



# Hardware Reference Guide

HP Compaq 6000 Pro All-in-One Business PC

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### **Hardware Reference Guide**

HP Compaq 6000 Pro All-in-One Business PC


Third Edition (December 2010)


Document part number: 626271-003

## About This Book

This guide provides basic information for upgrading this computer model.

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 **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.

 **NOTE:** Text set off in this manner provides important supplemental information.

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# 1 Product Features

## Overview

**Figure 1-1** HP Compaq 6000 Pro All-in-One Business PC



The HP Compaq 6000 Pro All-In One Business PC offers the following features:

- Integrated All-in-One form factor
- 21.5-inch diagonal widescreen Full HD WLED anti-glare display (1080p)
- Integrated VESA-compliant mounting hole pattern of 100mm x 100mm for attaching the All-in-One system directly to a wall mount or articulating arm
- Adjustable tilt and swivel stand
- Intel® Core™ 2 Duo, Pentium, or Celeron processor
- Intel Q43 Express chipset
- Windows 7 Professional 32- or 64-bit operating system
- Integrated Intel Graphics Media Accelerator 4500 HD, or optional NVIDIA GeForce GT230 discrete graphics
- Integrated Gigabit Network Connection (10/100/1000 NIC)

- Optional wireless connectivity:
  - 802.11 b/g/n wireless LAN module
  - Bluetooth® 2.1
- Optional TV Tuner
- Up to 8 GB of DDR3 SDRAM memory
- Up to 1 TB hard drive, or optional 80 GB Solid State Drive
- Tray-load SuperMulti LightScribe DVD Optical Drive
- 6-in-1 Media Card Reader
- 7 USB ports
- IEEE 1394 Firewire® port
- PS/2 ports for the mouse and keyboard
- Optional HD webcam and Dual-array microphone
- Premium stereo speakers
- TPM 1.2-compliant embedded security chip
- Removable panels on the back of the chassis allow administrators to easily and efficiently service the PC
- HP SkyRoom full version for professional quality visual collaboration built on HP Video and Image processing engines for hi-fi audio, hi-def video, and hi-performance 3D application sharing




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**NOTE:** SkyRoom is shipped only on computers with Dual Core Processors, at least 2 GB of memory, a selectable Windows operating system, and the selectable webcam/mic AV

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- HP MediaSmart software for photos, music, video, DVD, webcam, and TV tuner
- Face Recognition for HP ProtectTools software with auto-login capabilities
- ENERGY STAR® qualified, EPEAT® Gold registered, and offers 89-percent energy-efficient power
- BFR/CFR/PVC-free (except for power supply and cord)
- Choice of wired or wireless keyboard and mouse



# Front Components

Figure 1-2 Front Components

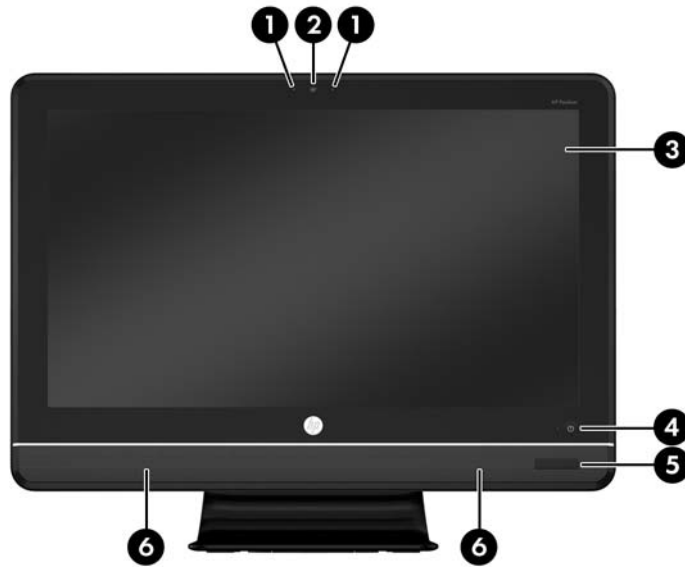


Table 1-1 Front Components

| Component  | Component                                  |
|--|--|
| 1 Dual microphone array (optional)                                   | 4 Power button and LED                     |
| 2 Webcam (optional)  | 5 IR Receiver and LED (select models only) |
| 3 21.5-inch diagonal 16:9 widescreen LED-backlit full HD LCD display | 6 High-performance stereo speakers         |

