# Hardware Reference Guide

HP Compaq Business Desktops
  d330 Desktop Model

Document Part Number: 317497-002

**September 2003**

This guide provides basic information for upgrading this computer model.

**WARNING:** Text set off in this manner indicates that failure to follow directions could result in bodily harm or loss of life.

**CAUTION:** Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

**Hardware Reference Guide**

HP Compaq Business Desktops
    d330 Desktop Model

Second Edition (September 2003)
First Edition (May 2003)

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# 1

# Product Features

## Standard Configuration Features

The HP Compaq Business Desktop features may vary depending on the model. For a complete listing of the hardware and software installed in the computer, run the Diagnostics for Windows utility. Instructions for using this utility are provided in the *Troubleshooting Guide* on the *Documentation Library* CD.



*Desktop Configuration*

# Front Panel Components

Drive configuration may vary by model.
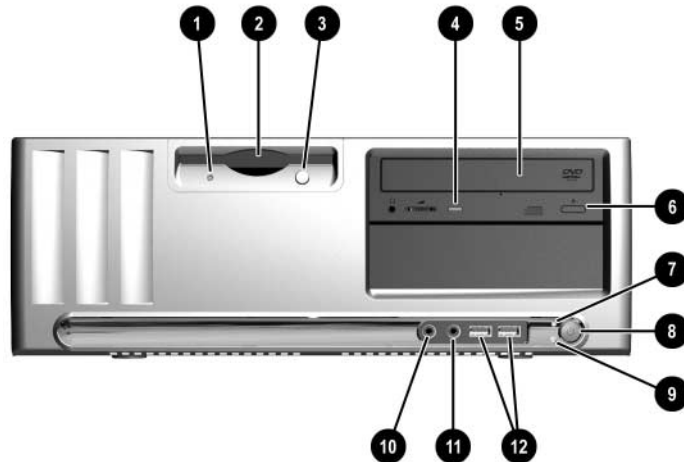


**Front Panel Components**

| | | | |
|---|---|---|---|
| ❶ | Diskette Drive Activity Light (optional) | ❼ | Power On Light |
| ❷ | Diskette Drive (optional) | ❽ | Power Button |
| ❸ | Diskette Eject Button (optional) | ❾ | Hard Drive Activity Light |
| ❹ | Optical Drive Activity Light | ❿ | Microphone Connector |
| ❺ | Optical Drive | ⓫ | Headphone Jack |
| ❻ | Optical Drive Eject Button | ⓬ | Universal Serial Bus (USB) Ports |

✎ An optical drive is a CD-ROM, CD-R/RW, DVD-ROM, DVD-R/RW, or CD-RW/DVD Combo drive.

# Rear Panel Components
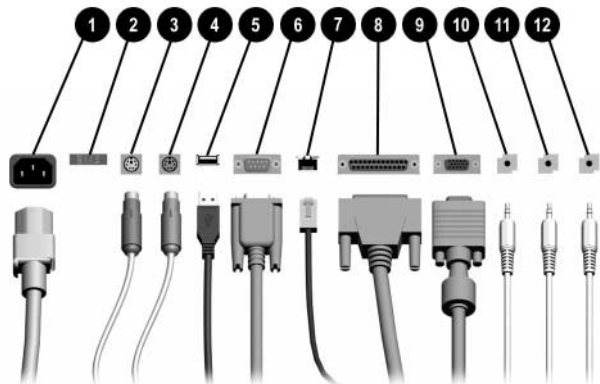


## Rear Panel Components

| | | | | | |
|---|---|---|---|---|---|
| ❶ | | Power Cord Connector | ❼ | 뫂 | RJ-45 Network Connector |
| ❷ | | Voltage Select Switch | ❽ | 🖨 | Parallel Connector |
| ❸ | 🖱 | PS/2 Mouse Connector | ❾ | 🖵 | Monitor Connector |
| ❹ | ⌨ | PS/2 Keyboard Connector | ❿ | 🎧 | Headphone/Line-Out Connector |
| ❺ | •⟜ | Universal Serial Bus (USB) | ⓫ | ⤵♩ | Line-In Audio Connector |
| ❻ | IOIOI | Serial Connector | ⓬ | 🎤 | Microphone Connector |

✎ Arrangement and number of connectors may vary by model.

The monitor connector on the system board is inactive when an AGP expansion card is installed in the computer, or when both an AGP and PCI graphics card are installed.

If only a PCI graphics card is installed, the connectors on the card and the system board may be used at the same time. Some settings may need to be changed in F10 setup to use both connectors. For more information about Boot Order, refer to the *Computer Setup (F10) Utility Guide* on the *Documentation Library* CD.

If you have installed an AGP **and** PCI graphics card, the connectors on both cards are active and can be used at the same time.

# Easy Access Keyboard Components
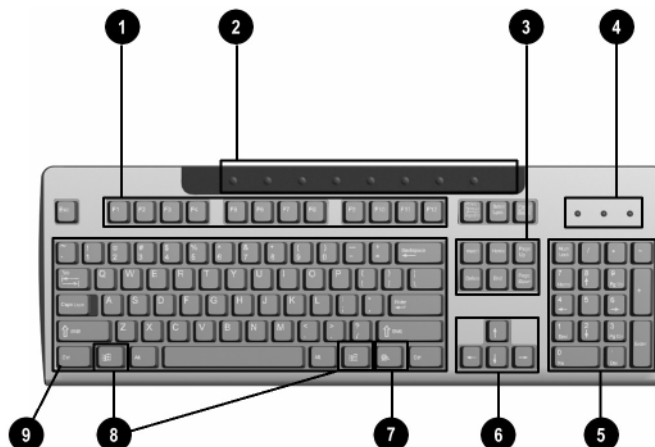


## Easy Access Keyboard Components

| | | |
|---|---|---|
| ❶ | Function Keys | Perform special functions depending on the software application being used. |
| ❷ | Easy Access Buttons | Provide quick access to specific Internet destinations. |
| ❸ | Editing Keys | Includes the following: Insert, Home, Page Up, Delete, End, and Page Down. |
| ❹ | Status Lights | Indicate the status of the computer and keyboard settings (Num Lock, Caps Lock, and Scroll Lock). |
| ❺ | Numeric Keys | Work like a calculator keypad. |
| ❻ | Arrow Keys | Used to navigate through a document or Web site. These keys allow you to move left, right, up, and down, using the keyboard instead of the mouse. |
| ❼ | Application Key* | Used (like the right mouse button) to open pop-up menus in a Microsoft Office application. May perform other functions in other software applications. |
| ❽ | Windows Logo Key* | Used to open the Start menu in Microsoft Windows. Used in combination with other keys to perform other functions. |
| ❾ | Ctrl Key | Used in combination with another key; its effect depends on the application software you are using. |

*Keys available in select geographic regions.

# Customizing the Easy Access Buttons

All Easy Access buttons can be reprogrammed to open any software application or data file on the hard drive, or any Internet address.

To reprogram the Easy Access buttons, complete the following steps:

1. Double-click the keyboard icon in the notification area (lower right corner) of the Windows taskbar. The Keyboard Properties dialog box is displayed.

2. Click the **Help** button on the Keyboard Properties dialog box for instructions.

# Using the Windows Logo Key

Use the Windows Logo key in combination with other keys to perform certain functions available in the Windows operating system. Refer to the "Easy Access Keyboard Components" section to identify the Windows Logo key.

| | |
|---|---|
| Windows Logo Key | Displays or hides the Start menu |
| Windows Logo Key + **d** | Displays the Desktop |
| Windows Logo Key + **m** | Minimizes all open applications |
| **Shift** + Windows Logo Key + **m** | Undoes Minimize All |
| Windows Logo Key + **e** | Launches My Computer |
| Windows Logo Key + **f** | Launches Find Document |
| Windows Logo Key + **Ctrl** + **f** | Launches Find Computer |
| Windows Logo Key + **F1** | Launches Windows Help |
| Windows Logo Key + **l** | Locks the computer if you are connected to a network domain, or allows you to switch users if you are not connected to a network domain. |
| Windows Logo Key + **r** | Launches the Run dialog box |
| Windows Logo Key + **u** | Launches the Utility Manager |
| Windows Logo Key + **Tab** | Activates the next Taskbar button |

# Special Mouse Functions

Most software applications support the use of a mouse. The functions assigned to each mouse button depend on the software applications you are using.

# Serial Number Location

Each computer has a unique serial number that may be located on the top cover or the side panel of the computer. Keep this number available for use when contacting customer service for assistance.



*Serial Number Location*

# 2

# Hardware Upgrades

## Serviceability Features

The computer includes features that make it easy to upgrade and service. No tools are needed for most of the installation procedures described in this chapter.

## Warnings and Cautions

Before performing upgrades be sure to carefully read all of the applicable instructions, cautions, and warnings in this guide.

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

**WARNING:** To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telecommunications/telephone connectors into the network interface controller (NIC) receptacles.

**CAUTION:** Static electricity can damage the electrical components of the computer or optional equipment. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object. See Appendix F, "Electrostatic Discharge" for more information.

**CAUTION:** Before removing the computer cover, ensure that the computer is turned off and that the power cord is disconnected from the electrical outlet.

# Smart Cover Lock

✎ The Smart Cover Lock is an optional feature included on select models only.

The Smart Cover Lock is a software-controllable cover lock, controlled by the setup password. This lock prevents unauthorized access to the internal components. The computer ships with the Smart Cover Lock in the unlocked position. For more information about locking the Smart Cover Lock, refer to the *Desktop Management Guide* on the *Documentation Library* CD.

## Using the Smart Cover FailSafe Key

If you enable the Smart Cover Lock and cannot enter your password to disable the lock, you will need a Smart Cover FailSafe Key to open the computer cover. You will need the key to access the internal computer components in any of the following circumstances:

■ Power outage

■ Startup failure

■ PC component (for example, processor or power supply) failure

■ Forgotten password

⚠ **CAUTION:** The Smart Cover FailSafe Key is a specialized tool available from HP. Be prepared; order this key before you need one.

