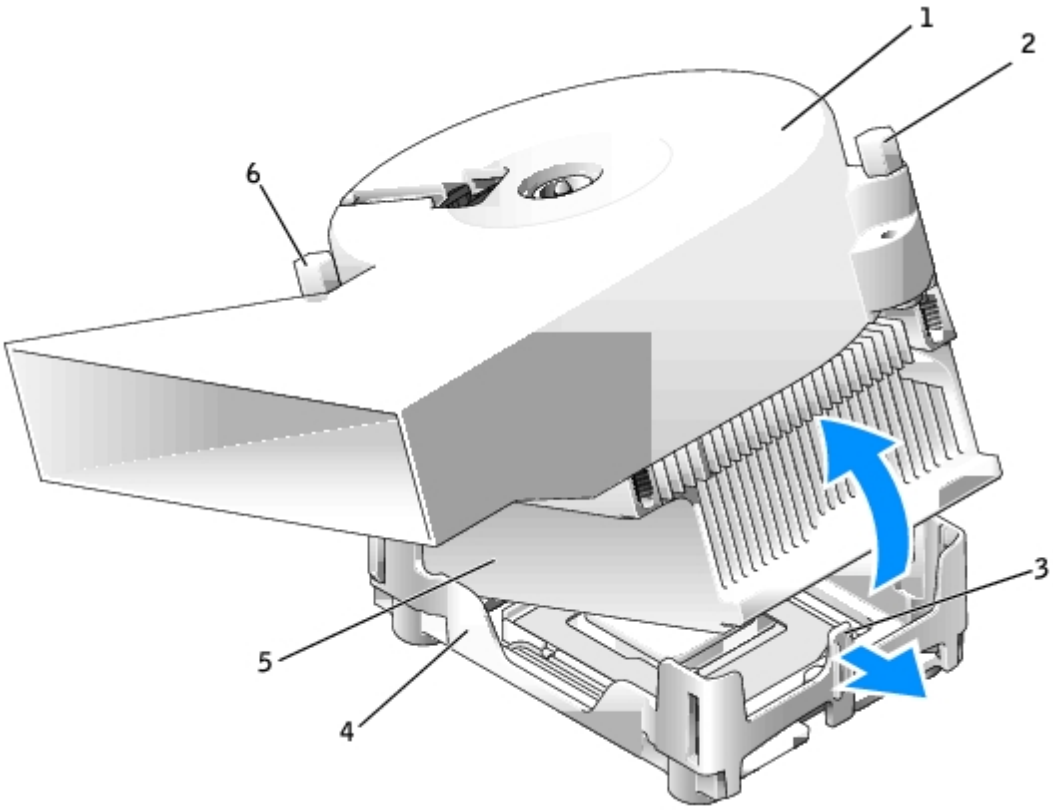


1	securing clip
2	tab
3	retention base

b. Remove the heat sink by pressing the tab while lifting one end of the heat sink.

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

NOTE: Your computer's heat sink may differ in appearance than illustrated below, but is removed and reinstalled in the same manner.

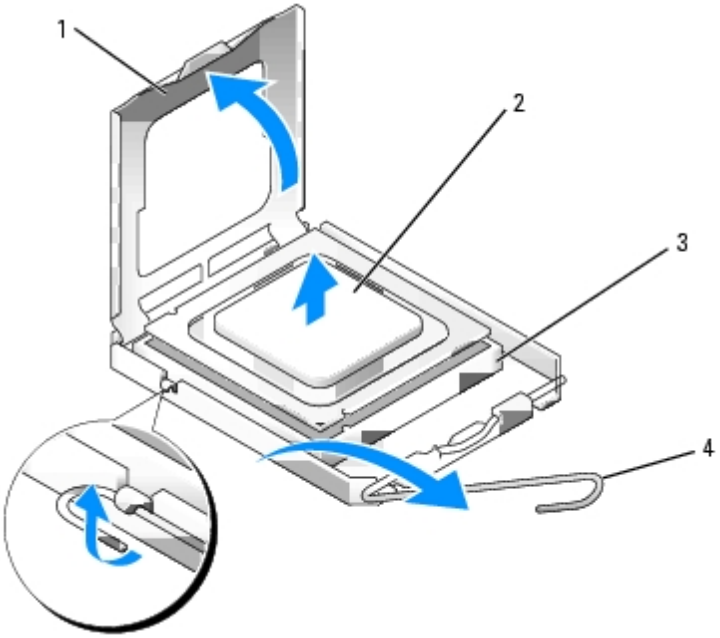


1	heat-sink/blower assembly	4	retention base
2	screw	5	heat sink
3	tab	6	screw

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

NOTICE: If you are installing a processor upgrade kit from Dell, discard the original heat sink. If you are *not* installing a processor upgrade kit from Dell, reuse the original heat sink when you install your new processor.

6. Open the processor cover.



1	processor cover
2	processor
3	socket
4	release lever

NOTICE: When replacing the processor, do not touch any of the pins inside the socket or allow any objects to fall on the pins in the socket.

7. Remove the processor from the socket.

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

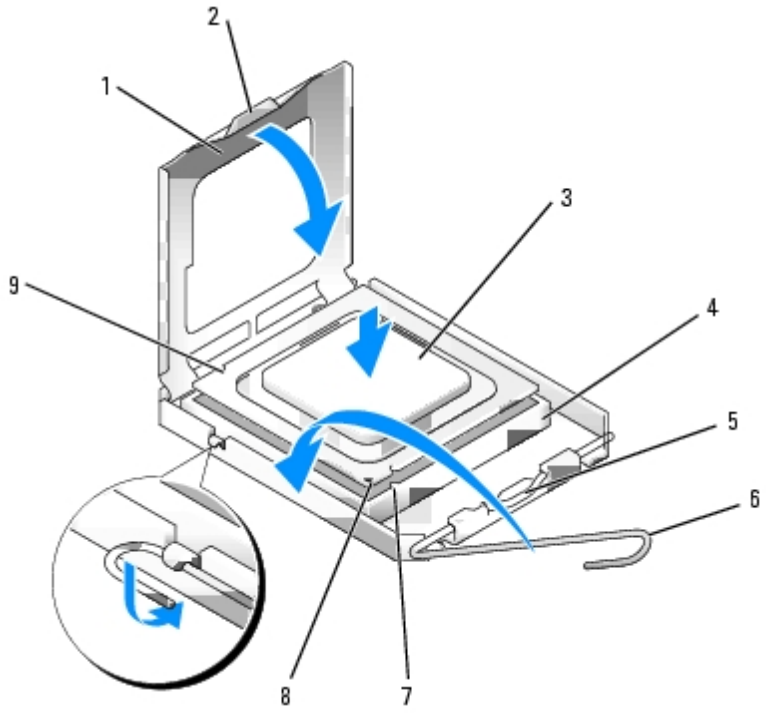
NOTICE: Ground yourself by touching an unpainted metal surface on the back of the computer.

NOTICE: When replacing the processor, do not touch any of the pins inside the socket or allow any objects to fall on the pins in the socket.

8. Unpack the new processor, being careful not to touch the underside of the processor.

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

9. If the release lever on the socket is not fully extended, move it to that position.
10. Orient the front and rear alignment notches on the processor with the front and rear alignment notches on the socket.
11. Align the pin-1 corners of the processor and socket.



1	processor cover	6	release lever
2	tab	7	front alignment notch
3	processor	8	socket and processor pin-1 indicator
4	processor socket	9	rear alignment notch
5	center cover latch		

NOTICE: To avoid damage, ensure that the processor aligns properly with the socket, and do not use excessive force when you install the processor.

12. Set the processor lightly in the socket and ensure that the processor is positioned correctly.
13. When the processor is fully seated in the socket, close the processor cover.

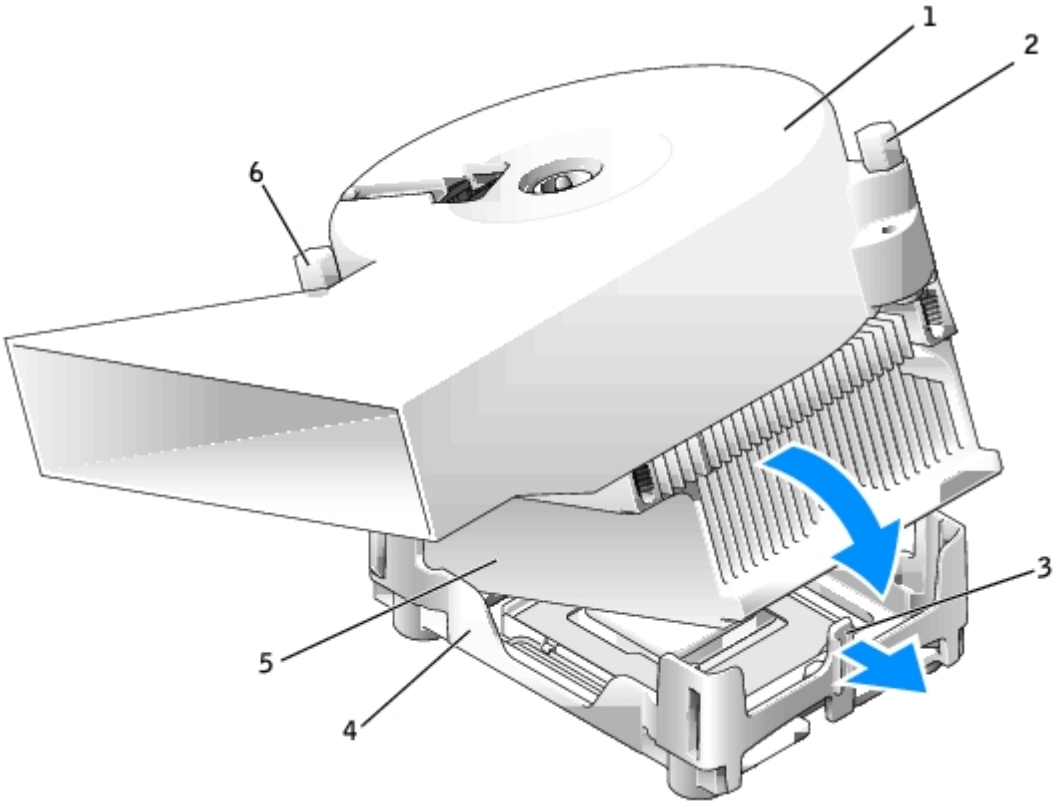
    Ensure that the tab on the processor cover is positioned underneath the center cover latch on the socket.
14. Pivot the socket release lever back toward the socket and snap it into place to secure the processor.

NOTICE: If you are *not* installing a processor upgrade kit from Dell, reuse the original heat sink assembly when you replace the processor.

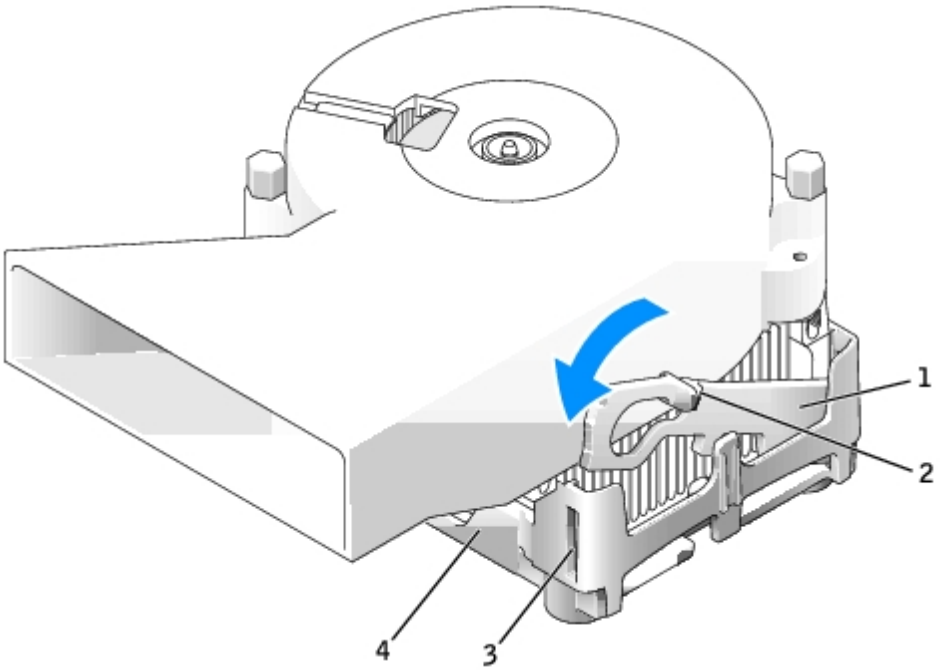
If you installed a processor replacement kit from Dell, return the original heat sink assembly and processor to Dell in the same package in which your replacement kit was sent.

15. Reinstall the two screws that attach the blower to the heat sink.
16. Install the heat sink/blower assembly:
    a. Place one end of the heat sink under the tab on one side of the retention base.
    b. Lower the heat sink 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 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.

NOTE: Your computer's heat sink may differ in appearance than illustrated below, but is removed and reinstalled in the same manner.



1	heat-sink/blower assembly	4	retention base
2	screw	5	heat sink
3	tab	6	screw



1	securing clip
2	tab

3	slot
4	retention base

17. Reconnect the cooling fan power cable to the FAN connector on the system board.
18. Reconnect the power cable to the 12VPOWER connector on the system board.
19. 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.

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

    After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```

21. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

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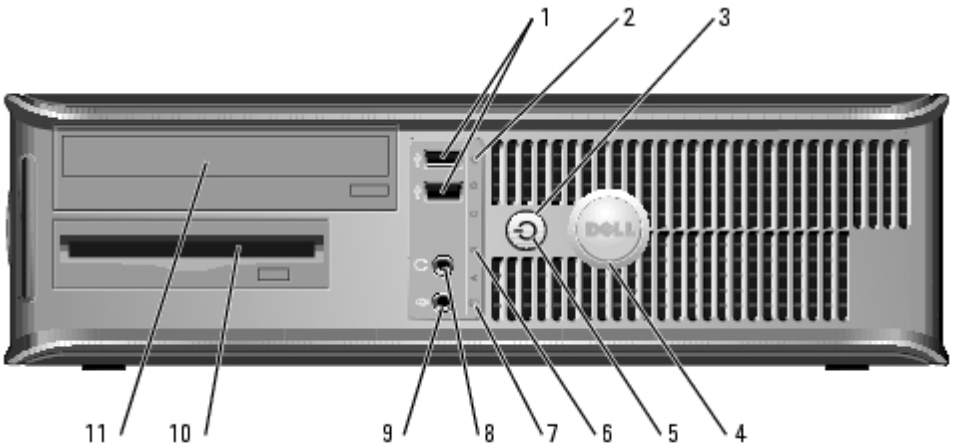
About Your Desktop Computer

Dell™ OptiPlex™ GX280 Systems User's Guide

- Front View
- Back View
- Inside Your Computer
- System Board Components

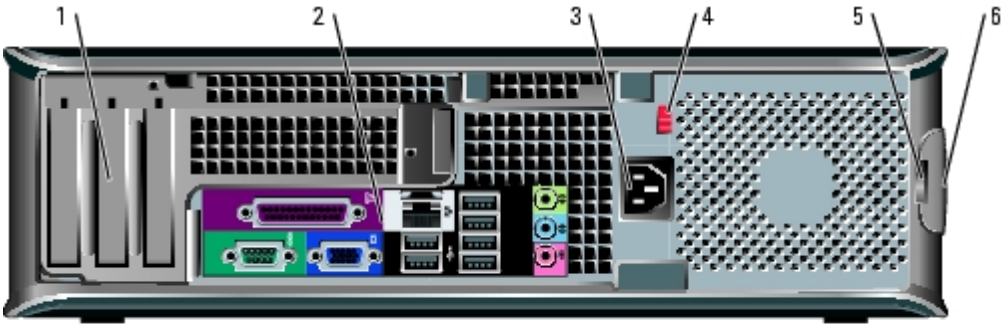
Front View



1	USB 2.0 connectors (2)	Use the front USB connectors for devices that you connect occasionally, such as joysticks or cameras, or for bootable USB devices (see "System Setup" for more information about booting to a USB device). It is recommended that you use the back USB connectors for devices that typically remain connected, such as printers and keyboards.
2	LAN indicator light	Indicates that a LAN (network) connection is established.
3	power button	Press to turn on the computer. **NOTICE:** To avoid losing data, do not turn off the computer by pressing the power button for 6 seconds or longer. Instead, perform an operating system shutdown. **NOTICE:** If your operating system has ACPI enabled, when you press the power button the computer will perform an operating system shutdown.
4	Dell badge	Can be rotated to match the orientation of your computer. To rotate, place fingers around the outside of the badge, press firmly, and turn the badge. You can also rotate the badge using the slot provided near the bottom of the badge.
5	power light	Turns on and blinks or remains solid to indicate different states: ◦ No light — The computer is turned off. (S4, S5, or mechanical OFF) ◦ Steady green — The computer is in a normal operating state. ◦ Blinking green — The computer is in a power-saving state. (S1 or S3)

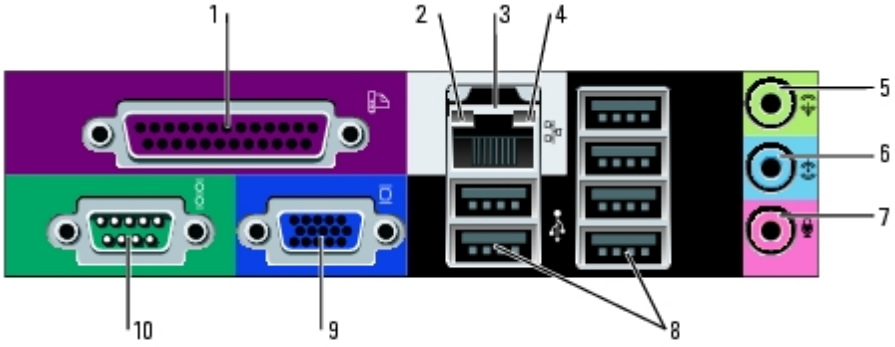
		◦ Blinking or solid amber — See "Power Problems." To exit from a power-saving state, press the power button or use the keyboard or the mouse if it is configured as a wake device in the Windows Device Manager. For more information about sleep states and exiting from a power-saving state, see "Power Management." See "Diagnostic Lights" for a description of light codes that can help you troubleshoot problems with your computer.
6	diagnostic lights	Use the lights to help you troubleshoot a computer problem based on the diagnostic code. For more information, see "Diagnostic Lights."
7	hard drive activity light	Flickers when the hard drive is being accessed.
8	headphone connector	Use the headphone connector to attach headphones and most kinds of speakers.
9	microphone connector	Use the microphone connector to attach a microphone.
10	floppy drive	Insert floppy disk in this drive.
11	CD/DVD drive	Insert a CD or DVD (if applicable) in this drive.

Back View



1	card slots	Access connectors for any installed PCI and PCI Express cards.
2	back panel connectors	Plug serial, USB, and other devices into the appropriate connector.
3	power connector	Insert the power cable.
4	voltage selection switch (may not be available on all computers)	Your computer is equipped with either an auto-sensing voltage selector or a manual voltage selection switch. Computers with an auto-sensing voltage selector do not have a voltage selection switch on the back panel and can automatically detect the correct operating voltage. 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. **NOTICE:** 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.

5	padlock ring	Insert a padlock to lock the computer cover.
6	cover release latch	Allows you to open the computer cover.



1	parallel connector	Connect a parallel device, such as a printer, to the parallel connector. If you have a USB printer, plug it into a USB connector. **NOTE:** The integrated parallel connector is automatically disabled if the computer detects an installed card containing a parallel connector configured to the same address. For more information, see "System Setup Options."
2	link integrity light	• Green — A good connection exists between a 10-Mbps network and the computer. • Orange — A good connection exists between a 100-Mbps network and the computer. • Yellow — A good connection exists between a 1-Gbps (or 1000-Mbps) network and the computer. • Off — The computer is not detecting a physical connection to the network.
3	network adapter connector	To attach your computer to a network or broadband device, connect one end of a network cable to either a network jack or your network or broadband device. Connect the other end of the network cable to the network adapter connector on the back panel of your computer. A click indicates that the network cable has been securely attached. **NOTE:** Do not plug a telephone cable into the network connector. On computers with a network connector card, use the connector on the card. It is recommended that you use Category 5 wiring and connectors for your network. If you must use Category 3 wiring, force the network speed to 10 Mbps to ensure reliable operation.
4	network activity light	Flashes a yellow light when the computer is transmitting or receiving network data. A high volume of network traffic may make this light appear to be in a steady "on" state.
5	line-out connector	Use the green line-out connector (available on computers with integrated sound) to attach headphones and most speakers with integrated amplifiers. On computers with a sound card, use the connector on the card.
6	line-in connector	Use the blue line-in connector (available on computers with integrated sound) to attach a record/playback device such as a cassette player, CD player, or VCR. On computers with a sound card, use the connector on the card.
7	microphone connector	Use the pink microphone connector (available on computers with integrated sound) to attach a personal computer microphone for voice or musical input into a sound or telephony program.

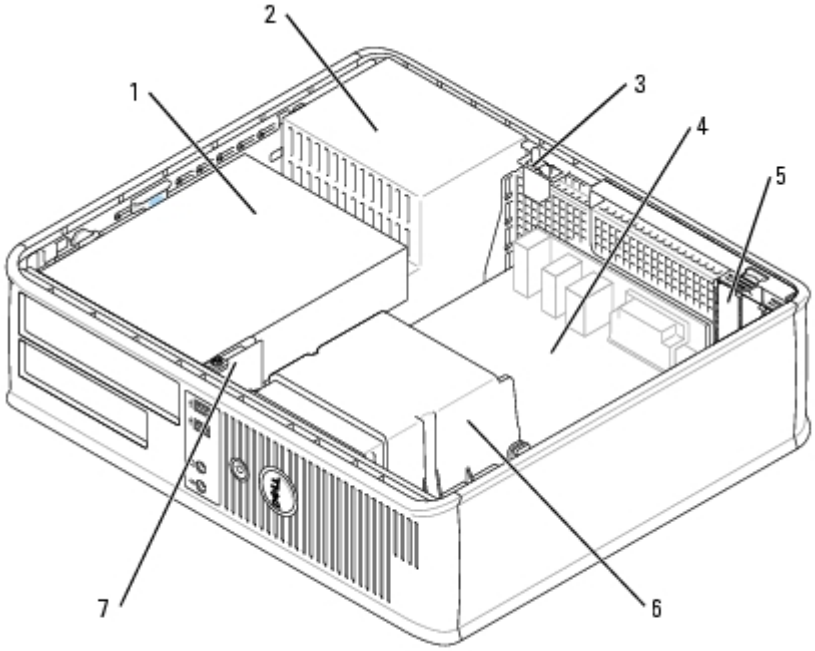
		On computers with a sound card, the microphone connector is on the card.
8	USB 2.0 connectors (6)	Use the back USB connectors for devices that typically remain connected, such as printers and keyboards.
9	video connector	Plug the cable from your VGA-compatible monitor into the blue connector. **NOTE:** If you purchased an optional graphics card, this connector will be covered by a cap. Connect your monitor to the connector on the graphics card. Do not remove the cap. **NOTE:** If you are using a graphics card that supports dual monitors, use the y-cable that came with your computer.
10	serial connector	Connect a serial device, such as a handheld device, to the serial port. The default designations are COM1 for serial connector 1 and COM2 for serial connector 2. For more information, see "System Setup Options."

Inside Your Computer

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

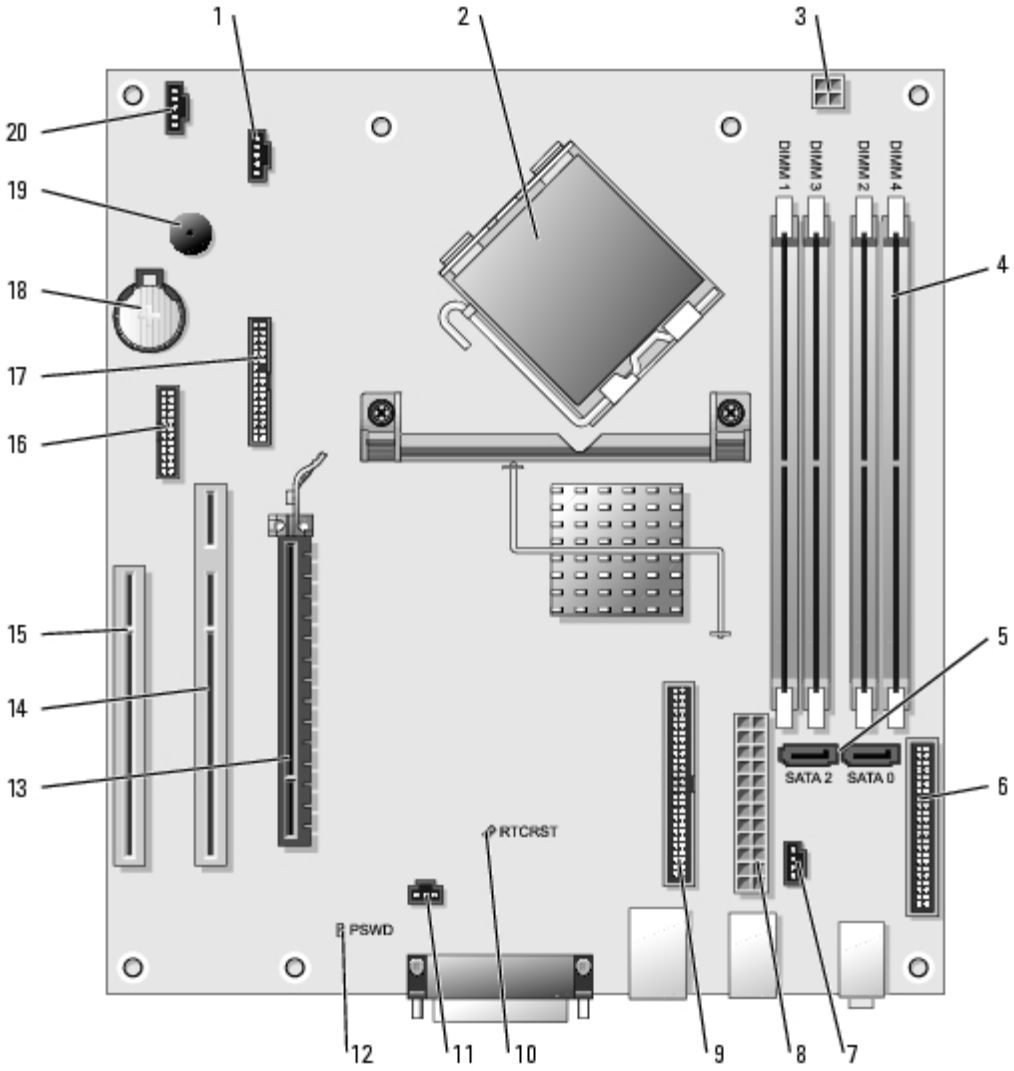
CAUTION: To avoid electrical shock, always unplug your computer from the electrical outlet before opening the cover.

NOTICE: Be careful when opening the computer cover to ensure that you do not accidentally disconnect cables from the system board.



1	drives bay (CD/DVD, floppy, and hard drive)	5	PCI slots (3)
2	power supply	6	heat sink shroud assembly
3	chassis intrusion switch	7	front I/O panel
4	system board		

System Board Components



1	fan connector (FAN)	11	intrusion switch connector (INTRUDER)
2	processor connector (CPU)	12	password jumper (PSWD)
3	power connector (12VPOWER)	13	PCI Express x16 connector (PEG)
4	memory module connectors (DIMM1, DIMM2, DIMM3, DIMM4)	14	PCI riser connector (PCI1)
5	serial ATA drive 0 and 2 connectors (SATA0, SATA2)	15	PCI connector (PCI3)
6	front-panel connector (FRONT PANEL)	16	serial connector (SER_PS2)
7	CD drive analog audio cable connector for optional analog audio cable (CD_IN)	17	floppy drive connector (FLOPPY)
8	power connector (POWER)	18	battery socket (BATTERY)
9	CD/DVD drive connector (IDE)	19	internal speaker (SPEAKER)
10	RTC reset jumper (RTCRST)	20	external speaker connector (EXT_SPKR)

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Opening the Computer Cover

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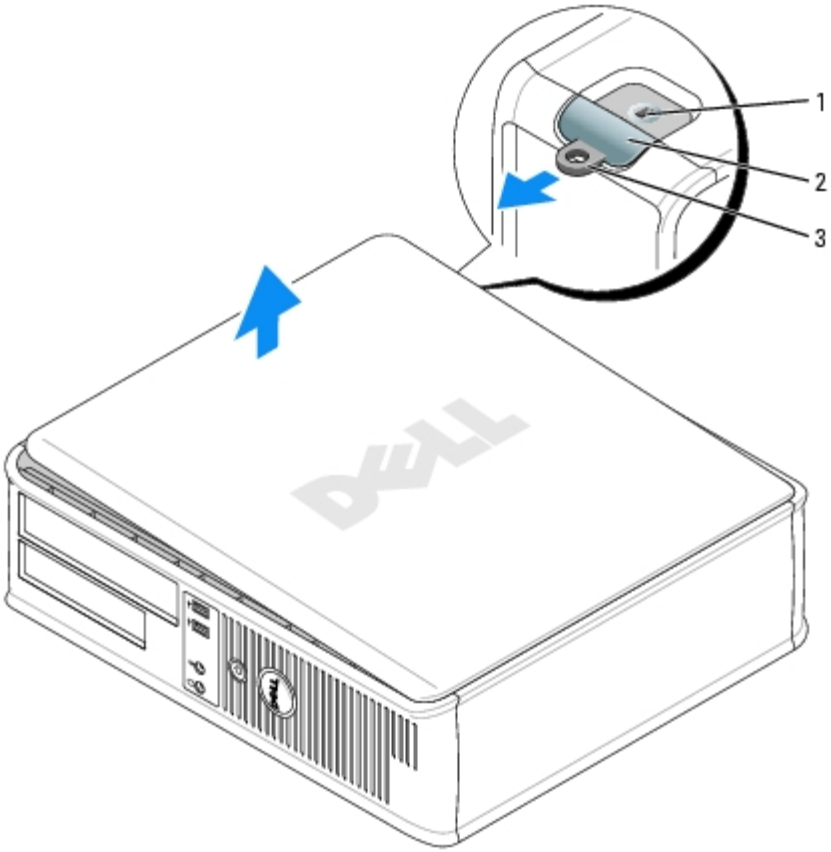
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.

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

1. Follow the procedures in "Before You Begin."
2. 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.

3. Locate the cover release latch shown in the illustration. Then, slide the release latch back as you lift the cover.
4. Grip the sides of the computer cover and pivot the cover up using the bottom hinges as leverage points.
5. Remove the cover from the hinge tabs and set it aside on a soft non-abrasive surface.



1	security cable slot
2	cover release latch
3	padlock ring

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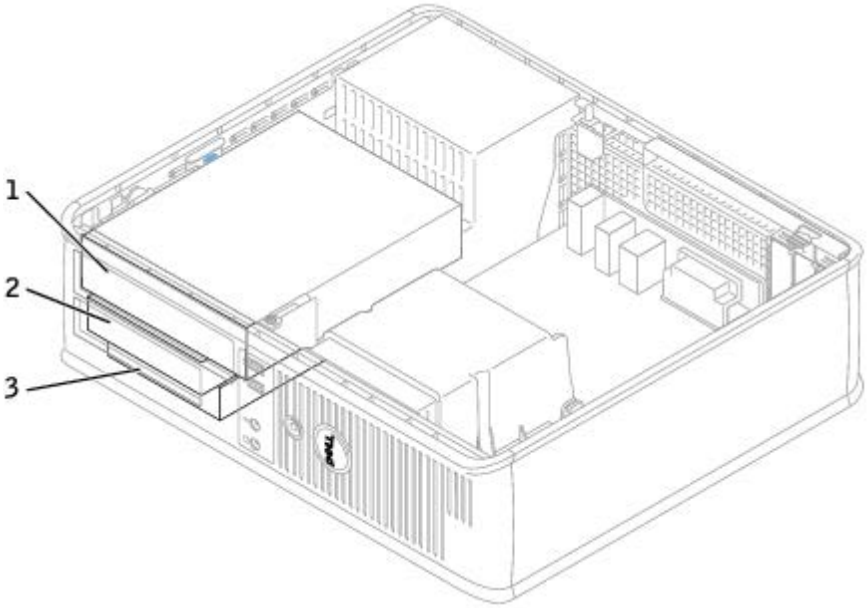
Drives

Dell™ OptiPlex™ GX280 Systems User's Guide

- General Installation Guidelines
- Hard Drive
- Floppy Drive
- CD/DVD Drive

Your computer supports:

- One serial ATA hard drive
- One optional ATA hard drive
- One optional floppy drive
- One optional CD or DVD drive



1	CD/DVD drive
2	floppy drive
3	hard drive

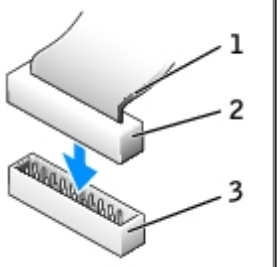
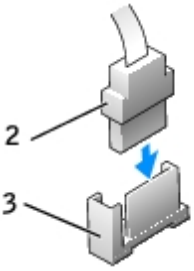
General Installation Guidelines

Connect CD/DVD drives to the connector labeled "IDE" on the system board. Serial ATA hard drives should be connected to the connectors labeled "SATA0" or "SATA2" on the system board.

Connecting Drive Cables

When you install a drive, you connect two cables—a DC power cable and a data cable—to the back of the drive and to the system board.

Drive Interface Connectors

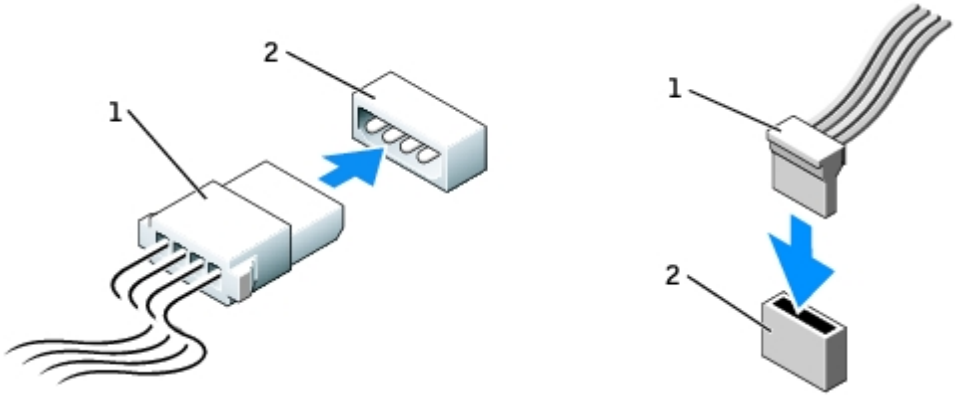
IDE Drive Connector	Serial ATA Connector
	

1	colored stripe on IDE cable
2	interface cable connector
3	interface connector

Most interface connectors are keyed for correct insertion; that is, a notch or a missing pin on one connector matches a tab or a filled-in hole on the other connector. Keyed connectors ensure that the pin-1 wire in the cable (indicated by the colored stripe along one edge of the IDE cable—serial ATA cables do not use a colored stripe) goes to the pin-1 end of the connector. The pin-1 end of a connector on a board or a card is usually indicated by a silk-screened "1" printed directly on the board or card.

NOTICE: When you connect an IDE interface cable, do not place the colored stripe away from pin 1 of the connector. Reversing the cable prevents the drive from operating and could damage the controller, the drive, or both.

Power Cable Connector



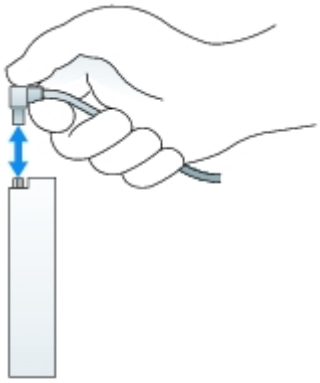
1	power cable
2	power input connector

Connecting and Disconnecting Drive Cables

When removing an IDE drive data cable, grasp the colored pull tab and pull until the connector detaches.

When connecting and disconnecting a serial ATA data cable, hold the cable by the black connector at each end.