# Side Components

Figure 1-3 Side Components

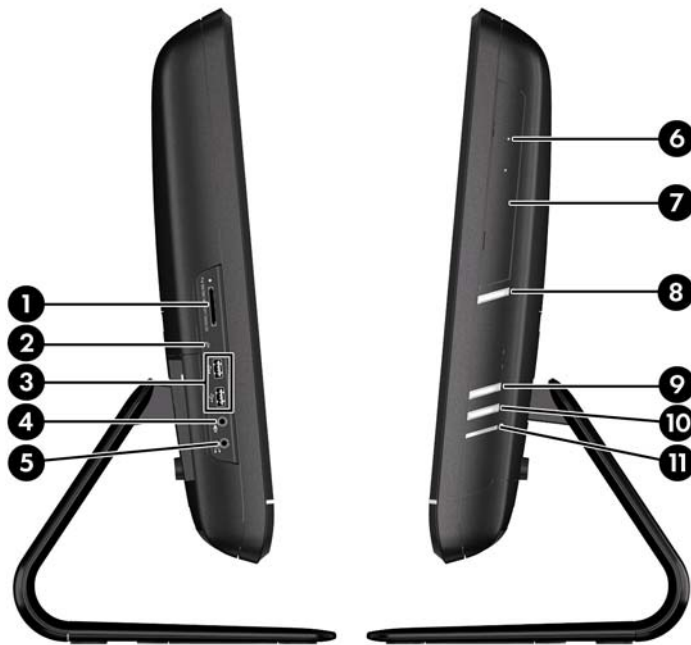


Table 1-2 Side Components

| Component                     | Component                            |
|-------------------------------|--------------------------------------|
| 1 HP 6-in-1 Media Card Reader | 6 Tray-load optical drive (optional) |
| 2 IEEE 1394 port              | 7 Optical drive activity LED         |
| 3 (2) USB 2.0 ports           | 8 Optical drive eject button         |
| 4 Headphone jack              | 9 Brightness increase button         |
| 5 Microphone/line in jack     | 10 Brightness decrease button        |
|                               | 11 Hard drive activity LED           |

# Rear Components

Figure 1-4 Rear Components

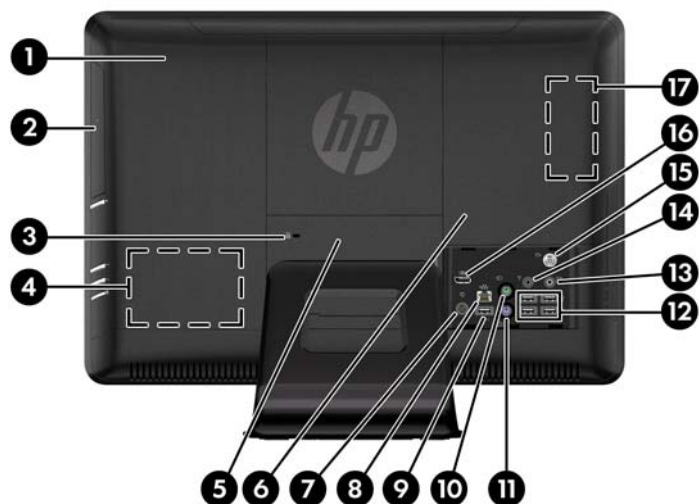


Table 1-3 Rear Components

| Component   | Component                                 |
|---|---|
| 1 Drive access panel  | 10 PS/2 mouse port                        |
| 2 Optical drive (optional)  | 11 PS/2 keyboard port                     |
| 3 Security lock slot  | 12 USB 2.0 ports (4)                      |
| 4 Hard drive location   | 13 Stereo audio line out                  |
| 5 Center access panel   | 14 IR Emitter (Blaster) output (optional) |
| 6 Memory access panel   | 15 TV tuner coax jack (optional)          |
| 7 Power connector with LED indicator  | 16 DisplayPort                            |
| 8 RJ-45 Gigabit Ethernet port   | 17 Memory location                        |
| 9 USB 2.0 port (Reserved for the optional USB Wireless Micro-receiver - for HP wireless keyboard and mouse) |   |

# Keyboard Features

Figure 1-5 Keyboard Features



Table 1-4 Keyboard Features

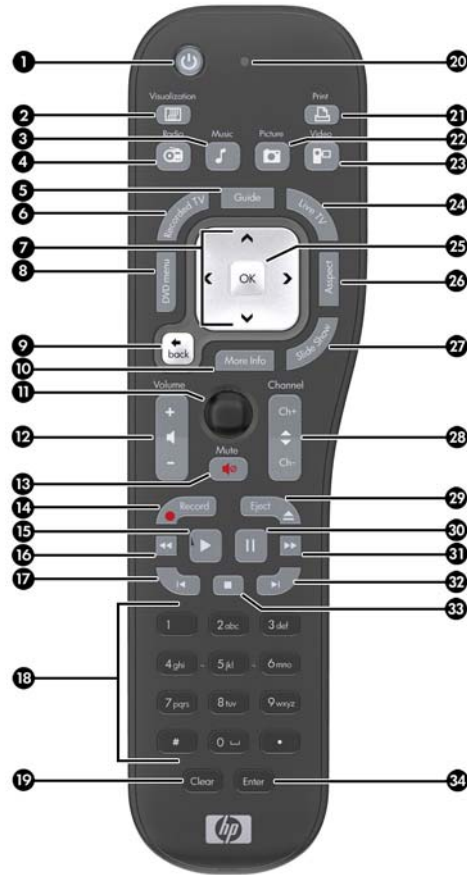
| Component      | Component         |
|----------------|-------------------|
| 1 Sleep        | 5 Fast Forward    |
| 2 Fast Reverse | 6 Mute Volume     |
| 3 Play/Pause   | 7 Decrease Volume |
| 4 Stop         | 8 Increase Volume |