To obtain a FailSafe Key:

■ Contact an authorized HP reseller or service provider. Order PN 166527-001 for the wrench-style key or PN 166527-002 for the screwdriver bit key.

■ Refer to the HP Web site (www.hp.com) for ordering information.

■ Call the appropriate number listed in the warranty.

To open the computer cover:

1. Turn off the computer properly through the operating system and turn off any external devices.

2. Disconnect the power cord from the power outlet, and disconnect any external devices.

3. Using the Smart Cover FailSafe Key, remove the two tamper-proof screws that secure the Smart Cover Lock to the chassis.



*Removing the Smart Cover Lock Screws*

4. Remove the computer cover.

To reattach the Smart Cover Lock, secure the lock in place with the tamper-proof screws.
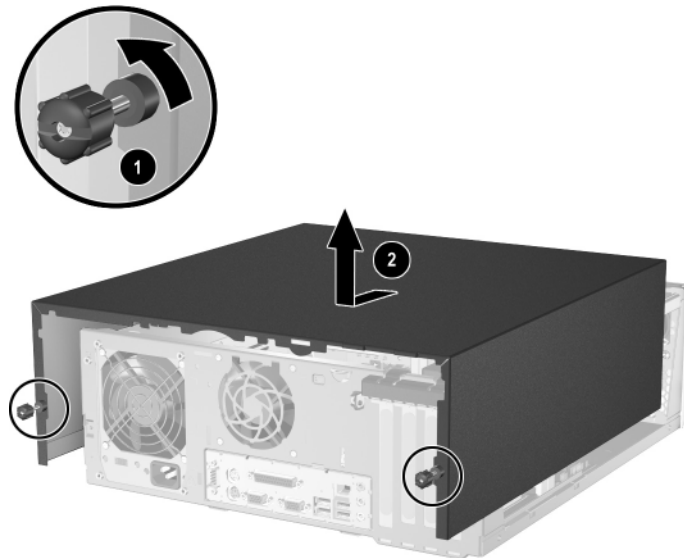
# Removing the Computer Cover

To remove the computer cover:

1. If you have locked the Smart Cover Lock, use Computer Setup to unlock the lock. For more information about Computer Setup, refer to the *Computer Setup (F10) Utility Guide* on the *Documentation Library* CD.

2. Turn off the computer properly through the operating system and turn off any external devices.

3. Disconnect the power cord from the power outlet, and disconnect any external devices.

$\triangle$ **CAUTION:** Before removing the computer cover, ensure that the computer is turned off and that the power cord is disconnected from the electrical outlet.

4. Loosen the two captive thumbscrews that secure the cover to the computer chassis ❶.

5. Slide the cover back about 1 inch (2.5 cm), then lift it up and off the unit ❷.
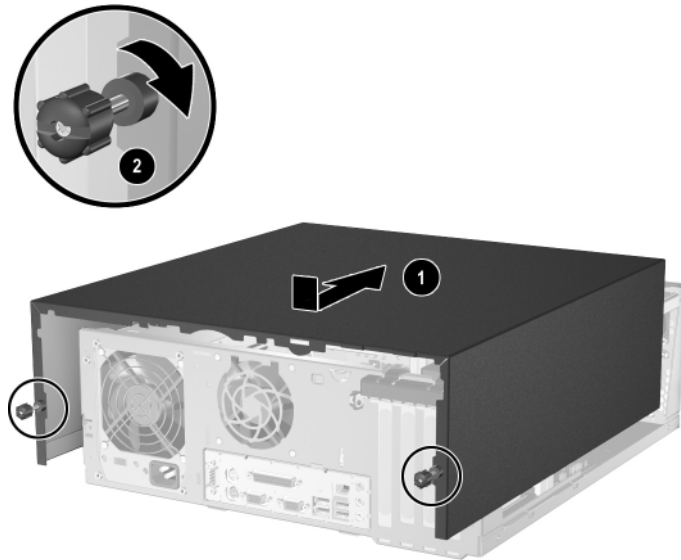
*Removing the Computer Cover*

# Replacing the Computer Cover

To replace the computer cover:

1. Hold the cover over the chassis, then rest the guide tabs located inside the cover on the diagonal ramps at the rear of the chassis.

2. Slide the cover along the ramps and into place on the chassis ❶.

3. Tighten the two captive thumbscrews ❷.

*Replacing the Computer Cover*

4. If you normally lock the Smart Cover Lock, use Computer Setup to relock the lock and enable the Smart Cover Sensor. For more information about Computer Setup, refer to the *Computer Setup (F10) Utility Guide* on the *Documentation Library* CD.

# Removing the Front Bezel

1. Turn off the computer properly through the operating system and turn off any external devices. Disconnect the power cord from the power outlet and disconnect any external devices.

2. Remove the computer cover. See the "Removing the Computer Cover" procedure.

3. Pull up on the two release tabs on the left side of the bezel and push the release tab on the right side of the bezel in toward the center of the chassis ❶, then rotate the front bezel away from the chassis to release it ❷.
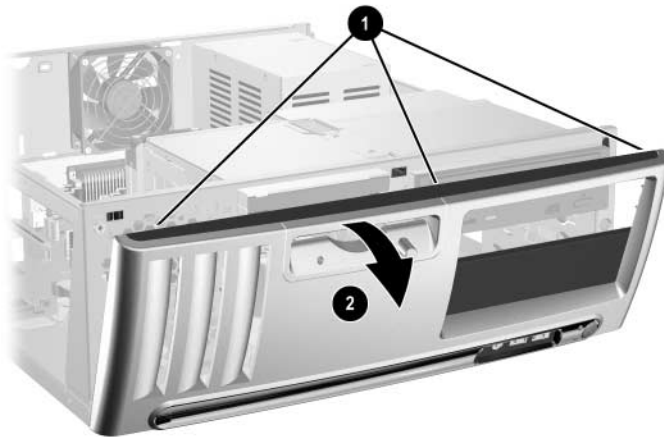


*Removing the Front Bezel*

✎ When replacing the front bezel, ensure that the bottom hinge points are properly placed in the chassis before rotating the front bezel back into its original position.

# Installing Additional Memory

The computer comes with double data rate synchronous dynamic random access memory (DDR-SDRAM) dual inline memory modules (DIMMs).

## DIMMs

The memory sockets on the system board can be populated with up to four industry-standard DIMMs. These memory sockets are populated with at least one preinstalled DIMM. To achieve the maximum memory support, you can populate the system board with up to 4GB of memory configured in a high-performing dual channel mode.

## DDR-SDRAM DIMMs

For proper system operation, if the computer supports DDR-SDRAM DIMMs, the DIMMs must be:

■ industry-standard 184-pin

■ unbuffered PC2100 266 MHz-, PC2700 333 MHz-, or PC3200 400 MHz-compliant

■ 2.5 volt DDR-SDRAM DIMMs.

The DDR-SDRAM DIMMs must also:

■ support CAS latency 2 or 2.5 (CL = 2 or CL = 2.5)

■ contain the mandatory JEDEC SPD information

In addition, the computer supports:

■ 128Mbit, 256Mbit, and 512Mbit non-ECC memory technologies

■ single-sided and double-sided DIMMS

■ DIMMs constructed with x8 and x16 DDR devices; DIMMs constructed with x4 SDRAM are not supported

The following processor bus frequencies are required for the system to run at the supported memory frequencies.

| Memory Frequency | Required Processor Bus Frequency |
|---|---|
| 266 MHz | 400 MHz, 533 MHz, or 800 MHz |
| 333 MHz | 533 MHz or 800 MHz |
| 400 MHz | 800 MHz |

If a memory frequency is paired with an unsupported processor bus frequency, the system will run at the highest supported memory speed. For example, if a 333 MHz DIMM is paired with a 400 MHz processor bus, the system will run at 266 MHz, the highest supported memory speed.

✎ The system will not start if you install unsupported DIMMs.

# DIMM Sockets

The system will automatically operate in single channel mode or a higher-performing dual channel mode, depending on how the DIMMs are installed.

■ In single channel mode, the maximum operational speed is determined by the slowest DIMM in the system. For example, if the system is populated with a DIMM that is 266 MHz and a second DIMM that is 333 MHz, the system will run at the slower of the two speeds.

■ In dual channel mode, all DIMMs must be identically matched. DIMMs in the XMM1 and XMM3 black sockets must be identical; DIMMs in the XMM2 and XMM4 blue sockets must also be identical. Therefore, if you have one preinstalled DIMM in socket XMM1 and are adding a second DIMM, it is recommended that you install an identical DIMM into the XMM3 socket. If you are populating all four DIMM sockets, use identical DIMMs in each socket. Otherwise, the system will not operate in dual channel mode.