Like IDE connectors, the serial ATA interface connectors are keyed for correct insertion; that is, a notch or a missing pin on one connector matches a tab or a filled-in hole on the other connector.



Hard Drive

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *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.

Removing a Hard Drive

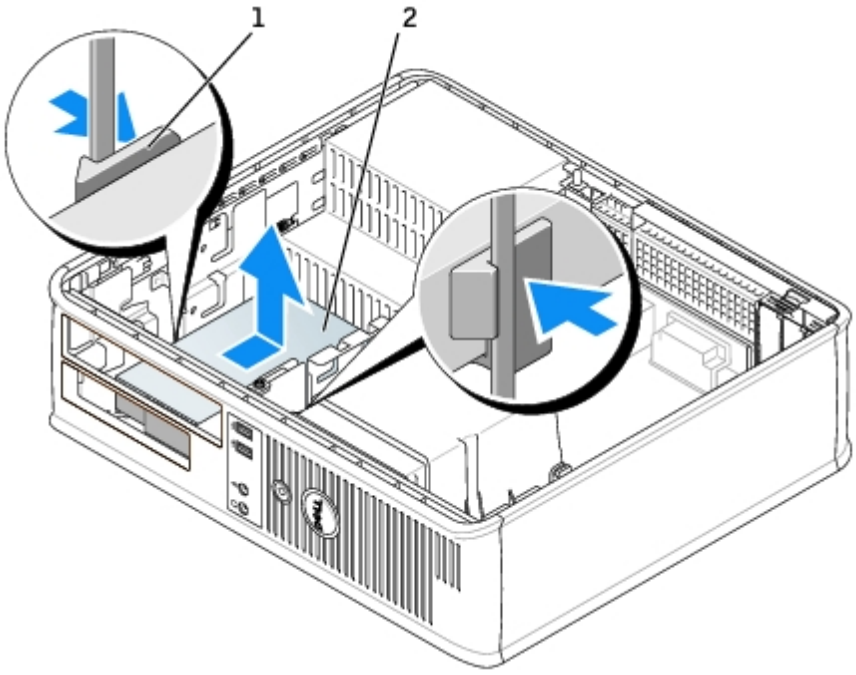
1. Follow the procedures in "Before You Begin."

NOTE: Since the following steps do not require the complete removal of the CD/DVD drive and the floppy drive, it is not necessary to disconnect the cables connecting the two drives.

2. Remove the CD/DVD drive from the bay and carefully set it aside.
3. Remove the floppy drive from the bay and carefully set it aside.
4. Press in on the two securing clips on each side of the drive and slide the drive towards the back of the computer.

NOTICE: Do not pull the drive out of the computer by the drive cables. Doing so may cause damage to cables and the cable connectors.

5. Lift the drive out of the computer and disconnect the power and hard-drive cables from the drive.



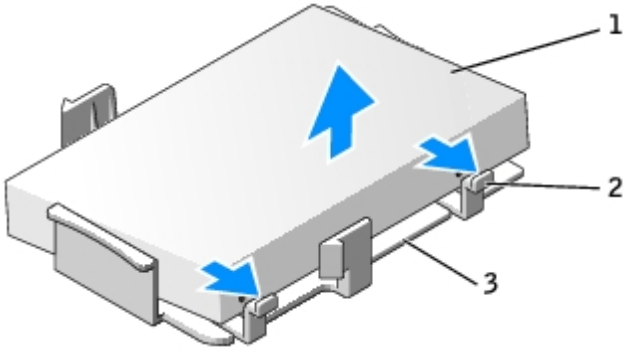
1	securing clips (2)
2	hard drive

Installing a Hard Drive

1. Check the documentation for the drive to verify that it is configured for your computer.

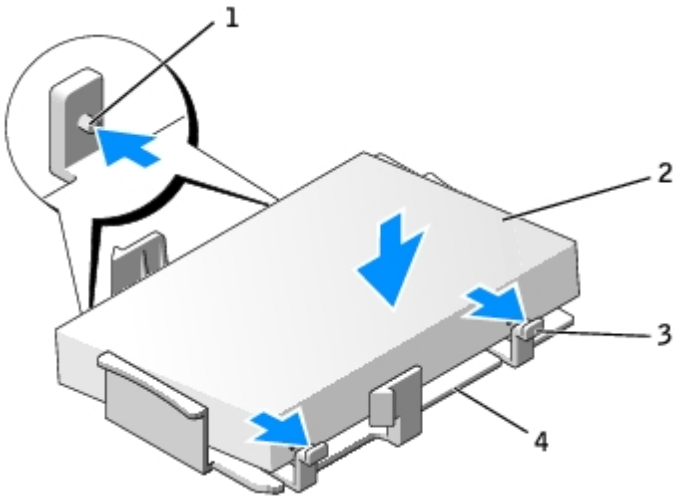
NOTICE: To avoid damage to the drive, do not set it on a hard surface. Instead, set the drive on a surface, such as a foam pad, that will sufficiently cushion it.

2. Unpack the replacement hard drive, and prepare it for installation.
3. If your replacement hard drive does not have the plastic drive bracket attached, remove the bracket from the old drive by unsnapping it from the drive.



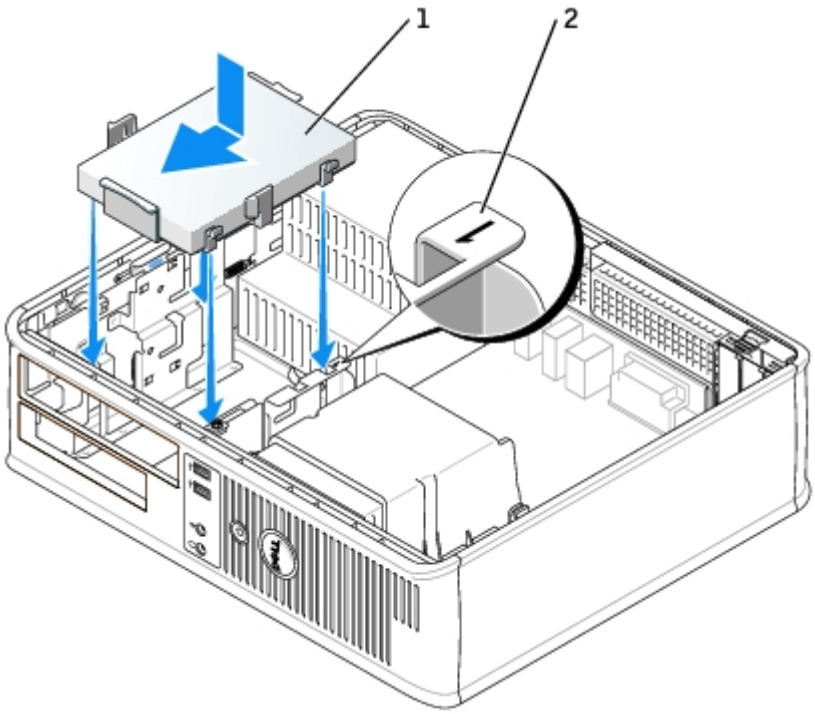
1	drive
2	release tabs (2)
3	hard drive bracket

4. Attach the bracket to the new drive by snapping it onto the drive.



1	securing tabs (2)	3	release tabs (2)
2	drive	4	hard drive bracket

5. Connect the power and hard-drive cables to the drive.
6. Locate the correct slot for the drive and gently insert the drive into the bay, sliding it forward until you hear a click or feel the drive securely installed.



1	drive
2	slot verification number

7. Replace the floppy drive and CD/DVD drive.
8. Check all connectors to be certain that they are properly cabled and firmly seated.
9. 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.

10. Connect your computer and devices to electrical outlets.

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

11. After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```

12. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

13. If the drive you just installed is the primary drive, insert a bootable medium into your boot drive.
14. Turn on the computer.
15. Enter system setup and update the appropriate **Primary Drive** option (**0** or **2**).
16. Exit system setup, and reboot the computer.
17. Partition and logically format your drive before you proceed to the next step.

    For instructions, see the documentation that came with your operating system.

18. Test the hard drive by running the Dell Diagnostics.
19. Install your operating system on the hard drive.

    For instructions, see the documentation that came with your operating system.

Floppy Drive

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

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

Removing a Floppy Drive

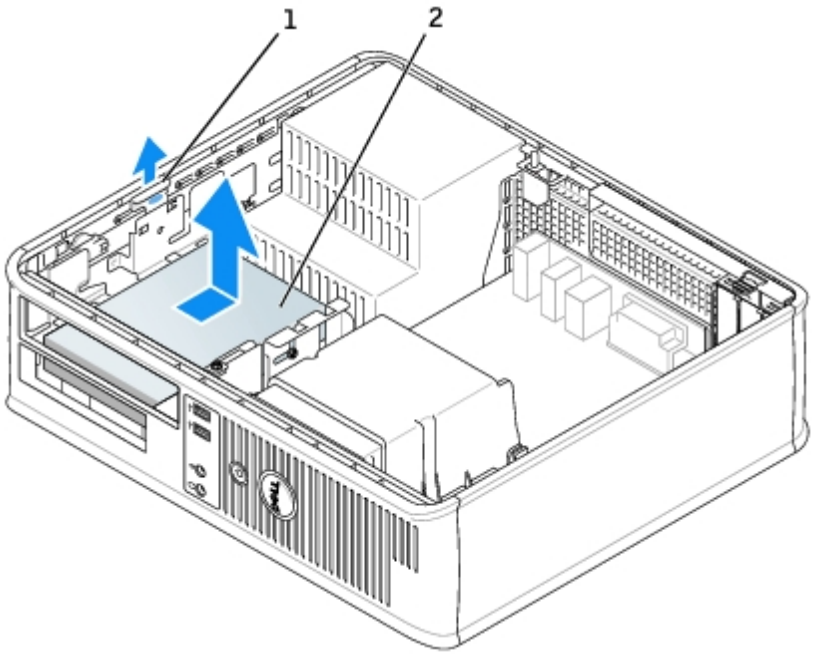
1. Follow the procedures in "Before You Begin."

NOTE: Since the following steps do not require the complete removal of the CD/DVD drive, it is not necessary to disconnect the cables connecting the CD/DVD drive.

2. Remove the CD/DVD drive and carefully set it aside.

NOTICE: Do not pull the drive out of the computer by the drive cables. Doing so may cause damage to cables and the cable connectors.

3. Pull up on the drive release latch and slide the floppy drive towards the back of the computer. Then, lift up to remove the drive from the computer.

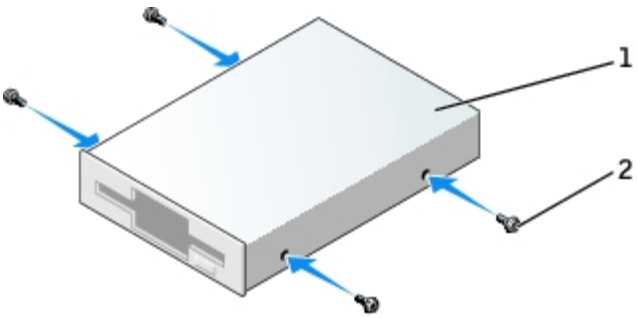


1	drive release latch
2	floppy drive

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

Installing a Floppy Drive

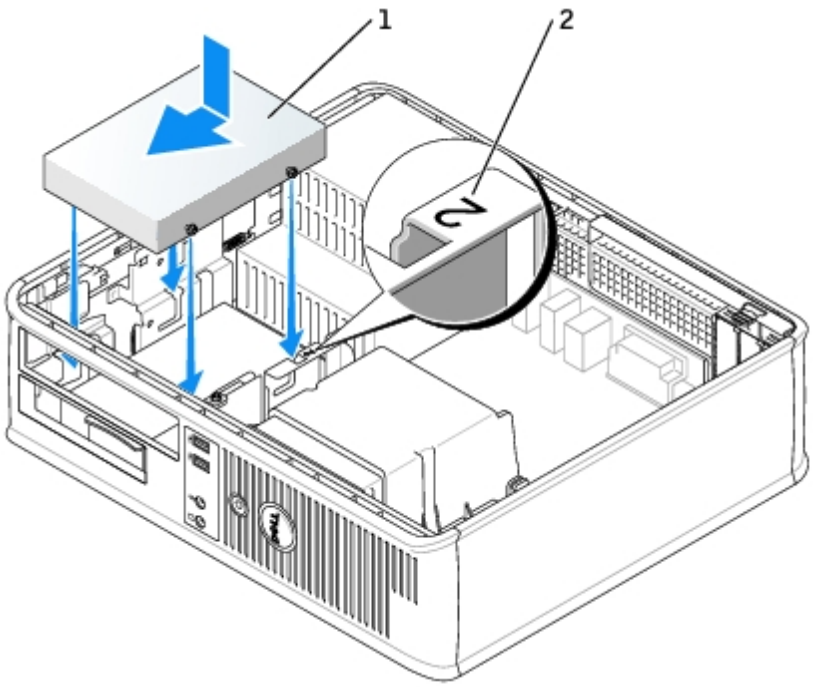
1. If you are installing a new drive:
    a. Use a small flat-edge screw driver on the back side of the panel insert to gently pop off the insert.
    b. Remove the shoulder screws (4) from the panel insert.
2. If you are replacing an existing drive:
    a. Use a small flat-edge screw driver on the backside of the panel insert to gently pop off the insert.
    b. Remove the shoulder screws (4) from the old drive.
3. Insert the shoulder screws (4) into the sides of the new floppy drive and tighten.



1	drive
2	shoulder screws (4)

4. Attach the power and floppy-drive cables to the floppy drive.

5. Gently slide the drive into place until you hear a click or feel the drive securely installed.



1	power cable
2	slot verification number

6. Replace the CD/DVD drive
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.

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

9. 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.

10. After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```

11. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

12. Enter system setup and use the **Diskette Drive** option to enable your new floppy drive.
13. Verify that your computer works correctly by running the Dell Diagnostics.

CD/DVD Drive

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

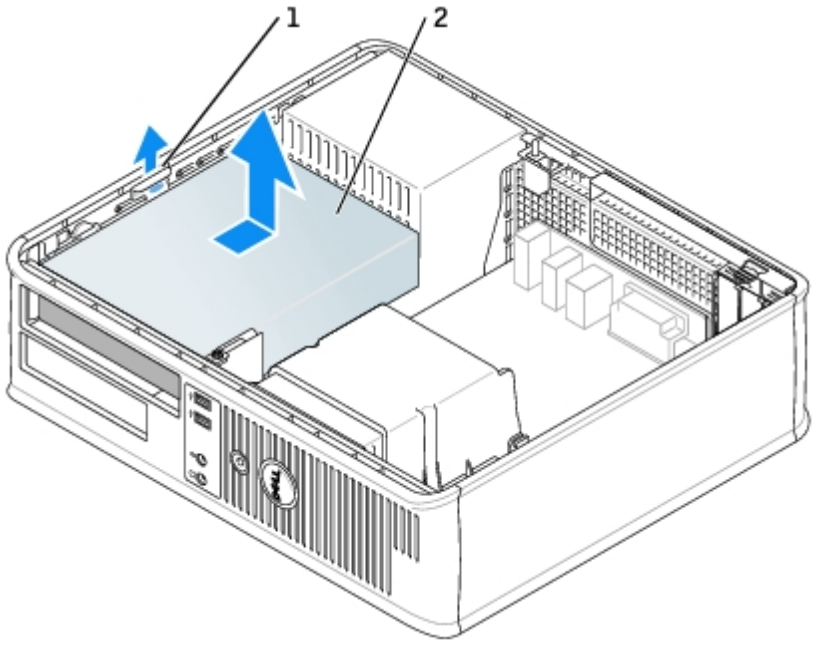
CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

Removing a CD/DVD Drive

1. Follow the procedures in "Before You Begin."

NOTICE: Do not pull the drive out of the computer by the drive cables. Doing so may cause damage to cables and the cable connectors.

2. Pull up on the drive release latch and slide the drive towards the back of the computer. Then, lift up to remove the drive from the computer.



1	drive release latch
2	CD/DVD drive

3. Disconnect the power and CD/DVD drive cables from the back of the drive.

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. If you are installing a new drive:

   a. Press the two snaps on the top of the panel insert and rotate the insert toward the front of the computer.

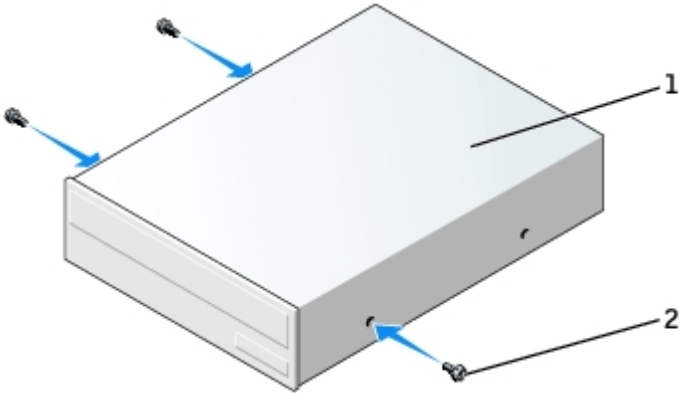
   b. Remove the shoulder screws (3) from the panel insert.

3. If you are replacing an existing drive:

a. Press the two snaps on the top of the panel insert and rotate the insert toward the front of the computer.

b. Remove the shoulder screws (3) from the old drive.

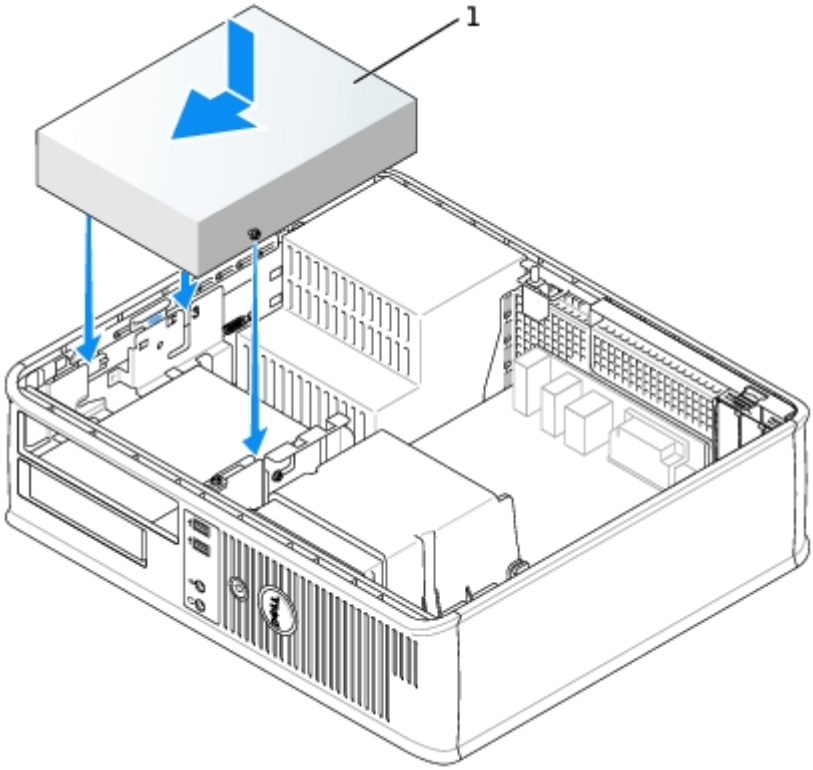
c. Insert the shoulder screws (3) into the sides of the new floppy drive and tighten.



1	drive
2	shoulder screws (3)

4. Connect the power and CD/DVD drive cables to the drive.

5. Gently slide the drive into place until you hear a click or feel the drive securely installed.



1	drive

6. Check all cable connections, and fold cables out of the way to provide airflow for the fan and cooling vents.

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 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.

9. After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

10. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

11. Update your configuration information by setting the appropriate **Drive** option (**0** or **1**) under **Drives**. See "System Setup" for more information.

12. Verify that your computer works correctly by running the Dell Diagnostics.

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Back to Contents Page

PCI and PCI Express Cards and Serial Port Adapters

Dell™ OptiPlex™ GX280 Systems User's Guide

- PCI Cards
- PCI Express Cards
- Serial Port Adapters

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

NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

Your Dell™ computer supports a serial port adapter and provides the following slots for PCI and PCI Express cards:

- two half-height PCI card slot and one half-height PCI Express x16 card slot

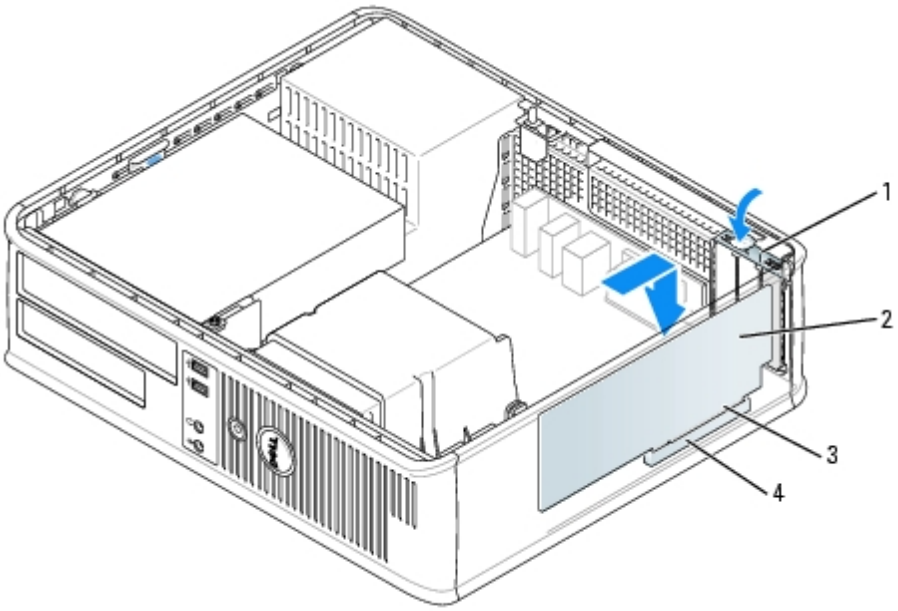
NOTE: Your Dell computer uses only PCI and PCI Express slots. ISA cards are not supported.

PCI Cards

Installing a PCI Card

1. Follow the procedures in "Before You Begin."
2. Gently push the release tab on the card retention lever.
3. If you are installing a new card, remove the filler bracket to create a card-slot opening. Then continue with step 5.
4. 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.
5. Prepare the card for installation.

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



1	card retention lever
2	card
3	card-edge connector
4	card connector

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.

6. Place the card in the connector and press down firmly. Ensure that the card is fully seated in the slot.
7. Gently press down on the card retention lever to secure the card.

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.

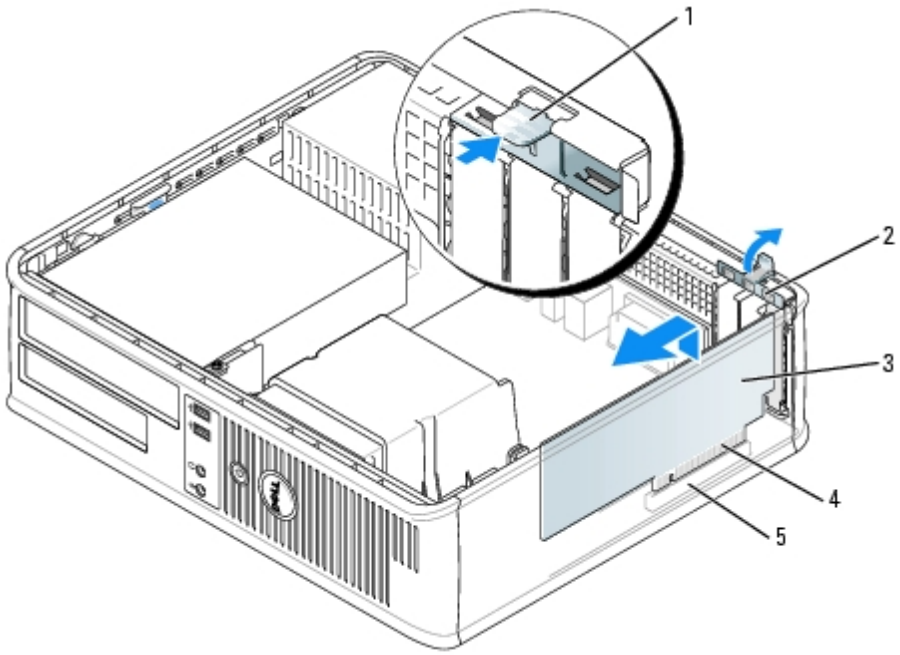
8. Connect any cables that should be attached to the card.

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

9. If you installed a sound card:
    a. Enter system setup, select **Audio Controller**, and change the setting to **Off**.
    b. Connect external audio devices to the sound card's connectors. Do not connect external audio devices to the microphone, speaker/headphone, or line-in connectors on the back panel.
10. If you installed an add-in network adapter and want to turn off the integrated network adapter:
    a. Enter system setup, select **Network Controller**, and change the setting to **Off**.
    b. Connect the network cable to the add-in network adapter's connectors. Do not connect the network cable to the integrated connector on the back panel.
11. Install any drivers required for the card as described in the card documentation.

Removing a PCI Card

1. Follow the procedures in "Before You Begin."
2. Gently push the release tab on the card retention lever.
3. If necessary, disconnect any cables connected to the card.
4. Grasp the card by its top corners, and ease it out of its connector.



1	release tab	4	card-edge connector
2	card retention lever	5	card connector
3	card		

5. 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.

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.

6. Snap the card retention lever into place.

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

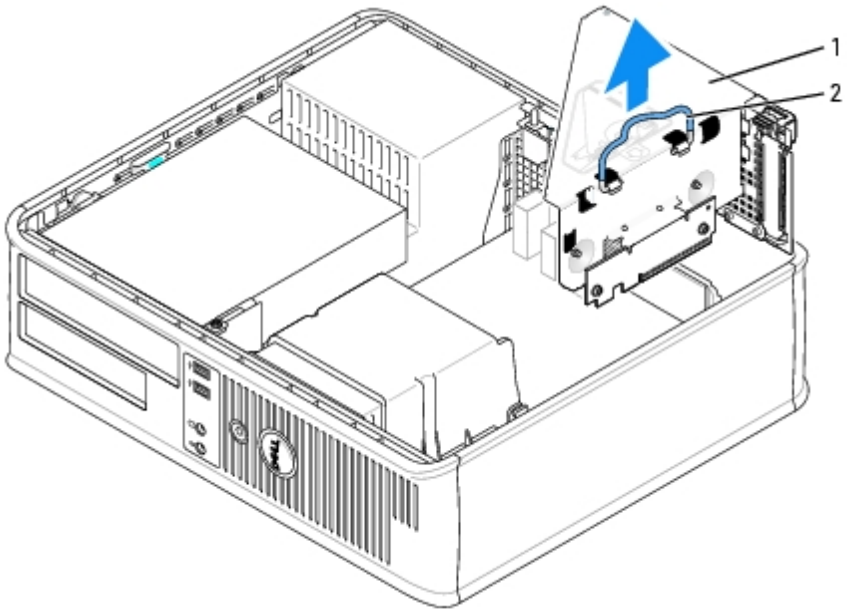
7. Replace the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.
8. Uninstall the card's driver
9. If you removed a sound card:
   a. Enter system setup, select **Audio Controller**, and change the setting to **On**.
   b. Connect external audio devices to the audio connectors on the computer back panel.
10. If you removed an add-in network connector:

a. Enter system setup, select **Network Controller**, and change the setting to **On**.

Connect the network cable to the integrated connector on the computer back panel.

Installing a PCI Card in the Card Cage

1. Follow the procedures in "Before You Begin."
2. If applicable, remove the card installed in the PCI3 connector on the system board.
3. Remove the card cage:
   a. Check any cables connected to cards through the back-panel openings. Disconnect any cables that will not reach the card cage once they are removed from the computer.
   b. Gently pull on the handle and lift the card cage up and away from the computer.



1	card cage
2	handle

4. If you are installing a new card, remove the filler bracket to create an empty card-slot opening.

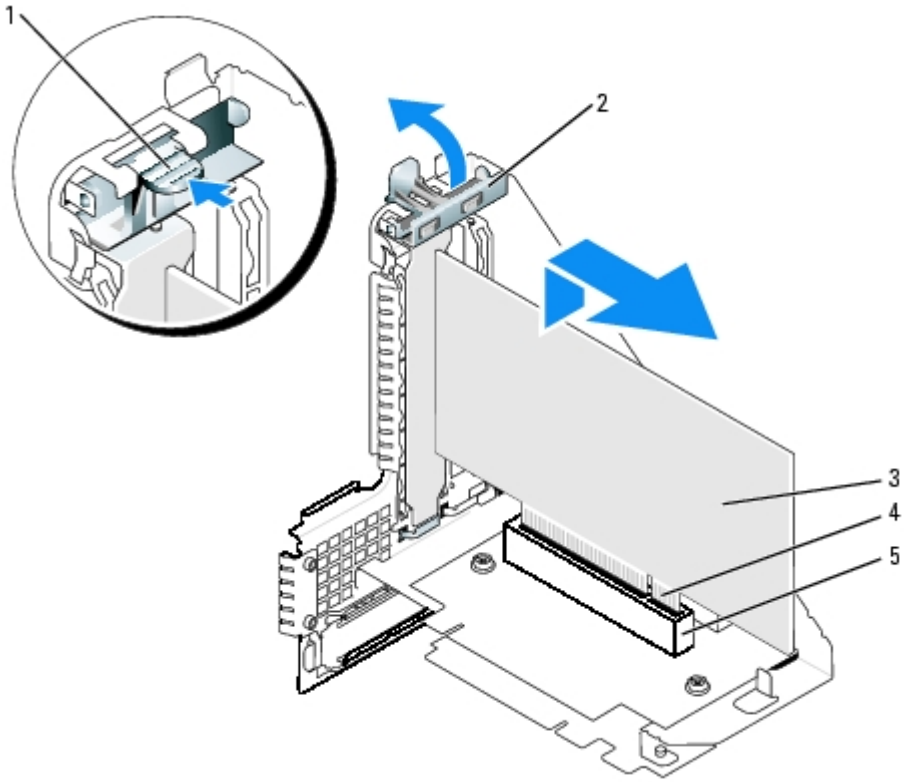
   If you are replacing a card that is already installed in the computer, remove the card. If necessary, disconnect any cables connected to the card. Grasp the card by its top corners, and ease it out of its connector.

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

5. Prepare the new card for installation.

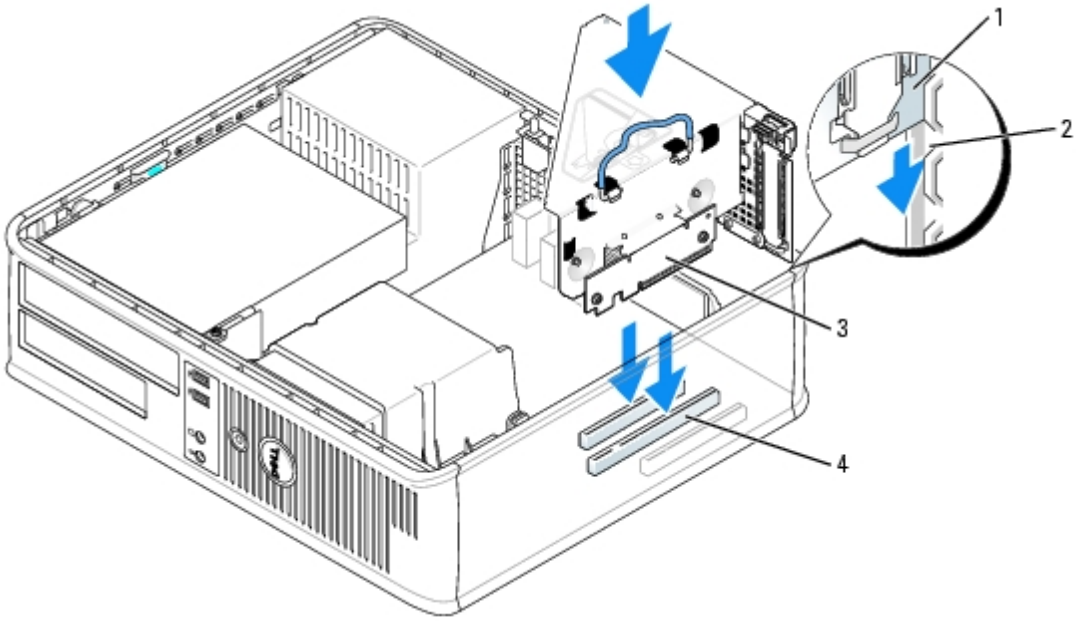
CAUTION: Some network adapters automatically start the computer when they are connected to a network. To guard against electrical shock, be sure to unplug your computer from its electrical outlet before installing any cards.

6. Press the release tab to raise the card retention lever.



1	release tab	4	card-edge connector
2	card retention lever	5	card connector
3	card		

7. Insert the card firmly into the card connector on the riser board.
8. Lower the card retention lever and press it into place, securing the card(s) in the computer.
9. Replace the card cage:
    a. Align the tabs in the side of the card cage with the slots on the side of the computer, and slide the card cage down into place.
    b. Ensure that the riser boards are fully seated in the connectors on the system board.



1	card cage	3	riser boards (2)
2	slots	4	system board connectors (2)

10. Reconnect any cables that you removed in step 3.
11. Connect any cables that should be attached to the card.

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.

12. Replace 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.

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

After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

```
ALERT! Cover was previously removed.
```

14. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

15. If you installed a sound card, perform the following steps:
    a. Enter system setup, select **Audio Controller**, and change the setting to **Off**.
    b. Connect external audio devices to the sound card's connectors. Do not connect external audio devices to the microphone, speaker/headphone, or line-in connectors on the back panel.
16. If you installed an add-in network adapter and want to turn off the integrated network adapter:
    a. Enter system setup, select **Network Controller** and change the setting to **Off**.
    b. Connect the network cable to the add-in network adapter's connectors. Do not connect the network cable to the

integrated connector on the back panel.

17. Install any drivers required for the card as described in the card documentation.

Removing a PCI Card from the Card Cage

1. Follow the procedures in "Before You Begin."
2. Remove the card cage (see step 3 of the previous procedure).
3. Press in on the tab to raise the card retention lever.
4. If necessary, disconnect any cables connected to the card.
5. Grasp the card by its top corners, and ease it out of its connector.
6. 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.

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.

7. Lower the card retention lever and press it into place.
8. Replace the card cage (see step 9 of the previous procedure).
9. Replace the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

10. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

11. Uninstall the card's driver.
12. If you removed a sound card:
    a. Enter system setup, select **Audio Controller**, and change the setting to **On**.
    b. Connect external audio devices to the audio connectors on the computer back panel.
13. If you removed an add-in network connector:
    a. Enter system setup, select **Network Controller**, and change the setting to **On**.
    b. Connect the network cable to the integrated connector on the computer back panel.

PCI Express Cards

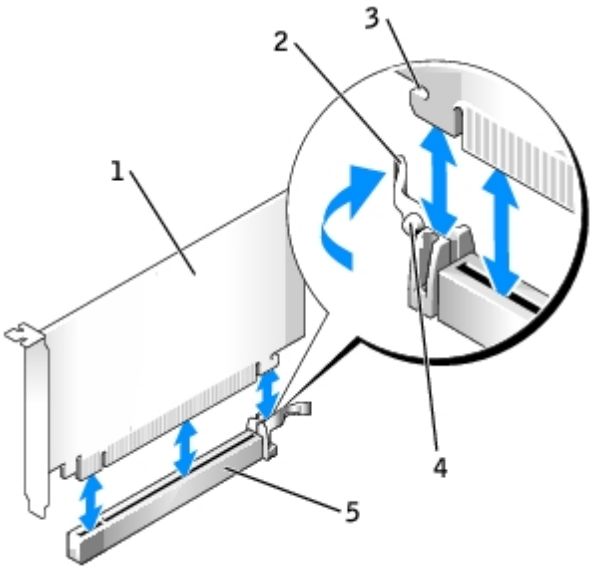
Your computer supports one half-height PCI Express x16 card.

If you are installing or replacing a PCI Express x16 card, see "Installing a PCI Express x16 Card," or if you are removing the card, see "Removing a PCI Express x16 Card."

If you are replacing either type of PCI Express card, remove the current driver for the card from the operating system.