## Remote Control Features



**NOTE:** A remote control is included with select models only.

**Figure 1-6** Remote Control Features



**Table 1-5** Remote Control Features

| Button          | Function   |
|-----------------|--|
| 1 On/Off        | Puts the computer into and out of a power-reduced Sleep mode. It does not turn the computer off.       |
| 2 Visualization | Displays visual imagery synchronized to the sound of the music tracks.                                 |
| 3 Music         | (Windows Media Center only) Opens the Music Library window in Windows Media Center.                    |
| 4 Radio         | (Windows Media Center only) Opens the FM Radio window in Windows Media Center.                         |
| 5 Guide         | (Windows Media Center only) Opens the Television Program Guide.  |
| 6 Recorded TV   | (Windows Media Center only) Opens the recorded TV window where recorded TV programs are displayed.     |
| 7 Arrows        | Move the cursor to navigate and select actions.  |
| 8 DVD Menu      | Opens the Play DVD window in Windows Media Center or opens the main menu of a DVD movie, if available. |
| 9 Back          | Returns to the previous window.  |

**Table 1-5 Remote Control Features (continued)**

| <b>Button</b>           | <b>Function</b>  |
|-------------------------|--|
| 10 More Info            | Displays available information about a selected media file and displays other menus.   |
| 11 Start                | Opens Windows Media Center main menu.  |
| 12 Volume               | Increases (+) or decreases (-) volume.   |
| 13 Mute                 | Turns computer sound off. The word "Mute" displays onscreen when Mute is turned on.  |
| 14 Record               | Records a selected television program and stores it on the hard disk drive.  |
| 15 Play                 | Plays the selected media.  |
| 16 Rewind               | Moves the media backward at three speeds.  |
| 17 Skip Backward        | Moves media backward 7 seconds or to the beginning of a music track or a DVD chapter.  |
| 18 0 through 9, *, ., # | Enters text and numbers into a search or text box. Pressing a number button repeatedly toggles through the characters on that button. Press Enter to select a character. |
| 19 Clear                | Deletes the last character entered.  |
| 20 LED                  | Activity indicator light. The LED tells you that the remote control is emitting a signal when you press a button.  |
| 21 Print                | Prints the selected item.  |
| 22 Picture              | (Windows Media Center only) Opens the Pictures Library window.   |
| 23 Video                | (Windows Media Center only) Opens the Videos Library window.   |
| 24 Live TV              | (Windows Media Center only) Displays the full-screen view of live TV. Moves a TV program forward to the end of the pause buffer and resumes playing live TV.             |
| 25 OK                   | Selects the desired action or window option and acts as the Enter key.   |
| 26 Aspect               | Changes the aspect ratio of the display. Zooms in on the picture three times, and then returns to the full-screen aspect ratio.  |
| 27 Slide Show           | (Windows Media Center only) Plays a slide show of all the pictures on the hard disk drive.   |
| 28 Ch+ and Ch-          | Changes the TV channels or moves pages up and down, depending on available options. Moves to the next DVD chapter.   |
| 29 Eject                | Ejects a CD or DVD.  |
| 30 Pause                | Pauses audio and video tracks and live or recorded TV programs.  |
| 31 Fast Forward         | Moves the media forward at three speeds.   |
| 32 Skip Forward         | Moves the media forward 30 seconds in videos and live TV, one music track, or one DVD chapter.   |
| 33 Stop                 | Stops the media currently playing.   |
| 34 Enter                | Selects the desired action, menu, or window option.  |

## Adjusting Tilt and Swivel

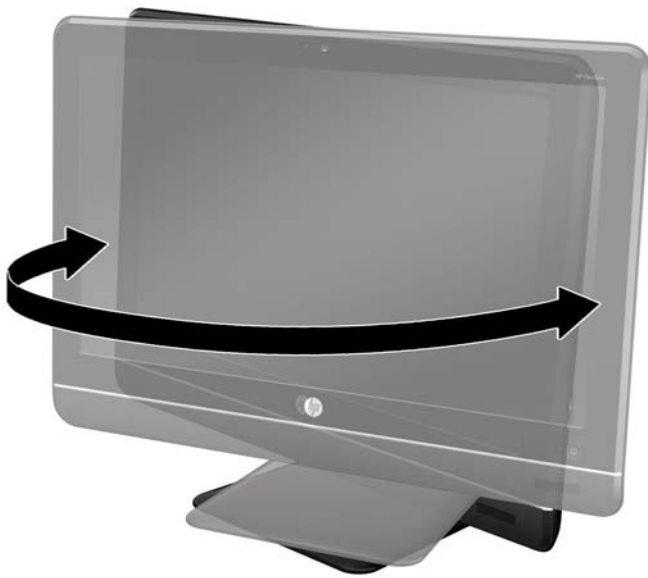
Tilt the computer forward up to 5 degrees or backward up to 30 degrees to set it to a comfortable eye level.