There are four DIMM sockets on the system board, with two sockets per channel. The sockets are labeled XMM1, XMM2, XMM3, and XMM4. Sockets XMM1 and XMM2 operate in memory channel A. Sockets XMM3 and XMM4 operate in memory channel B.
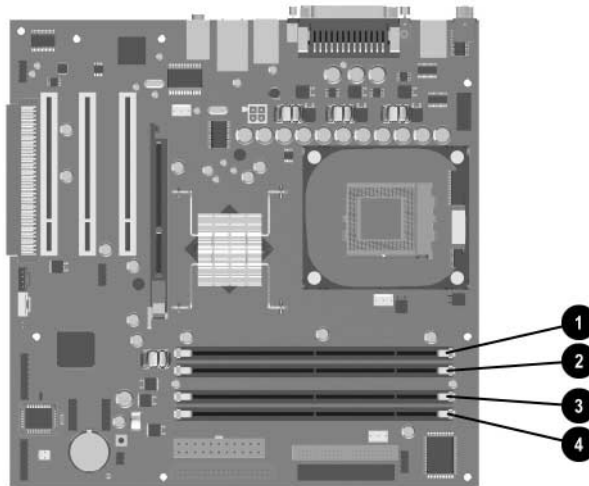


*DIMM Socket Locations*

| Item | Description | Socket Color |
|:---:|:---|:---|
| ❶ | DIMM socket XMM1, Channel A | Black |
| ❷ | DIMM socket XMM2, Channel A | Blue |
| ❸ | DIMM socket XMM3, Channel B | Black |
| ❹ | DIMM socket XMM4, Channel B | Blue |

# Installing DDR-SDRAM DIMMs

⚠ **CAUTION:** The memory module sockets have gold metal contacts. When upgrading the memory, it is important to use memory modules with gold metal contacts to prevent corrosion and/or oxidation resulting from having incompatible metals in contact with each other.

⚠ **CAUTION:** Static electricity can damage the electronic components of the computer or optional cards. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object. For more informations, refer to Appendix F, "Electrostatic Discharge".

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

1. If you have locked the Smart Cover Lock, see the "Smart Cover Lock" section or use Computer Setup to unlock it.

2. Turn off the computer properly through the operating system and turn off any external devices. Disconnect the power cord from the power outlet.

3. Remove the access panel and locate the memory module sockets.

⚠ **WARNING:** To reduce risk of personal injury from hot surfaces, allow the internal system components to cool before touching.

4. Open both latches of the memory module socket ❶, and insert the memory module into the socket ❷.

✎ If you have one preinstalled DIMM in socket XMM1 and are adding a second DIMM, it is recommended that you install an identical DIMM into the XMM3 socket. If you are populating all four DIMM sockets, use identical DIMMs in each socket. Otherwise, the system will not operate in dual channel mode.
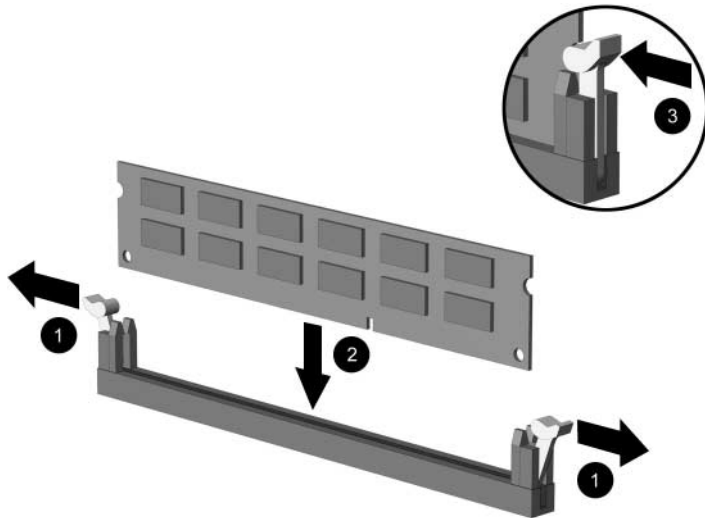
*Installing a DIMM*

✎ A memory module can be installed in only one way. Match the notch on the module with the tab on the memory socket.

5. Push the module down into the socket, ensuring that the module is fully inserted and properly seated. Make sure the latches are in the closed position ❸.

6. Repeat steps 4 and 5 for to install any additional modules.

7. Replace the access panel.

8. If you normally lock the Smart Cover Lock, use Computer Setup to relock the lock and enable the Smart Cover Sensor.

The computer should automatically recognize the additional memory the next time you turn on the computer.

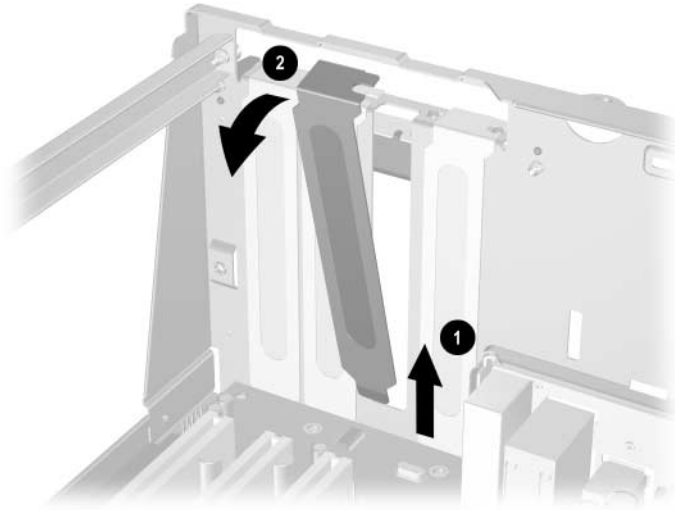# Installing or Removing an Expansion Card

1. If you have locked the Smart Cover Lock, use Computer Setup to unlock the lock.

2. Turn off the computer properly through the operating system and turn off any external devices. Disconnect the power cord from the power outlet and disconnect any external devices.

3. Remove the computer cover and locate the correct vacant expansion socket on the system board and the corresponding expansion slot on the back of the computer chassis.

4. Release the slot cover retention bracket by lifting up on the two thumb tabs ❶ then rotating the bracket away from the chassis ❷.
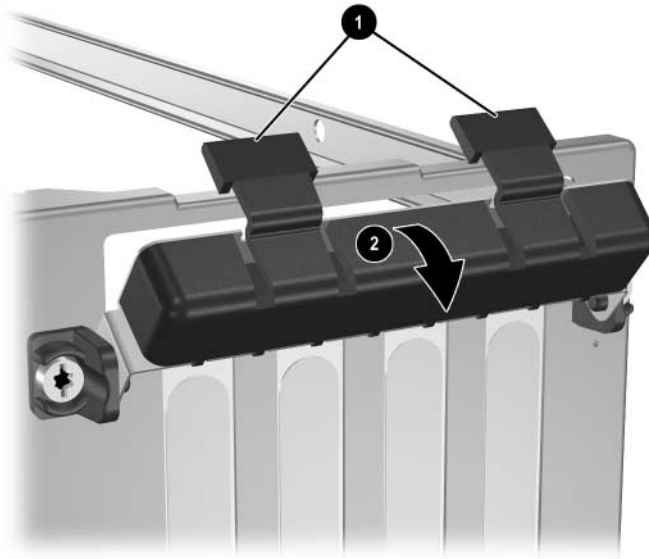


*Releasing the Slot Cover Retention Bracket*

5. If you are installing an expansion card in a vacant socket, remove the appropriate expansion slot on the back of the chassis. Pull the slot cover straight up ❶ then in toward the center of the chassis ❷ to release it from the chassis frame.
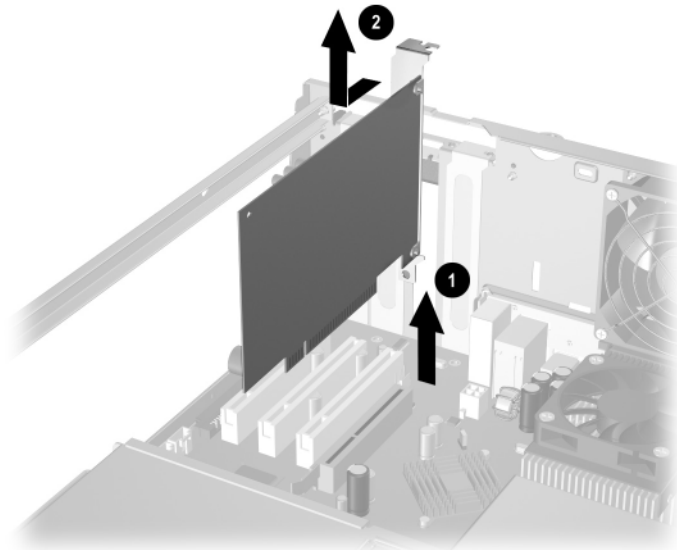


*Removing an Expansion Slot Cover*

6. If you are removing an expansion card from a standard expansion socket, hold the card at each end and carefully rock it back and forth until the connectors pull free from the socket. Lift the expansion card straight up ❶ then pull it in toward the center of the chassis ❷ to release it from the chassis frame. Be sure not to scrape the card against other components.

✎ Before removing an installed expansion card, disconnect any cables that may be attached to the expansion card.



*Removing an Expansion Card from a Standard Expansion Socket*

7. If you are removing an AGP card from an AGP expansion socket with a retention mechanism, pull the retention arm away from the socket then carefully rock the card back and forth until the connectors pull free from the socket. Lift the expansion card straight up then pull it in toward the center of the chassis to release it from the chassis frame. Be sure not to scrape the card against other components.
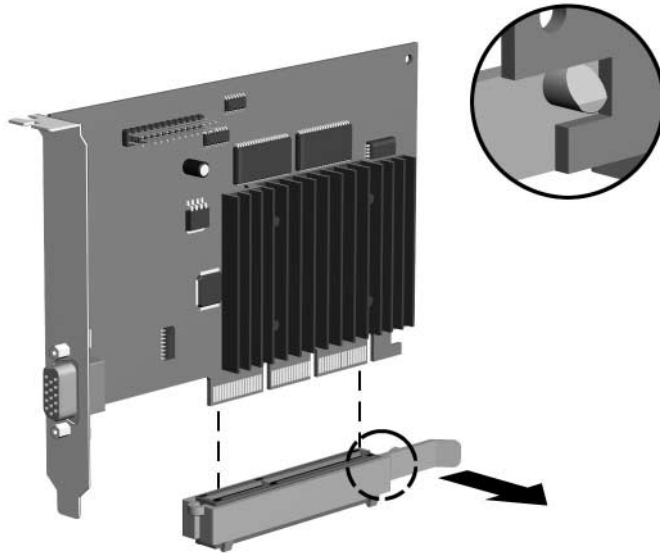


*Removing an AGP Card from a Socket with a Retention Mechanism*

8. Store the removed card in anti-static packaging.

9. If you are not installing a new expansion card, install an expansion slot cover to close the open slot.

⚠ **CAUTION:** After removing an expansion card, you must replace it with a new card or cover the open slot (for example, with a metal slot cover or a piece of duct tape) for proper cooling of internal components during operation.