Installing a PCI Express x16 Card

1. Follow the procedures in "Before You Begin."
2. If you are replacing a PCI Express x16 card, remove the installed card:
    a. Press the lever with your thumb until you release the securing tab.
    b. While pressing the lever, pull the card up and out of the card connector..



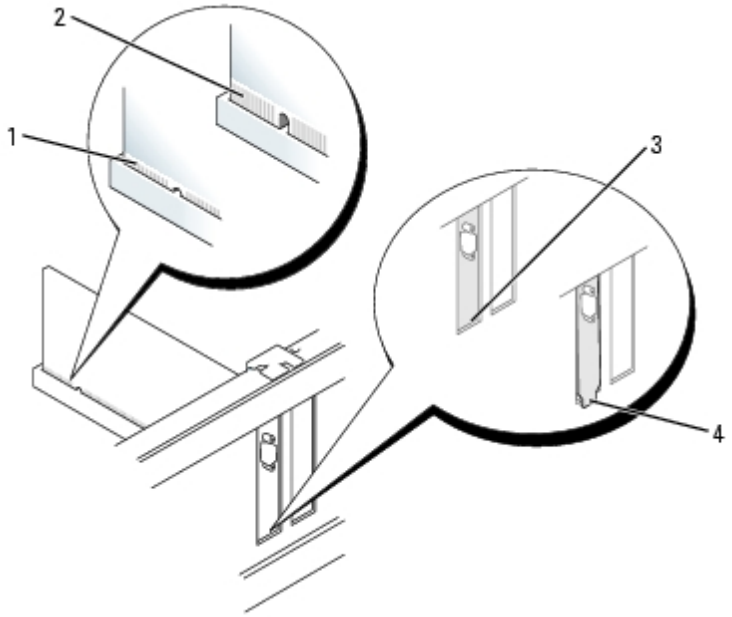
1	PCI Express x16 card
2	lever
3	securing slot (not all cards)
4	securing tab
5	PCI Express x16 card connector

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

3. Prepare the card for installation.

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.

4. Press the card lever away from the card connector and insert the new card.
5. Press down firmly. Ensure that the card is fully seated in the slot.



1	fully seated card
2	not fully seated card
3	bracket within slot
4	bracket caught outside of slot

6. Release the card lever, ensuring that the tab fits into the notch on the front end of the card.
7. Secure the card by lowering the lever on the back panel.
8. Replace 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.

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

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

10. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

11. If you installed a sound card:
    a. Enter system setup, select **Audio Controller**, and change the setting to **Off**.
    b. Connect external audio devices to the sound card's connectors. Do not connect external audio devices to the microphone, speaker/headphone, or line-in connectors on the back panel.
12. If you installed an add-in network adapter and want to turn off the integrated network adapter:
    a. Enter system setup, select **Network Controller** and change the setting to **Off**.
    b. Connect the network cable to the add-in network adapter's connectors. Do not connect the network cable to the integrated connector on the back panel.

13. Install any drivers required for the card as described in the card documentation.

Removing a PCI Express x16 Card

1. Follow the procedures in "Before You Begin."
2. If necessary, disconnect any cables connected to the card.
3. Remove the card as instructed in step 2 in the preceding section.
4. 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.

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.

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

6. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

7. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

8. Uninstall the card's driver.
9. If you removed a sound card:
   a. Enter system setup, select **Audio Controller**, and change the setting to **On**.
   b. Connect external audio devices to the audio connectors on the computer back panel.
10. If you removed an add-in network connector:
    a. Enter system setup, select **Network Controller**, and change the setting to **On**.

Serial Port Adapters

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

NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

NOTE: The serial port adapter for your small-desktop computer also includes two PS/2 connectors.

Installing a Serial Port Adapter

1. Follow the procedures in "Before You Begin."
2. Gently push the release tab on the retention lever.
3. Remove the filler bracket (if applicable).

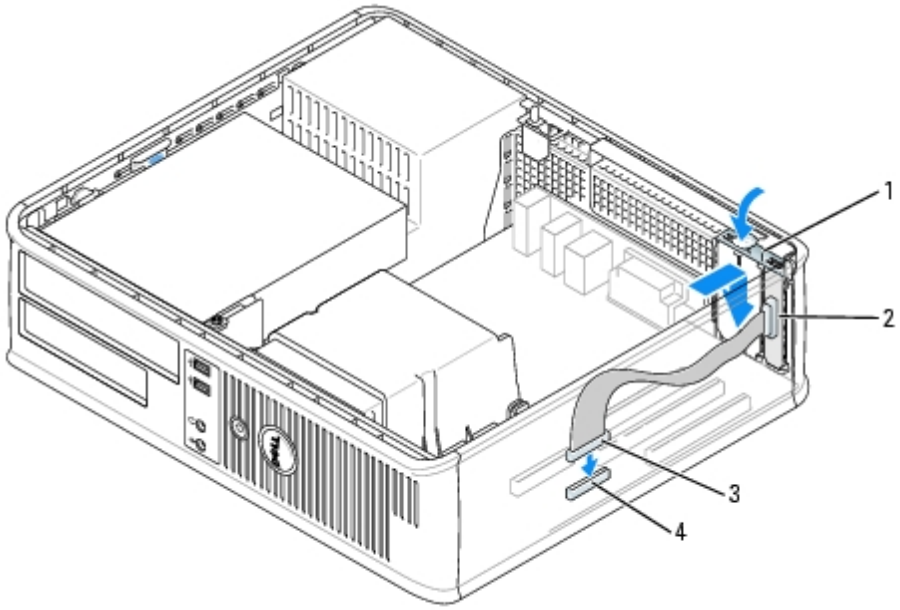
NOTE: See the documentation that came with the adapter for information on configuring the adapter, making internal connections, or customizing it for your computer.

4. Place the serial port adapter bracket in the connector and press down firmly. Ensure that the adapter is fully seated in the slot.
5. Gently press the card retention lever to secure the adapter bracket.

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.

6. Connect the adapter cable to the serial port adapter connector (SER_PS2) on the system board.
7. Connect any cables that should be attached to the serial port adapter.

NOTE: See the documentation for the serial port adapter for information about the cable connections.



1	retention lever
2	serial port adapter bracket
3	serial port adapter connector
4	serial port adapter system board connector (SER_PS2)

8. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

```
ALERT! Cover was previously removed.
```

9. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

Removing a Serial Port Adapter

1. Follow the procedures in "Before You Begin."
2. Gently push the release tab on the card retention lever.
3. Disconnect the cable that connects the adapter to the system board.
4. Grasp the serial port adapter bracket by its top corners, and ease it out of its connector.
5. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

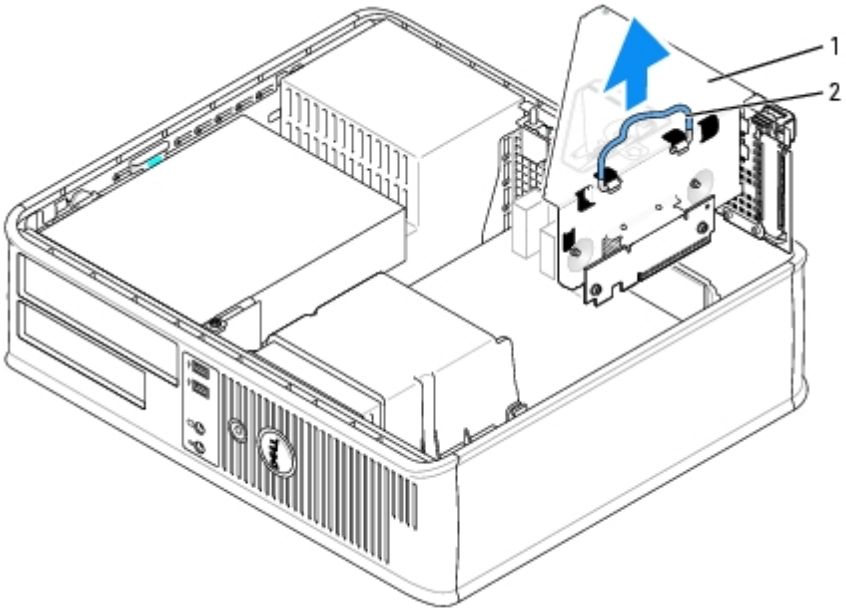
   ```
   ALERT! Cover was previously removed.
   ```

6. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

Installing a Serial Port Adapter in the Card Cage

1. Follow the procedures in "Before You Begin."
2. If applicable, remove the card installed in the PC13 connector on the system board.
3. Remove the card cage:
   a. Check any cables connected to cards through the back-panel openings. Disconnect any cables that will not reach the card cage once they are removed from the computer.
   b. Gently pull on the handle and lift the card cage up and away from the computer.



1	card cage
2	handle

4. If you are installing a new serial port adapter, remove the filler bracket to create an empty card-slot opening. If you are replacing an adapter that is already installed in the computer, remove the adapter. If necessary, disconnect any cables connected to the adapter. Grasp the serial port adapter by its top corners, and ease it out of its connector.
5. Prepare the serial port adapter for installation.

CAUTION: To guard against electrical shock, be sure to unplug your computer from its electrical outlet before installing any cards or adapters.

6. Gently push the release tab on the retention lever.
7. Place the serial port adapter bracket in the connector and press down firmly. Ensure that the adapter is fully seated in the connector.
8. Gently press the retention lever down to secure the adapter.

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.

9. Connect the adapter cable to the serial port adapter connector (SER_PS2) on the system board.
10. Replace the card cage:
    a. Align the tabs in the side of the card cage with the slots on the side of the computer, and slide the card cage down into place.
    b. Ensure that the riser boards are fully seated in the connectors on the system board.
11. Connect any disconnected cables.
12. Replace 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.

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

After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

```
ALERT! Cover was previously removed.
```

14. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

15. Install any drivers required for the serial port adapter.

Removing a Serial Port Adapter from the Card Cage

1. Follow the procedures in "Before You Begin."
2. Remove the card cage (see step 3 of the previous procedure)
3. Press the tab to raise the retention lever.
4. Disconnect the cable that attaches the adapter to the system board.
5. Grasp the serial port adapter by its top corners, and ease it out of its connector.
6. If you are removing the adapter permanently, install a filler bracket in the empty card slot opening.

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.

7. Lower the retention lever and press it into place.
8. Replace the card cage (see step 10 of the previous procedure).
9. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

```
ALERT! Cover was previously removed.
```

10. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

11. Uninstall the adapter's driver.

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Processor

Dell™ OptiPlex™ GX280 Systems User's Guide

- Removing the Processor
- Installing the Processor

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

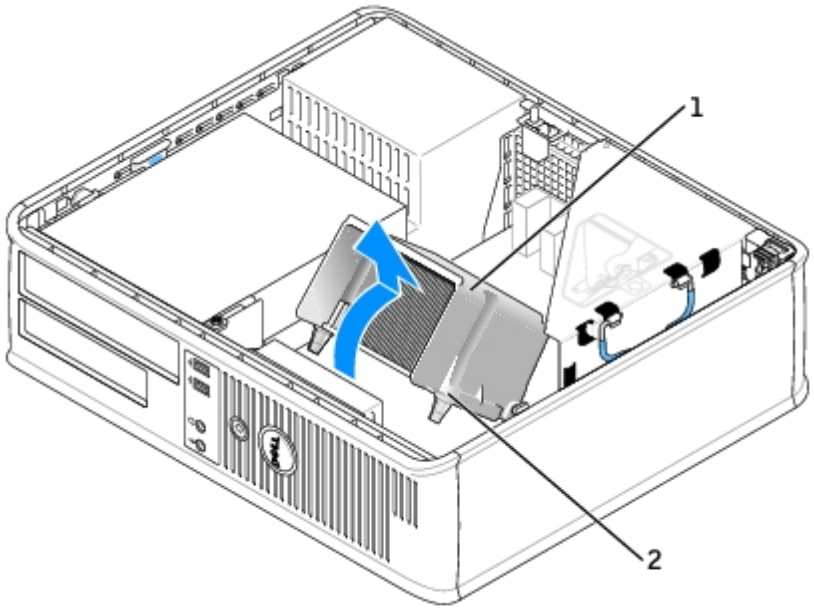
CAUTION: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

Removing the Processor

1. Follow the procedures in "Before You Begin."
2. Loosen the captive screw on each side of the heat sink shroud assembly.

CAUTION: Despite having a plastic shield, the heat sink assembly may be very hot during normal operation. Be sure that it has had sufficient time to cool before you touch it.

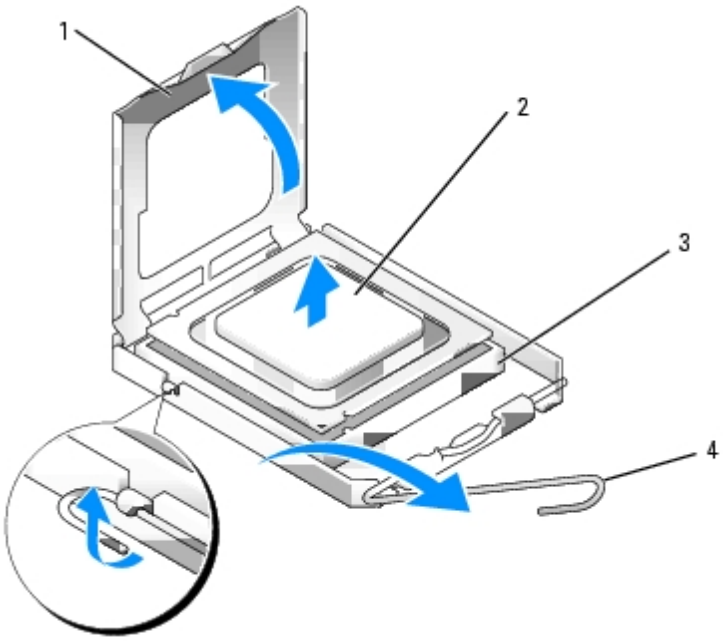
3. Rotate the heat sink shroud assembly upward, and remove the assembly from the computer.



1	heat sink shroud assembly
2	captive screw housing (2)

NOTICE: If you are installing a processor upgrade kit from Dell, discard the original heat sink. If you are *not* installing a processor upgrade kit from Dell, reuse the original heat sink when you install your new processor.

4. Open the processor cover by sliding the release lever from under the center cover latch on the socket. Then, pull the lever back to release the processor.



1	processor cover
2	processor
3	socket
4	release lever

NOTICE: When replacing the processor, do not touch any of the pins inside the socket or allow any objects to fall on the pins in the socket.

5. Gently remove the processor from the socket.

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

Installing the Processor

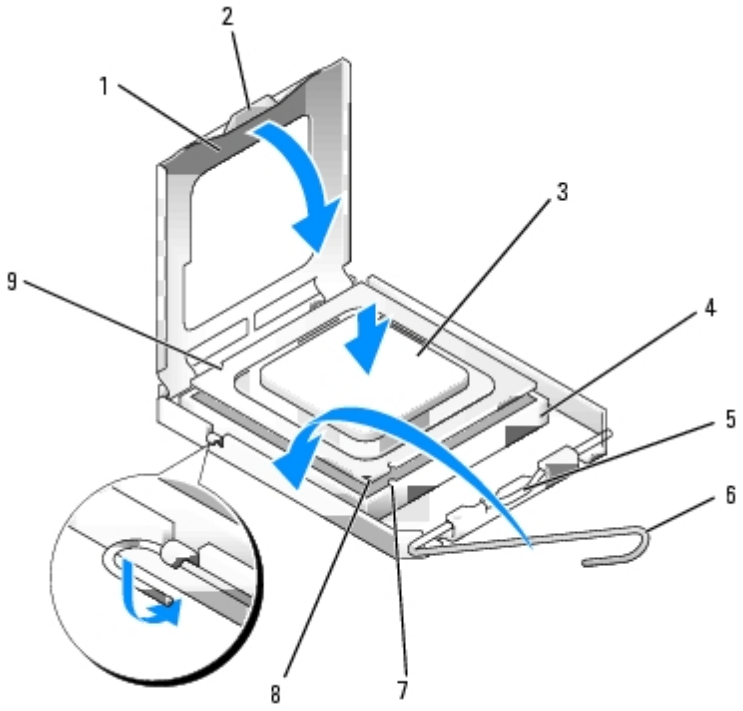
NOTICE: Ground yourself by touching an unpainted metal surface on the back of the computer.

NOTICE: When replacing the processor, do not touch any of the pins inside the socket or allow any objects to fall on the pins in the socket.

1. Follow the procedures in "Before You Begin."
2. Unpack the new processor, being careful not to touch the underside of the processor.

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

3. If the release lever on the socket is not fully extended, move it to that position.
4. Orient the front and rear alignment notches on the processor with the front and rear alignment notches on the socket.
5. Align the pin-1 corners of the processor and socket.



1	processor cover	6	release lever
2	tab	7	front alignment notch
3	processor	8	socket and processor pin-1 indicator
4	processor socket	9	rear alignment notch
5	center cover latch		

NOTICE: To avoid damage, ensure that the processor aligns properly with the socket, and do not use excessive force when you install the processor.

6. Set the processor lightly in the socket and ensure that the processor is positioned correctly.
7. When the processor is fully seated in the socket, close the processor cover.

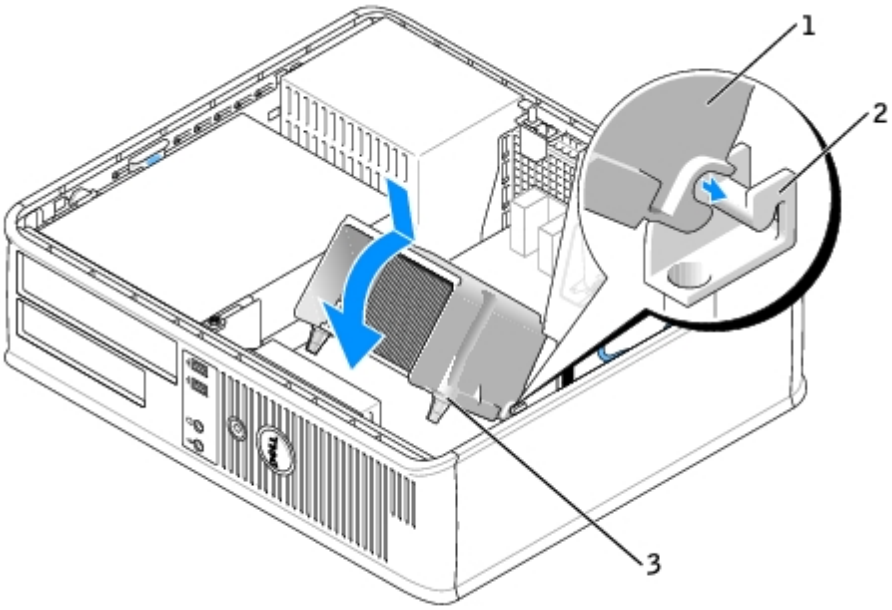
   Ensure that the tab on the processor cover is positioned underneath the center cover latch on the socket.
8. Pivot the socket release lever back toward the socket and snap it into place to secure the processor.

NOTICE: If you are *not* installing a processor upgrade kit from Dell, reuse the original heat sink assembly when you replace the processor.

If you installed a processor replacement kit from Dell, return the original heat sink assembly and processor to Dell in the same package in which your replacement kit was sent.

9. Install the heat sink assembly:
   a. Place the heat sink assembly back onto the heat sink assembly bracket.
   b. Rotate the heat sink assembly down towards the computer base and tighten the two captive screws.

NOTICE: Ensure that the heat sink is correctly seated and secure.



1	heat sink and fan shroud assembly
2	heat sink assembly bracket
3	captive screw housing (2)

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 electrical outlets, and turn them on.

    After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```

12. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

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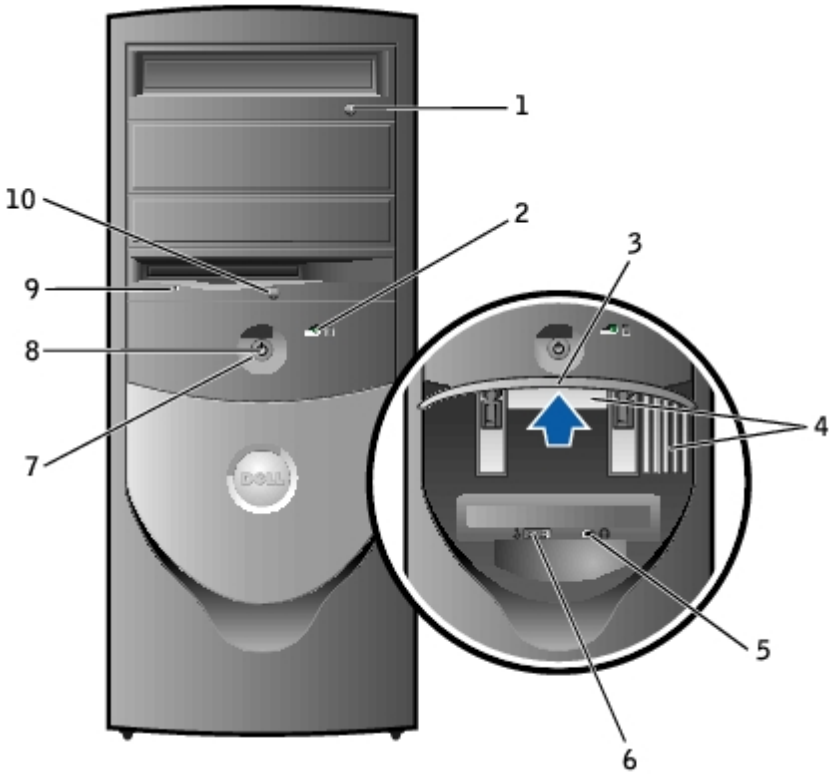
About Your Small Mini-Tower Computer

Dell™ OptiPlex™ GX280 Systems User's Guide

- Front View
- Back View
- Inside Your Computer
- System Board Components
- Front-Panel Door and Hinge Arms

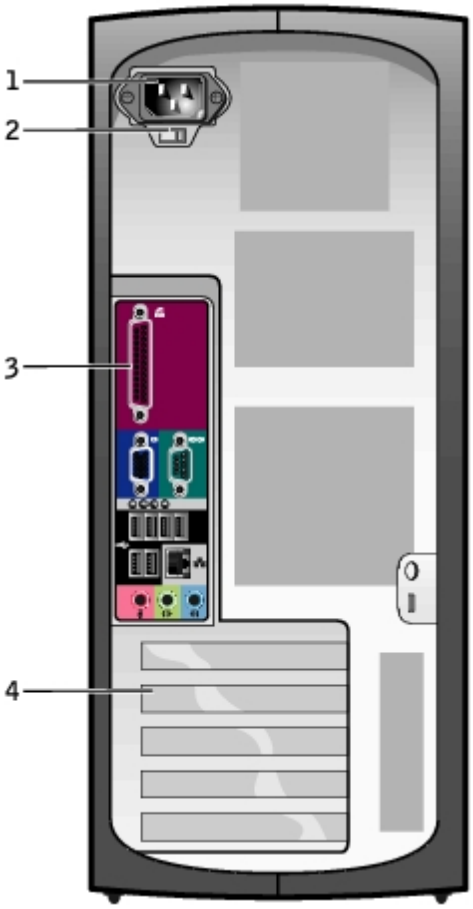
Front View



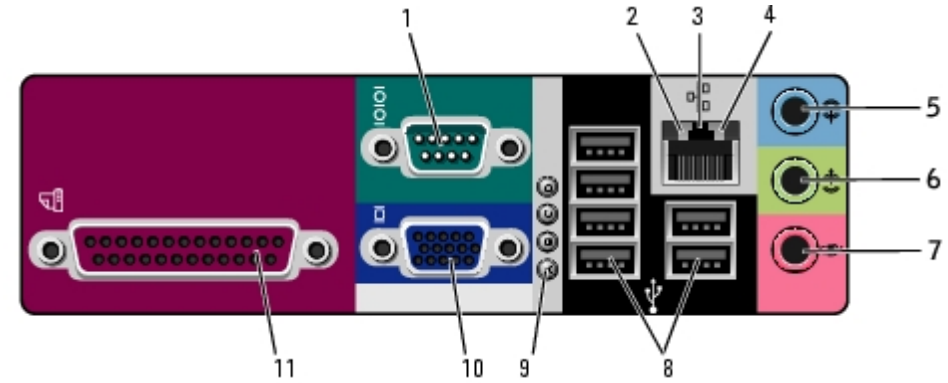
1	CD/DVD-drive eject button	Press to eject a CD or DVD from the drive.
2	hard-drive activity light	The hard drive light is on when the computer reads data from or writes data to the hard drive. The light might also be on when a device such as your CD player is operating.
3	front-panel door	Open the door to use the front panel connectors. **NOTE:** The front door is removable; if you remove it or accidentally knock it off its hinges, it snaps back in place. For instructions on how to reattach the door, see "Front-Panel Door and Hinge Arms."
4	front air vents	The front air vents help cool the inside of your computer.
5	headphone connector	Use the headphone connector to attach headphones and most kinds of speakers.

6	USB 2.0 connectors (2)	Use the front USB connectors for devices that you connect occasionally, such as joysticks or cameras, or for bootable USB devices (see "System Setup" for more information on booting to a USB device). It is recommended that you use the back USB connectors for devices that typically remain connected, such as printers and keyboards.
7	power button	Press to turn on the computer. **NOTICE:** To avoid losing data, do not turn off the computer by pressing the power button for 6 seconds or longer. Instead, perform an operating system shutdown. **NOTICE:** If your operating system has ACPI enabled, when you press the power button the computer will perform an operating system shutdown.
8	power light	The power light illuminates and blinks or remains solid to indicate different states: • No light — The computer is turned off (S4, S5, or mechanical OFF) • Steady green — The computer is in a normal operating state • Blinking green — The computer is in a power-saving state (S1 or S3) • Blinking or solid amber — See "Power Problems" To exit from a power-saving state, press the power button or use the keyboard or the mouse if it is configured as a wake device in the Windows Device Manager. For more information about sleep states and exiting from a power-saving state, see "Power Management." See "Diagnostic Lights" for a description of light codes that can help you troubleshoot problems with your computer.
9	floppy-drive activity light	The floppy drive light is on when the computer reads data from or writes data to the floppy drive. Wait until this light turns off before you remove the floppy disk from the drive.
10	floppy-drive eject button	Press to eject a floppy disk from the floppy drive.

Back View



1	power connector	Insert the power cable.
2	voltage selection switch (may not be available on all computers)	Your computer is equipped with either an auto-sensing voltage selector or a manual voltage selection switch. Computers with an auto-sensing voltage selector do not have a voltage selection switch on the back panel and can automatically detect the correct operating voltage. 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. **NOTICE:** 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.
3	back panel connectors	Plug serial, USB, and other devices into the appropriate connector.
4	card slots	Access connectors for any installed PCI and PCI Express cards.



1	serial connector	Connect a serial device, such as a handheld device, to the serial port. The default designations are COM1 for serial connector 1 and COM2 for serial connector 2. For more information, see "System Setup Options."
2	link integrity light	• Green — A good connection exists between a 10-Mbps network and the computer. • Orange — A good connection exists between a 100-Mbps network and the computer. • Yellow — A good connection exists between a 1-Gbps (or 1000-Mbps) network and the computer. • Off — The computer is not detecting a physical connection to the network.
3	network adapter connector	To attach your computer to a network or broadband device, connect one end of a network cable to either a network jack or your network or broadband device. Connect the other end of the network cable to the network adapter connector on the back panel of your computer. A click indicates that the network cable has been securely attached. **NOTE:** Do not plug a telephone cable into the network connector. On computers with a network connector card, use the connector on the card. It is recommended that you use Category 5 wiring and connectors for your network. If you must use Category 3 wiring, force the network speed to 10 Mbps to ensure reliable operation.
4	network activity light	Flashes a yellow light when the computer is transmitting or receiving network data. A high volume of network traffic may make this light appear to be in a steady "on" state.
5	line-in connector	Use the blue line-in connector (available on computers with integrated sound) to attach a record/playback device such as a cassette player, CD player, or VCR. On computers with a sound card, use the connector on the card.
6	line-out connector	Use the green line-out connector (available on computers with integrated sound) to attach headphones and most speakers with integrated amplifiers. On computers with a sound card, use the connector on the card.
7	microphone connector	Use the pink microphone connector (available on computers with integrated sound) to attach a personal computer microphone for voice or musical input into a sound or telephony program. On computers with a sound card, the microphone connector is on the card.
8	USB 2.0 connectors (6)	Use the back USB connectors for devices that typically remain connected, such as printers and keyboards. It is recommended that you use the front USB connectors for devices that you connect occasionally, such as joysticks or cameras, or for bootable USB devices.
9	diagnostic lights	Use the lights to help you troubleshoot a computer problem based on the diagnostic code. For more information, see "Diagnostic Lights."
10	video connector	Plug the cable from your VGA-compatible monitor into the blue connector. **NOTE:** If you purchased an optional graphics card, this connector will be covered by a cap. Connect your monitor to the connector on the graphics card. Do not remove the cap. **NOTE:** If you are using a graphics card that supports dual monitors, use the y-cable that came with your computer.
11	parallel	Connect a parallel device, such as a printer, to the parallel connector. If you

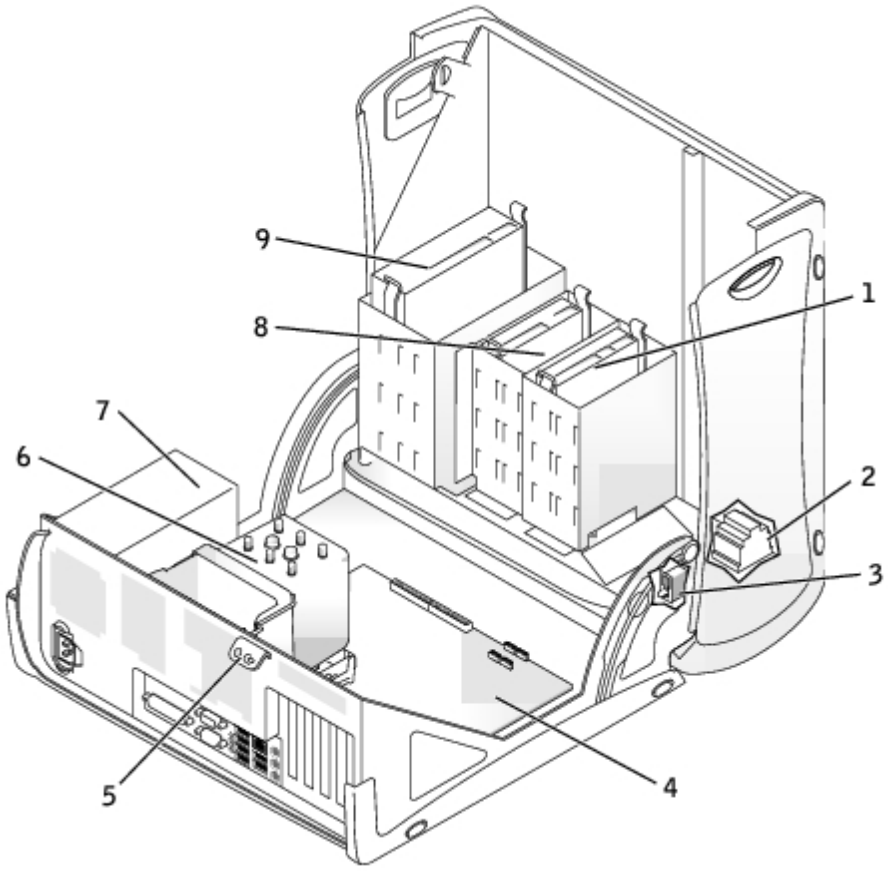
	connector	have a USB printer, plug it into a USB connector. **NOTE:** The integrated parallel connector is automatically disabled if the computer detects an installed card containing a parallel connector configured to the same address. For more information, see "System Setup Options."

Inside Your Computer

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

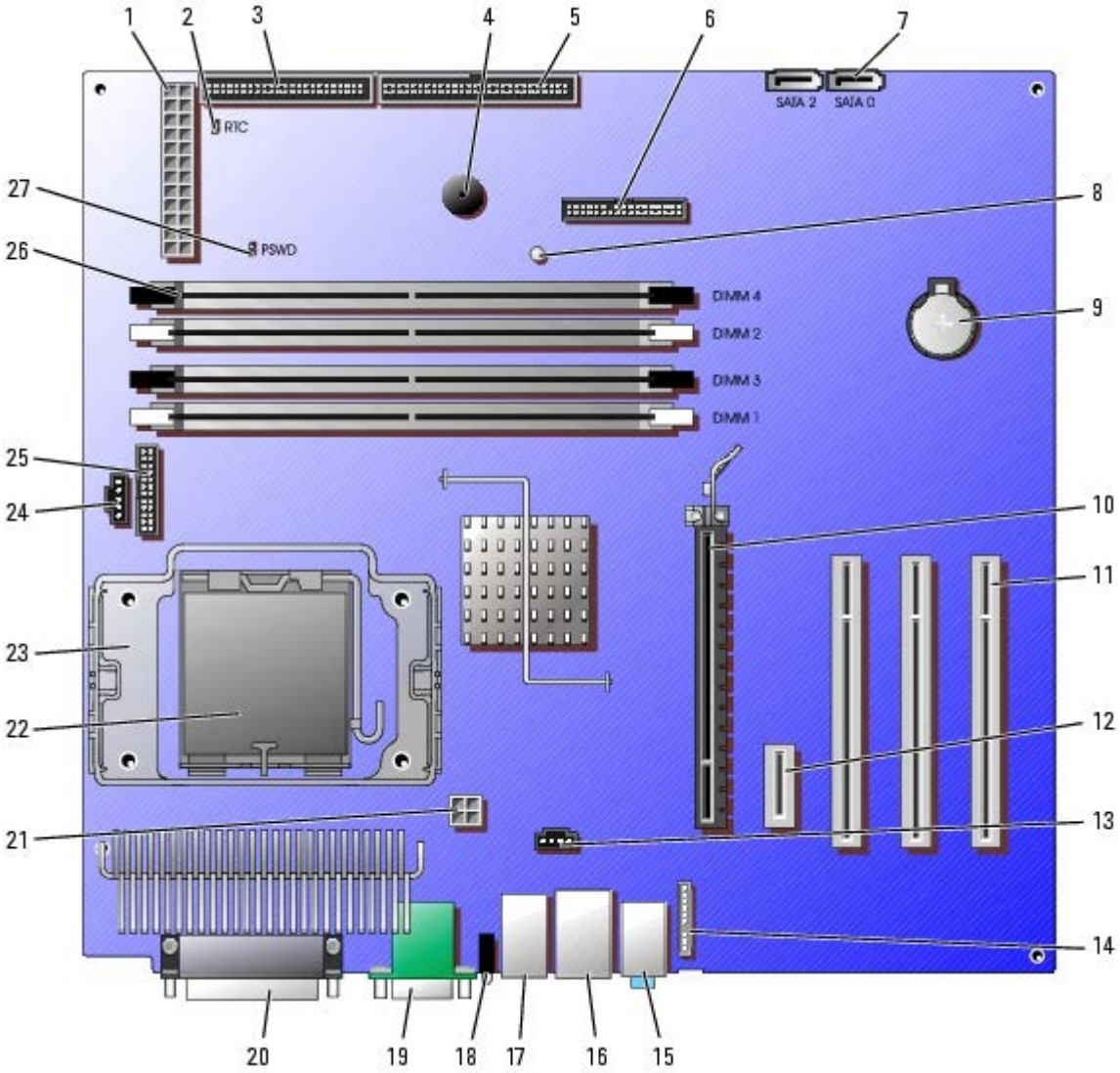
CAUTION: To avoid electrical shock, always unplug your computer from the electrical outlet before opening the cover.

NOTICE: Be careful when opening the computer cover to ensure that you do not accidentally disconnect cables from the system board.