**Figure 1-7** Adjusting Tilt



The computer has a swivel wheel on the underside of the base that allows you to swivel the computer left or right for the best viewing angle.

**Figure 1-8** Adjusting Swivel





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## 2 Hardware Upgrades

### 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, hot surfaces, or fire:

Disconnect the power cord from the wall outlet and allow the internal system components to cool before touching.

Do not plug telecommunications or telephone connectors into the network interface controller (NIC) receptacles.

Do not disable the power cord grounding plug. The grounding plug is an important safety feature.

Plug the power cord in a grounded (earthed) outlet that is easily accessible at all times.

For your safety, do not place anything on power cords or cables. Arrange them so that no one may accidentally step on or trip over them. Do not pull on a cord or cable. When unplugging from the electrical outlet, grasp the cord by the plug.

To reduce the risk of serious injury, read the *Safety & Comfort Guide*. It describes proper workstation, setup, posture, and health and work habits for computer users, and provides important electrical and mechanical safety information. This guide is located on the Web at <http://www.hp.com/ergo>.

**WARNING!** Computers that are inappropriately situated on dressers, bookcases, shelves, desks, speakers, chests, or carts may fall over and cause personal injury.

Care should be taken to route all cords and cables connected to the computer so that they can not be pulled, grabbed, or tripped over.

**WARNING!** Energized and moving parts inside.

Disconnect power to the equipment before removing any access panels.

Replace and secure all access panels before re-energizing the equipment.

**⚠ 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 [Electrostatic Discharge on page 42](#) for more information.

When the computer is plugged into an AC power source, voltage is always applied to the system board. You must disconnect the power cord from the power source before opening the computer to prevent damage to internal components.

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## Additional Information

For more information on removing and replacing hardware components, desktop management, the Computer Setup utility, and troubleshooting, refer to the *Maintenance and Service Guide* (available in English only) for your computer model at <http://www.hp.com>.

## Removing the Center Access Panel

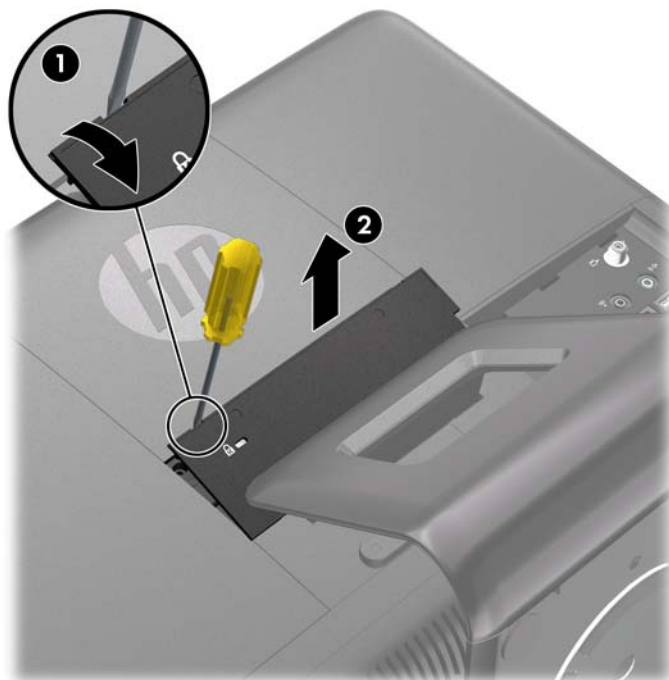
A small center access panel is located above the stand. You must remove it to remove the drive access panel, the memory access panel, or the port cover.

1. Remove/disengage any security devices that prohibit opening the computer.
2. Remove all removable media, such as compact discs or USB flash drives, from the computer.
3. Turn off the computer properly through the operating system, then turn off any external devices.
4. Disconnect the power cord from the power outlet and disconnect any external devices.

**⚠ CAUTION:** Regardless of the power-on state, voltage is always present on the system board as long as the system is plugged into an active AC outlet. You must disconnect the power cord to avoid damage to the internal components of the computer.


5. Place the computer face down on a soft flat surface. HP recommends that you set down a blanket, towel, or other soft cloth to protect the screen surface from scratches or other damage.
6. Insert a screwdriver into the slot on the upper left edge of the access panel marked by an arrow (1), pry the panel loose, and lift off the computer (2).