10. Slide the bracket on the end of the expansion card down into the slot on the back of the chassis ❶ and press the card down firmly into the socket on the system board ❷.
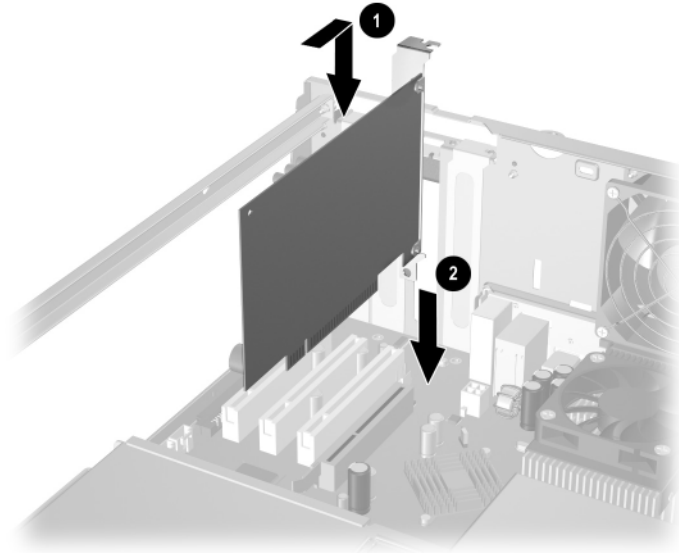


*Replacing or Adding an Expansion Card*

✎ When you install an expansion card, make sure you press firmly on the card so that the whole connector seats properly in the expansion card socket on the system board.

11. While holding the expansion card bracket against the chassis, close the expansion slot retention bracket by rotating it toward the chassis ❶ and pressing down on the thumb tabs ❷ so that they snap firmly into place.
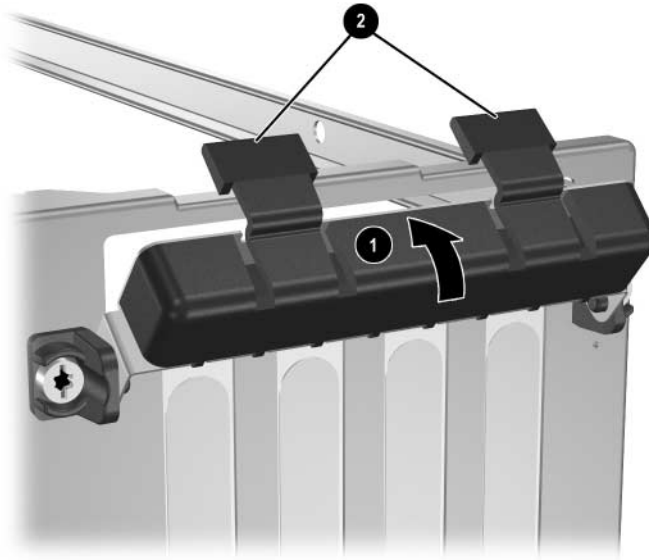


*Closing the Expansion Slot Retention Bracket*

12. Connect external cables to the installed card, if needed. Connect internal cables to the system board, if needed.

13. Replace the computer cover.

14. If you normally lock the Smart Cover Lock, use Computer Setup to relock the lock and enable the Smart Cover Sensor.

15. Reconfigure the computer, if necessary. Refer to the *Computer Setup (F10) Utility Guide* on the *Documentation Library* CD for instructions about using Computer Setup.

# Drive Positions
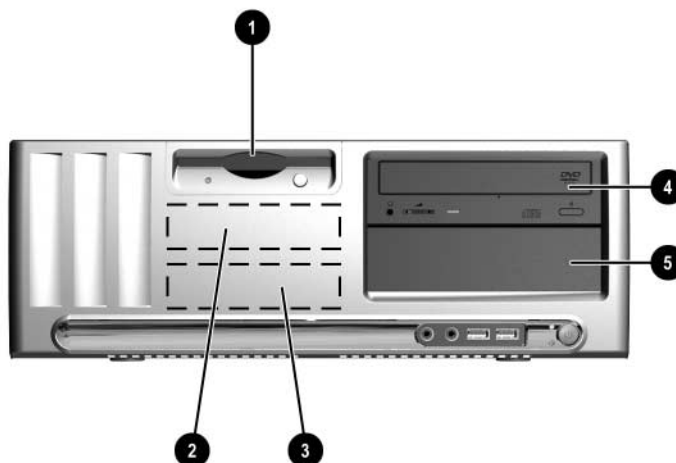


*Drive Positions*

| | | |
|---|---|---|
| ❶ | | One standard 3.5-inch, one-third height bay (1.44-MB diskette drive shown)* |
| ❷ | ❸ | Two internal 3.5-inch, one-third height bays for hard drives |
| ❹ | ❺ | Two 5.25-inch, half-height bays for optional drives |
| *Depending on the computer configuration, you may have a bezel blank in this position. If you do not have a drive in this slot, you may choose to install a 3.5-inch device (such as a diskette drive, hard drive, or Zip drive) later on. | | |

To verify the type and size of the storage devices installed in the computer, run Computer Setup. Refer to the *Computer Setup (F10) Utility Guide* on the *Documentation Library* CD for more information.
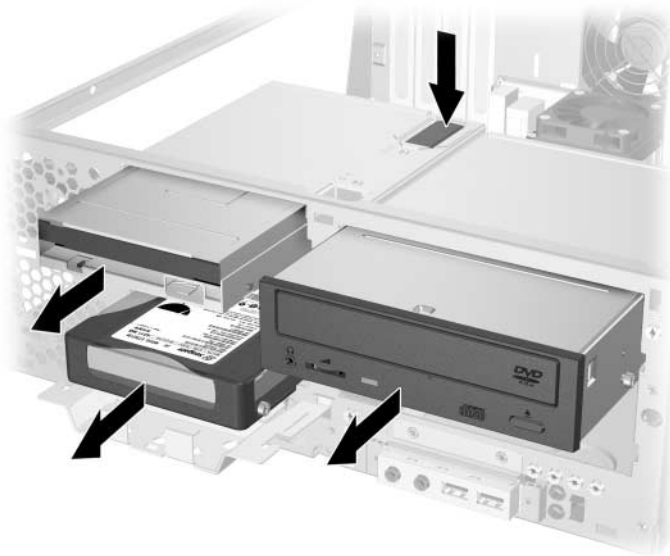
# Removing a Drive from the Drive Bay

1. If you have locked the Smart Cover Lock, use Computer Setup to unlock the lock.

2. Turn off the computer properly through the operating system and turn off any external devices. Disconnect the power cord from the power outlet and disconnect any external devices.

3. Remove the computer cover. See the "Removing the Computer Cover" procedure.

4. Remove the front bezel. See the "Removing the Front Bezel" procedure.

5. Disconnect the drive power and data cables and, if it is an optical drive, disconnect the audio connector.

6. If removing a hard drive, lift up on the hard drive bracket ❶, then rotate it down ❷ to gain access to the drive bay.
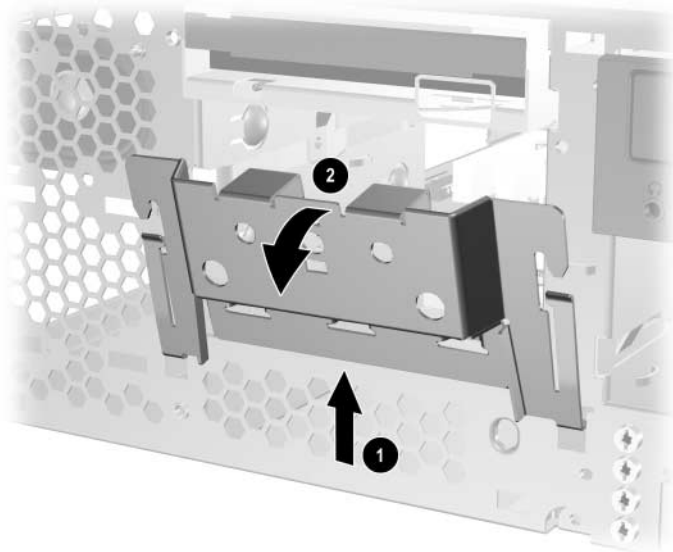


*Opening the Hard Drive Bracket*

7. While pressing down on the drivelock mechanism, pull the drive out of the drive bay.

*Removing a Drive from the Drive Bay*

8. Store the removed drive in anti-static packaging.

# Installing Additional Drives

The computer supports up to five drives that may be installed in various configurations.

When installing additional drives, follow these guidelines:

■ For optimal performance, connect hard drives to the primary controller. Connect expansion devices, such as optical drives and IDE tape drives, to the secondary controller.

■ You may install either a third-height or a half-height drive into a half-height bay.

■ You must install guide screws to ensure the drive will line up correctly in the drive cage. HP has provided extra guide screws, installed on the basepan behind the front bezel. Hard drives use 6-32 standard screws. All other drives use M3 metric screws. The HP-supplied metric screws are black. The HP-supplied standard screws are silver.

△ **CAUTION:** To prevent loss of work and damage to the computer or drive:

■ If you are inserting or removing a hard drive, shut down the operating system properly, then turn off the computer. Do not remove a hard drive while the computer is on or in standby mode.