1	hard drive	6	heat sink and blower assembly
2	internal speaker	7	power supply
3	chassis intrusion switch	8	floppy drive
4	system board	9	CD/DVD drive
5	padlock ring and security cable slot		

System Board Components



1	power connector (POWER)	**15**	line-in, line-out, and microphone connectors (AUDIO)
2	RTC reset jumper (RTCRST)	**16**	network connector (NIC) and USB connector (USB2)
3	floppy drive connector (DSKT)	**17**	USB connectors (USB1)
4	internal speaker (SPEAKER)	**18**	diagnostic lights (DIAG LED)
5	CD/DVD drive connector (IDE)	**19**	serial port connector (SER1) and video connector (VGA)
6	front-panel connector (FRONTPANEL)	**20**	parallel port connector (PAR)
7	serial ATA drive connectors (SATA0, SATA1, SATA2, SATA3)	**21**	power connector (12VPOWER)
8	standby power light (AUX_PWR)	**22**	processor connector (CPU)
9	battery socket (BATTERY)	**23**	heat-sink/blower retention pad
10	PCI Express x16 connector (PEG)	**24**	fan connector (FAN)
11	PCI connectors (PCI0, PCI1, PCI2)	**25**	serial port 2 connector (SER_PS2)
12	PCI Express x1 connector (PE1)	**26**	memory module connectors (DIMM1, DIMM2, DIMM3, DIMM4)
13	CD drive analog audio cable connector for optional analog audio cable (CD_IN)	**27**	password jumper (PSWD)
14	front-panel audio cable connector (FRONTAUDIO)		

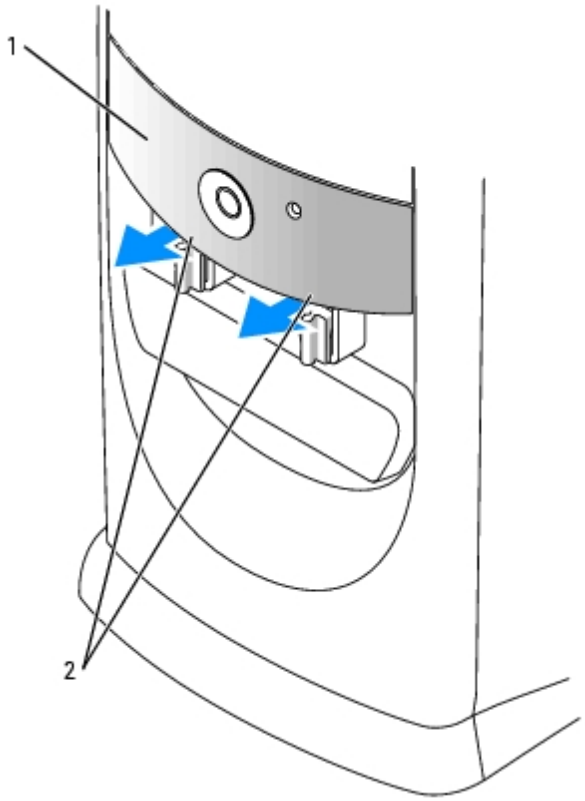
Front-Panel Door and Hinge Arms

To prevent damage to your computer, the front-panel door is designed to "break away" if it is lifted up too far. If the front-panel door is open and it is pushed inward too hard, the hinge arms may also break away (the hinge arms are loose when they are detached).

Reattaching the Hinge Arms

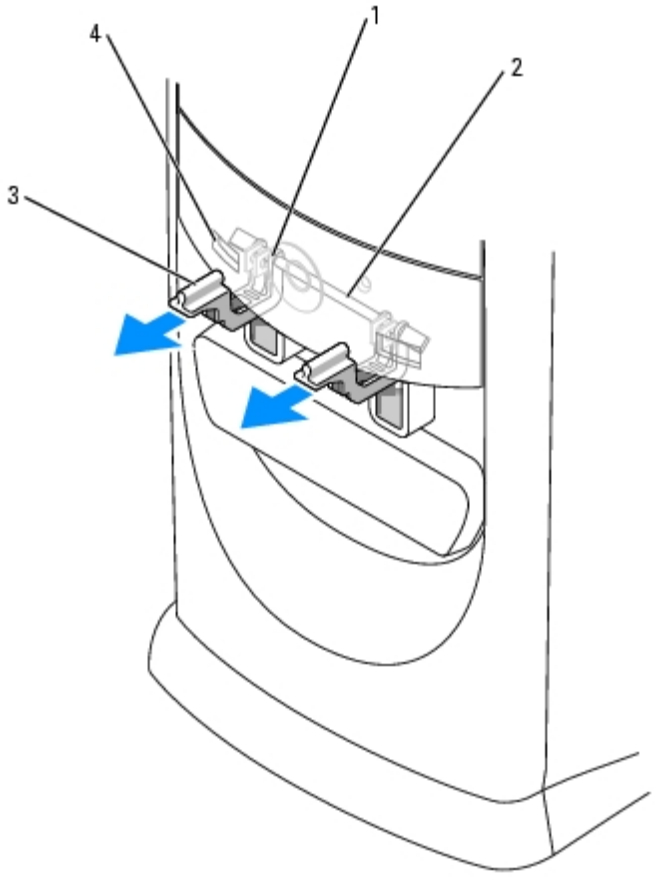
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

1. Follow the procedures in "Before You Begin."
2. Disconnect the computer power cable from the electrical outlet.
3. Remove the front-panel door by gently snapping it off the two hinge arms.
4. Remove the front-panel insert above the door bay area by pulling the bottom of the insert with your fingers.



1	front-panel insert
2	use fingers to pull here

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.



1	pivot-bar slots (2)
2	pivot bar
3	hinge arms (2) in horizontal position
4	view slots (2)

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. Pull the arms toward you until they snap into position.

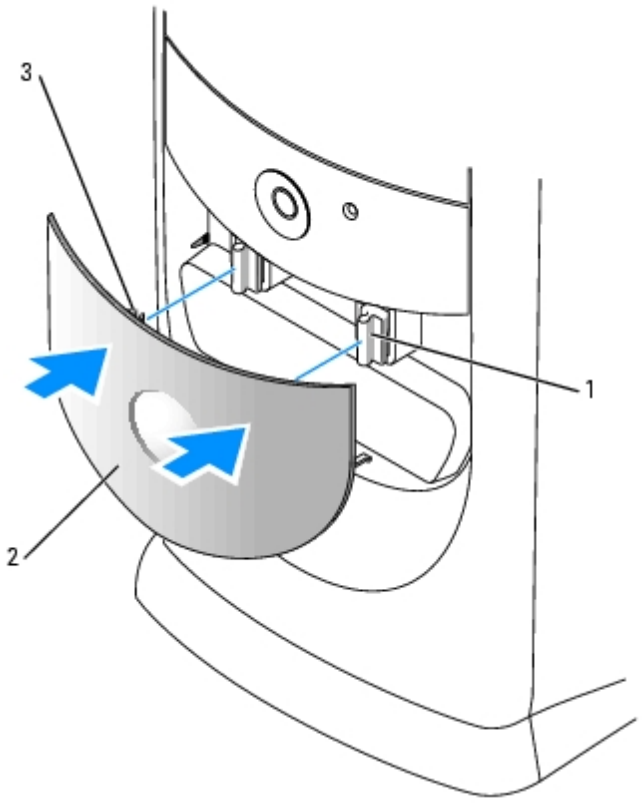
   If the hinge arms do not snap back into position on the first attempt, slightly reposition the arms and try again.
8. After the hinge arms snap into position, lower and raise the arms two or three times to properly seat them.
9. Reattach the front-panel insert.
10. Reconnect the computer power cable to the electrical outlet.
11. Reattach the front door.

Reattaching the Front Door

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

1. Follow the procedures in "Before You Begin."

2. Disconnect the computer power cable from the electrical outlet.
3. Lower the hinge arms to the vertical position.
4. Align the two clips on the inside of the front door with the two hinge arms.
5. Press inward on the front door until it clips to both hinge arms.



1	hinge arms (2) in vertical position
2	front-panel door
3	front-door clips (2)

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Opening the Computer Cover

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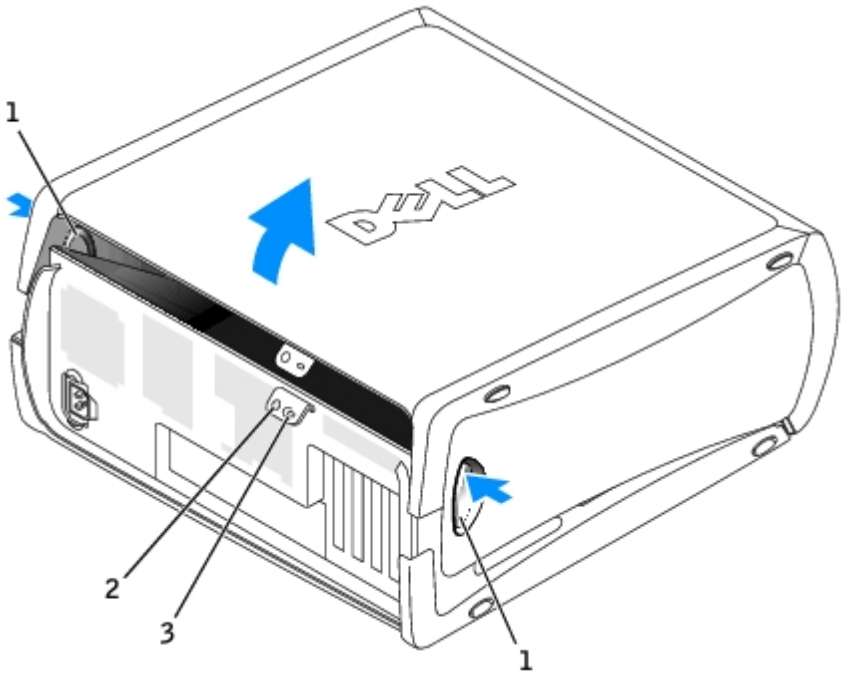
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

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

1. Follow the procedures in "Before You Begin."
2. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.

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

3. Lay the computer on its side as shown in the illustration.
4. Open the cover:
    a. Facing the back of the computer, press the release button on the right side of the computer with one hand while pulling up on the top of the cover with the other hand.
    b. Press the release button on the left side of the computer with one hand while pulling up on the top of the cover with the other hand.
    c. Hold the bottom of the computer with one hand, and then pull open the cover with the other hand.



1	release buttons
2	padlock ring
3	security cable slot

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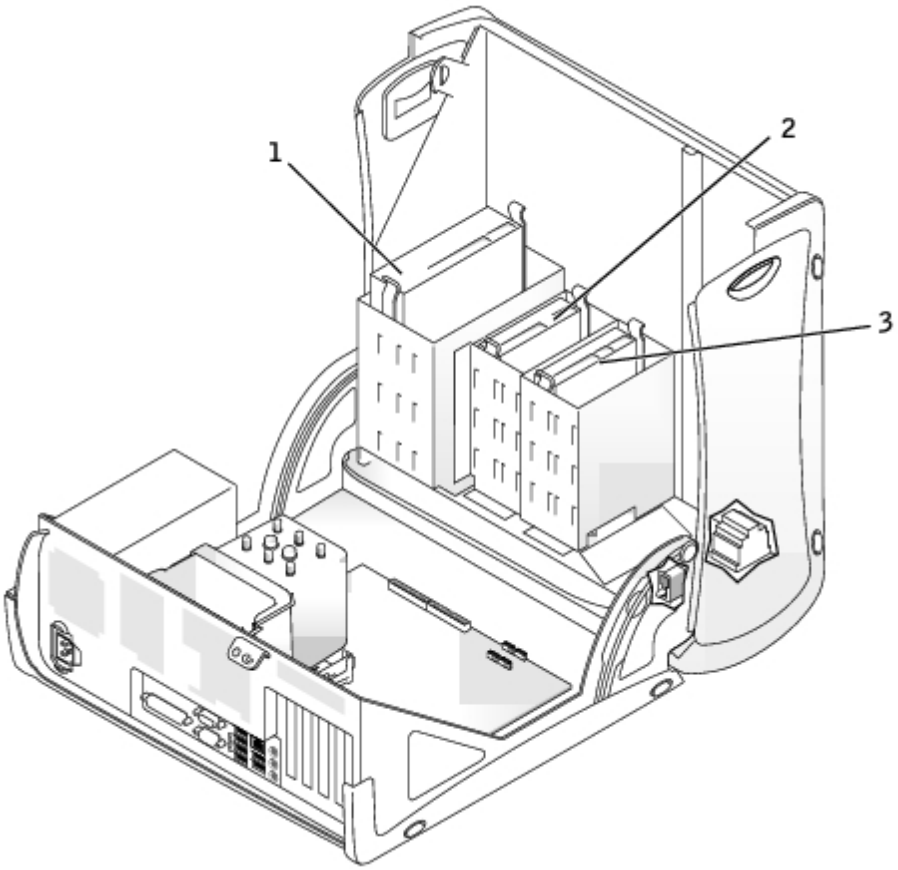
Drives

Dell™ OptiPlex™ GX280 Systems User's Guide

- General Installation Guidelines
- Hard Drive
- Adding a Second Hard Drive
- Front-Panel Inserts
- Floppy Drive
- CD/DVD Drive
- Cable Routing

Your computer supports:

- two serial ATA hard drives
- two floppy or optional Zip drives
- two CD or DVD drives



1	CD/DVD drive(s)
2	floppy drive(s)
3	hard drive(s)

General Installation Guidelines

Connect CD/DVD drives to the connector labeled "IDE" on the system board. Serial ATA hard drives should be connected to the connectors labeled "SATA0," SATA1," "SATA2," or "SATA3" on the system board.

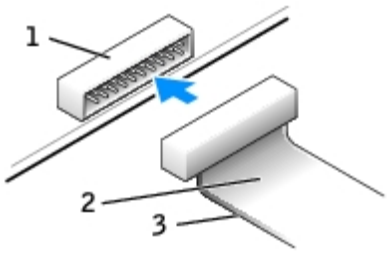
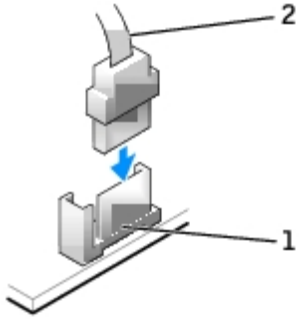
IDE Drive Addressing

When you connect two IDE devices to a single IDE interface cable and configure them for the cable select setting, the device attached to the last connector on the interface cable is the master or boot device (drive 0), and the device attached to the middle connector on the interface cable is the slave device (drive 1). See the drive documentation in your upgrade kit for information on configuring devices for the cable select setting.

Connecting Drive Cables

When you install a drive, you connect two cables—a DC power cable and a data cable—to the back of the drive and to the system board.

Drive Interface Connectors

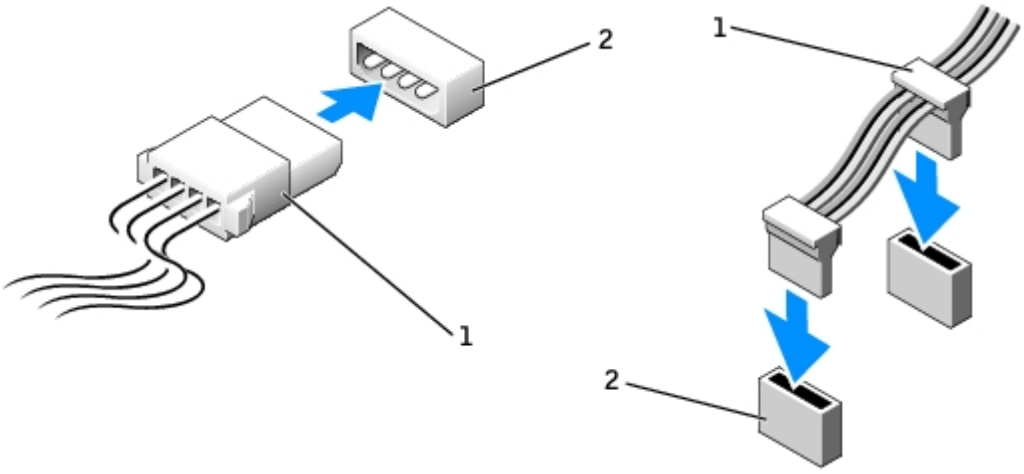
IDE Drive Connector	Serial ATA Connector
	

1	interface connector
2	interface cable
3	colored stripe on IDE cable

Most interface connectors are keyed for correct insertion; that is, a notch or a missing pin on one connector matches a tab or a filled-in hole on the other connector. Keyed connectors ensure that the pin-1 wire in the cable (indicated by the colored stripe along one edge of the IDE cable—serial ATA cables do not use a colored stripe) goes to the pin-1 end of the connector. The pin-1 end of a connector on a board or a card is usually indicated by a silk-screened "1" printed directly on the board or card.

NOTICE: When you connect an IDE interface cable, do not place the colored stripe away from pin 1 of the connector. Reversing the cable prevents the drive from operating and could damage the controller, the drive, or both.

Power Cable Connector



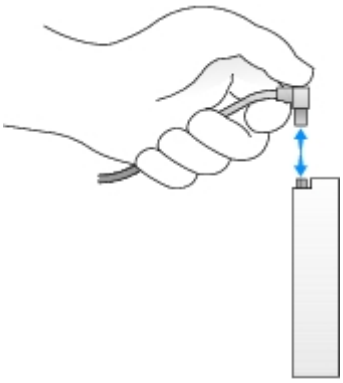
1	power cable
2	power input connector

Connecting and Disconnecting Drive Cables

When removing an IDE drive data cable, grasp the colored pull tab and pull until the connector detaches.

When connecting and disconnecting a serial ATA data cable, hold the cable by the black connector at each end.

Like IDE connectors, the serial ATA interface connectors are keyed for correct insertion; that is, a notch or a missing pin on one connector matches a tab or a filled-in hole on the other connector.



Hard Drive

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

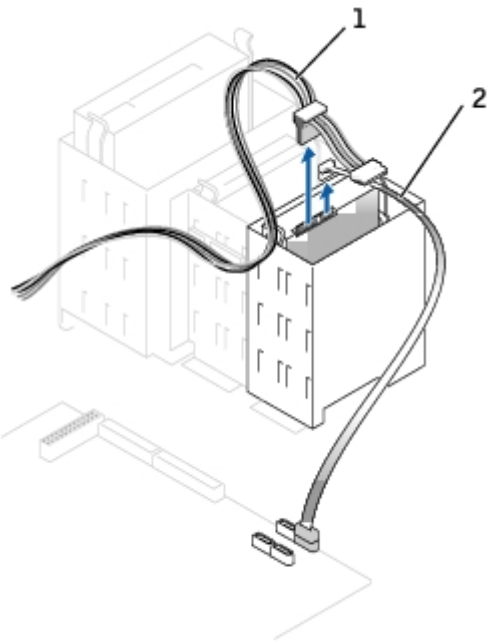
CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

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. Follow the procedures in "Before You Begin."

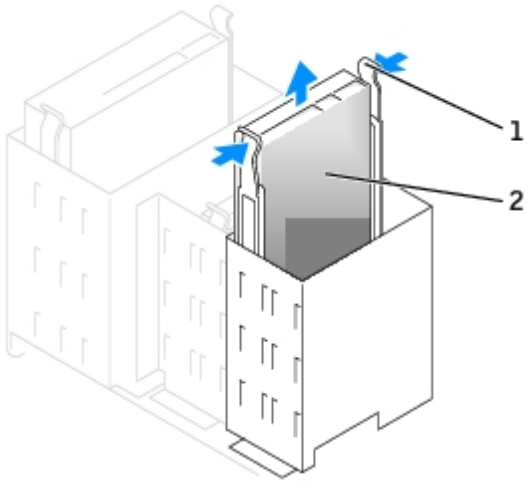
Removing a Hard Drive

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



1	power cable
2	hard-drive cable

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



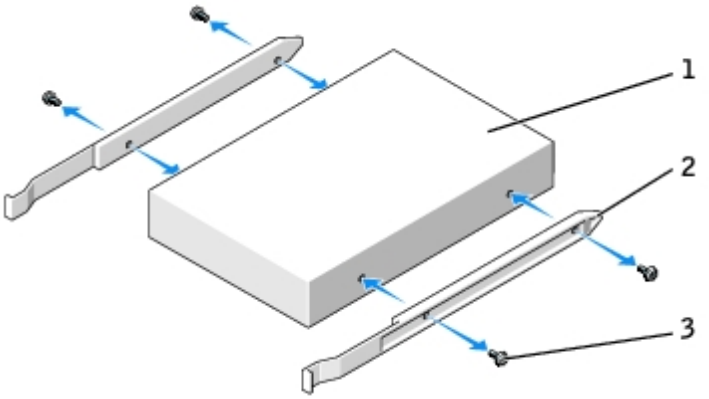
1	tabs (2)
2	hard drive

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.

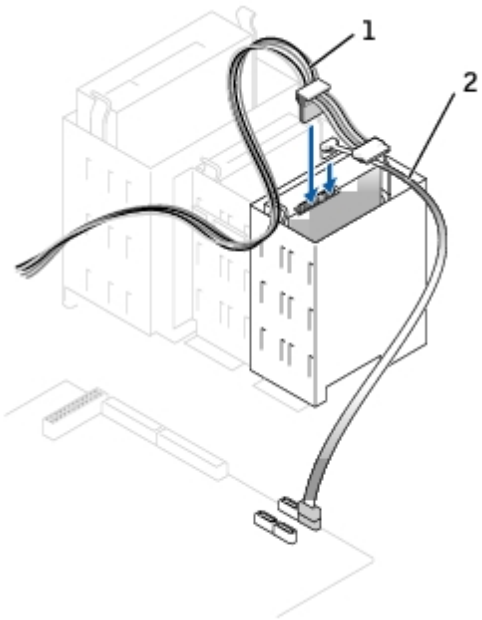
3. If your replacement hard drive does not have the bracket rails attached, remove the rails from the old drive by removing the two screws that secure each rail to the drive. Attach the bracket rails to the new drive by aligning the screw holes on the drive with the screw holes on the bracket rails and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



1	drive
2	bracket rails (2)
3	screws (4)

4. Gently slide the drive into place until you hear a click or feel the drive securely installed.

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



1	power cable
2	hard-drive cable

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.

   See the documentation that came with the drive for instructions on installing any software required for drive operation.
9. If the drive you just installed is the primary drive, insert a bootable medium into your boot drive.
10. Turn on the computer.
11. After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```
12. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

13. Enter system setup and update the appropriate **Primary Drive** option (**0** or **1**).
14. Exit system setup, and reboot the computer.
15. Partition and logically format your drive before you proceed to the next step.

    See the documentation for your operating system for instructions.
16. Test the hard drive by running the Dell Diagnostics.
17. If the drive you just installed is the primary drive, install your operating system on the hard drive.

Adding a Second Hard Drive

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

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

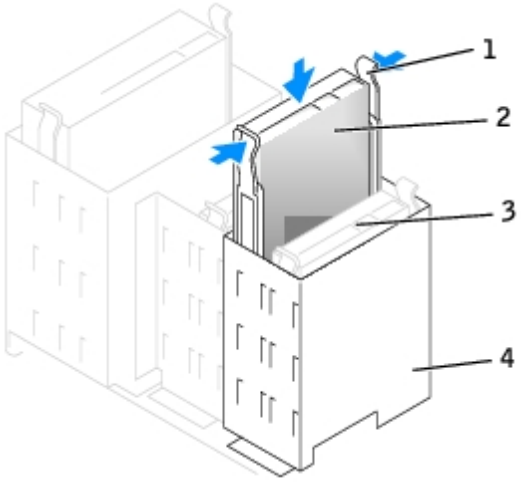
NOTICE: To avoid damage to the drive, do not set it on a hard surface. Instead, set the drive on a surface, such as a foam pad, that will sufficiently cushion it.

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. Follow the procedures in "Before You Begin."
4. 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.
5. 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.

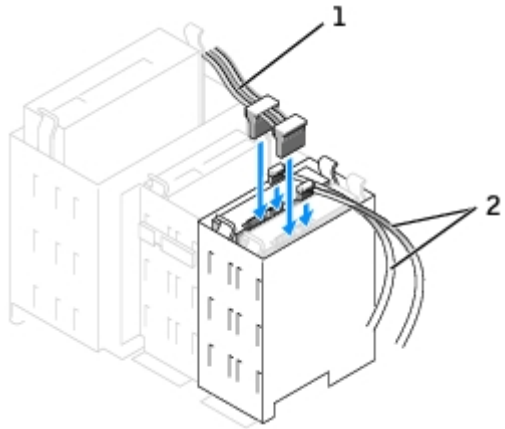
NOTICE: Do not install any drive into the lower hard-drive bay until you have removed the green drive rails from the inside of the hard-drive bay.

6. Move the first hard drive from the upper bay to the lower bay:
    a. Disconnect the power 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 drive into place until you hear a click or feel the drive securely installed.
7. Gently slide the new drive into place until you hear a click or feel the drive securely installed.



1	rail tabs (2)
2	second hard drive in upper bay
3	first hard drive in lower bay
4	hard drive bay

8. Connect a power cable to the drives.
9. Locate an unused serial ATA connector on the system board and attach a drive cable to this connector and to the second hard drive.



1	power cable
2	hard-drive cables

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

    After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```

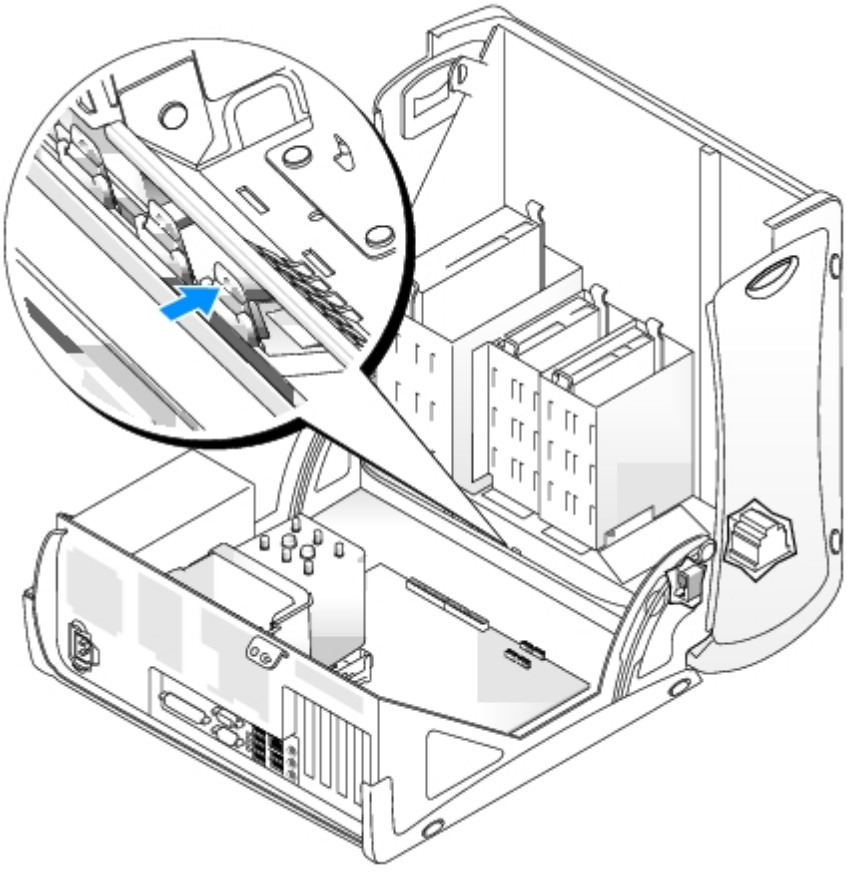
13. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

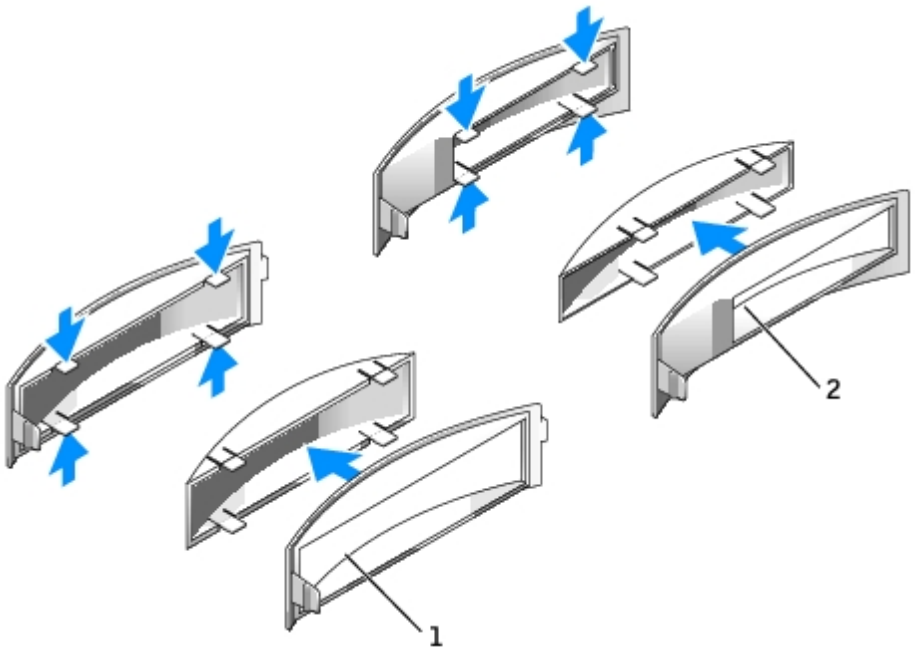
Front-Panel Inserts

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. Remove the insert from the insert frame by pressing on the four tabs.



1	insert frame for CD/DVD drive bay
2	insert frame for floppy drive bay

6. Reattach the empty insert frame over the front of the drive bay.

   The insert frame fits only one way.

Floppy Drive

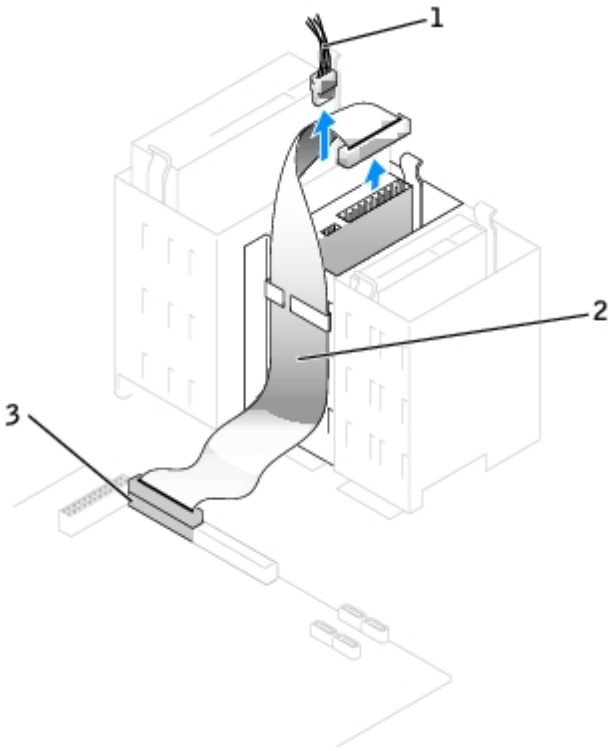
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

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

Follow the procedures in "Before You Begin."

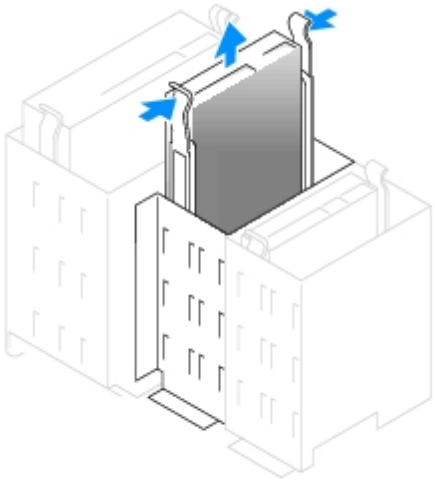
Removing a Floppy Drive

1. Disconnect the power and floppy-drive cables from the back of the floppy drive.
2. Disconnect the other end of the floppy-drive cable from the system board (labeled DSKT).



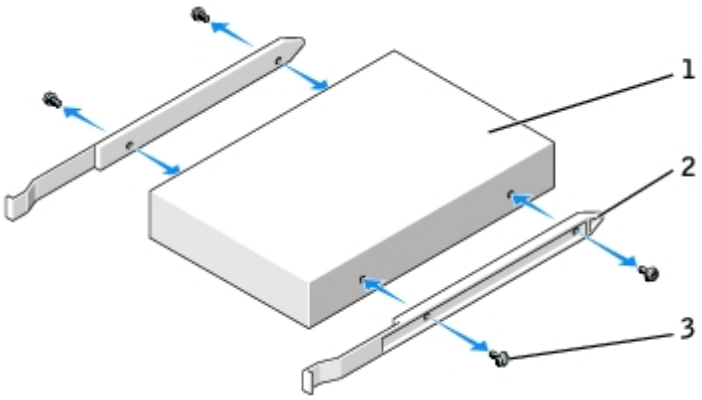
1	power cable
2	floppy-drive cable
3	floppy-drive connector (DSKT)

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



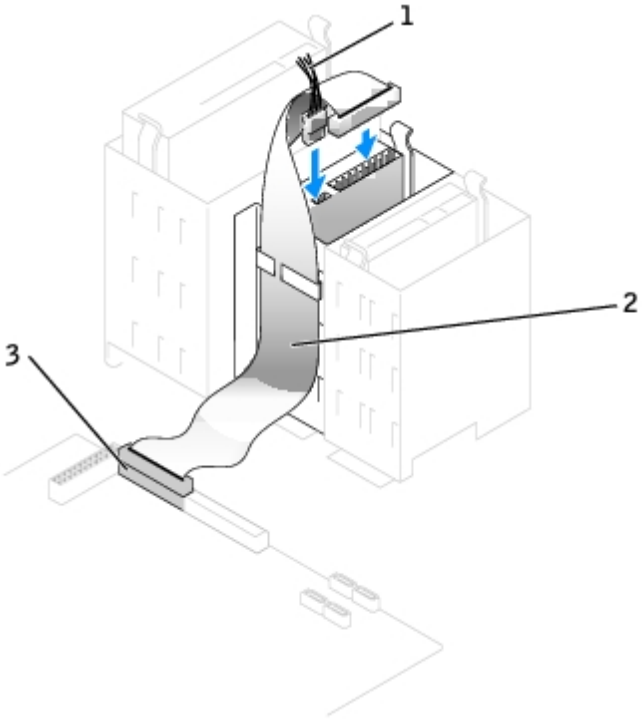
Installing a Floppy Drive

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).



1	drive
2	bracket rails (2)
3	screws (4)

2. Gently slide the drive into place until you hear a click or feel the drive securely installed.
3. Attach the power and floppy-drive cables to the floppy drive.
4. Connect the other end of the floppy-drive cable to the connector labeled "DSKT" on the system board.



1	power cable
2	floppy-drive cable
3	floppy-drive connector (DSKT)

5. If you are installing a new floppy drive rather than replacing a drive, remove the front-panel inserts.
6. Check all cable connections, and fold cables out of the way to provide airflow for the fan and cooling vents.
7. 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.

8. 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.

9. After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

10. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

11. Enter system setup and use the **Diskette Drive** option to enable your new floppy drive.
12. Verify that your computer works correctly by running the Dell Diagnostics.

CD/DVD Drive

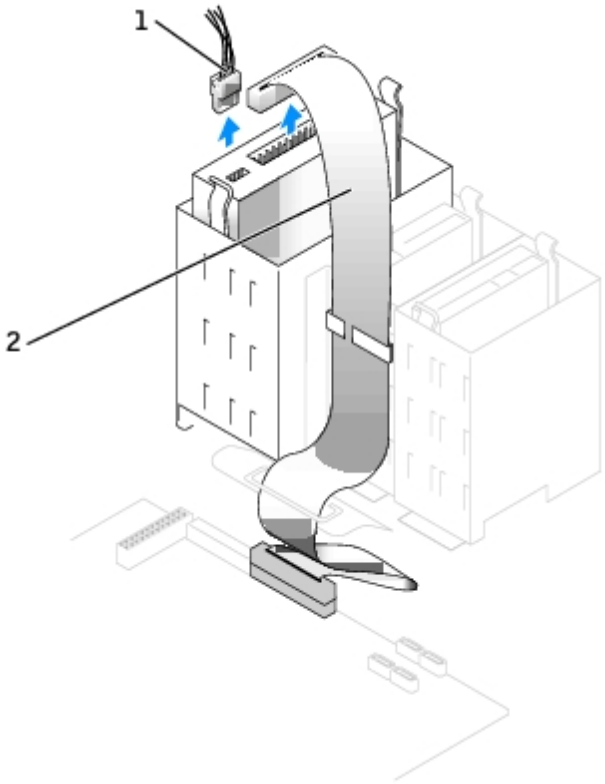
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

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

Follow the procedures in "Before You Begin."