**Figure 2-1** Removing the Center Access Panel

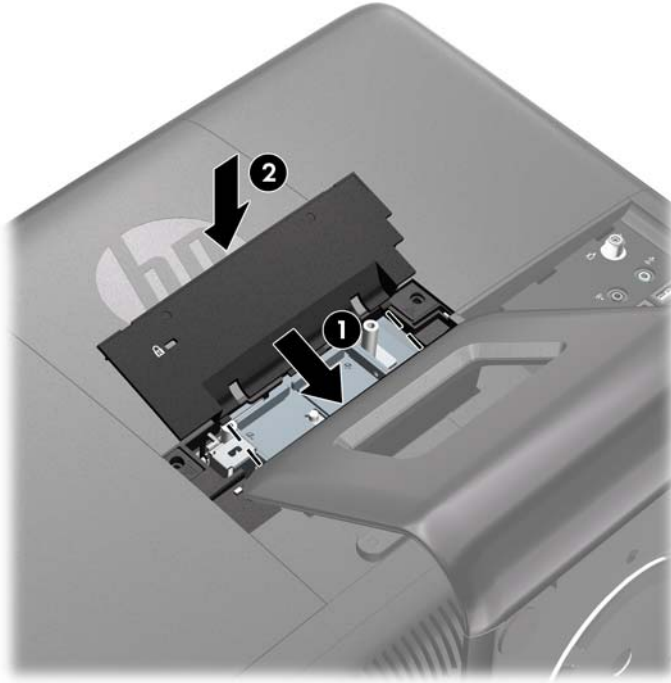


## Replacing the Center Access Panel


1. Place the computer face down on a soft flat surface. HP recommends that you set down a blanket, towel, or other soft cloth to protect the screen surface from scratches or other damage.
2. Insert the tabs on the bottom of the access panel into the slots on the chassis (1) then press the top of the panel straight down (2) so that it snaps in place.

 **NOTE:** Your computer may look different than the illustration shown below.

**Figure 2-2** Replacing the Center Access Panel



## Connecting Power and Installing the Port Cover

 **NOTE:** The port cover is an optional security device. It prevents access to the rear ports and secures the cable connections when locked in place.

1. Place the computer face down on a soft flat surface. HP recommends that you set down a blanket, towel, or other soft cloth to protect the screen surface from scratches or other damage.
2. Remove the center access panel (see [Removing the Center Access Panel on page 12](#)).

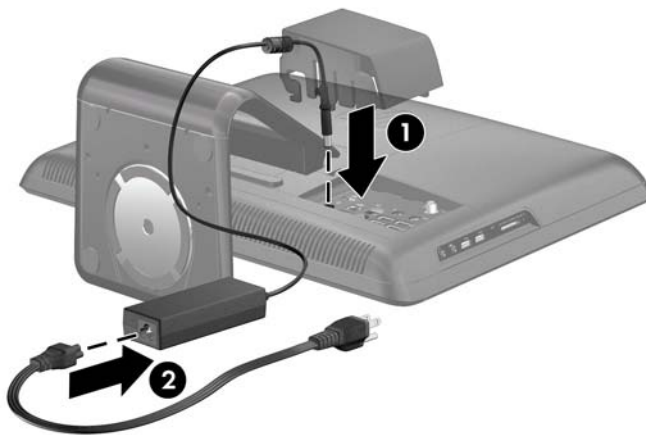
3. Route the power supply cable through the hole in the center of the stand then Insert the circular end of the power supply cord through the hole on the bottom left side of the port cover (1) and route it out the back of the port cover (2).

**Figure 2-3** Inserting Power Supply Cord through Port Cover Hole



4. Connect the power supply cord to the power connector on the rear of the computer (1), connect the second power cord to the power supply brick (2).


**Figure 2-4** Connecting Power



5. Route all peripheral device cables through the hole in the center of the stand and connect the cables to the rear I/O panel.

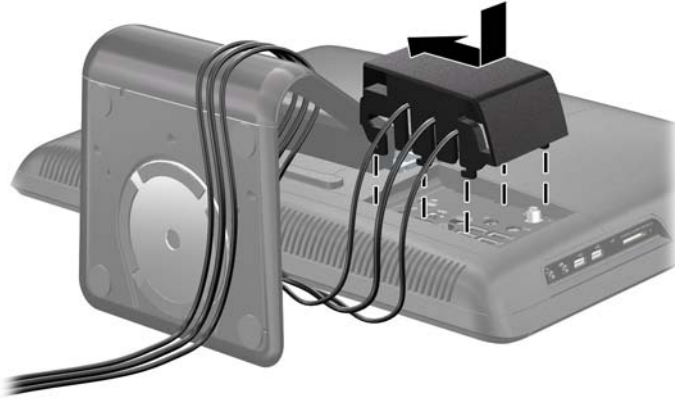
6. Insert the hooks on the port cover into the slots on the rear I/O panel and slide the port cover to the left until it stops.

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 **NOTE:** Ensure that all peripheral device cables are routed through the slots in the port cover.

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**Figure 2-5** Installing the Port Cover



7. Replace the center access panel (see [Replacing the Center Access Panel on page 13](#)) and plug the power cord into an electrical outlet.
8. To lock the port cover in place and secure the cable connections, install an optional security lock in the slot on the center access panel. See [Installing a Security Lock on page 33](#).