■ Before handling a drive, ensure that you are discharged of static electricity. While handling a drive, avoid touching the connector. For more information about preventing electrostatic damage, refer to Appendix F, "Electrostatic Discharge."

■ Handle a drive carefully; do not drop it.

■ Do not use excessive force when inserting a drive.

■ Avoid exposing a hard drive to liquids, temperature extremes, or products that have magnetic fields such as monitors or speakers.

# Installing an Optical Drive or other Removable Storage Device

✎ An optical drive is a CD-ROM, CD-R/RW, DVD-ROM, DVD-R/RW, or CD-RW/DVD Combo drive.

1. If you have locked the Smart Cover Lock, use Computer Setup to unlock the lock.

2. Turn off the computer properly through the operating system and turn off any external devices. Disconnect the power cord from the power outlet and disconnect any external devices.

3. Remove the computer cover. See the "Removing the Computer Cover" procedure.

4. Remove the front bezel. See the "Removing the Front Bezel" procedure.

✎ If you are adding a diskette or optical drive in a bay that was previously empty, you must remove the corresponding bezel blank from the front bezel.

5. Install four guide screws in the lower holes on each side of the drive.
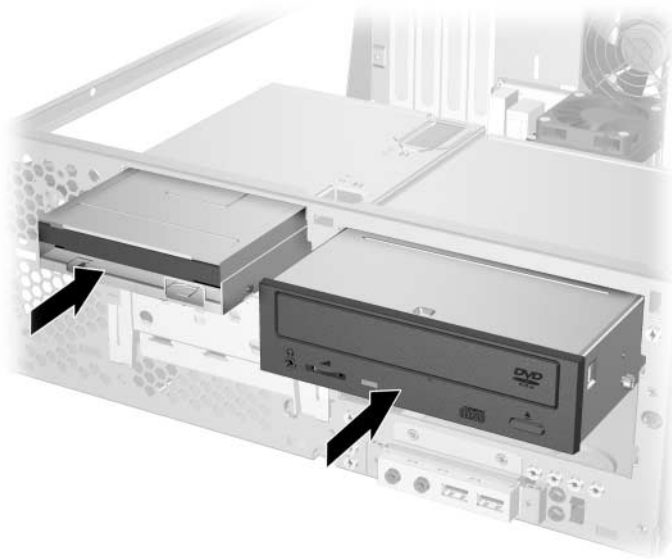


*Installing the Guide Screws*

✎ Extra guide screws are provided on the chassis basepan, under the front bezel. Hard drives use 6-32 standard screws. All other drives use M3 metric screws. The HP-supplied metric screws are black. The HP-supplied standard screws are silver.

6. Install the drive by sliding it into the appropriate drive bay on the front of the chassis. The drivelock automatically secures the drive in the bay.



*Installing Optical and Diskette Drives into the Drive Bays*

⚠ **CAUTION:** Make sure the guide screws line up with the guide slots in the drive cage. The use of unnecessary force when installing any drive into the drive bay may result in damage to the drive.

7. When installing an optical drive, the default audio solution is digital audio. If analog audio is preferred, connect the audio cable from the drive to the embedded audio connector on the system board.

8. Connect the data and power cables on the back of the drives.

*Connecting Optical Drive Cables*
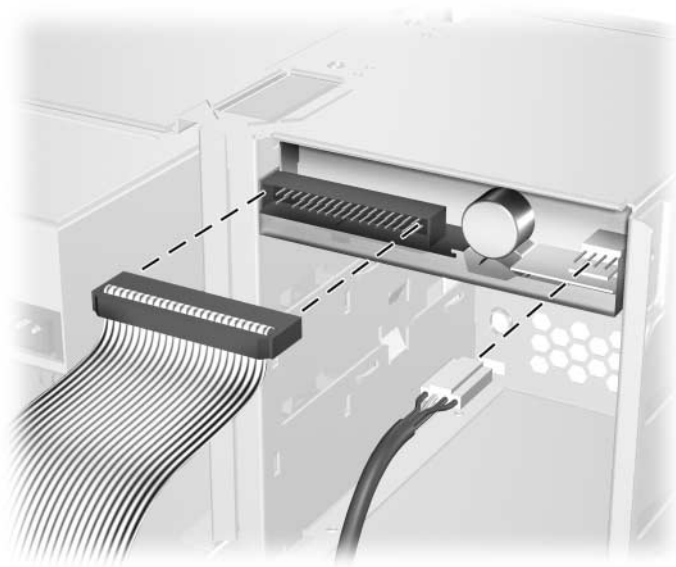


*Connecting Diskette Drive Cables*

9. Replace the front bezel.

10. Replace the computer cover.

11. If you normally lock the Smart Cover Lock, use Computer Setup to relock the lock and enable the Smart Cover Sensor.

12. Reconfigure the computer, if necessary. Refer to the *Computer Setup (F10) Utility Guide* on the *Documentation Library* CD for instructions about using Computer Setup.

# Installing a Hard Drive into a 3.5-inch Drive Bay

✎ Both parallel advanced technology attachment (PATA) and serial advanced technology attachment (SATA) hard drives can be installed on this computer.

If you are installing a SATA drive in your computer for the first time, refer to the white paper "Implementation of Serial ATA on HP Business Desktops" for more information. The white paper is located at www.hp.com/support.

✎ Make sure to back up the data on the old hard drive before removing it so that you can install the data onto the new hard drive.

To install a hard drive in a 3.5-inch drive bay:

1. If you have locked the Smart Cover Lock, use Computer Setup to unlock the lock.

2. Turn off the computer properly through the operating system and turn off any external devices. Disconnect the power cord from the power outlet and disconnect any external devices.

3. Remove the computer cover. See the "Removing the Computer Cover" procedure.

4. Remove the front bezel. See the "Removing the Front Bezel" procedure.

5. Install four guide screws, two on each side of the drive.
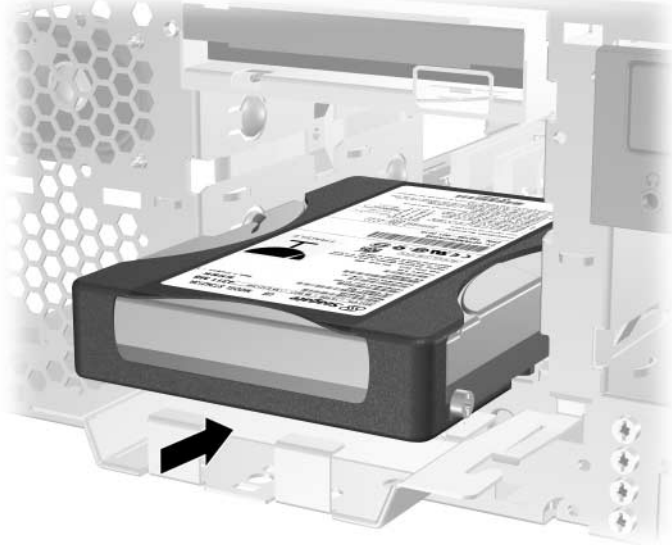


*Installing the Guide Screws*

✎ Extra guide screws are provided on the chassis basepan, under the front bezel. Hard drives use 6-32 standard screws. All other drives use M3 metric screws. The HP-supplied metric screws are black. The HP-supplied standard screws are silver.

6. Lift up on the hard drive bracket ❶, then rotate it down ❷ to gain access to the drive bay.
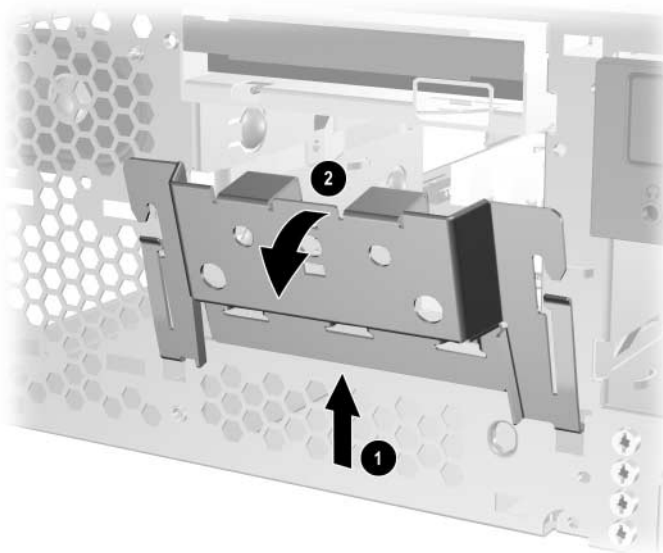


*Opening the Hard Drive Bracket*

7. Insert the hard drive into the bay from the front of the chassis. Push it in until it locks into place.



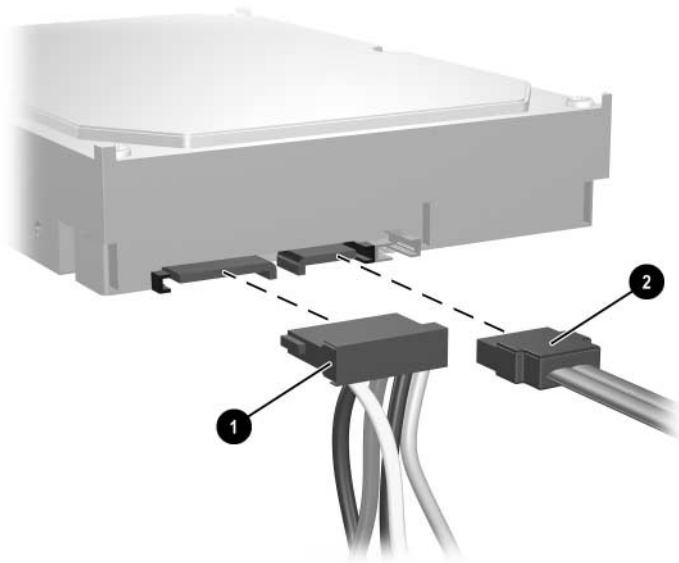*Inserting a Hard Drive into the Drive Bay*

△ **CAUTION:** Make sure the guide screws line up with the guide slots in the drive cage. The use of unnecessary force when installing any drive into the drive bay may result in damage to the drive.