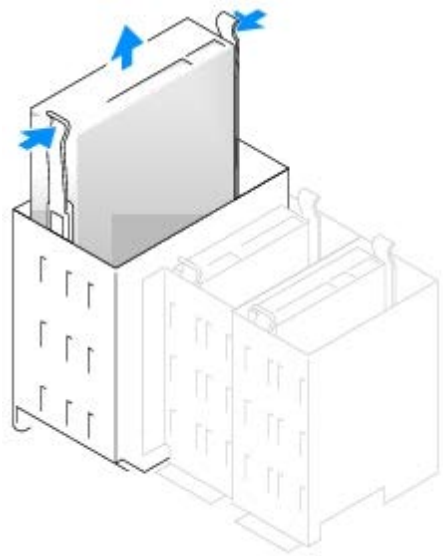
Removing a CD/DVD Drive

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



1	power cable
2	CD/DVD drive cable

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.



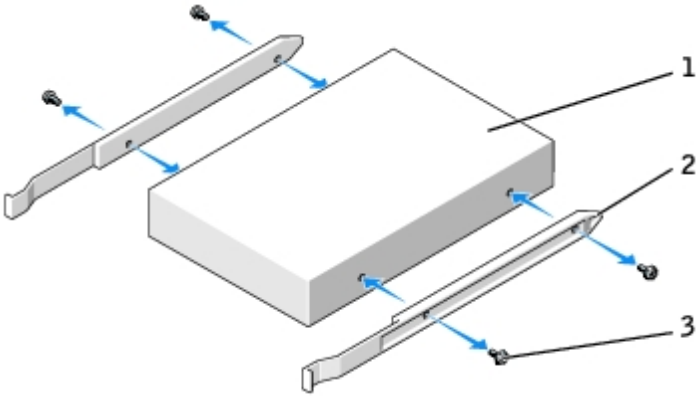
Installing a CD/DVD Drive

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.

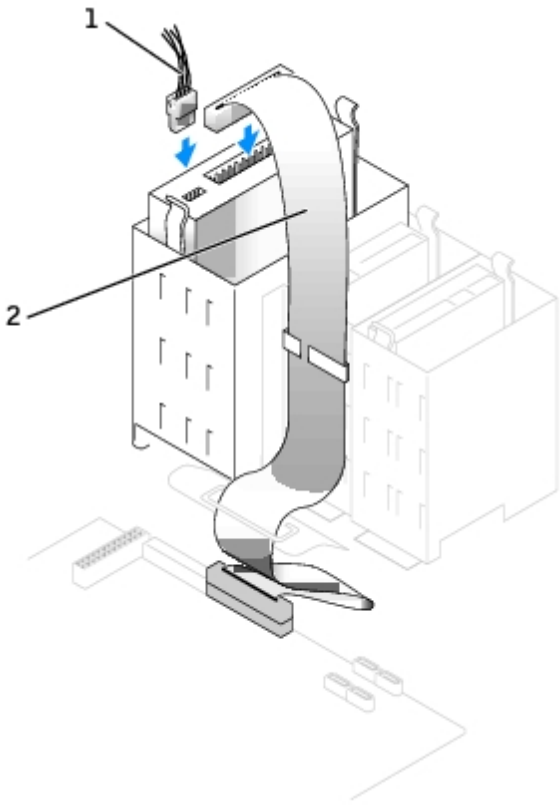
3. If you are installing a replacement drive and the new drive does not have the bracket rails attached, remove the rails from the old drive by removing the two screws that secure each rail to the drive. Attach the bracket to the new drive by aligning the screw holes on the drive with the screw holes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



1	drive
2	bracket rails (2)
3	screws (4)

4. Gently slide the drive into place until you hear a click or feel the drive securely installed.

5. Connect the power and CD/DVD drive cables to the drive.



1	power cable
2	CD/DVD drive cable

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.

11. After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

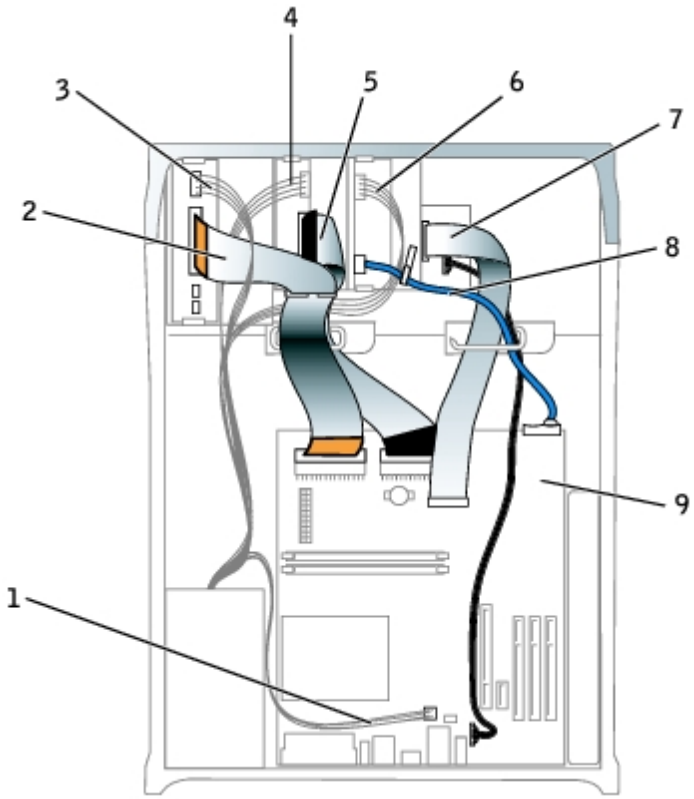
    ```
    ALERT! Cover was previously removed.
    ```

12. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

13. Update your configuration information by setting the appropriate **Drive** option (**0** or **1**) under **Drives**. See "System Setup" for more information.
14. Verify that your computer works correctly by running the Dell Diagnostics.

Cable Routing



1	12V power cable	6	serial ATA hard-drive power cable
2	CD/DVD drive data cable	7	control panel cable
3	CD/DVD drive power cable	8	serial ATA hard-drive data cable
4	floppy drive power cable	9	front input/output audio cable
5	floppy drive data cable		

Back to Contents Page

Back to Contents Page

PCI and PCI Express Cards and Serial Port Adapters

Dell™ OptiPlex™ GX280 Systems User's Guide

- PCI Cards
- PCI Express Cards
- Serial Port Adapters

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

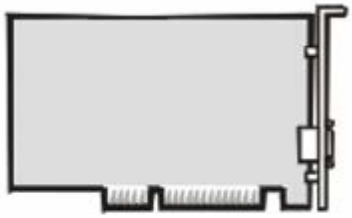
NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

Your Dell™ computer provides the following slots for PCI and PCI Express cards or a serial port adapter:

- three PCI card slots
- one PCI Express x16 card slot
- one PCI Express x1 card slot

NOTE: Your Dell computer uses only PCI and PCI Express slots. ISA cards are not supported.

PCI Cards

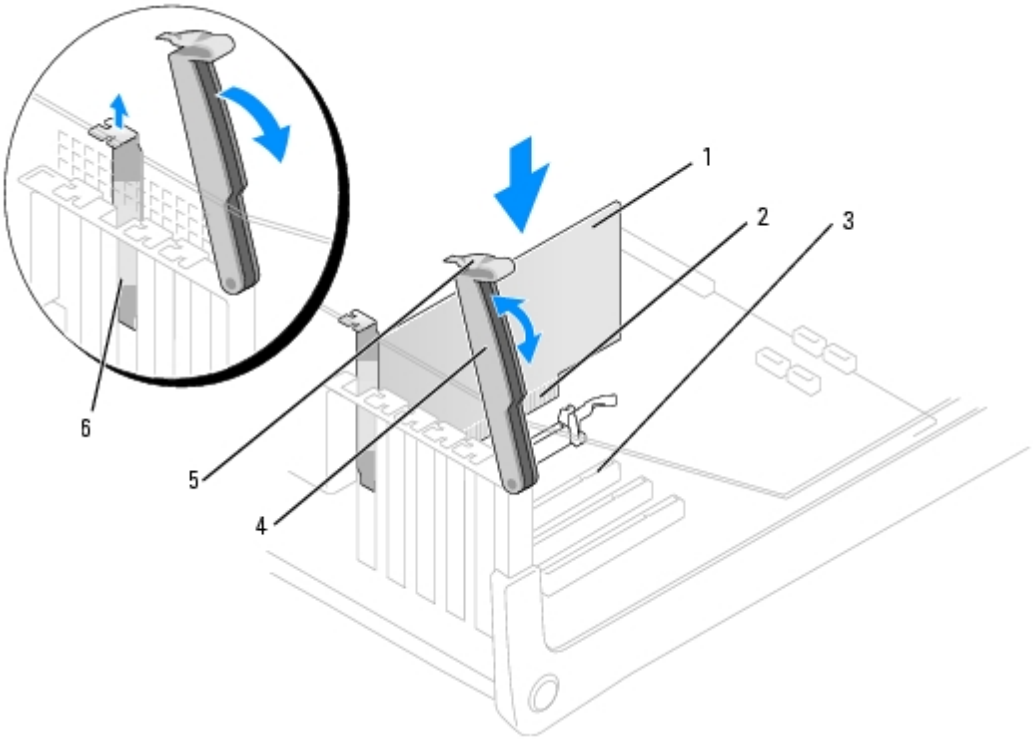


If you are installing or replacing a card, follow the procedures in the next section. If you are removing but not replacing a card, see "Removing a PCI Card."

1. If you are replacing a card, remove the current driver for the card from the operating system.
2. Follow the procedures in "Before You Begin."

Installing a PCI Card

1. Press the lever on the card retention arm and raise the retention arm.



1	card	4	retention arm
2	edge connector	5	lever
3	card connector	6	filler bracket

2. If you are installing a new card, remove the filler bracket to create a 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.

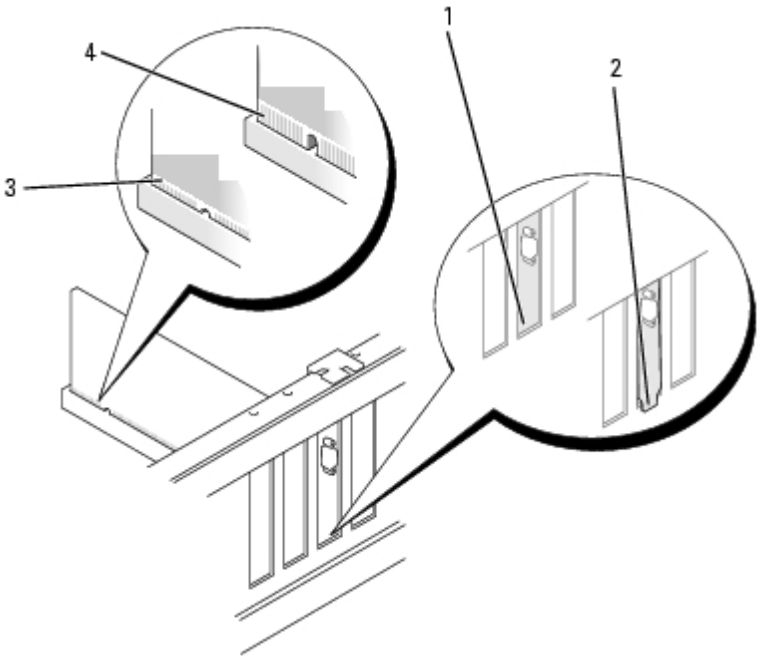
   If necessary, disconnect any cables connected to the card. Grasp the card by its top corners, and ease it out of its connector.
4. Prepare the card for installation.

   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.

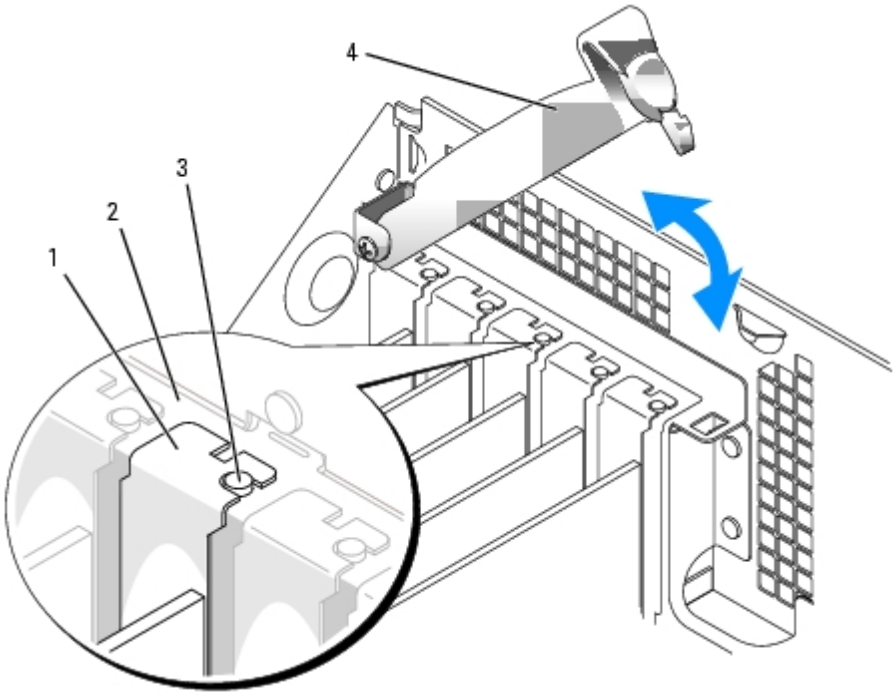
5. Place the card in the connector and press down firmly. Ensure that the card is fully seated in the slot.

   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.



1	bracket within slot
2	bracket caught outside of slot
3	fully seated card
4	not fully seated card

6. 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.
7. Press the retention arm into place, securing the card(s) in the computer.



1	filler bracket

2	alignment bar
3	alignment guide
4	retention arm

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.

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.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   `ALERT! Cover was previously removed.`

10. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

11. If you installed a sound card:

    a. Enter system setup, select **Audio Controller**, and change the setting to **Off**.

    b. Connect external audio devices to the sound card's connectors. Do not connect external audio devices to the microphone, speaker/headphone, or line-in connectors on the back panel.

12. If you installed an add-in network adapter and want to turn off the integrated network adapter:

    a. Enter system setup, select **Network Controller**, and change the setting to **Off**.

    b. Connect the network cable to the add-in network adapter's connectors. Do not connect the network cable to the integrated connector on the back panel.

13. Install any drivers required for the card as described in the card documentation.

Removing a PCI Card

1. Follow the procedures in "Before You Begin."
2. Press the lever on the card retention arm and raise the retention arm.
3. If necessary, disconnect any cables connected to the card.
4. Grasp the card by its top corners, and ease it out of its connector.
5. 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.

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.

6. Lower the retention arm and press it into place.

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

7. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

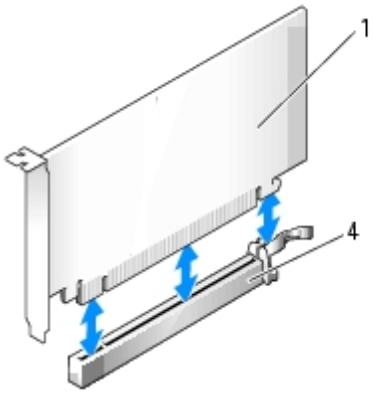
8. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

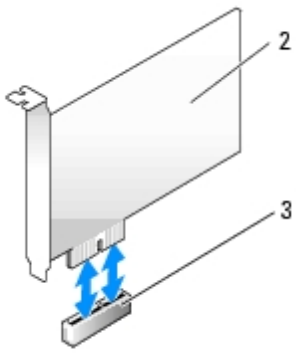
NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

9. Remove the card's driver from the operating system.
10. If you removed a sound card:
    a. Enter system setup, select **Audio Controller**, and change the setting to **On**.
    b. Connect external audio devices to the audio connectors on the computer back panel.
11. If you removed an add-in network connector:
    a. Enter system setup, select **Network Controller**, and change the setting to **On**.
    b. Connect the network cable to the integrated connector on the computer back panel.

PCI Express Cards

Your computer supports one PCI Express x16 card and one PCI Express x1 card.





1	PCI Express x16 card	3	PCI Express x1 card slot
2	PCI Express x1 card	4	PCI Express x16 card slot

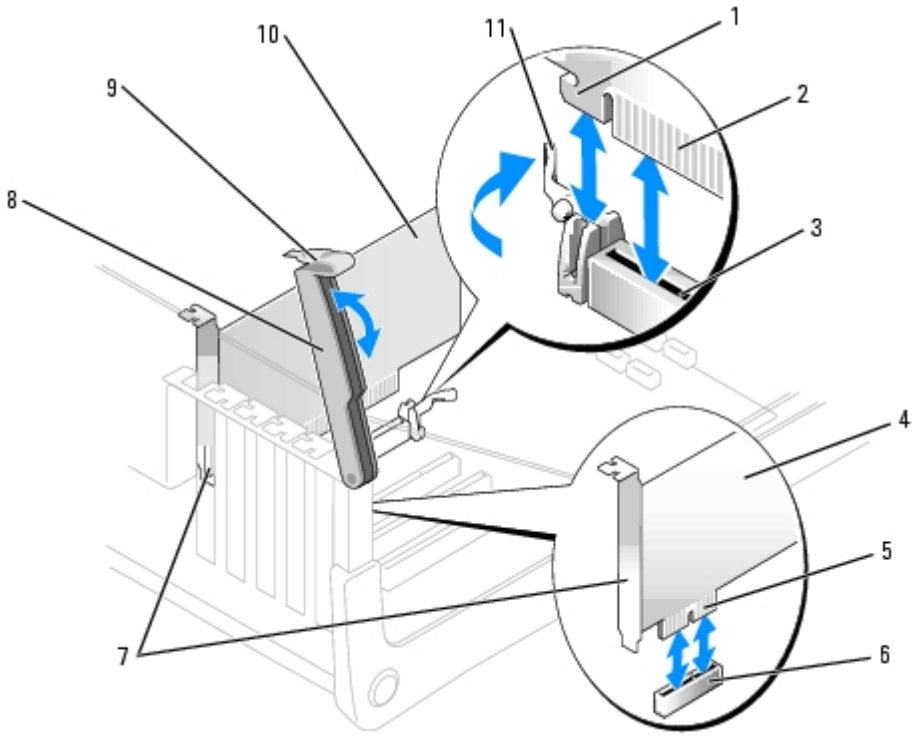
If you are installing or replacing a PCI Express card, follow the procedures in the next section. If you are removing but not replacing a card, see "Removing a PCI Express Card."

If you are replacing a card, remove the current driver for the card from the operating system.

If you are installing or replacing a PCI card, see "Installing a PCI Card."

Installing a PCI Express Card

1. Follow the procedures in "Before You Begin."
2. Press the lever on the card retention arm and raise the retention arm.



1	securing slot (not all cards)	7	filler bracket
2	edge connector	8	retention arm
3	card connector	9	lever
4	x1 card	10	x16 card
5	edge connector	11	securing tab
6	x1 card connector		

3. If you are installing a new card, remove the filler bracket to create a card-slot opening. Then continue with step 5.
4. If you are replacing a card that is already installed in the computer, remove the card.

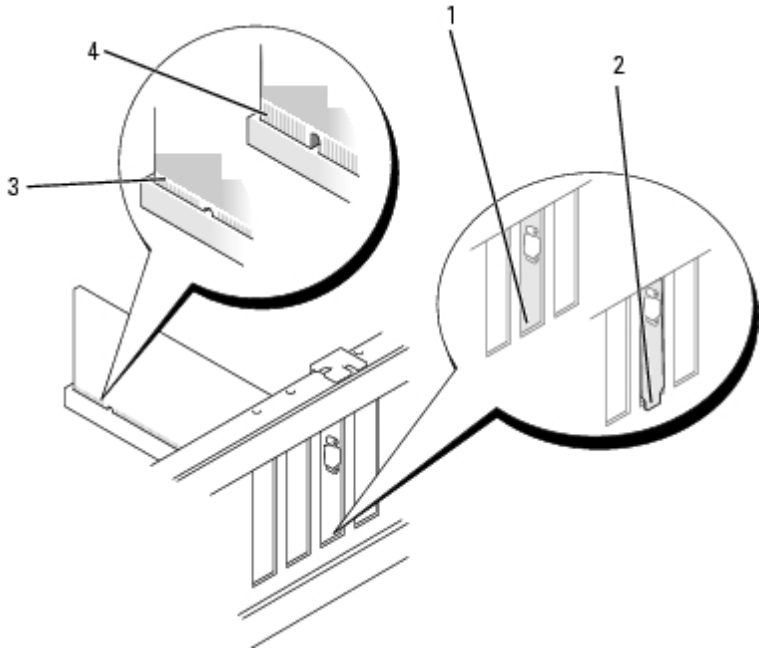
   If necessary, disconnect any cables connected to the card. If your card includes a card retention bar, remove the bar. Gently pull the securing tab, grasp the card by its top corners, and ease it out of its connector.
5. Prepare the card for installation.

   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.

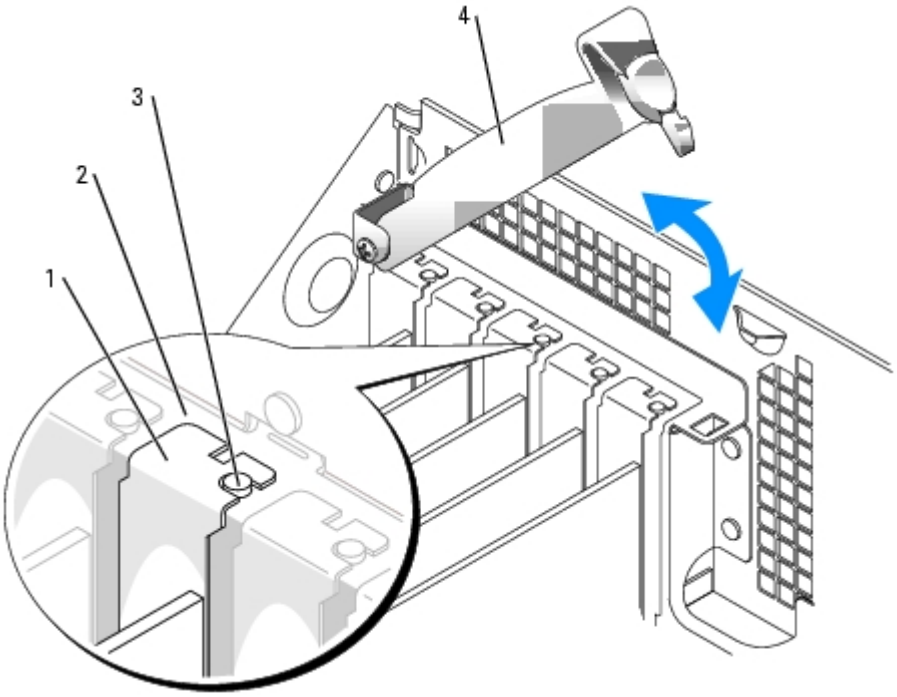
6. If you are installing the card into the x1 card connector, proceed to the next step. If you are installing the card into the x16 card connector, position the card so the securing slot is aligned with the securing tab, and gently pull the securing tab.
7. Place the card in the connector and press down 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.



1	bracket within slot
2	bracket caught outside of slot
3	fully seated card
4	not fully seated card

8. 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.
9. Press the retention arm into place, securing the card(s) in the computer.



1	filler bracket
2	alignment bar
3	alignment guide
4	retention arm

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.

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

    See the documentation for 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.

11. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

    After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```

12. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

13. If you installed a sound card:

    a. Enter system setup, select **Audio Controller**, and change the setting to **Off**.

    b. Connect external audio devices to the sound card's connectors. Do not connect external audio devices to the microphone, speaker/headphone, or line-in connectors on the back panel.

14. If you installed an add-in network adapter and want to turn off the integrated network adapter:

    a. Enter system setup, select **Network Controller**, and change the setting to **Off**.

b. Connect the network cable to the add-in network adapter's connectors. Do not connect the network cable to the integrated connector on the back panel.

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

Removing a PCI Express Card

1. Follow the procedures in "Before You Begin."
2. Press the lever on the card retention arm and raise the retention arm.
3. If necessary, disconnect any cables connected to the card.
4. Gently pull back the securing tab, grasp the card by its top corners, and ease it out of its connector.
5. 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.

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.

6. Lower the retention arm and press it into place.

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

7. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

8. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

Serial Port Adapters

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

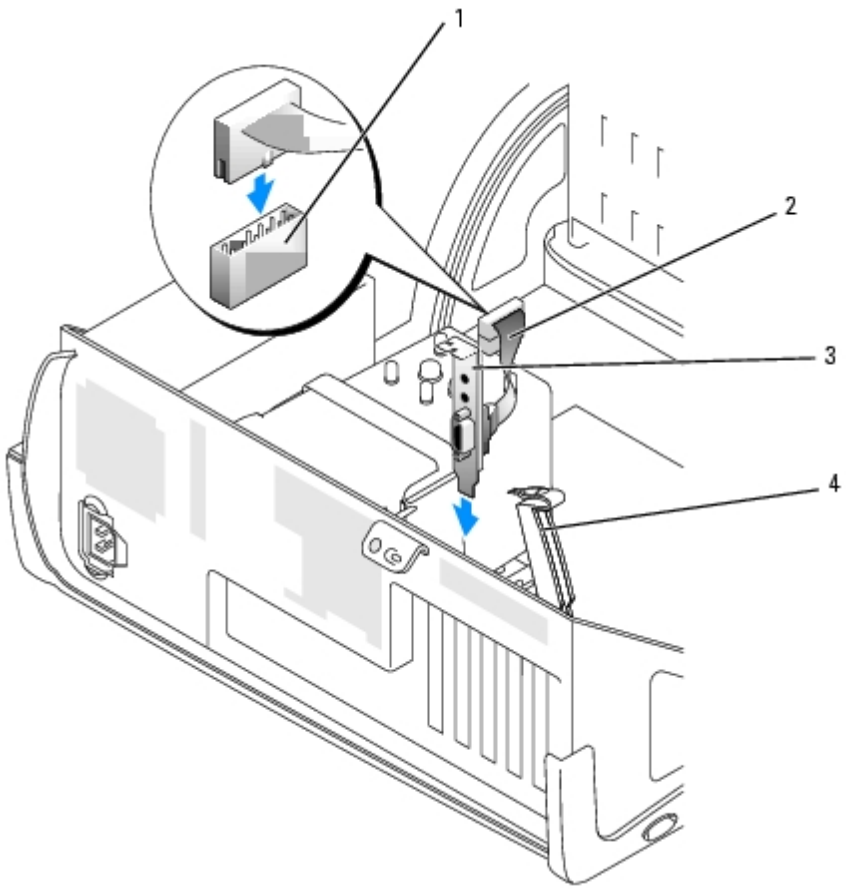
NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

NOTE: The serial port adapter for your small mini-tower computer also includes two PS/2 connectors.

Installing a Serial Port Adapter

1. Follow the procedures in "Before You Begin."
2. Raise the retention arm.

3. Remove the filler bracket.
4. Slide the serial port adapter bracket down over the card-slot opening, and lower the retention arm, ensuring that:
    - The tops of all cards and filler brackets are flush with the alignment bar.
    - The notch in the top of the adapter or filler bracket fits around the alignment guide.
5. Press the retention arm into place, securing the adapter in the computer.



1	serial port system board connector (SER_PS2)
2	serial adapter cable
3	serial port adapter bracket
4	retention arm

6. Attach the serial adapter cable to the connector labeled "SER_PS2" on the system board.
7. Continue with step 7 in the next procedure.

Removing a Serial Port Adapter

1. Follow the procedures in "Before You Begin."
2. Disconnect the serial adapter cable from the connector on the system board.
3. Raise the retention arm.
4. Lift and remove the adapter bracket.
5. If you are removing the adapter permanently, install a filler bracket in the empty card-slot opening.

If you need a filler bracket, contact Dell.

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.

6. Lower the retention arm and press it into place.

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

7. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

8. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

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Processor

Dell™ OptiPlex™ GX280 Systems User's Guide

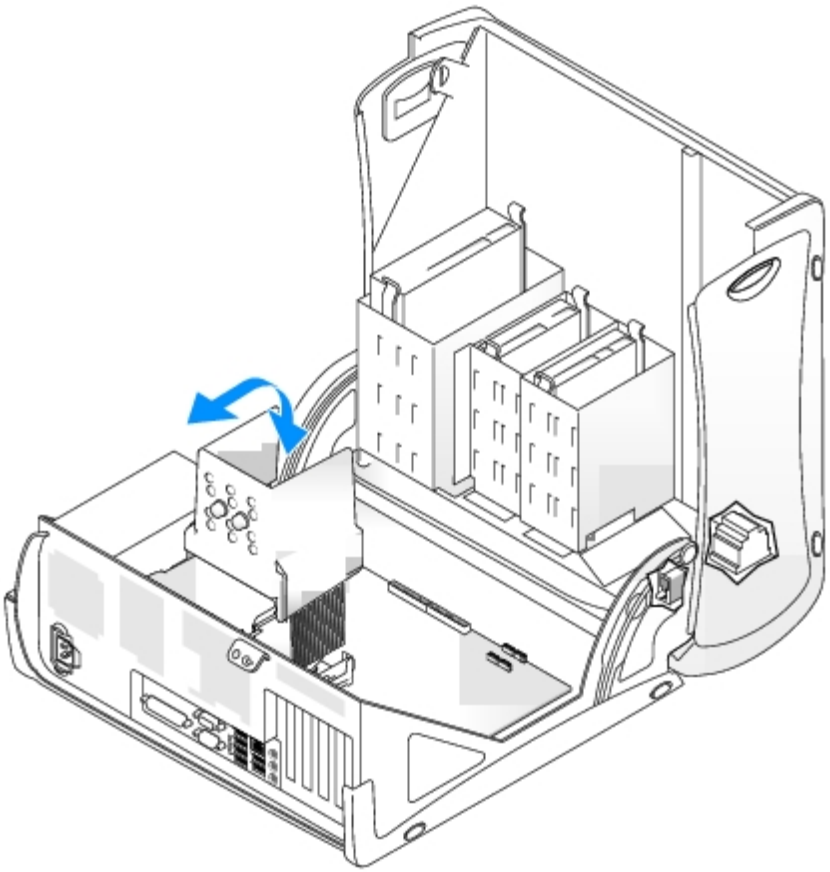
- Removing the Processor
- Installing the Processor

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

CAUTION: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

Removing the Processor

1. Follow the procedures in "Before You Begin."
2. Disconnect the cooling fan power cable from the FAN connector on the system board.
3. Disconnect the power cable from the 12VPOWER connector on the system board.
4. Lift up the airflow shroud.

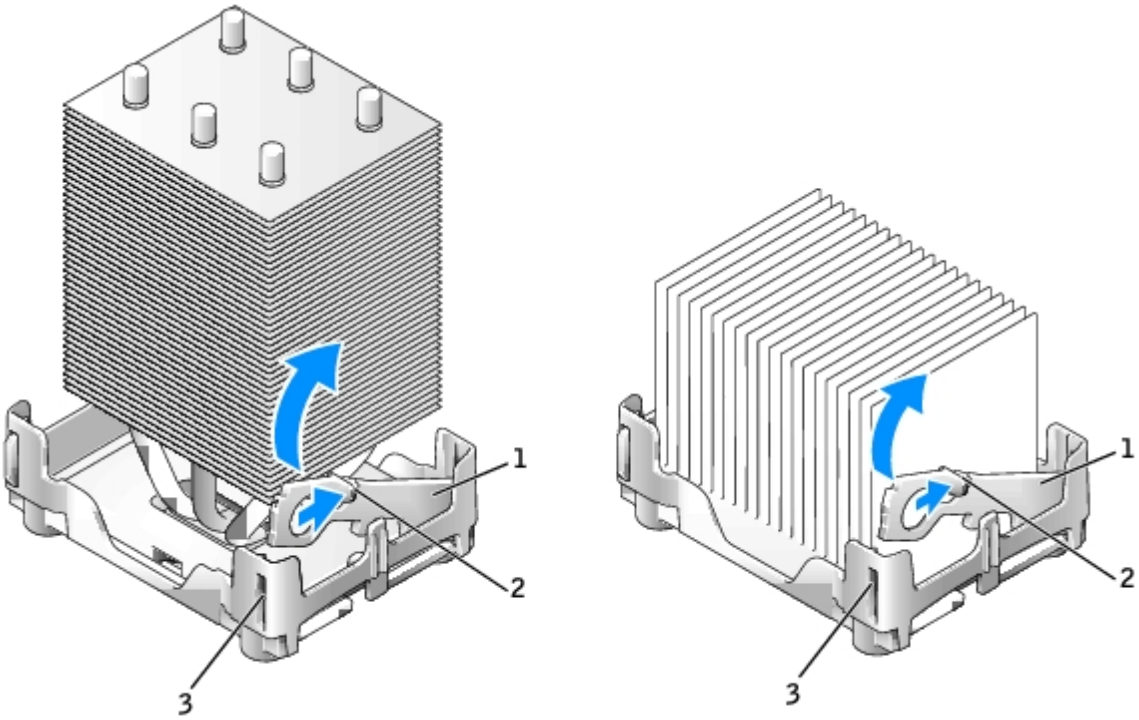


CAUTION: The heat sink can get very hot during normal operation. Be sure that the heat sink has had sufficient time to cool before you touch it.

5. Remove the heat sink:

a. Press the tab on the green securing clip to remove the clip from the retention base.

NOTE: Your computer's configuration determines the type of heat sink that is installed in your computer. Both types of heat sinks (a taller version and a shorter version) may differ in appearance than illustrated below, but are removed and reinstalled in the same manner.

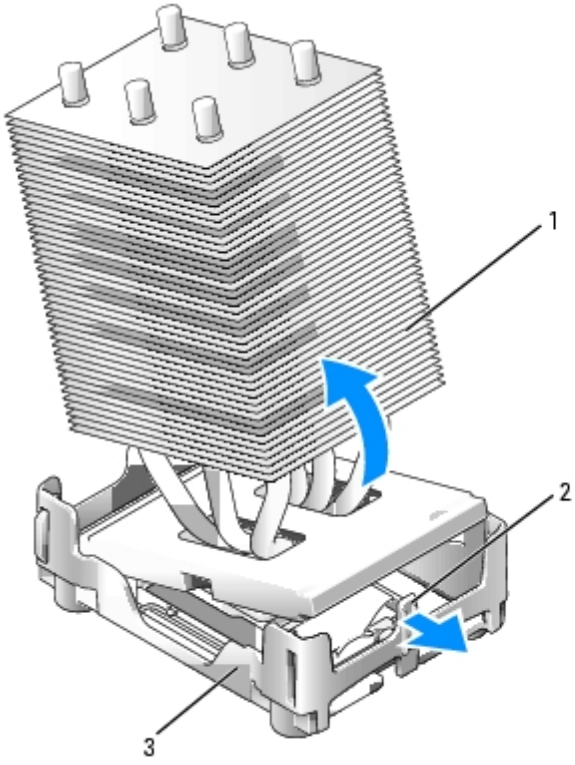


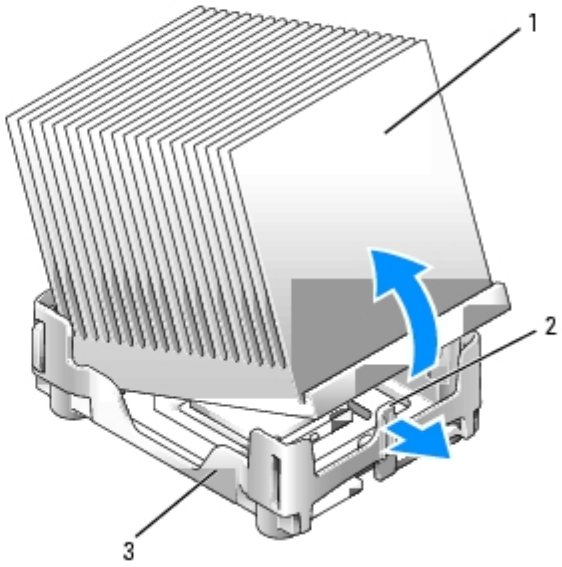
1	securing clip
2	tab
3	retention base

b. Remove the heat sink by pressing the tab while lifting one end of the heat sink.