## Removing the Port Cover

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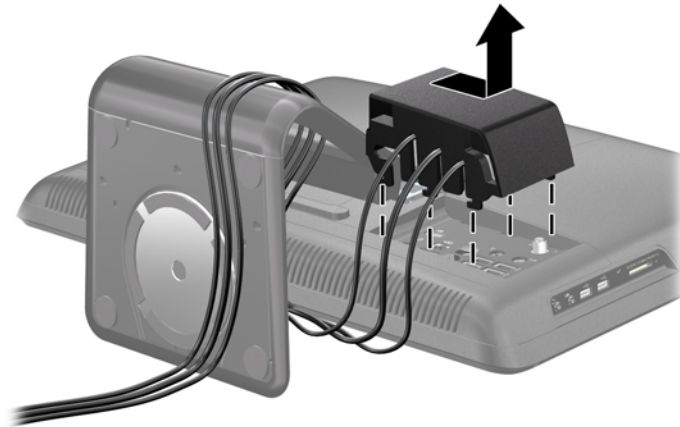
 **NOTE:** The port cover is an optional security device. It prevents access to the rear ports and secures the cable connections when locked in place.

---

1. Remove/disengage any security devices that prohibit opening the computer.
2. Turn off the computer and unplug the power cord from the power outlet.
3. Place the computer face down on a soft flat surface. HP recommends that you set down a blanket, towel, or other soft cloth to protect the screen surface from scratches or other damage.
4. Remove the center access panel (see [Removing the Center Access Panel on page 12](#)).

5. Slide the port cover to the right and lift it off the rear I/O panel.

**Figure 2-6** Removing the Port Cover



## Removing the Drive Access Panel


When facing the rear of the computer, the drive access panel is the large panel on the left. You must remove this panel to remove or install a hard drive or optical drive.

1. Remove/disengage any security devices that prohibit opening the computer.
2. Remove all removable media, such as compact discs or USB flash drives, from the computer.
3. Turn off the computer properly through the operating system, then turn off any external devices.
4. Disconnect the power cord from the power outlet and disconnect any external devices.

**CAUTION:** Regardless of the power-on state, voltage is always present on the system board as long as the system is plugged into an active AC outlet. You must disconnect the power cord to avoid damage to the internal components of the computer.

5. Place the computer face down on a soft flat surface. HP recommends that you set down a blanket, towel, or other soft cloth to protect the screen surface from scratches or other damage.
6. Remove the center access panel (see [Removing the Center Access Panel on page 12](#)).

7. Slide the drive access panel toward the outside of the computer to release it and lift the access panel off the computer.

 **NOTE:** For easy removal, grasp the drive access panel next to the opening where the center access panel was removed (1) when sliding it off the computer (2).

**Figure 2-7** Removing the Drive Access Panel



## Replacing the Drive Access Panel

1. Place the computer face down on a soft flat surface. HP recommends that you set down a blanket, towel, or other soft cloth to protect the screen surface from scratches or other damage.

2. Place the access panel on the rear of the computer so that the edge of the panel is slightly hanging off the edge of the computer and slide the panel toward the center of the computer.

**Figure 2-8** Replacing the Drive Access Panel



3. Replace the center access panel (see [Replacing the Center Access Panel on page 13](#)).

## Removing the Memory Access Panel

When facing the rear of the computer, the memory access panel is the large panel on the right. You must remove this panel to remove or install memory.


1. Remove/disengage any security devices that prohibit opening the computer.
2. Remove all removable media, such as compact discs or USB flash drives, from the computer.
3. Turn off the computer properly through the operating system, then turn off any external devices.
4. Disconnect the power cord from the power outlet and disconnect any external devices.

**⚠ CAUTION:** Regardless of the power-on state, voltage is always present on the system board as long as the system is plugged into an active AC outlet. You must disconnect the power cord to avoid damage to the internal components of the computer.

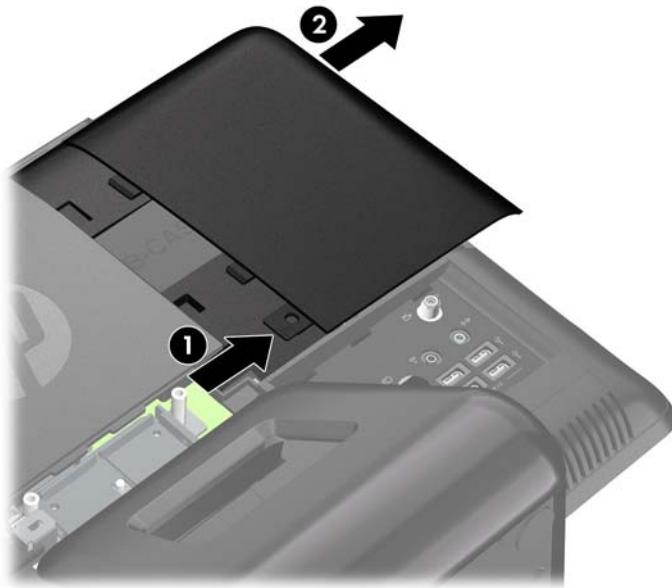
5. Place the computer face down on a soft flat surface. HP recommends that you set down a blanket, towel, or other soft cloth to protect the screen surface from scratches or other damage.
6. Remove the center access panel (see [Removing the Center Access Panel on page 12](#)).