8. Connect the power cable ❶ and data cable ❷ to the hard drive.
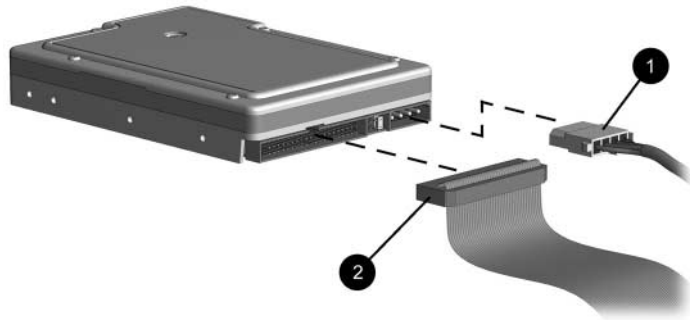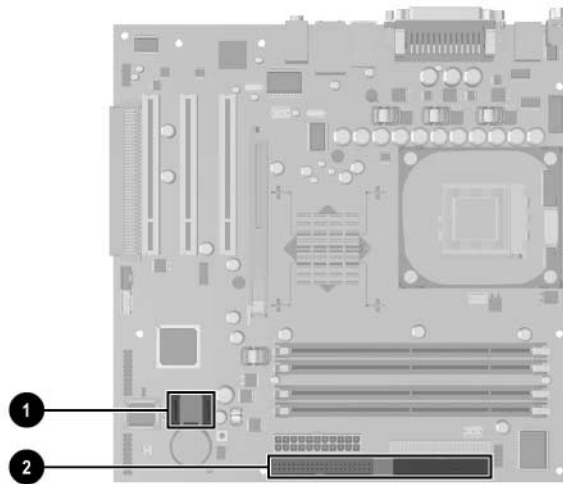


*Connecting the Data Cable and Power Cable (PATA Hard Drive)*



*Connecting the Data Cable and Power Cable (SATA Hard Drive)*

9. Connect the opposite end of the data cable to the appropriate system board connector.

✎ If your system has only one SATA hard drive, you must connect the hard drive to the connector labeled SATA 0 first to avoid any hard drive performance problems.



*Hard Drive Connector Locations*

❶  SATA hard drive connector

❷  PATA hard drive connector

10. Lift the hard drive bracket up and into position on the front of the chassis.

11. Replace the front bezel and computer cover.

12. If you normally lock the Smart Cover Lock, use Computer Setup to relock the lock and enable the Smart Cover Sensor.

13. Reconfigure the computer, if necessary. Refer to the *Computer Setup (F10) Utility Guide* on the *Documentation Library* CD for instructions about using Computer Setup.

✎ If you have installed a PATA hard drive that is not automatically recognized by the computer, see Appendix B, "PATA Hard Drive Installation Guidelines."

If you have installed a SATA hard drive that is not automatically recognized by the computer, refer to the white paper "Implementation of Serial ATA on HP Business Desktops" for operating system instructions. The white paper is located at www.hp.com/support.

✎ If you replaced the primary hard drive, insert the *Restore Plus!* CD to restore the operating system, software drivers, and any software applications that were preinstalled on the computer. Follow the instructions in the guide included with the *Restore Plus!* CD. Reinstall any personal files you backed up before replacing the drive.

# A

# Specifications

## HP Compaq d330 Desktop

**Desktop Dimensions**

| | | |
|---|---|---|
| Height | 5.72 in | 14.53 cm |
| Width | 15.25 in | 38.74 cm |
| Depth (depth will increase if the computer is equipped with a port security bracket) | 17.90 in | 45.47 cm |

| | | |
|---|---|---|
| **Approximate Weight** | 25 lb | 11.34 kg |
| **Weight Supported** (maximum distributed load) | 100 lb | 45.5 kg |

**Temperature Range**

| | | |
|---|---|---|
| Operating | 50° to 95°F | 10° to 35°C |
| Nonoperating | -22° to 140°F | -30° to 60°C |

**Relative Humidity** (noncondensing)

| | | |
|---|---|---|
| Operating | 20% to 80% | 20% to 80% |
| Nonoperating (38.7°C max wet bulb) | 10% to 90% | 10% to 90% |

**Maximum Altitude** (unpressurized)

| | | |
|---|---|---|
| Operating | 10,000 ft | 3048 m |
| Nonoperating | 30,000 ft | 9144 m |

**Heat Dissipation**

| | | |
|---|---|---|
| Maximum | 1,260 BTU/hr | 318 kg-cal/hr |
| Typical (idle) | 256 BTU/hr | 65 kg-cal/hr |

## HP Compaq d330 Desktop *(Continued)*

|  | Input Voltage Switch Setting | |
| --- | --- | --- |
|  | **115 V** | **230 V** |
| **Power Supply** | | |
| Operating Voltage Range | 90-132 VAC | 180-264 VAC |
| Rated Voltage Range* | 100-127 VAC | 200-240 VAC |
| Rated Line Frequency | 50-60 Hz | 50-60 Hz |
| **Power Output** | 240 W | 240 W |
| **Rated Input Current** (maximum)* | 6 A | 3 A |

*This system utilizes a passive power factor corrected power supply when used in the 230V mode. This allows the system to pass the CE mark requirements for use in the countries of the European Union.

# PATA Hard Drive Installation Guidelines

✎ For more information about Serial ATA (SATA) devices, refer to the white paper "Implementation of Serial ATA on HP Business Desktops". The white paper is located at www.hp.com/support.

## Using the Cable-Select Feature with Parallel ATA (PATA) Devices

Optional drives are available from HP in kits that include a special drive cable. The configuration of the drive employs a cable-select feature that identifies the drive as device 0 (primary drive) or device 1 (secondary drive).

Device 1 is the drive connected to the cable's middle connector. Device 0 is the drive connected to the cable's end connector (applies only to 80-conductor ATA cables). See "Guidelines for Installing PATA Drives" in this appendix for an example of an PATA cable.

HP hard drives ship with jumpers preset to cable-select mode; therefore, no jumper setting changes on the existing or optional drives are required. If you purchase a third-party hard drive, refer to the documentation included with the kit to ensure proper installation and configuration of cables.

✎ If installing a second device on the primary controller, you must use an 80-conductor PATA cable for optimal performance. This cable is standard on select models.

## Guidelines for Installing PATA Drives

When installing additional drives, follow these guidelines:

■ If using multiple devices, HP recommends that the devices be split between the primary and secondary channels for optimum performance. Use an additional cable to connect the additional device to the system board.

■ 80-conductor PATA cable:

❏ 18 inches maximum total length, 80-conductor cable with maximum spacing of 6 inches between Device 0 and Device 1.

*80-Conductor PATA Cable*

| ❶ | Device 0 (primary drive) connector |
|---|---|
| ❷ | Device 1 (secondary drive) connector |
| ❸ | System board connector |

■ For optimal performance, connect hard drives to the primary controller. Connect expansion devices, such as ATA optical drives and tape drives, to the secondary controller.

■ Install either a third-height or a half-height drive into a half-height bay.

■ Install guide screws to ensure that the drive lines up correctly in the drive cage. Hard drives use 6-32 standard guide screws. Four extra guide screws are installed on the hard drive bracket under the access panel. HP-supplied standard screws are silver.

■ If only one device is connected to a cable, that device must be attached to the end (Device 0) connector.

✎ If you have only one device, make sure to connect it to the Device 0 connector. If you connect it to the Device 1 connector, the system will not recognize the device and you may receive a "no fixed disk found" error message.

# C

# Battery Replacement

The battery that comes with the computer provides power to the real-time clock. When replacing the battery, use a battery equivalent to the battery originally installed in the computer. The computer comes with a 3-volt lithium coin cell battery.

✎ The lifetime of the lithium battery can be extended by plugging the computer into a live AC wall socket. The lithium battery is only used when the computer is NOT connected to AC power.

⚠ **WARNING:** The computer contains an internal lithium manganese dioxide battery. There is a risk of fire and burns if the battery is not handled properly. To reduce the risk of personal injury:

■ Do not attempt to recharge the battery.

■ Do not expose to temperatures higher than 60°C (140°F).

■ Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.

■ Replace the battery only with the HP spare designated for this product.

⚠ **CAUTION:** Before replacing the battery, it is important to back up the computer CMOS settings. When the battery is removed or replaced, the CMOS settings will be cleared. Refer to the *Troubleshooting Guide* on the *Documentation Library* CD for information on backing up the CMOS settings.

🗑 Batteries, battery packs, and accumulators should not be disposed of together with the general household waste. In order to forward them to recycling or proper disposal, please use the public collection system or return them to HP, their authorized partners, or their agents.

$\triangle$ **CAUTION:** Static electricity can damage the electronic components of the computer or optional equipment. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object.

1. If you have locked the Smart Cover Lock, use Computer Setup to unlock the lock and disable the Smart Cover Sensor.

2. Turn off the computer properly through the operating system, then turn off any external devices. Disconnect the power cord from the power outlet and disconnect any external devices. Then remove the computer access panel.

✎ It may be necessary to remove an expansion card to gain access to the battery.

3. Locate the battery and battery holder on the system board.

4. Depending on the type of battery holder on the system board, complete the following instructions to replace the battery.