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

NOTE: Your computer's configuration determines the type of heat sink that is installed in your computer. Both types of heat sinks (a taller version and a shorter version) may differ in appearance than illustrated below, but are removed and reinstalled in the same manner.

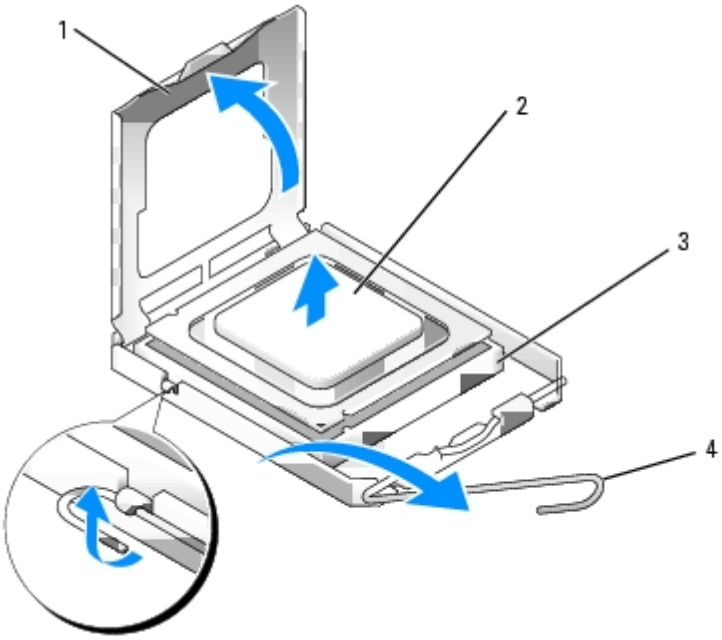




1	heat sink
2	tab
3	retention base

NOTICE: If you are installing a processor upgrade kit from Dell, discard the original heat sink. If you are *not* installing a processor upgrade kit from Dell, reuse the original heat sink when you install your new processor.

6. Open the processor cover.



1	processor cover

2	processor
3	socket
4	release lever

NOTICE: When replacing the processor, do not touch any of the pins inside the socket or allow any objects to fall on the pins in the socket.

7. Remove the processor from the socket.

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

Installing the Processor

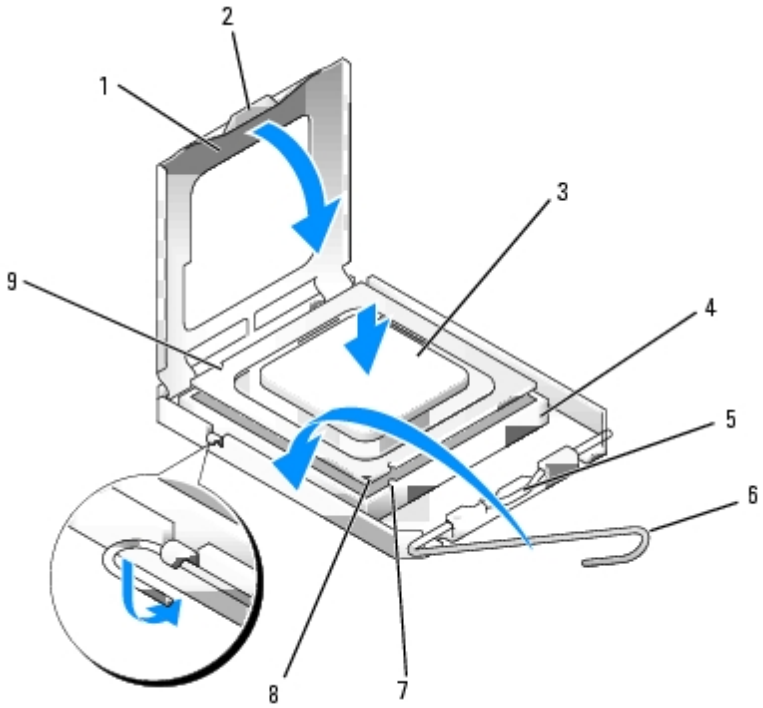
NOTICE: Ground yourself by touching an unpainted metal surface on the back of the computer.

NOTICE: When replacing the processor, do not touch any of the pins inside the socket or allow any objects to fall on the pins in the socket.

1. Unpack the new processor, being careful not to touch the underside of the processor.

NOTICE: You must position the processor correctly in the socket to avoid permanent damage to the processor 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. Orient the front and rear alignment notches on the processor with the front and rear alignment notches on the socket.
4. Align the pin-1 corners of the processor and socket.



1	processor cover	6	release lever

2	tab	7	front alignment notch
3	processor	8	socket and processor pin-1 indicator
4	processor socket	9	rear alignment notch
5	center cover latch		

NOTICE: To avoid damage, ensure that the processor aligns properly with the socket, and do not use excessive force when you install the processor.

5. Set the processor lightly in the socket and ensure that the processor is positioned correctly.
6. When the processor is fully seated in the socket, close the processor cover.

   Ensure that the tab on the processor cover is positioned underneath the center cover latch on the socket.
7. Pivot the socket release lever back toward the socket and snap it into place to secure the processor.

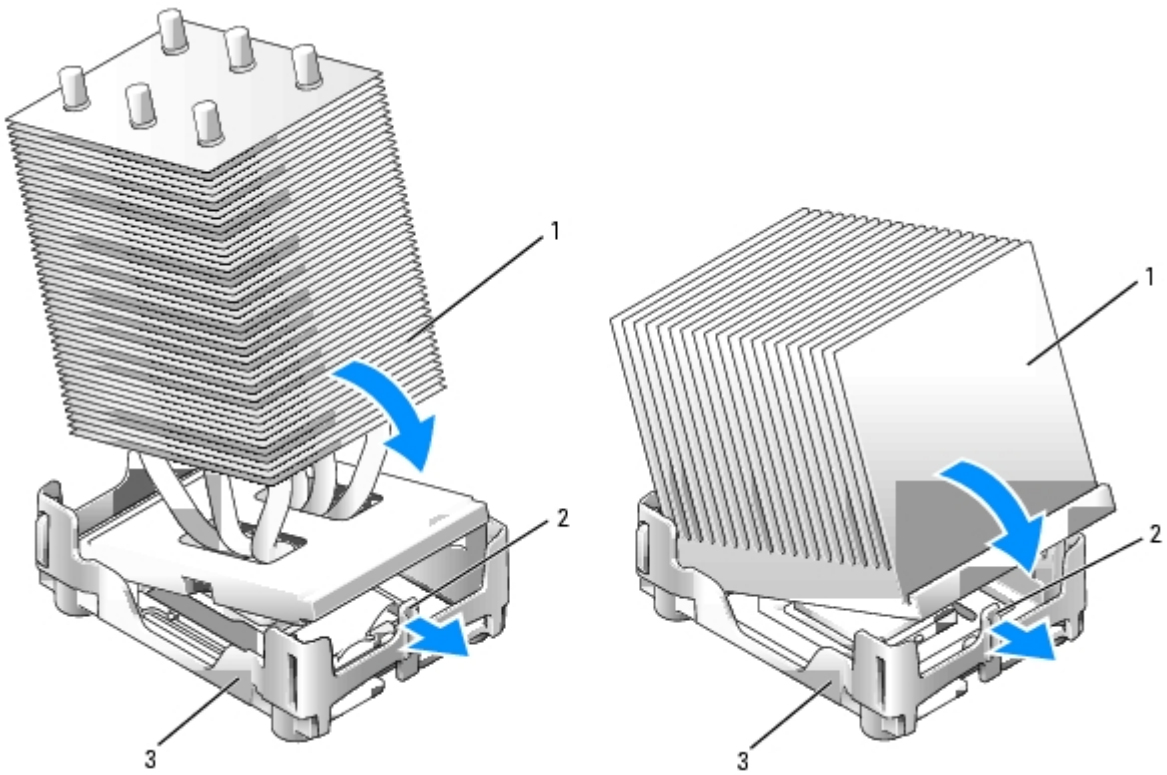
NOTICE: If you are *not* installing a processor upgrade kit from Dell, reuse the original heat sink assembly when you replace the processor.

If you installed a processor replacement kit from Dell, return the original heat sink assembly and processor to Dell in the same package in which your replacement kit was sent.

8. Install the heat sink:
   a. Place one end of the heat sink under the tab on one side of the retention base.
   b. Lower the heat sink until the heat sink fits securely under the tab on the retention base.

NOTE: Your computer's configuration determines the type of heat sink that is installed in your computer. Both types of heat sinks (a taller version and a shorter version) may differ in appearance than illustrated below, but are removed and reinstalled in the same manner.

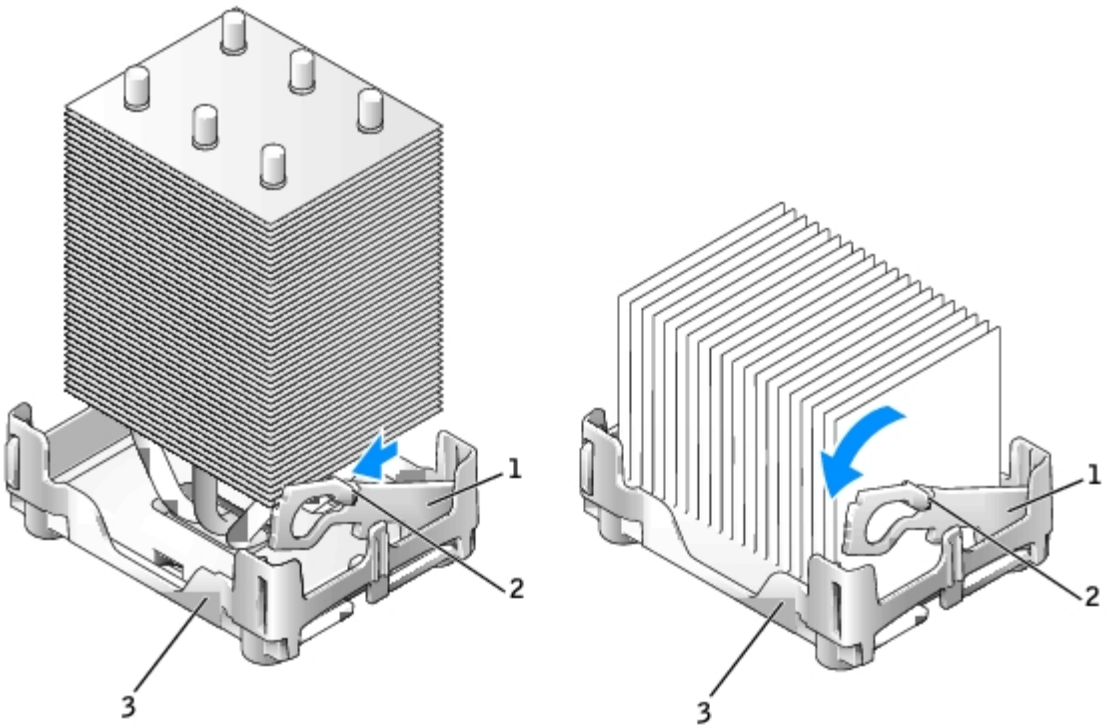
NOTICE: Ensure that the heat sink is correctly seated and secure.



1	heat-sink
2	tab
3	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 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.

NOTE: Your computer's configuration determines the type of heat sink that is installed in your computer. Both types of heat sinks (a taller version and a shorter version) may differ in appearance than illustrated below, but are removed and reinstalled in the same manner.



1	securing clip
2	tab
3	slot
4	retention base

9. Lower the airflow shroud over the heat sink.
10. Reconnect the cooling fan power cable to the FAN connector on the system board.
11. Reconnect the power cable to the 12VPOWER connector on the system board.
12. 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.

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

After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

```
ALERT! Cover was previously removed.
```

14. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

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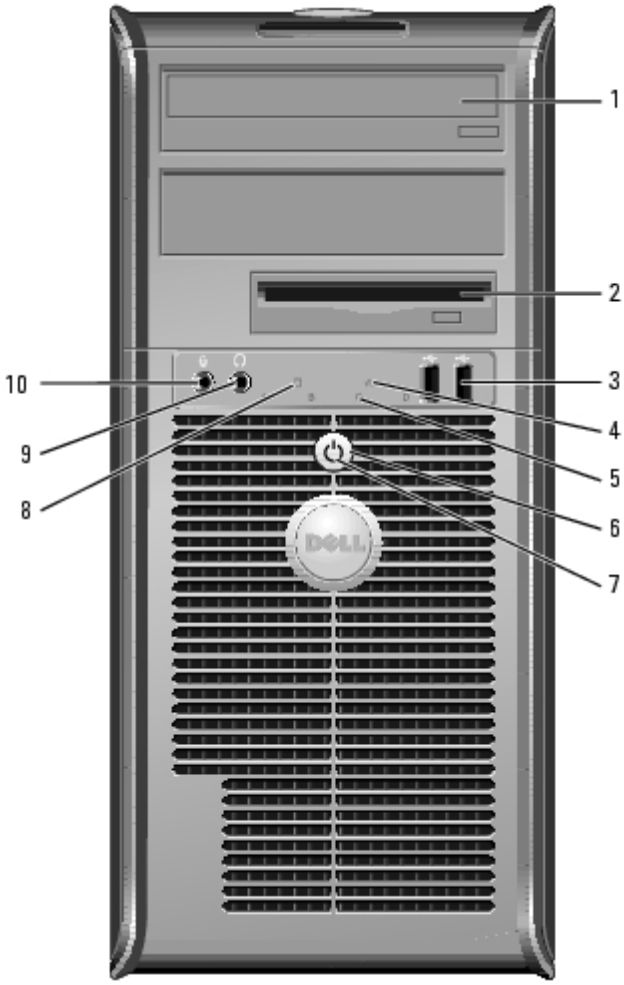
About Your Mini-Tower Computer

Dell™ OptiPlex™ GX280 Systems User's Guide

- Front View
- Back View
- Inside Your Computer
- System Board Components

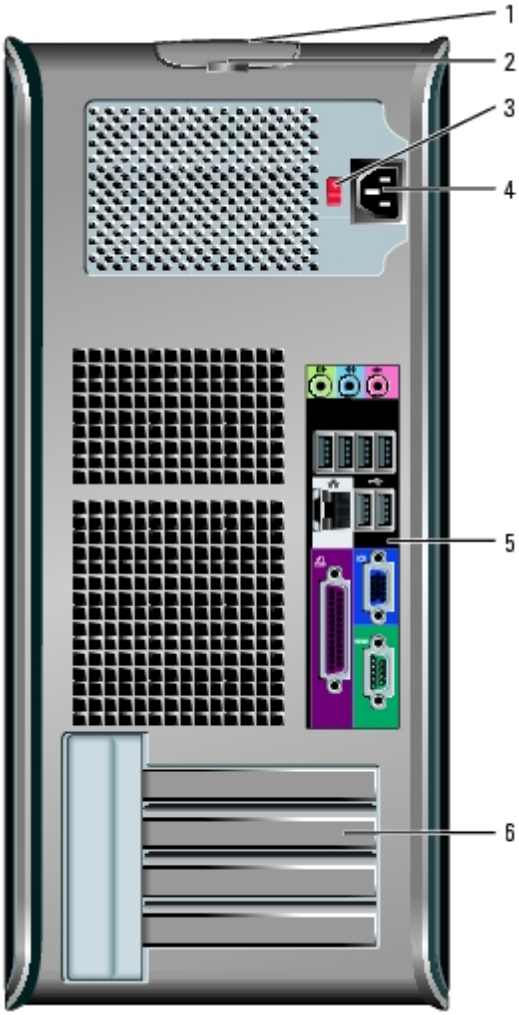
Front View



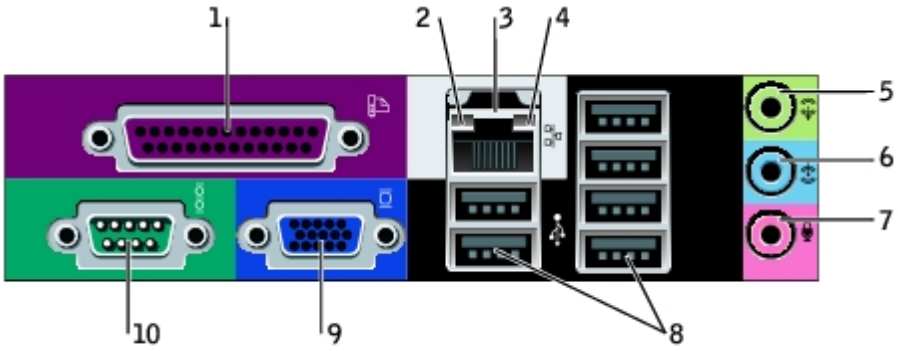
1	CD/DVD drive	Insert a CD or DVD (if applicable) in this drive.
2	floppy drive	Insert floppy disk in this drive.
3	USB 2.0 connectors (2)	Use the front USB connectors for devices that you connect occasionally, such as joysticks or cameras, or for bootable USB devices (see "System Setup" for more information on booting to a USB device). It is recommended that you use the back USB connectors for devices that typically remain connected, such as printers and keyboards.
4	LAN	Indicates that a LAN (network) connection is established.

	indicator light	
5	diagnostic lights	Use the lights to help you troubleshoot a computer problem based on the diagnostic code. For more information, see "Diagnostic Lights."
6	power button	Press to turn on the computer. **NOTICE:** To avoid losing data, do not turn off the computer by pressing the power button for 6 seconds or longer. Instead, perform an operating system shutdown. **NOTICE:** If your operating system has ACPI enabled, when you press the power button the computer will perform an operating system shutdown.
7	power light	The power light illuminates and blinks or remains solid to indicate different states: • No light — The computer is turned off (S4, S5, or mechanical OFF) • Steady green — The computer is in a normal operating state • Blinking green — The computer is in a power-saving state (S1 or S3) • Blinking or solid amber — See "Power Problems" To exit from a power-saving state, press the power button or use the keyboard or the mouse if it is configured as a wake device in the Windows Device Manager. For more information about sleep states and exiting from a power-saving state, see "Power Management." See "Diagnostic Lights" for a description of light codes that can help you troubleshoot problems with your computer.
8	hard drive activity light	This light will flicker when the hard drive is being accessed.
9	headphone connector	Use the headphone connector to attach headphones and most kinds of speakers.
10	microphone connector	Use the microphone connector to attach a microphone.

Back View



1	cover release latch	This latch allows you to open the computer cover.
2	padlock ring	Insert a padlock to lock the computer cover.
3	voltage selection switch (may not be available on all computers)	Your computer is equipped with either an auto-sensing voltage selector or a manual voltage selection switch. Computers with an auto-sensing voltage selector do not have a voltage selection switch on the back panel and can automatically detect the correct operating voltage. 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. **NOTICE:** 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.
4	power connector	Insert the power cable.
5	back panel connectors	Plug serial, USB, and other devices into the appropriate connector.
6	card slots	Access connectors for any installed PCI and PCI Express cards.



1	parallel connector	Connect a parallel device, such as a printer, to the parallel connector. If you have a USB printer, plug it into a USB connector. **NOTE:** The integrated parallel connector is automatically disabled if the computer detects an installed card containing a parallel connector configured to the same address. For more information, see "System Setup Options."
2	link integrity light	• Green — A good connection exists between a 10-Mbps network and the computer. • Orange — A good connection exists between a 100-Mbps network and the computer. • Yellow — A good connection exists between a 1-Gbps (or 1000-Mbps) network and the computer. • Off — The computer is not detecting a physical connection to the network.
3	network adapter connector	To attach your computer to a network or broadband device, connect one end of a network cable to either a network jack or your network or broadband device. Connect the other end of the network cable to the network adapter connector on the back panel of your computer. A click indicates that the network cable has been securely attached. **NOTE:** Do not plug a telephone cable into the network connector. On computers with a network connector card, use the connector on the card. It is recommended that you use Category 5 wiring and connectors for your network. If you must use Category 3 wiring, force the network speed to 10 Mbps to ensure reliable operation.
4	network activity light	Flashes a yellow light when the computer is transmitting or receiving network data. A high volume of network traffic may make this light appear to be in a steady "on" state.
5	line-out connector	Use the green line-out connector (available on computers with integrated sound) to attach headphones and most speakers with integrated amplifiers. On computers with a sound card, use the connector on the card.
6	line-in connector	Use the blue line-in connector (available on computers with integrated sound) to attach a record/playback device such as a cassette player, CD player, or VCR. On computers with a sound card, use the connector on the card.
7	microphone connector	Use the pink microphone connector (available on computers with integrated sound) to attach a personal computer microphone for voice or musical input into a sound or telephony program. On computers with a sound card, the microphone connector is on the card.
8	USB 2.0 connectors (6)	Use the back USB connectors for devices that typically remain connected, such as printers and keyboards.

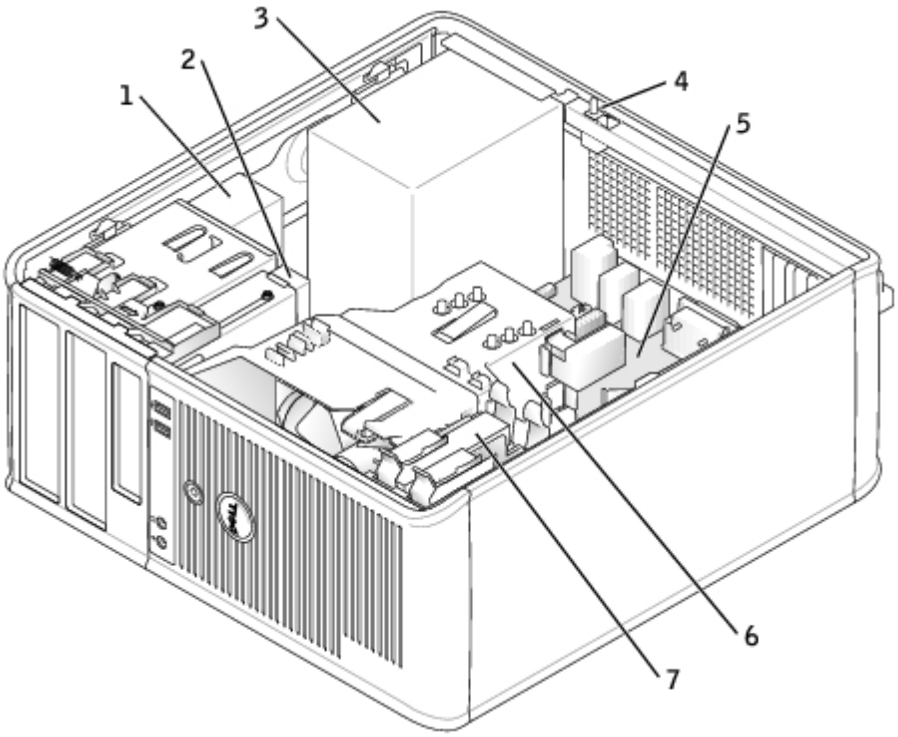
9	video connector	Plug the cable from your VGA-compatible monitor into the blue connector. **NOTE:** If you purchased an optional graphics card, this connector will be covered by a cap. Connect your monitor to the connector on the graphics card. Do not remove the cap. **NOTE:** If you are using a graphics card that supports dual monitors, use the y-cable that came with your computer.
10	serial connector	Connect a serial device, such as a handheld device, to the serial port. The default designations are COM1 for serial connector 1 and COM2 for serial connector 2. For more information, see "System Setup Options."

Inside Your Computer

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

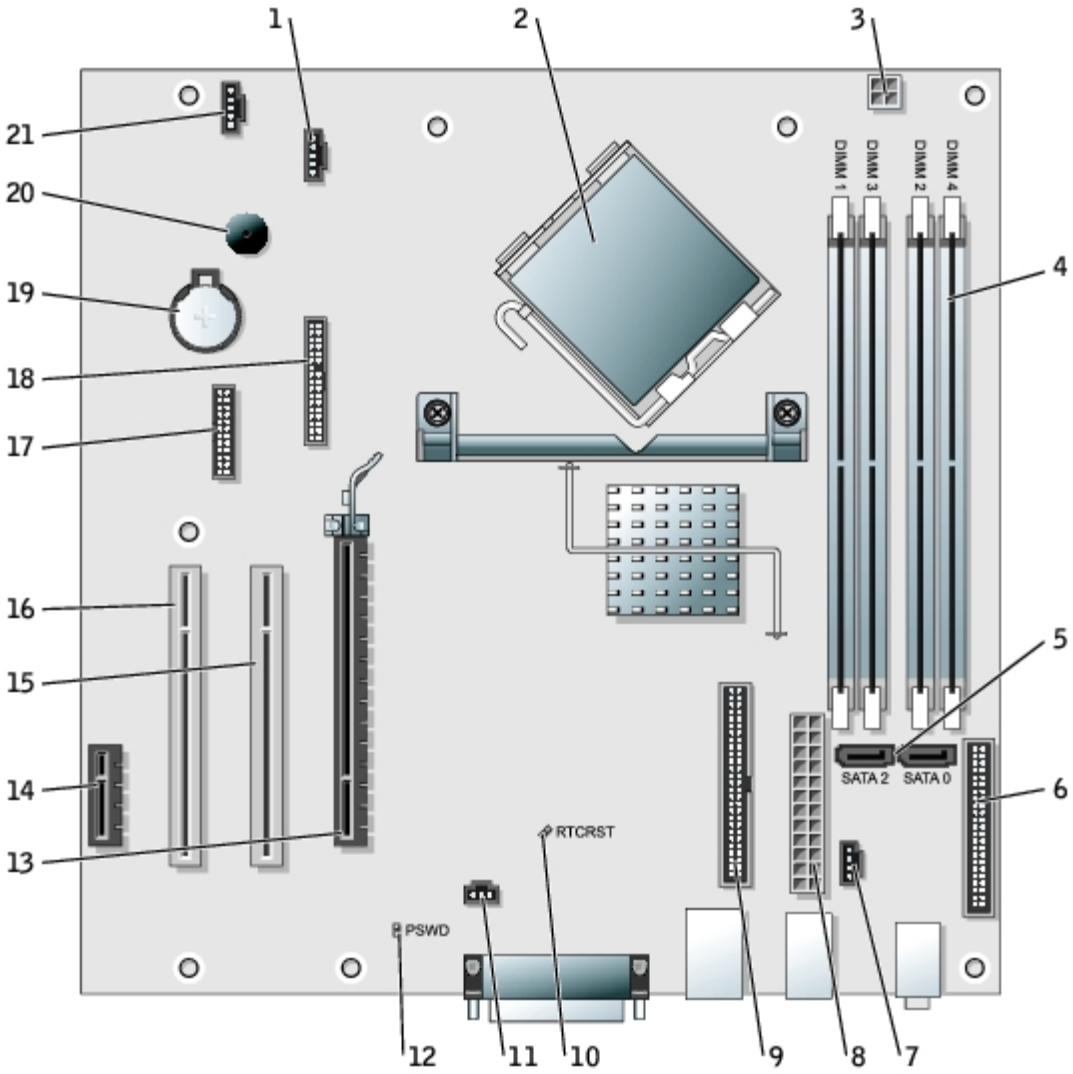
CAUTION: To avoid electrical shock, always unplug your computer from the electrical outlet before opening the cover.

NOTICE: Be careful when opening the computer cover to ensure that you do not accidentally disconnect cables from the system board.



1	CD/DVD drive	5	system board
2	floppy drive	6	heat sink shroud assembly
3	power supply	7	hard drive
4	chassis intrusion switch		

System Board Components



1	fan connector (FAN)	12	password jumper (PSWD)
2	processor connector (CPU)	13	PCI Express x16 connector (PEG)
3	power connector (12VPOWER)	14	PCI Express x1 connector (PCIE1)
4	memory module connectors (DIMM1, DIMM2, DIMM3, DIMM4)	15	PCI connector (PCI1)
5	serial ATA drive 0 and 2 connectors (SATA0, SATA2)	16	PCI connector (PCI2)
6	front-panel connector (FRONT PANEL)	17	serial connector (SER_PS2)
7	CD drive analog audio cable connector for optional analog audio cable (CD_IN)	18	diskette drive connector (FLOPPY)
8	power connector (POWER)	19	battery socket (BATTERY)
9	CD/DVD drive connector (IDE)	20	internal speaker (SPEAKER)
10	RTC reset jumper (RTCRST)	21	external speaker connector (EXT_SPKR)
11	intrusion switch connector (INTRUDER)		

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Opening the Computer Cover

Dell™ OptiPlex™ GX280 Systems User's Guide

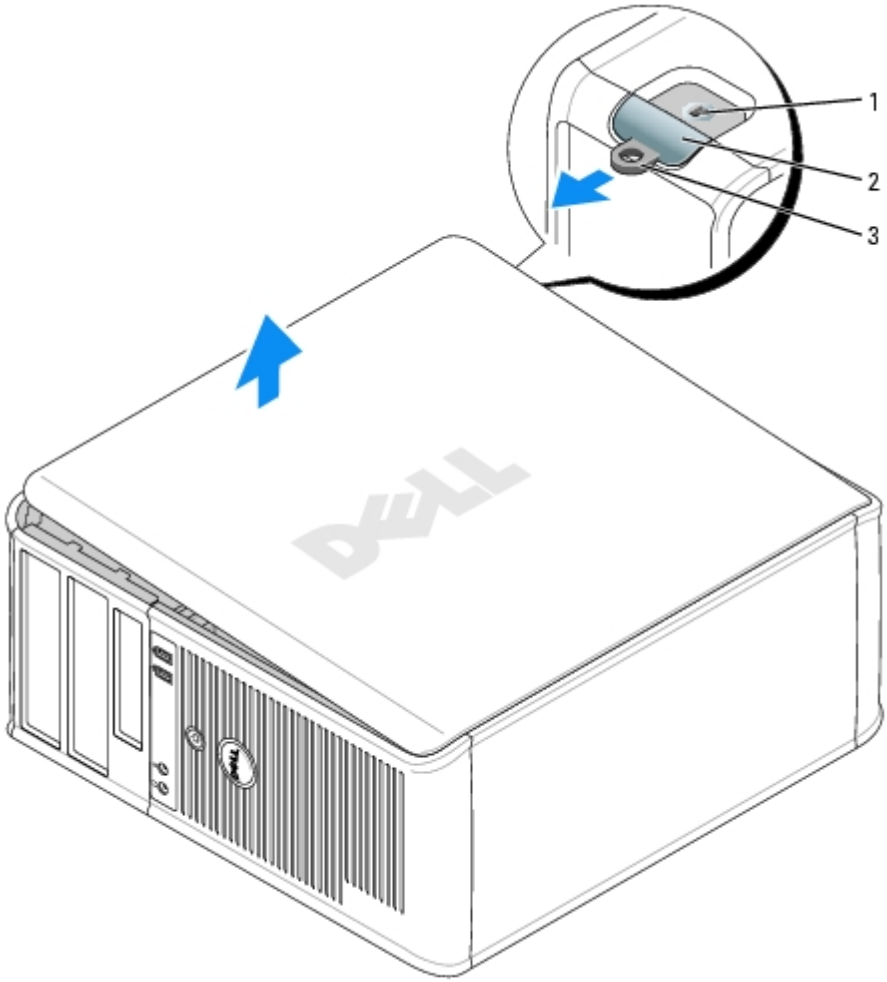
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

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

1. Follow the procedures in "Before You Begin."

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

2. Lay the computer on its side as shown in the illustration.
3. Locate the cover release latch shown in the illustration. Then, slide the release latch back as you lift the cover.
4. Grip the sides of the computer cover and pivot the cover up using the bottom hinges as leverage points.
5. Remove the cover from the hinge tabs and set it aside on a soft non-abrasive surface.



1	security cable slot

2	cover release latch
3	padlock ring

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Drives

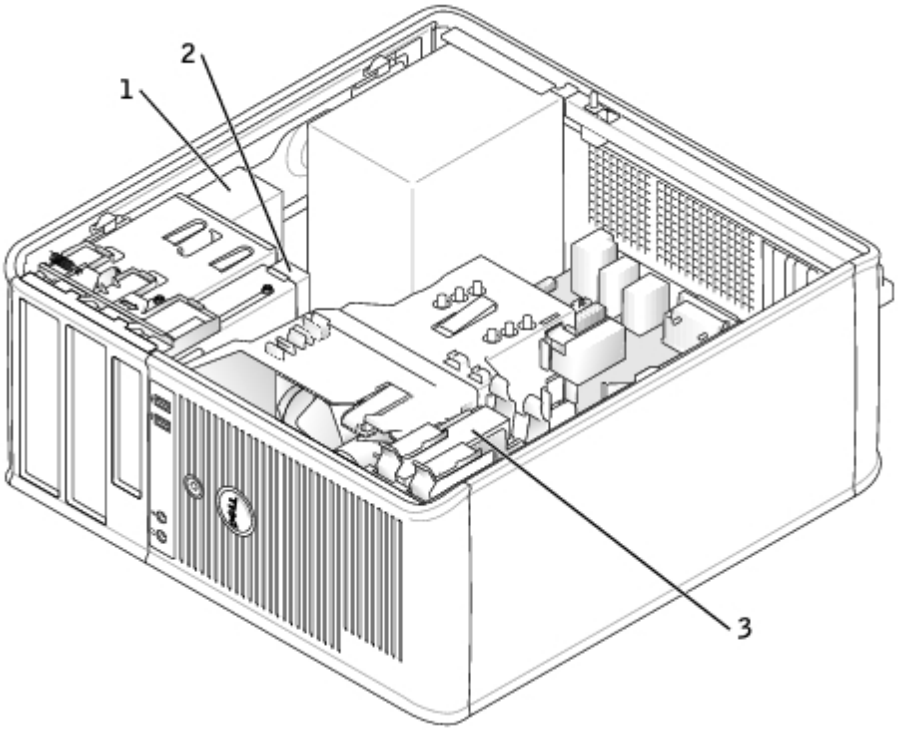
Dell™ OptiPlex™ GX280 Systems User's Guide

- General Installation Guidelines
- Hard Drive
- Adding a Second Hard Drive
- Drive-Panel Inserts
- Floppy Drive
- CD/DVD Drive

Your computer supports:

- two serial ATA hard drives
- two floppy or optional Zip drives
- two CD or DVD drives

NOTE: Due to the limited amount of drive bays and IDE controllers on this computer, you will not be able to connect all devices at once.



1	CD/DVD drive
2	floppy drive
3	power supply

General Installation Guidelines

Connect CD/DVD drives to the connector labeled "IDE" on the system board. Serial ATA hard drives should be connected to the connectors labeled "SATA0," SATA1," "SATA2," or "SATA3" on the system board.

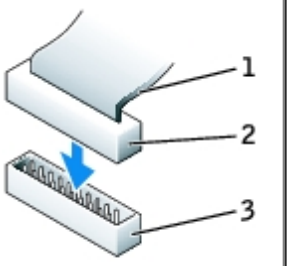
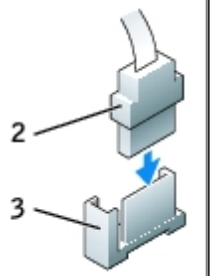
IDE Drive Addressing

When you connect two IDE devices to a single IDE interface cable and configure them for the cable select setting, the device attached to the last connector on the interface cable is the master or boot device (drive 0), and the device attached to the middle connector on the interface cable is the slave device (drive 1). See the drive documentation in your upgrade kit for information on configuring devices for the cable select setting.

Connecting Drive Cables

When you install a drive, you connect two cables—a DC power cable and a data cable—to the back of the drive and to the system board.