7. Slide the memory access panel toward the outside of the computer to release it and lift the access panel off the computer.

 **NOTE:** For easy removal, grasp the memory access panel next to the opening where the center access panel was removed (1) when sliding it off the computer (2).

**Figure 2-9** Removing the Memory Access Panel



## Replacing the Memory Access Panel

1. Place the computer face down on a soft flat surface. HP recommends that you set down a blanket, towel, or other soft cloth to protect the screen surface from scratches or other damage.

2. Place the access panel on the rear of the computer so that the edge of the panel is slightly hanging off the edge of the computer and slide the panel toward the center of the computer.

**Figure 2-10** Replacing the Memory Access Panel



3. Replace the center access panel (see [Replacing the Center Access Panel on page 13](#)).

## Removing and Installing Memory

The computer comes with double data rate 3 synchronous dynamic random access memory (DDR3-SDRAM) small outline dual inline memory modules (SODIMMs).

The memory sockets on the system board can be populated with up to two industry-standard SODIMMs. These memory sockets are populated with at least one preinstalled SODIMM. To achieve the maximum memory support, you can populate the system board with up to 8 GB of memory.

For proper system operation, the SODIMMs must be:

- industry-standard 204-pin
- unbuffered non-ECC PC3-10600 DDR3-1333 MHz-compliant
- 1.5 volt DDR3-SDRAM SODIMMs

The DDR3-SDRAM SODIMMs must also:

- support CAS latency 9 DDR3 1333 MHz (9-9-9 timing)
- contain the mandatory Joint Electronic Device Engineering Council (JEDEC) specification

In addition, the computer supports:

- 512-Mbit, 1-Gbit, and 2-Gbit non-ECC memory technologies
- single-sided and double-sided SODIMMS
- SODIMMs constructed with x8 and x16 devices; SODIMMs constructed with x4 SDRAM are not supported



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**NOTE:** The system will not operate properly if you install unsupported SODIMMs.

---

There are two memory sockets on the system board located behind the memory access panel. To remove or install memory modules:

1. Remove/disengage any security devices that prohibit opening the computer.
2. Remove all removable media, such as compact discs or USB flash drives, from the computer.
3. Turn off the computer properly through the operating system, then turn off any external devices.
4. Disconnect the power cord from the power outlet and disconnect any external devices.

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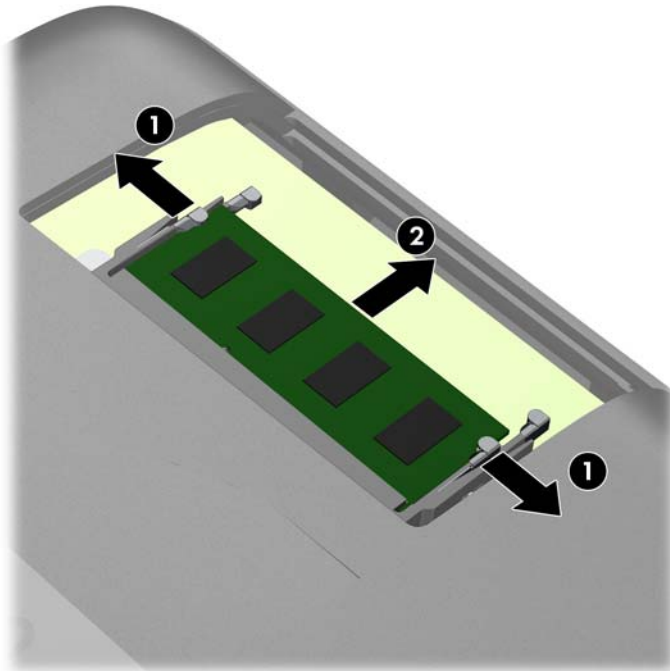
**⚠ CAUTION:** You must disconnect the power cord and wait approximately 30 seconds for the power to drain before adding or removing memory modules. Regardless of the power-on state, voltage is always supplied to the memory modules as long as the computer is plugged into an active AC outlet. Adding or removing memory modules while voltage is present may cause irreparable damage to the memory modules or system board.

---

5. Place the computer face down on a soft flat surface. HP recommends that you set down a blanket, towel, or other soft cloth to protect the screen surface from scratches or other damage.
6. Remove the center access panel (see [Removing the Center Access Panel on page 12](#)).
7. Remove the memory access panel (see [Removing the Memory Access Panel on page 18](#)).