## Type 1

a. Lift the battery out of its holder.
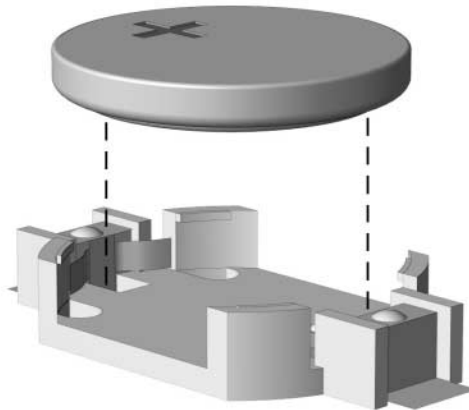
*Removing a Coin Cell Battery (Type 1)*

b. Slide the replacement battery into position, positive side up. The battery holder automatically secures the battery in the proper position.

## Type 2

a.  To release the battery from its holder, squeeze the metal clamp that extends above one edge of the battery.

b.  When the battery pops up, lift it out.
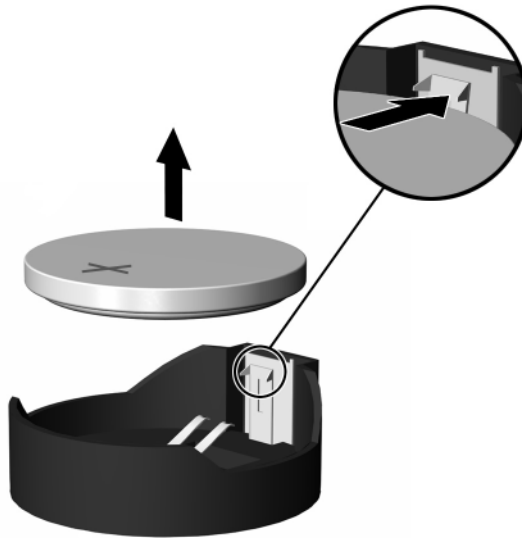
*Removing a Coin Cell Battery (Type 2)*

c. To insert the new battery, slide one edge of the replacement battery under the holder's lip with the positive side up. Push the other edge down until the clamp snaps over the other edge of the battery.
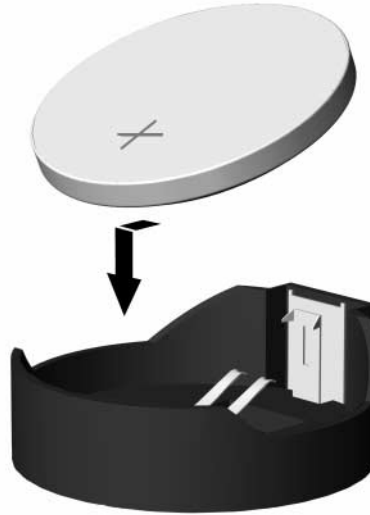


*Replacing a Coin Cell Battery (Type 2)*

✎ After the battery has been replaced, use the following steps to complete this procedure.

5. Replace the computer access panel.

6. Plug in the computer and turn on power to the computer.

7. Reset the date and time, your passwords, and any special system setups, using Computer Setup. Refer to the *Computer Setup (F10) Utility Guide* on the *Documentation Library* CD.

8. If you normally lock the Smart Cover Lock, use Computer Setup to relock the lock and enable the Smart Cover Sensor.

# D

# Security Lock Provisions

## Installing a Security Lock

The security locks displayed below and on the following page can be used to secure the Desktop computer.
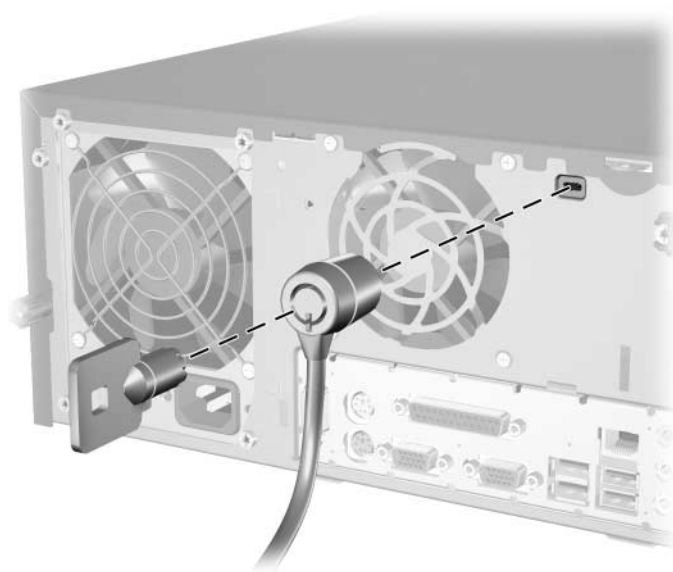


*Installing a Cable Lock*
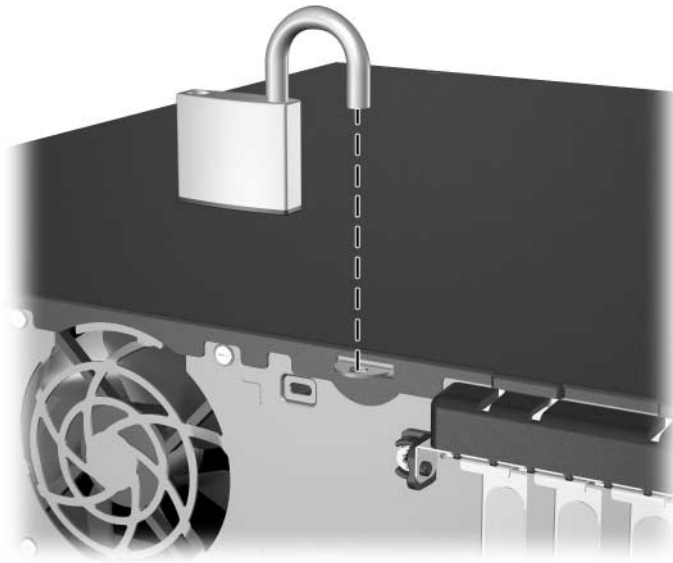
*Installing a Padlock*

# E

## Port Security Bracket

## Installing the Port Security Bracket

1. Insert the tabs on the bottom half of the port security bracket into the slots on the back of the chassis.
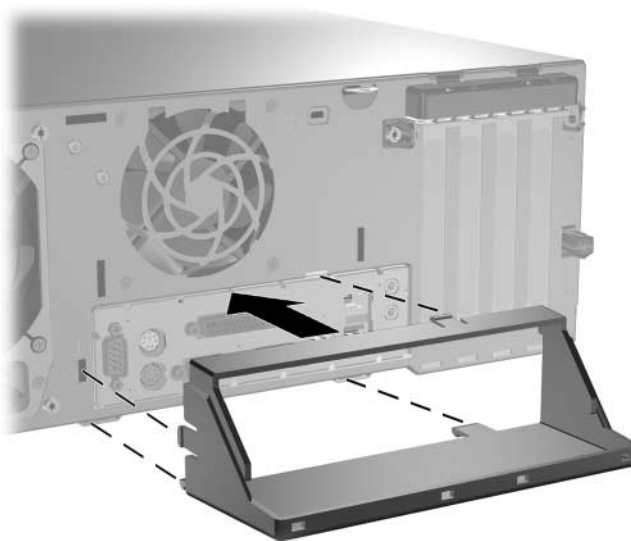
2. Connect the cables to the computer.
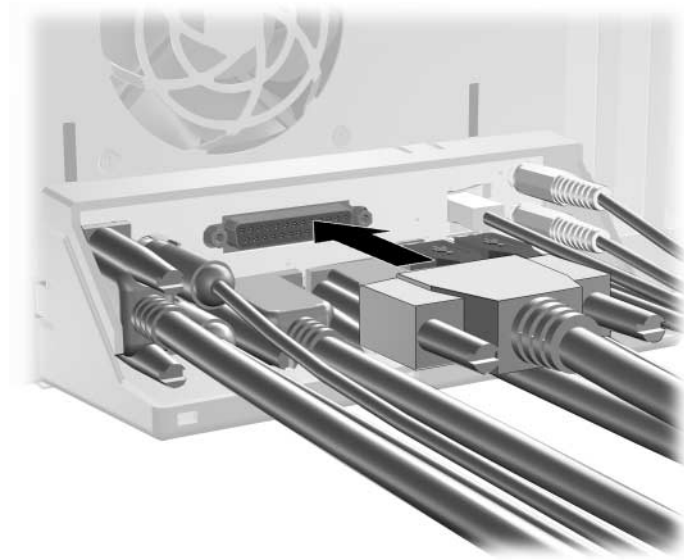
3. Position the top of the port security bracket over the cables ❶ and rotate the the bracket into place ❷.
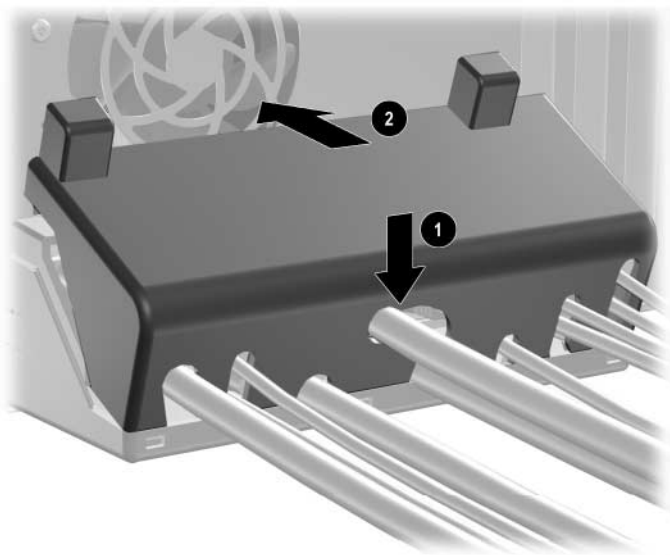
4. The illustration below shows the proper installation.
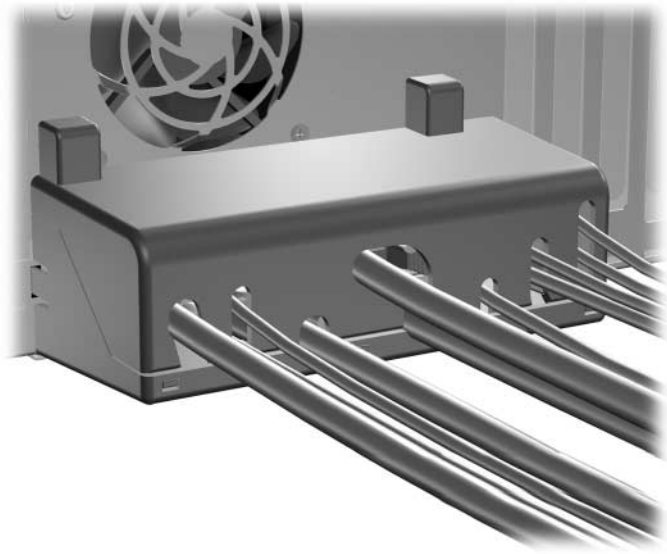
# Removing the Port Security Bracket