Drive Interface Connectors

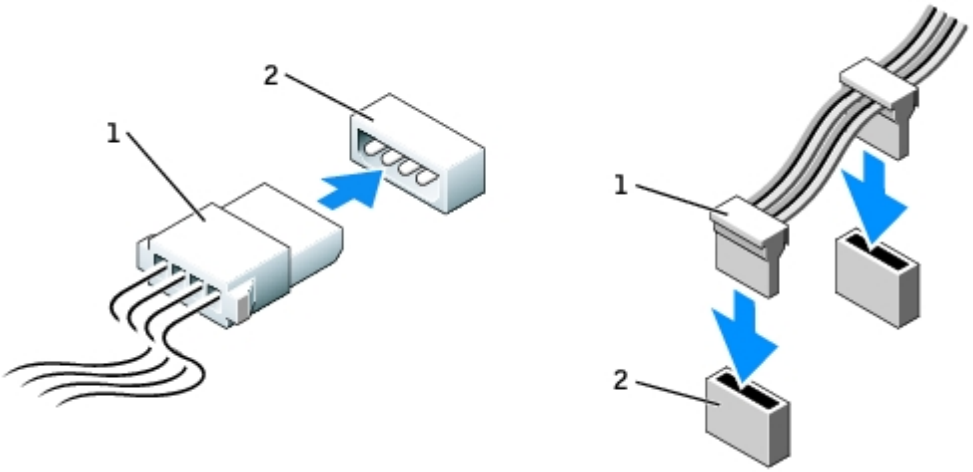
IDE Drive Connector	Serial ATA Connector
	

1	colored stripe on IDE cable
2	interface cable connector
3	interface connector

Most interface connectors are keyed for correct insertion; that is, a notch or a missing pin on one connector matches a tab or a filled-in hole on the other connector. Keyed connectors ensure that the pin-1 wire in the cable (indicated by the colored stripe along one edge of the IDE cable—serial ATA cables do not use a colored stripe) goes to the pin-1 end of the connector. The pin-1 end of a connector on a board or a card is usually indicated by a silk-screened "1" printed directly on the board or card.

NOTICE: When you connect an IDE interface cable, do not place the colored stripe away from pin 1 of the connector. Reversing the cable prevents the drive from operating and could damage the controller, the drive, or both.

Power Cable Connector



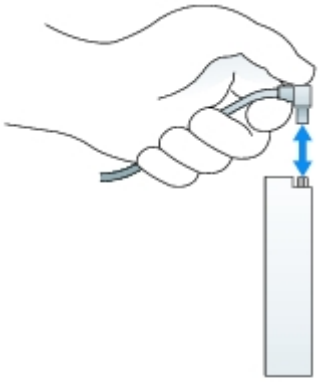
1	power cable
2	power input connector

Connecting and Disconnecting Drive Cables

When removing an IDE drive data cable, grasp the colored pull tab and pull until the connector detaches.

When connecting and disconnecting a serial ATA data cable, hold the cable by the black connector at each end.

Like IDE connectors, the serial ATA interface connectors are keyed for correct insertion; that is, a notch or a missing pin on one connector matches a tab or a filled-in hole on the other connector.



Hard Drive

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

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

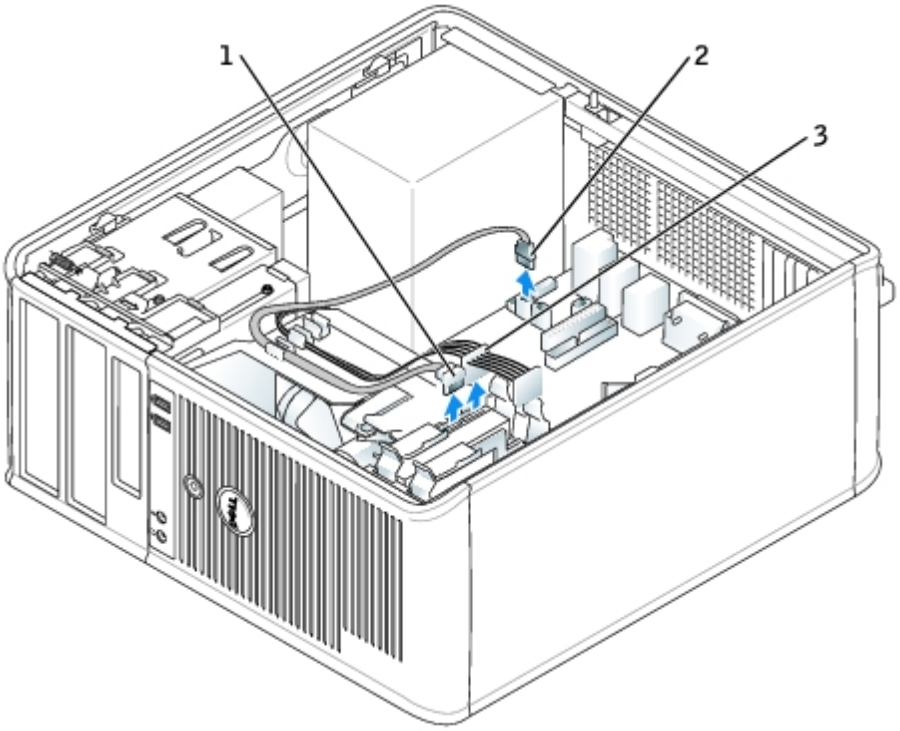
NOTICE: To avoid damage to the drive, do not set it on a hard surface. Instead, set the drive on a surface, such as a foam pad, that will sufficiently cushion it.

NOTE: If you are replacing a hard drive that contains data you want to keep, back up your files before you begin this procedure.

Check the documentation for the drive to verify that it is configured for your computer.

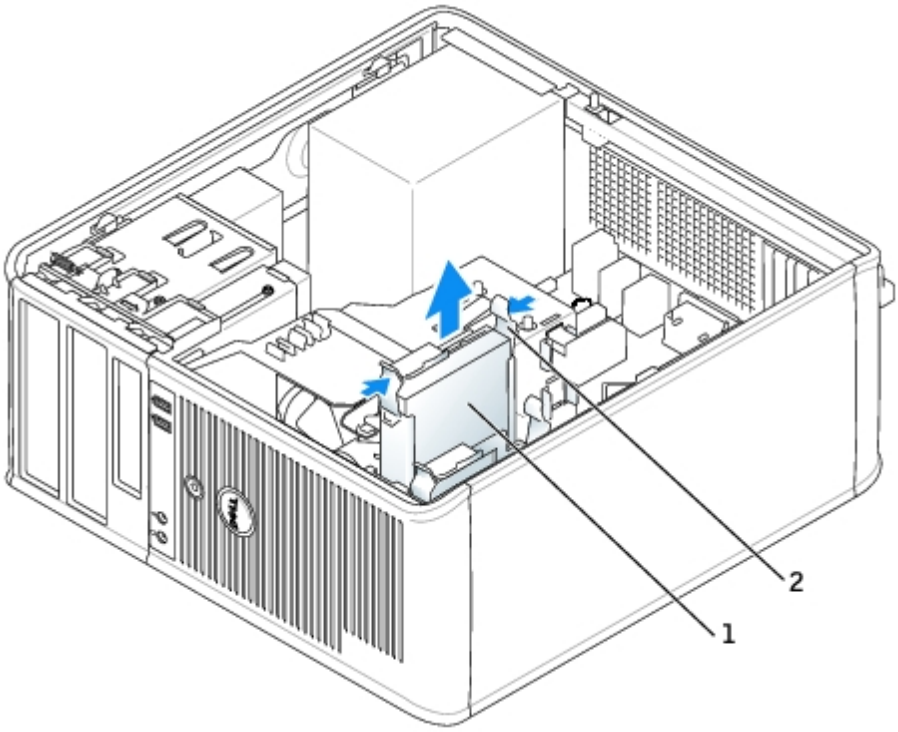
Removing a Hard Drive

1. Follow the procedures in "Before You Begin."
2. Disconnect the power and hard-drive cables from the drive. Disconnect the hard-drive cable from the system board.



1	hard-drive cable
2	hard-drive cable on system board
3	power cable

3. Press in on the blue tabs on each side of the drive and slide the drive up and out of the computer.

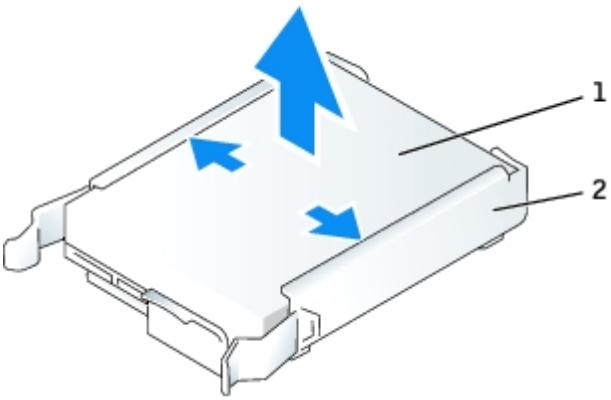


1	hard drive
2	tabs (2)

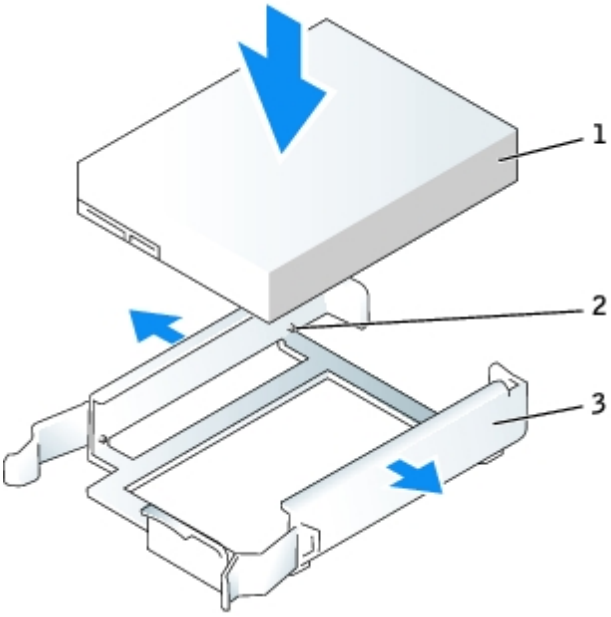
Installing a Hard Drive

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.

NOTE: If your replacement hard drive does not have the plastic guide bracket attached, remove the bracket from the old drive by unsnapping it from the drive. Snap the bracket onto the new drive.

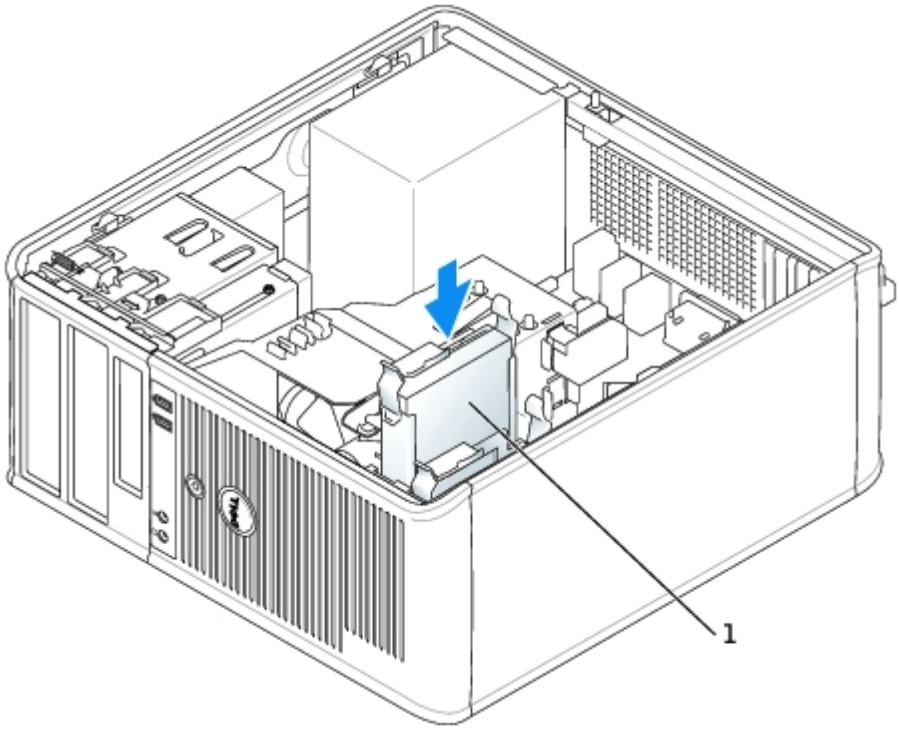


1	drive
2	drive bracket



1	drive
2	securing tabs (4)
3	drive bracket

3. Gently slide the drive into place until you hear a click or feel the drive securely installed.



1	hard drive

4. Connect the power and hard-drive cables to the drive. Connect the hard-drive cable to the connector on the system board.
5. Check all connectors to be certain that they are properly cabled and firmly seated.
6. 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.

7. Connect your computer and devices to electrical outlets.

   See the documentation that came with the drive for instructions on installing any software required for drive operation.
8. If the drive you just installed is the primary drive, insert a bootable medium into your boot drive.
9. Turn on the computer.
10. After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```
11. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

12. Enter system setup and update the appropriate **Primary Drive** option (**0** or **1**).
13. Exit system setup, and reboot the computer.
14. Partition and logically format your drive before you proceed to the next step.

    See the documentation for your operating system for instructions.
15. Test the hard drive by running the Dell Diagnostics.
16. If the drive you just installed is the primary drive, install your operating system on the hard drive.

Adding a Second Hard Drive

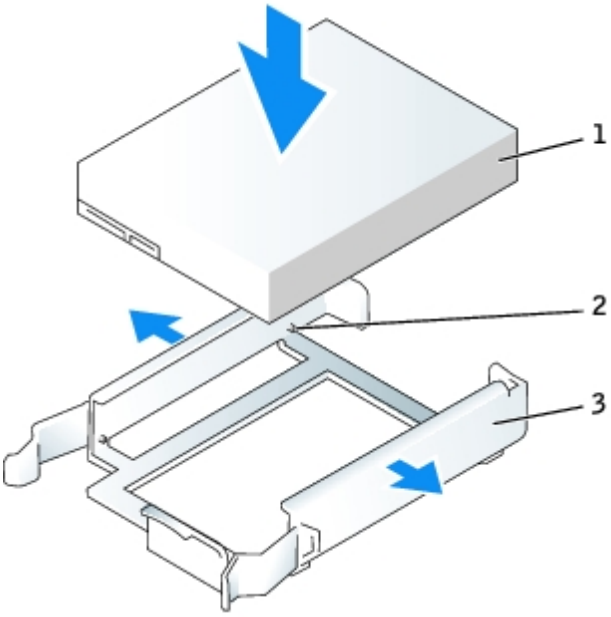
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.

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.

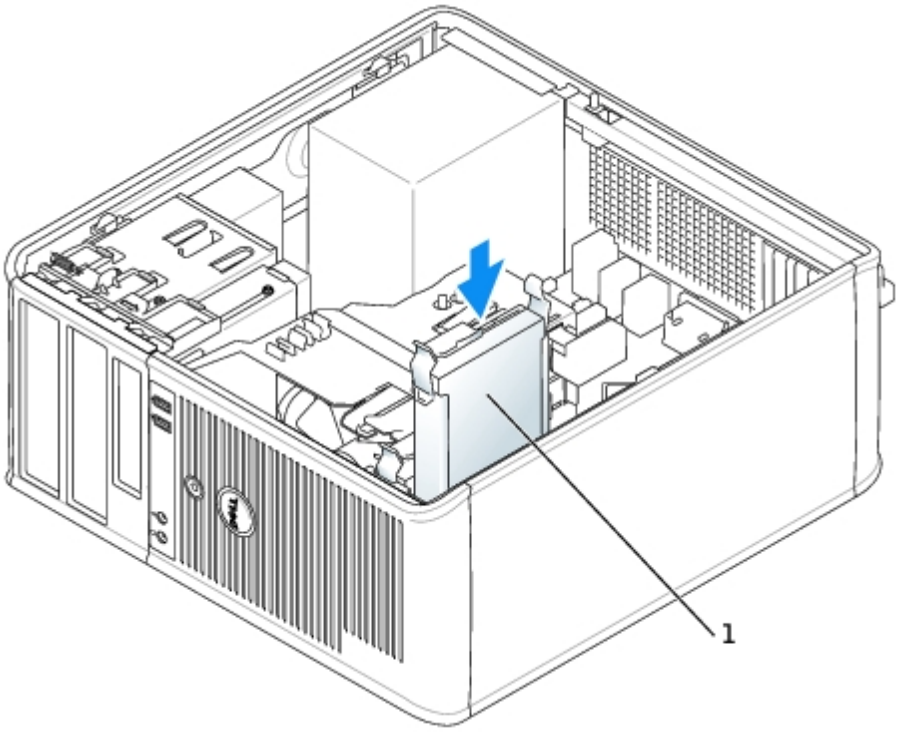
NOTE: If you are replacing a hard drive that contains data you want to keep, back up your files before you begin this procedure.

1. Check the documentation for the drive to verify that it is configured for your computer.
2. Follow the procedures in "Before You Begin."
3. Remove the plastic guide bracket from the inside of the hard-drive bay by gently pulling the bracket up and out of the bay.
4. Snap the bracket to the hard drive.



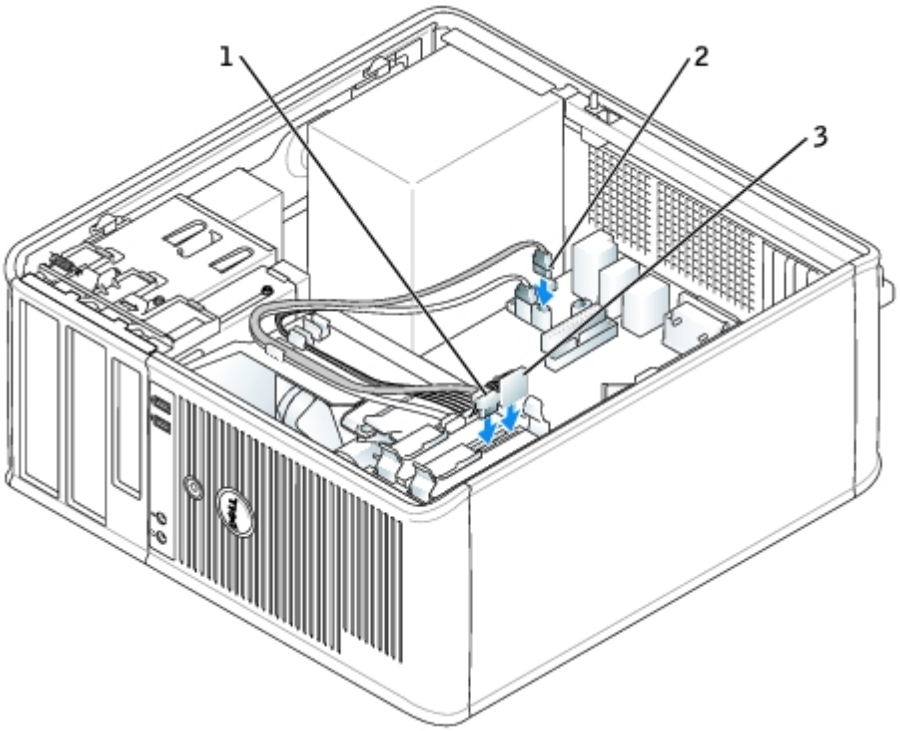
1	drive
2	securing tabs (4)
3	drive bracket

5. Move the first hard drive from the upper bay to the lower bay:
    a. Disconnect the power and the hard-drive cables from the back of the first hard drive.
    b. Press in on the blue tabs on each side of the drive and slide the first hard drive up and out of the upper bay.
    c. Gently slide the first hard drive into place until you hear a click or feel the drive securely installed.
6. Gently slide the new hard drive into the upper bay. Apply pressure until you hear a click or feel the drive securely installed.
7. Connect the power cable to the drives.



1	hard drive

8. Attach the serial ATA connector removed in step 5 to the first hard drive.
9. Locate an unused serial ATA connector on the system board and attach a drive cable to this connector and to the second hard drive.



1	hard-drive cable
2	hard-drive cable on system board
3	power cable

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

    After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```

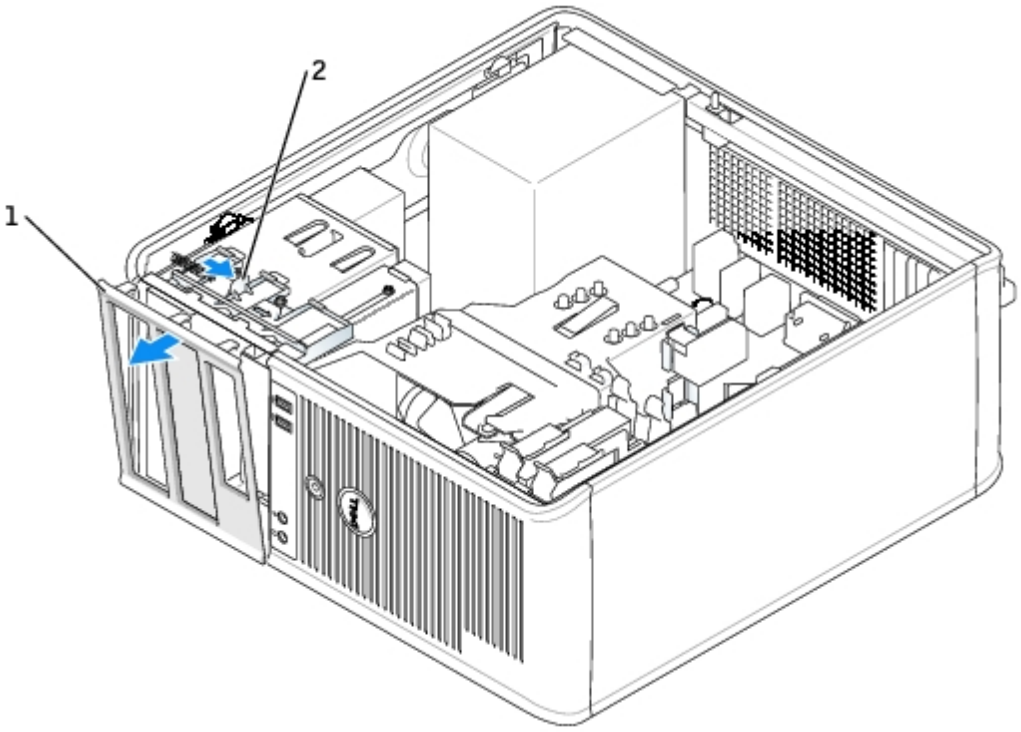
13. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

Drive-Panel Inserts

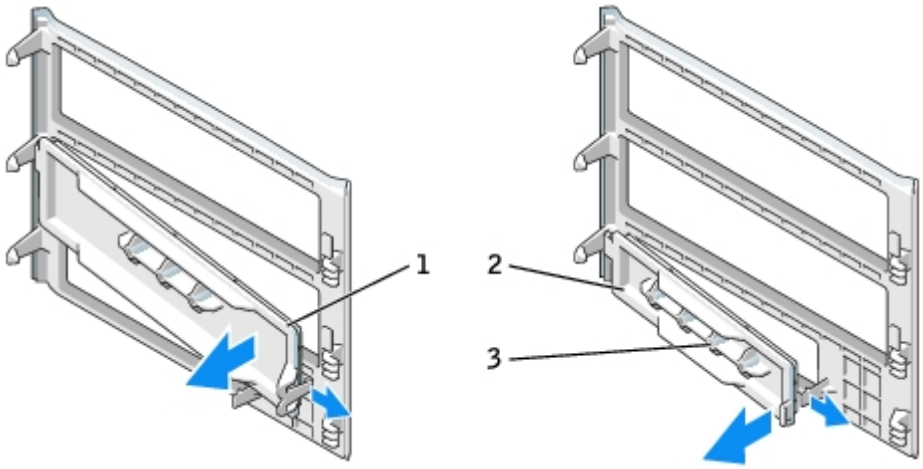
If you are installing a new floppy or CD/DVD drive instead of replacing a drive, remove the drive-panel inserts.

1. Follow the procedures in "Before You Begin."
2. Remove the drive panel by pressing the drive release tab.



1	drive panel
2	release tab

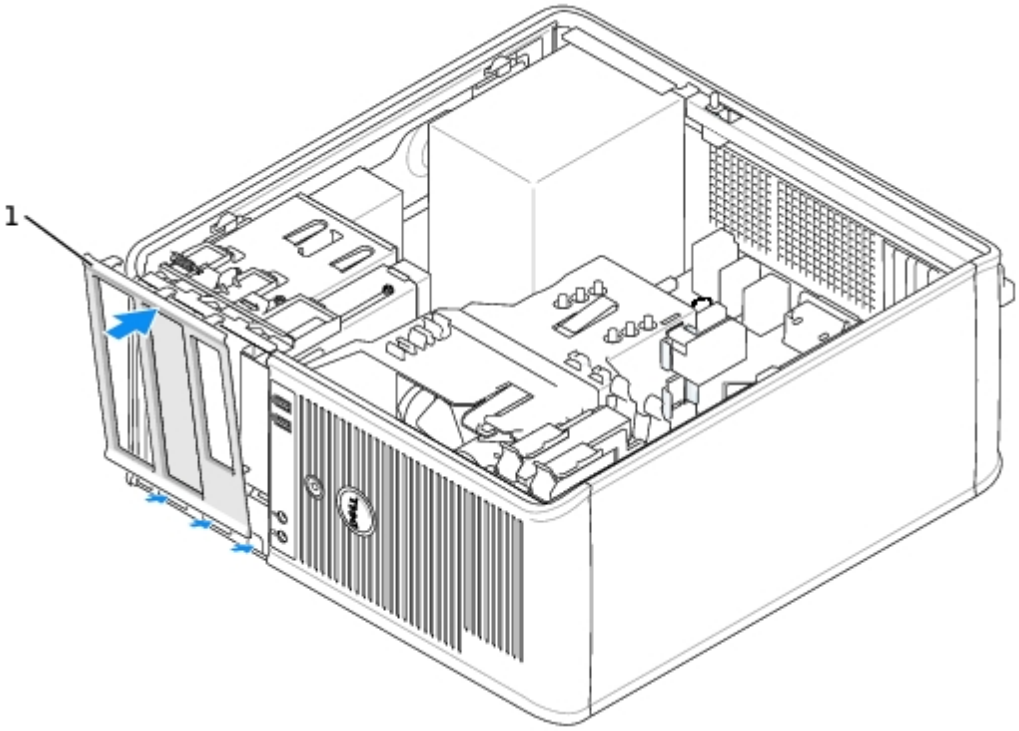
3. Select the insert in front of the drive bay that you want to use.
4. Gently press the release tab of the insert to remove it from the drive bay panel.



1	CD/DVD drive insert
2	floppy drive insert
3	shoulder screw holder

5. Reattach the drive panel to the front of the computer.

   The drive panel only fits one way.



1	drive panel

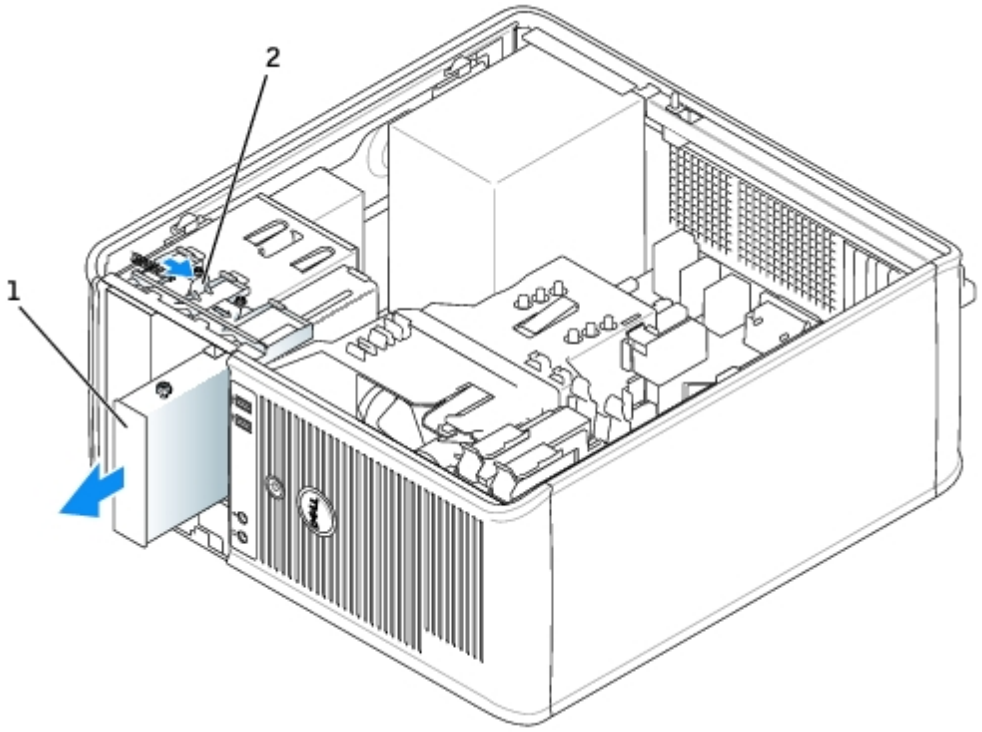
Floppy Drive

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.**

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

Removing the Floppy Drive

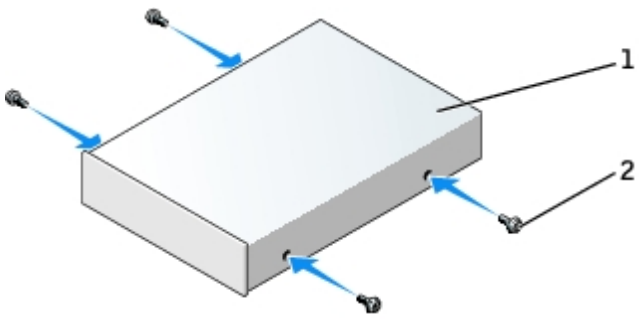
1. Follow the procedures in "Before You Begin."
2. Remove the drive panel by sliding the drive release latch downward to open the panel, then remove it from the 3 hinges.
3. Disconnect the power and floppy-drive cables from the back of the floppy drive.
4. Remove the floppy drive by sliding and holding the drive release latch downward. Then, slide the drive out of the computer.



1	floppy drive
2	release latch

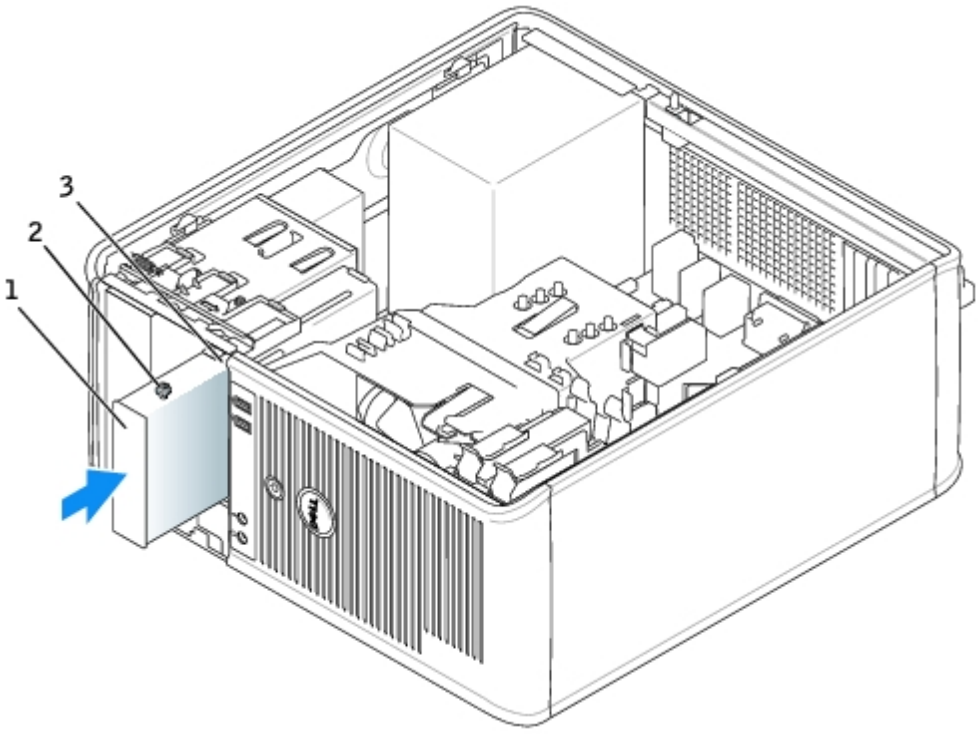
Installing the Floppy Drive

1. If you are replacing a floppy drive, remove the shoulder screws from the old drive and attach the screws to the replacement drive.
2. If you are installing a new floppy drive, remove the drive-panel insert, remove the shoulder screws from the inside of the drive-panel insert and attach the screws to the new drive.



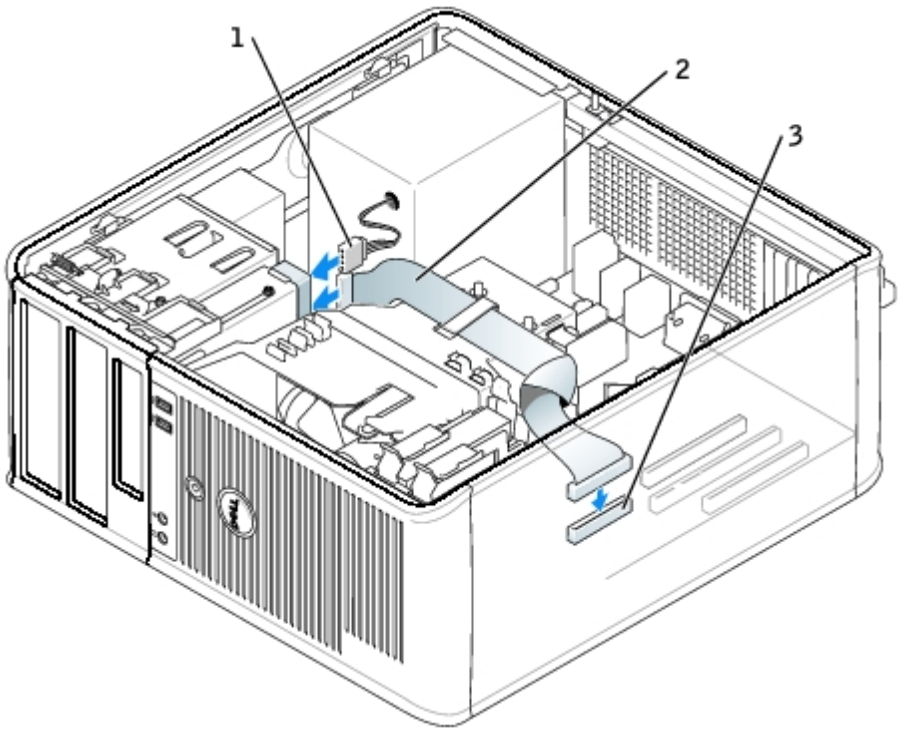
1	drive
2	shoulder screws (4)

3. Gently slide the drive into place until you hear a click or feel the drive securely installed.



1	floppy drive
2	shoulder screws (4)
3	shoulder screw slot

4. Attach the power and floppy-drive cables to the floppy drive.



1	power cable
2	floppy-drive cable
3	floppy-drive connector (FLOPPY)

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.

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

7. After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

8. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

9. Enter system setup and use the **Diskette Drive** option to enable your new floppy drive.
10. Verify that your computer works correctly by running the Dell Diagnostics.

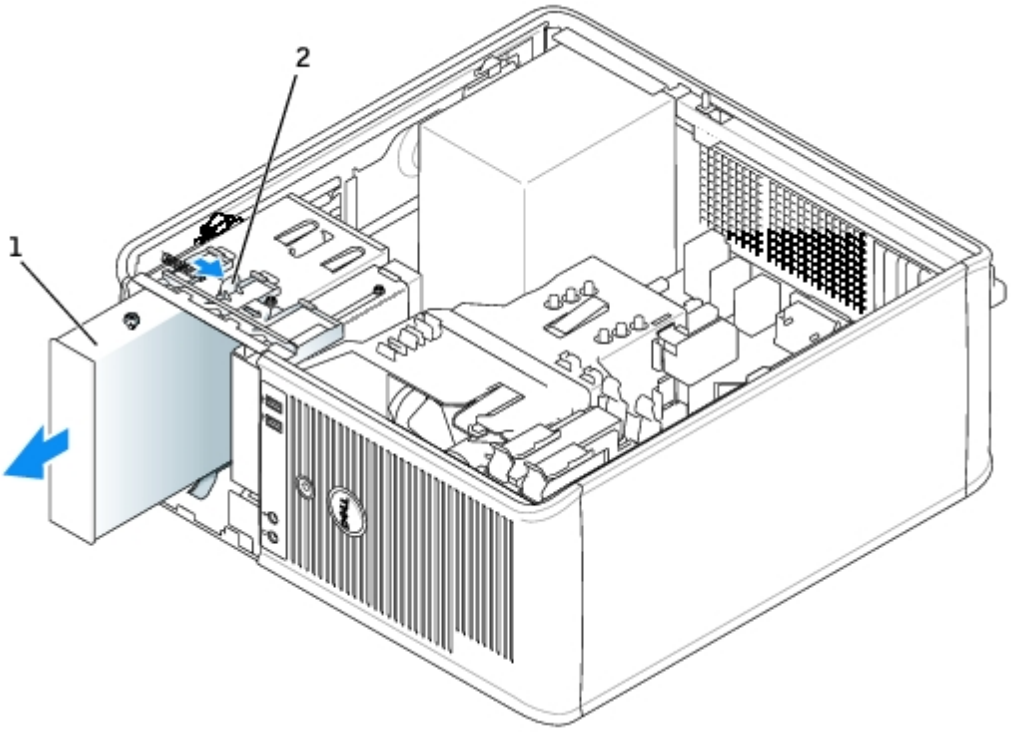
CD/DVD Drive

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

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

Removing a CD/DVD Drive

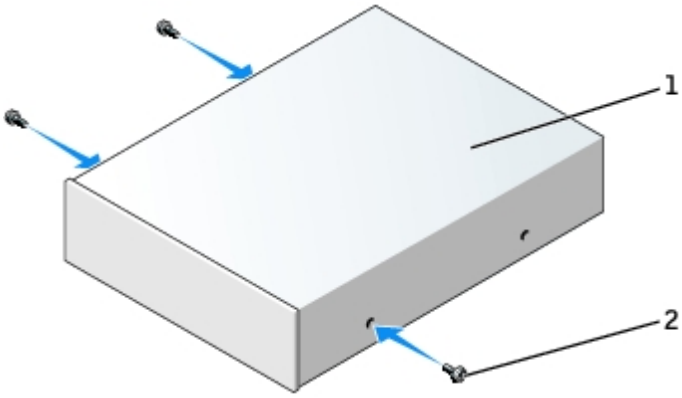
1. Follow the procedures in "Before You Begin."
2. Disconnect the power and CD/DVD drive cables from the back of the drive.
3. Remove the CD/DVD drive by sliding and holding the drive release latch downward. Then, slide the drive out of the computer.



1	CD/DVD drive
2	release tab

Installing a CD/DVD Drive

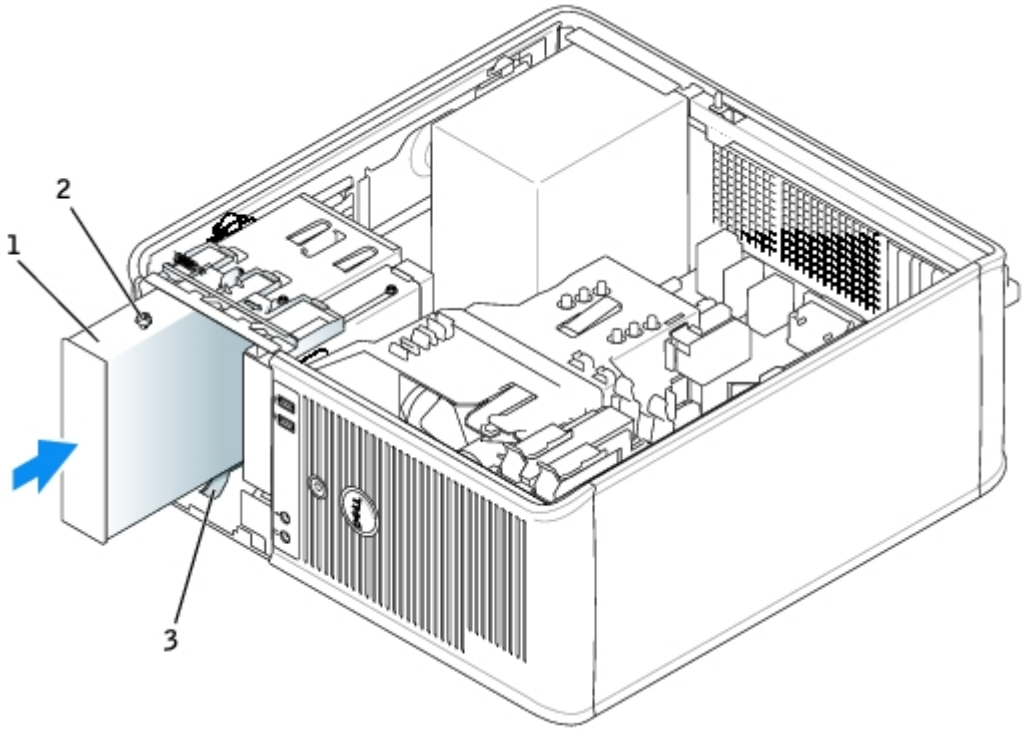
1. Follow the procedures in "Before You Begin."
2. If you are replacing a CD/DVD drive, remove the shoulder screws from the old drive and attach the screws to the replacement drive.
3. If you are installing a new CD/DVD drive, remove the drive-panel insert, remove the shoulder screws from the inside of the drive panel insert, and attach the screws to the new drive.



1	drive
2	shoulder screws (3)

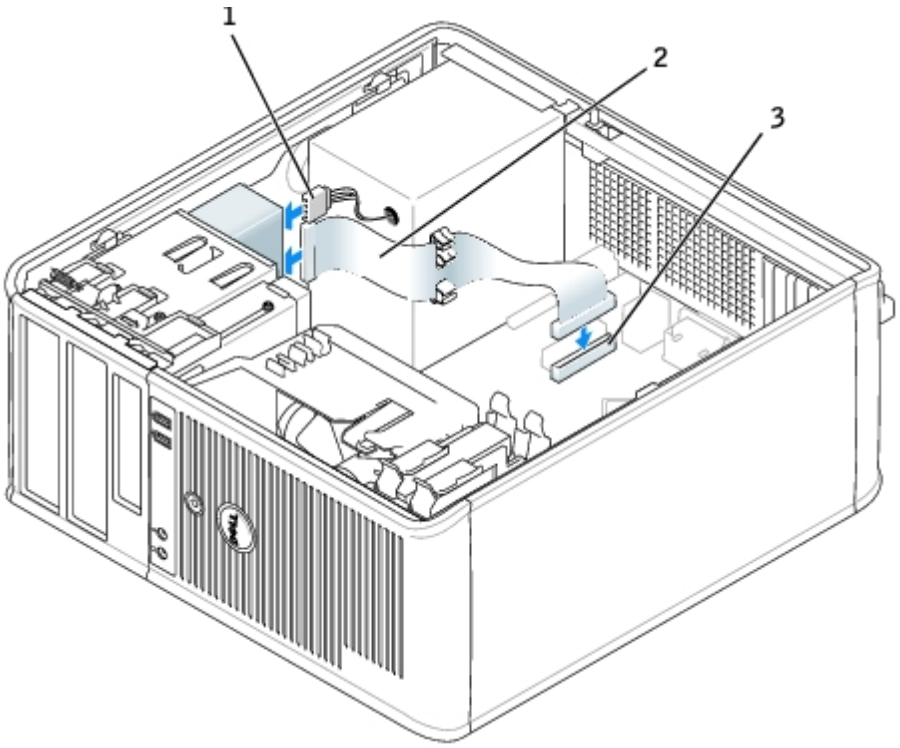
4. Check the documentation that accompanied the drive to verify that the drive is configured for your computer. If you are installing an IDE drive, configure the drive for the cable select setting.

5. Gently slide the drive into place until you hear a click or feel the drive securely installed.



1	CD/DVD drive
2	shoulder screws (3)
3	shoulder screw slot

6. Connect the power and CD/DVD drive cables to the drive and to the system board.



1	power cable
2	CD/DVD drive cable
3	CD/DVD drive connector (IDE)

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.

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

9. 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.
10. After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```
11. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

12. Update your configuration information by setting the appropriate **Drive** option (**0** or **1**) under **Drives**. See "System Setup" for more information.
13. Verify that your computer works correctly by running the Dell Diagnostics.

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PCI and PCI Express Cards and Serial Port Adapters

Dell™ OptiPlex™ GX280 Systems User's Guide

- PCI Cards
- PCI Express Cards
- Serial Port Adapters

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

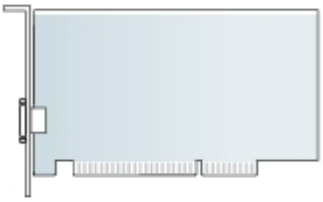
NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

Your Dell™ computer supports a serial adapter and provides the following connectors for PCI and PCI Express cards.

- two PCI card slots
- one PCI Express x16 card slot
- one PCI Express x1 card slot

NOTE: Your Dell computer uses only PCI and PCI Express slots. ISA cards are not supported.

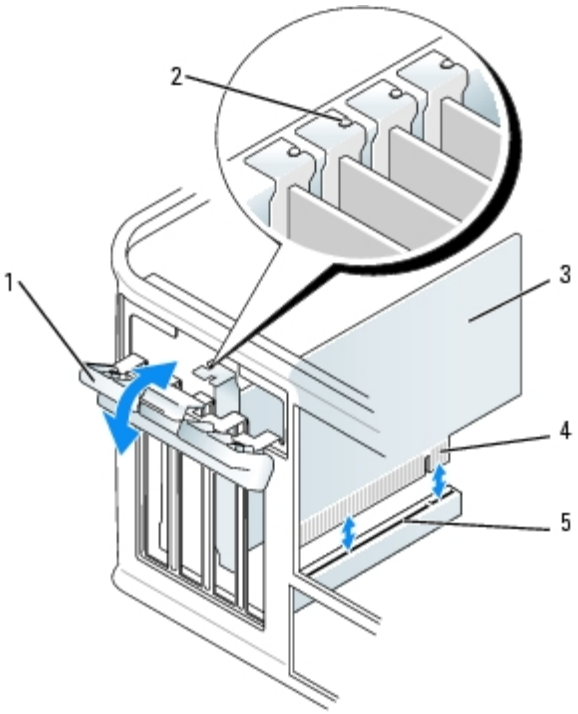
PCI Cards



Installing a PCI Card

1. Follow the procedures in "Before You Begin."
2. Gently push the release tab on the card retention latch from the inside to pivot the latch open. The latch will remain in the open position.
3. If you are installing a new card, remove the filler bracket to create a card slot opening. Then continue with step 5.
4. 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.
5. Prepare the new card for installation.

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

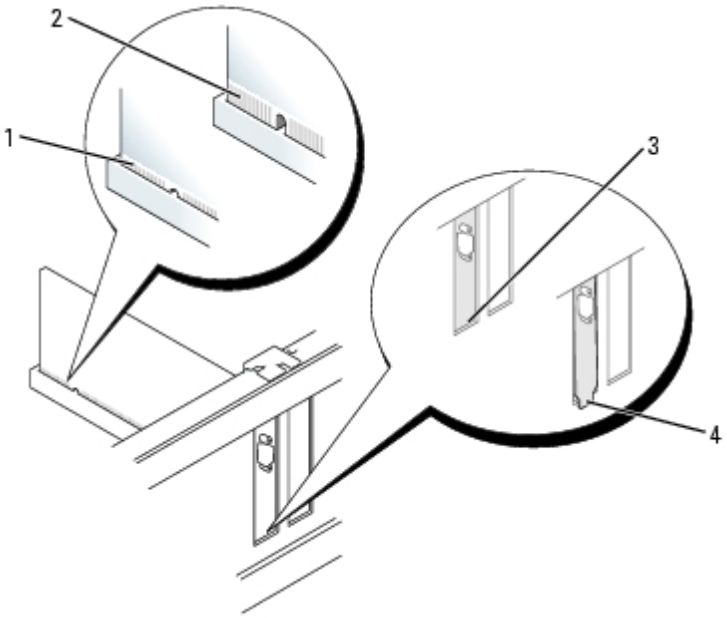


1	card retention latch	4	card edge connector
2	alignment guide	5	card connector
3	card		

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.

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

NOTE: 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.



1	fully seated card

2	not fully seated card
3	bracket within slot
4	bracket caught outside of slot

7. Before you lower the retention latch, 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.
8. Close the retention latch into place by snapping it into place to secure 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.

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

NOTE: See the documentation for 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.

10. If you installed a sound card:
    a. Enter system setup, select **Audio Controller**, and change the setting to **Off**.
    b. Connect external audio devices to the sound card's connectors. Do not connect external audio devices to the microphone, speaker/headphone, or line-in connectors on the back panel.
11. If you installed an add-in network adapter and want to turn off the integrated network adapter:
    a. Enter system setup, select **Network Controller**, and change the setting to **Off**.
    b. Connect the network cable to the add-in network adapter's connectors. Do not connect the network cable to the integrated connector on the back panel.
12. Install any drivers required for the card as described in the card documentation.

Removing a PCI Card

1. Follow the procedures in "Before You Begin."
2. Gently push the release tab on the card retention latch from the inside to pivot the latch open. The latch will remain in the open position.
3. If necessary, disconnect any cables connected to the card.
4. Grasp the card by its top corners, and ease it out of its connector.
5. 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.

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.

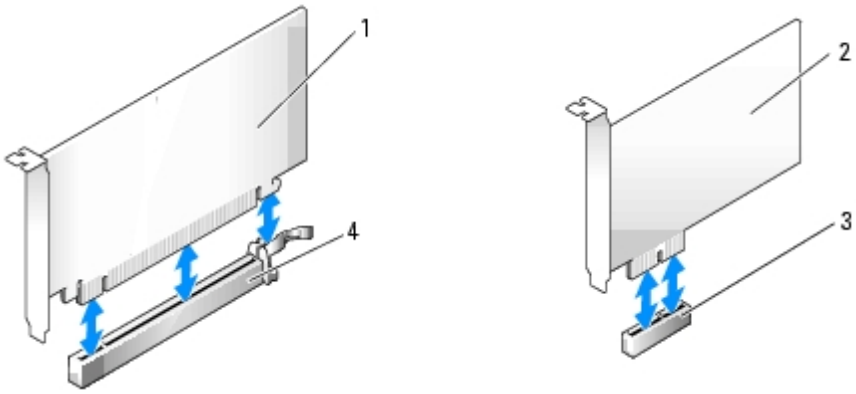
6. Close the card retention latch by snapping it into place.

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

7. Replace the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.
8. Uninstall the card's driver.
9. If you removed a sound card:
    a. Enter system setup, select **Audio Controller**, and change the setting to **On**.
    b. Connect external audio devices to the audio connectors on the computer back panel.
10. If you removed an add-in network connector:
    a. Enter system setup, select **Network Controller**, and change the setting to **On**.
    b. Connect the network cable to the integrated connector on the computer back panel.

PCI Express Cards

Your computer supports one PCI Express x16 card and one PCI Express x1 card.



1	PCI Express x16 card	3	PCI Express x1 card slot
2	PCI Express x1 card	4	PCI Express x16 card slot

If you are installing or replacing a PCI Express card, follow the procedures in the next section. If you are removing but not replacing a card, see "Removing a PCI Express Card."

If you are replacing a card, uninstall the driver for the old card.

If you are installing or replacing a PCI card, see "Installing a PCI Card."

Installing a PCI Express Card

1. Follow the procedures in "Before You Begin."
2. Gently push the release tab on the card retention latch from the inside to pivot the latch open. The latch will remain in the open position.
3. Remove the card retention mechanism:
    a. Place your thumb on the top of the card retention mechanism and grip the bottom of the retention mechanism with your fingers.
    b. With your free hand, gently squeeze the sides of the retention mechanism to release it from the tab slots holding it in place.

c. Pivot the retention mechanism upward to release it from the two tab slots.

4. If you are installing a new card, remove the filler bracket to create a card-slot opening. Then continue with step 6.

5. 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. If your card includes a card retention bar, remove the bar. Gently pull the securing tab, grasp the card by its top corners, and ease it out of its connector.

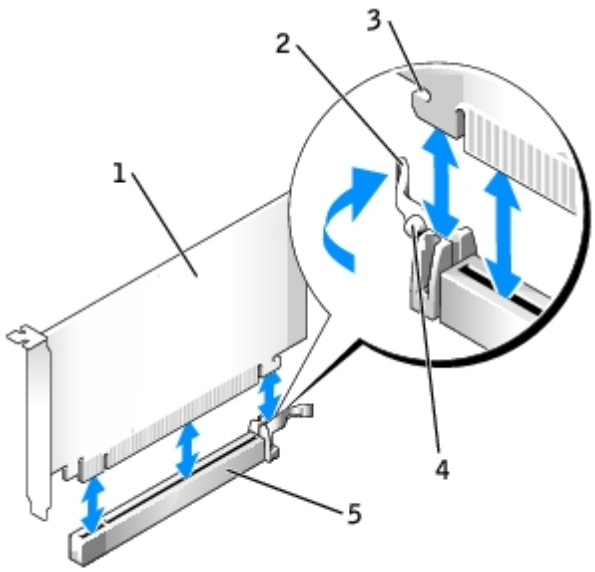
6. Prepare the new card for installation.

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

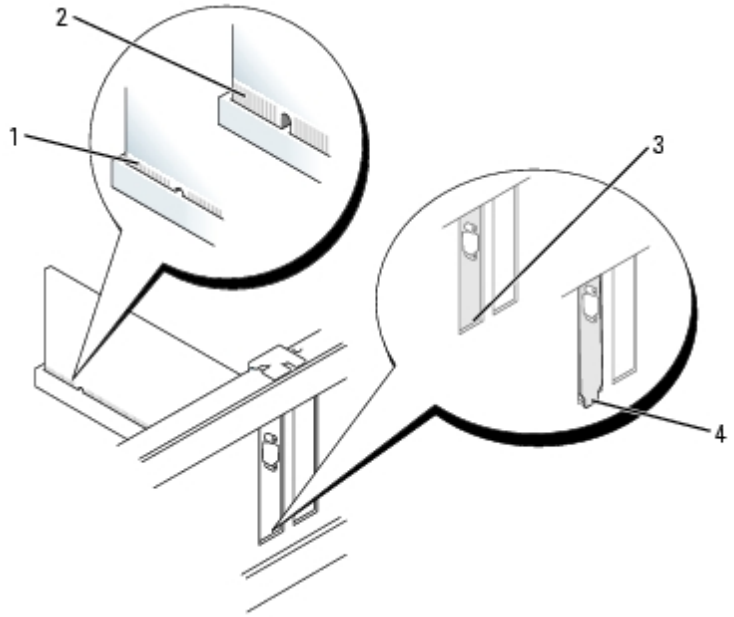
CAUTION: Some network adapters automatically start the computer when they are connected to a network. To guard against electrical shock, be sure to unplug your computer from its electrical outlet before installing any cards.

7. If you are installing the card into the x16 card connector, position the card so the securing slot is aligned with the securing tab, and gently pull the securing tab.

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

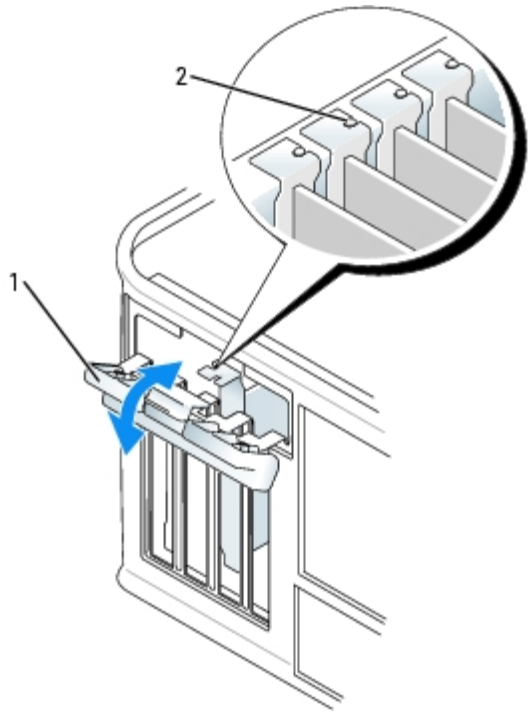


1	PCI Express x16 card
2	lever
3	securing slot (not all cards)
4	securing tab
5	PCI Express x16 card connector



1	fully seated card
2	not fully seated card
3	bracket within slot
4	bracket caught outside of slot

9. If applicable, before replacing the card retention mechanism, 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.
10. Snap the card retention mechanism into place, securing the card(s) in the computer.



1	card retention latch

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.

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

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

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

12. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

13. If you installed a sound card:

    a. Enter system setup, select **Audio Controller**, and change the setting to **Off**.

    b. Connect external audio devices to the sound card's connectors. Do not connect external audio devices to the microphone, speaker/headphone, or line-in connectors on the back panel.

14. If you installed an add-in network adapter and want to turn off the integrated network adapter:

    a. Enter system setup, select **Network Controller**, and change the setting to **Off**.

    b. Connect the network cable to the add-in network adapter's connectors. Do not connect the network cable to the integrated connector on the back panel.

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

Removing a PCI Express Card

1. Follow the procedures in "Before You Begin."

2. Gently push the release tab on the card retention latch from the inside to pivot the latch open. Because the latch is captive, it will remain in the open position.

3. Use the card retention mechanism to secure the card in place from the top:

    a. Place your thumb on the top of the card retention mechanism and grip the bottom of the retention mechanism with your fingers.

    b. With your free hand, gently squeeze the sides of the retention mechanism to release it from the tab slots holding it in place.

    c. Pivot the retention mechanism upward to release it from the two tab slots.

    d. Set the retention mechanism aside in your work area.

4. 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.

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. Re-seat the card retention mechanism in the tabs and pivot downward to snap it into place.Lower the retention arm and press it into place.

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

6. Close the card retention latch by snapping it into place securing the card(s).
7. Replace the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

Serial Port Adapters

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

NOTE: The serial port adapter for your mini-tower computer also includes two PS/2 connectors.

Installing a Serial Port Adapter

1. Follow the procedures in "Before You Begin."
2. Gently push the release tab on the retention lever.
3. Remove the filler bracket (if applicable).

NOTE: See the documentation that came with the serial port adapter for information on configuring the adapter, making internal connections, or customizing it for your computer.

4. Place the serial port adapter bracket in the connector and press down firmly. Ensure that the adapter is fully seated in the slot.
5. Gently press down on the retention lever to secure the adapter bracket in place.

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

6. Connect the adapter cable to the serial port adapter connector (SER2) on the system board.
7. Connect any cables that should be attached to the serial port adapter.

NOTE: See the documentation for the serial port adapter for information about the cable connections.

8. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

9. Reset the chassis intrusion detector by changing Chassis Intrusion to On or On-Silent.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

Removing a Serial Port Adapter

1. Follow the procedures in "Before You Begin."
2. Gently push the release tab on the retention lever.
3. If necessary, disconnect any cables connected to the adapter.
4. Grasp the serial port adapter bracket by its top corners, and ease it out of its connector.
5. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```
6. Reset the chassis intrusion detector by changing Chassis Intrusion to On or On-Silent.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

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Processor

Dell™ OptiPlex™ GX280 Systems User's Guide

- Removing the Processor
- Installing the Processor

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

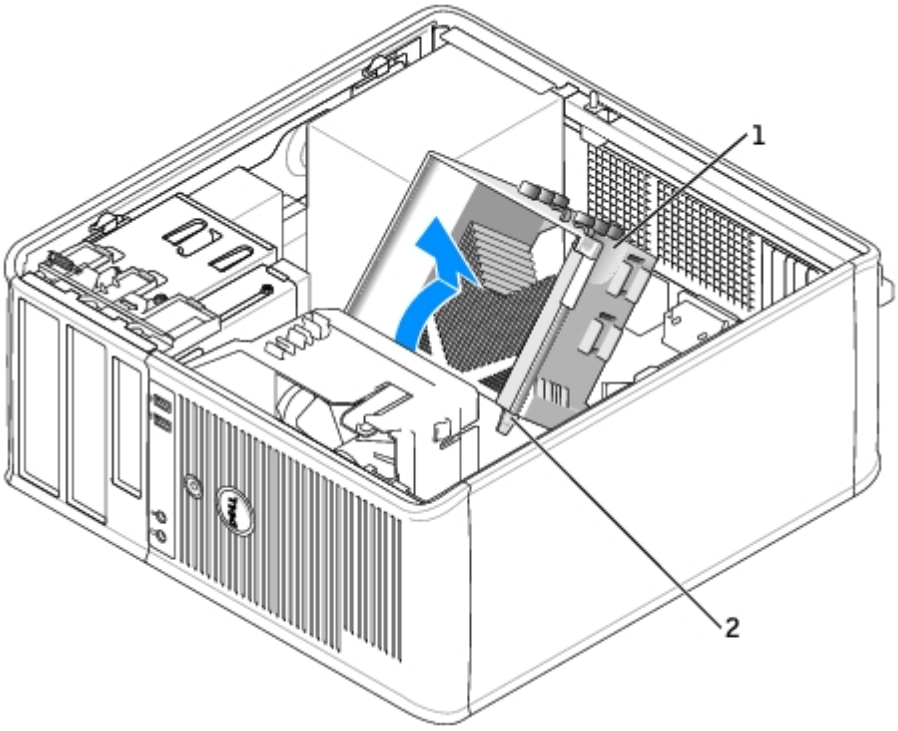
CAUTION: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

Removing the Processor

1. Follow the procedures in "Before You Begin."
2. Loosen the captive screw on each side of the heat sink shroud assembly.

CAUTION: Despite having a plastic shield, the heat sink assembly may be very hot during normal operation. Be sure that it has had sufficient time to cool before you touch it.

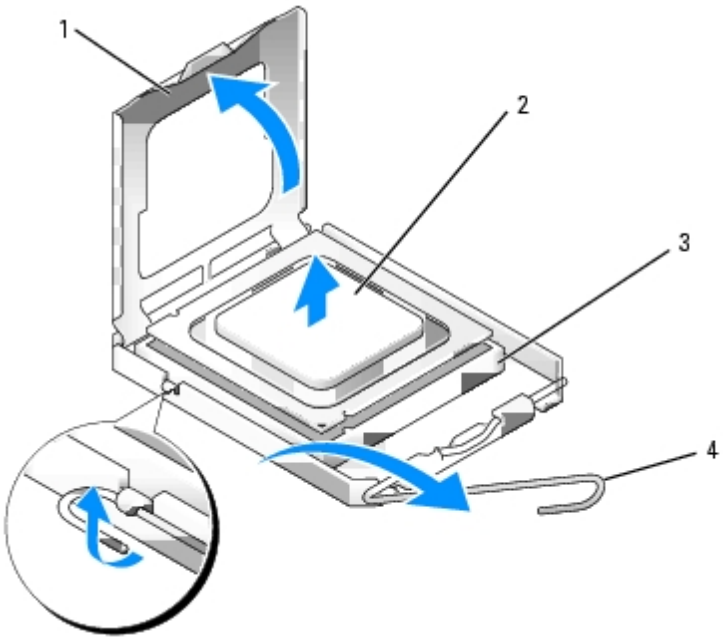
3. Rotate the heat sink assembly upward, and remove it from the computer.



1	heat sink and fan shroud assembly
2	captive screw housings (2)

NOTICE: If you are installing a processor upgrade kit from Dell, discard the original heat sink. If you are *not* installing a processor upgrade kit from Dell, reuse the original heat sink when you install your new processor.

4. Open the processor cover by sliding the release lever from under the center cover latch on the socket. Then, pull the lever back to release the processor.



1	processor cover
2	processor
3	socket
4	release lever

NOTICE: When replacing the processor, do not touch any of the pins inside the socket or allow any objects to fall on the pins in the socket.

5. Gently remove the processor from the socket.

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

Installing the Processor

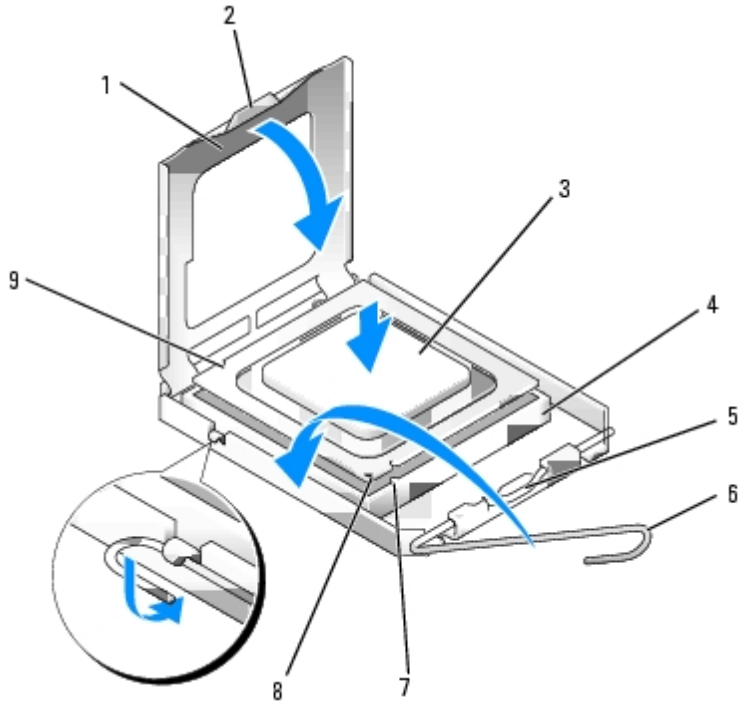
NOTICE: Ground yourself by touching an unpainted metal surface on the back of the computer.

NOTICE: When replacing the processor, do not touch any of the pins inside the socket or allow any objects to fall on the pins in the socket.

1. Follow the procedures in "Before You Begin."
2. Unpack the new processor, being careful not to touch the underside of the processor.

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

3. If the release lever on the socket is not fully extended, move it to that position.
4. Orient the front and rear alignment notches on the processor with the front and rear alignment notches on the socket.
5. Align the pin-1 corners of the processor and socket.



1	processor cover	6	release lever
2	tab	7	front alignment notch
3	processor	8	socket and processor pin-1 indicator
4	processor socket	9	rear alignment notch
5	center cover latch		

NOTICE: To avoid damage, ensure that the processor aligns properly with the socket, and do not use excessive force when you install the processor.

6. Set the processor lightly in the socket and ensure that the processor is positioned correctly.
7. When the processor is fully seated in the socket, close the processor cover.

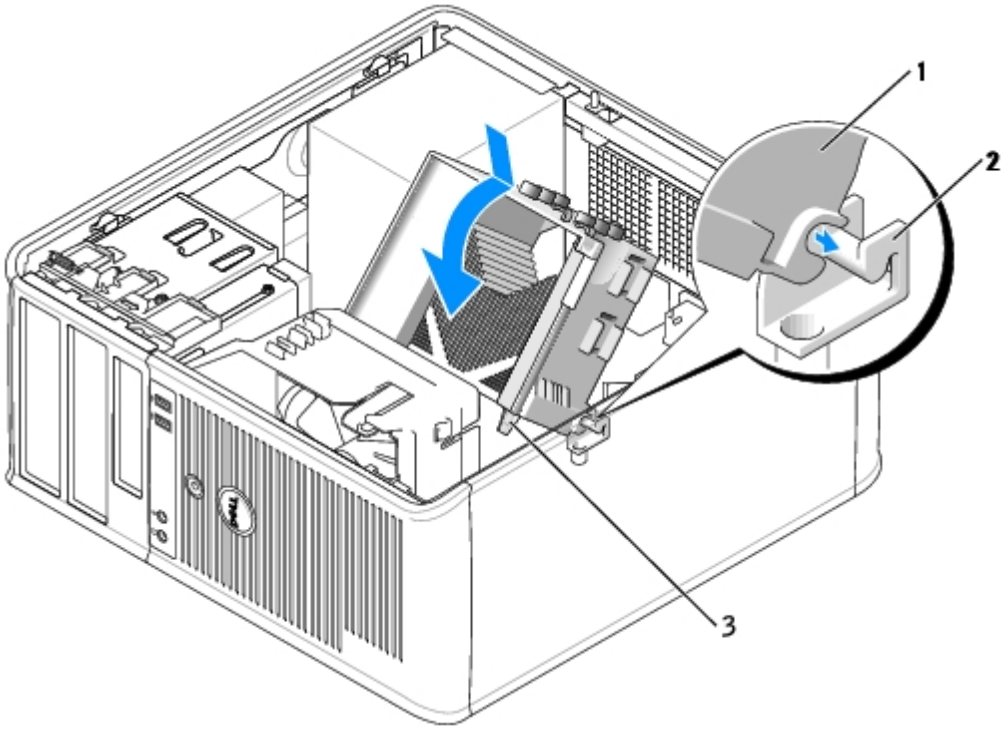
   Ensure that the tab on the processor cover is positioned underneath the center cover latch on the socket.
8. Pivot the socket release lever back toward the socket and snap it into place to secure the processor.

NOTICE: If you are *not* installing a processor upgrade kit from Dell, reuse the original heat sink assembly when you replace the processor.

If you installed a processor replacement kit from Dell, return the original heat sink assembly and processor to Dell in the same package in which your replacement kit was sent.

9. Install the heat sink assembly:
   a. Place the heat sink assembly back onto the heat sink assembly bracket.
   b. Rotate the heat sink assembly down towards the computer base and tighten the two capture screws.

NOTICE: Ensure that the heat sink is correctly seated and secure.



1	heat sink and fan shroud assembly
2	heat sink assembly bracket
3	captive screw housing (2)

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 electrical outlets, and turn them on.

    After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

    ```
    ALERT! Cover was previously removed.
    ```

12. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

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Battery

Dell™ OptiPlex™ GX280 Systems User's Guide

Replacing the Battery

Replacing the Battery

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

NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

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

The battery may need replacing if an incorrect time or date is displayed during the boot routine along with a message such as:

```
Time-of-day not set - please run SETUP program
```

or

```
Invalid configuration information -
please run SETUP program
```

or

```
Strike the F1 key to continue,
F2 to run the setup utility
```

To determine whether you need to replace the battery, reenter the time and date in system setup and exit the program to save the information. Turn off your computer and disconnect it from the electrical outlet for a few hours; then reconnect the computer, turn it on, and enter system setup. If the date and time are not correct in system setup, replace the battery.

You can operate your computer without a battery; however, without a battery, the configuration information is erased if the computer is turned off or unplugged from the electrical outlet. In this case, you must enter system setup and reset the configuration options.

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 remove the battery:

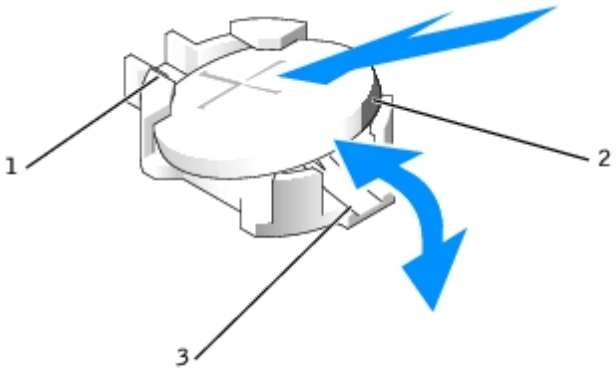
1. If you have not already done so, make a copy of your configuration information, found in system setup.
1. Follow the procedures in "Before You Begin."
2. Locate the battery socket.

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.

NOTICE: To avoid damage to the battery connector, you must firmly support the connector while removing the battery.

3. Remove the system battery.
    a. Support the battery connector by pressing down firmly on the positive side of the connector.

b. While supporting the battery connector, press the battery toward the positive side of the connector and pry it up out of the securing tabs at the negative side of the connector.



1	positive side of battery connector
2	system battery
3	negative side of battery connector

NOTICE: To avoid damage to the battery connector, you must firmly support the connector while replacing the battery.

1. Install the new system battery.
   a. Support the battery connector by pressing down firmly on the positive side of the connector.
   b. Hold the battery with the "+" facing up, and slide it under the securing tabs at the positive side of the connector.
   c. Press the battery straight down into the connector until it snaps into place.
2. Close the computer cover.
3. Attach the computer stand, if it is used.

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 electrical outlets, and turn them on.

   After you open and close the cover, the chassis intrusion detector, if installed and enabled, causes the following message to appear on the screen at the next computer start-up:

   ```
   ALERT! Cover was previously removed.
   ```

5. Reset the chassis intrusion detector by changing **Chassis Intrusion** to **On** or **On-Silent**.

NOTE: If an admin password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion detector.

6. Enter system setup and restore the settings you recorded in step 1.
7. Properly dispose of the old battery as described in the *Product Information Guide*.

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