1. Loosen the two captive thumbscrews that secure the cover to the computer chassis ❶.

2. Slide the cover back about 1 inch (2.5 cm), then lift it up and off the unit ❷.
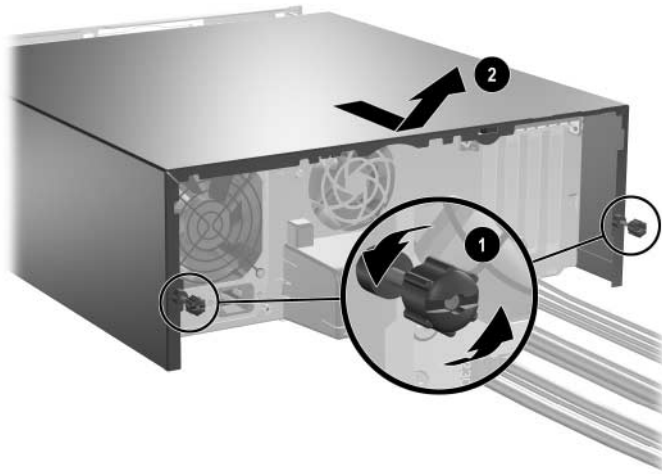
3. Push out on the tabs ❶ and rotate the top of the bracket away from the computer ❷.
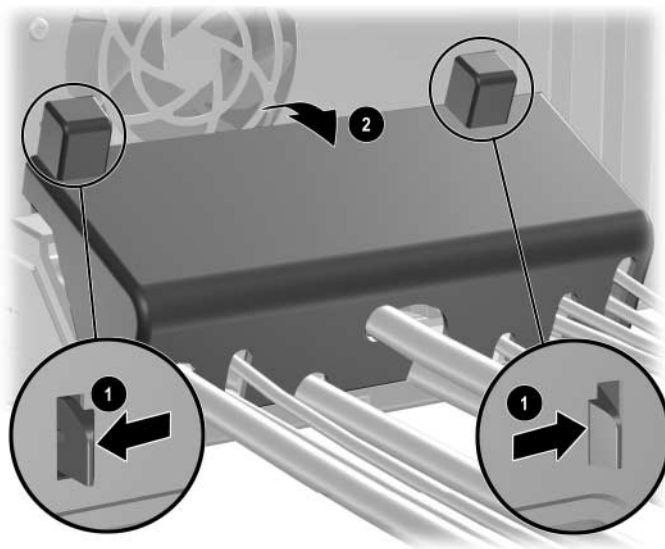
4. Disconnect the cables from the computer.
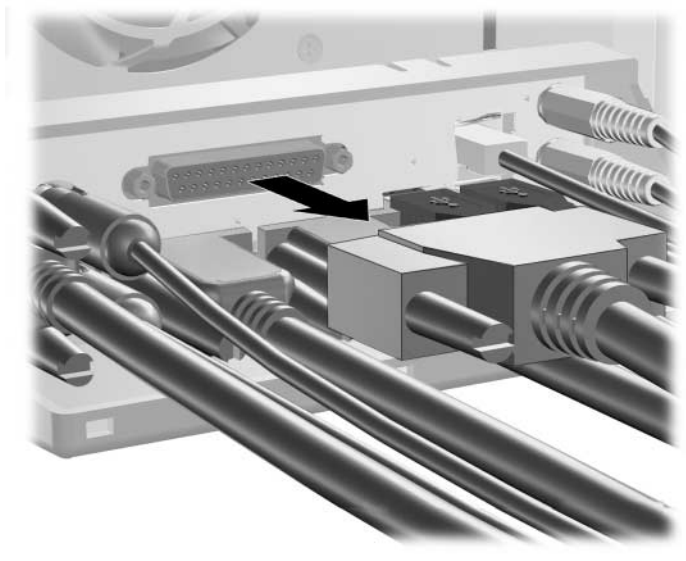
5. Push on the tabs to release the bottom of the bracket from the chassis ❶. Rotate the bracket away from the chassis ❷.

# F
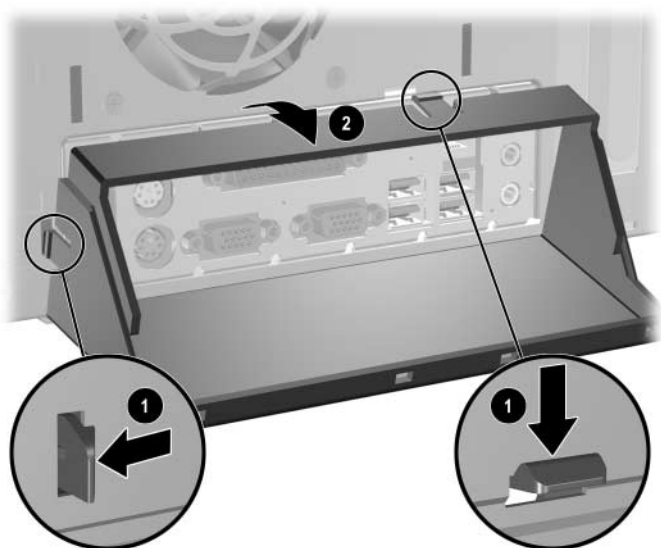
# Electrostatic Discharge

A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

## Preventing Electrostatic Damage

To prevent electrostatic damage, observe the following precautions:

■ Avoid hand contact by transporting and storing products in static-safe containers.

■ Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.

■ Place parts on a grounded surface before removing them from their containers.

■ Avoid touching pins, leads, or circuitry.

■ Always be properly grounded when touching a static-sensitive component or assembly.

## Grounding Methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

■ Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm +/- 10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.

■ Use heelstraps, toestraps, or bootstraps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.

■ Use conductive field service tools.

■ Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, contact an HP authorized dealer, reseller, or service provider.

✎ For more information on static electricity, contact an HP authorized dealer, reseller, or service provider.

# G

## Routine Computer Care and Shipping Preparation

## Routine Computer Care

Follow these suggestions to take care of the computer and monitor:

■ Operate the computer on a sturdy, level surface. Leave a 3-inch (7.6-cm) clearance at the back of the system unit and above the monitor to permit the required airflow.

■ Never operate the computer with the cover or side panel removed.

■ Never restrict the airflow into the computer by blocking the front vents or air intake. Do not place the keyboard, with the keyboard feet down, directly against the front of the Desktop unit as this also restricts airflow.

■ Keep the computer away from excessive moisture, direct sunlight, and extremes of heat and cold. For information about the recommended temperature and humidity ranges for the computer, refer to Appendix A, "Specifications" in this guide.

■ Keep liquids away from the computer and keyboard.

■ Never cover the ventilation slots on the monitor with any type of material.

■ Turn off the computer before you do either of the following:

❏ Wipe the exterior of the computer with a soft, damp cloth as needed. Using cleaning products may discolor or damage the finish.

❏ Occasionally clean the air vents on the front and back of the computer. Lint and other foreign matter can block the vents and limit the airflow.

# Optical Drive Precautions

Be sure to observe the following guidelines while operating or cleaning the optical drive.

## Operation

■ Do not move the drive during operation. This may cause it to malfunction during reading.

■ Avoid exposing the drive to sudden changes in temperature, as condensation may form inside the unit. If the temperature suddenly changes while the drive is on, wait at least one hour before you turn off the power. If you operate the unit immediately, it may malfunction while reading.

■ Avoid placing the drive in a location that is subject to high humidity, extreme temperatures, mechanical vibration, or direct sunlight.

## Cleaning

■ Clean the panel and controls with a soft, dry cloth or a soft cloth lightly moistened with a mild detergent solution. Never spray cleaning fluids directly on the unit.

■ Avoid using any type of solvent, such as alcohol or benzene, which may damage the finish.

## Safety

If any object or liquid falls into the drive, immediately unplug the computer and have it checked by an authorized HP service provider.

# Shipping Preparation

Follow these suggestions when preparing to ship the computer:

1. Back up the hard drive files on PD discs, tape cartridges, CDs, or diskettes. Be sure that the backup media is not exposed to electrical or magnetic impulses while stored or in transit.

✎ The hard drive locks automatically when the system power is turned off.

2. Remove and store any program diskettes from the diskette drives.

3. Insert a blank diskette into the diskette drive to protect the drive while in transit. Do not use a diskette on which you have stored or plan to store data.

4. Turn off the computer and external devices.

5. Disconnect the power cord from the electrical outlet, then from the computer.

6. Disconnect the system components and external devices from their power sources, then from the computer.

✎ Ensure that all boards are seated properly and secured in the board slots before shipping the computer.

7. Pack the system components and external devices in their original packing boxes or similar packaging with sufficient packing material to protect them.

✎ For environmental nonoperating ranges, see Appendix A, "Specifications" in this guide.

# Index