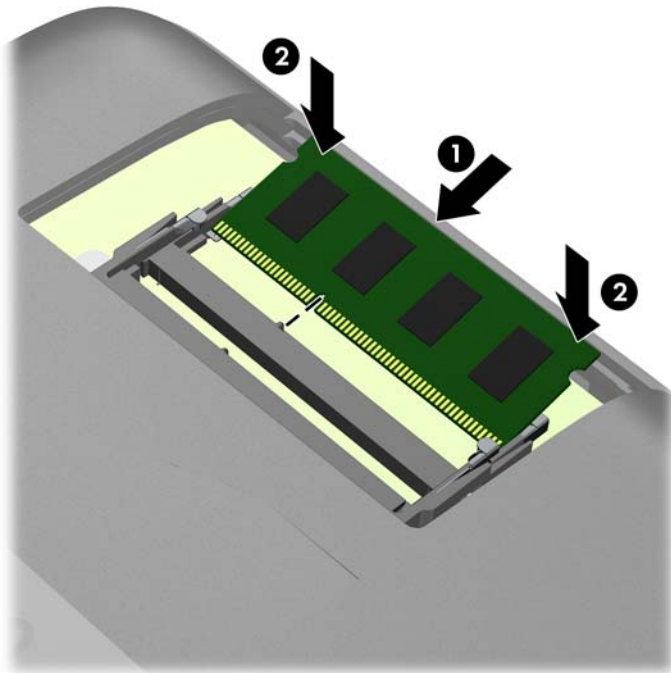
8. If you are adding a second SODIMM, remove the SODIMM from the top (black) socket to access the bottom (white) socket. Press outward on the two latches on each side of the SODIMM (1) then pull the SODIMM out of the socket (2).

**Figure 2-11** Removing a Memory Module



- Slide the new SODIMM into the socket at approximately a 30° angle (1) then press the SODIMM down (2) so that the latches lock it in place.

**Figure 2-12** Installing a Memory Module



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

A SODIMM must occupy the top (black) socket.

- Replace the memory module in the top (black) socket if it was removed.
- Replace the memory access panel (see [Replacing the Memory Access Panel on page 19](#)).
- Replace the center access panel (see [Replacing the Center Access Panel on page 13](#)).
- Lock any security devices that were disengaged when the center access panel was removed.
- Reconnect the power cord and turn on the computer. The computer automatically recognizes the additional memory when you turn on the computer.

## Removing and Installing an Optical Drive

The computer uses a slimline Serial ATA (SATA) optical drive. The optical drive is located under the drive access panel on the left side of the computer (when viewed from behind). It is secured with one screw.

### Removing an Existing Optical Drive

- Remove/disengage any security devices that prohibit opening the computer.
- Remove all removable media, such as compact discs or USB flash drives, from the computer.
- Turn off the computer properly through the operating system, then turn off any external devices.

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

**⚠ CAUTION:** Regardless of the power-on state, voltage is always present on the system board as long as the system is plugged into an active AC outlet. You must disconnect the power cord to avoid damage to the internal components of the computer.

5. Place the computer face down on a soft flat surface. HP recommends that you set down a blanket, towel, or other soft cloth to protect the screen surface from scratches or other damage.
6. Remove the center access panel (see [Removing the Center Access Panel on page 12](#)).
7. Remove the drive access panel (see [Removing the Drive Access Panel on page 16](#)).
8. Remove the security screw next to the rear of the drive that secures the drive to the computer.

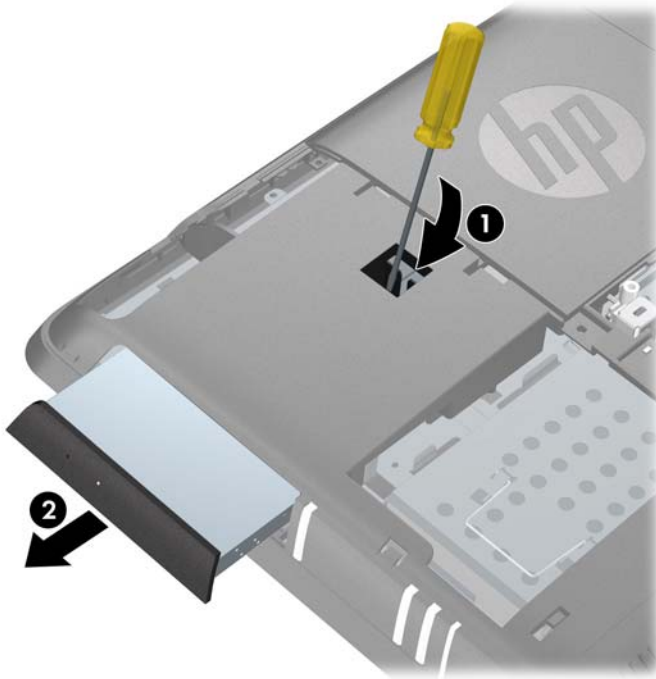
**⚠ CAUTION:** Hold onto the screw when removing it to make sure that the screw does not fall into the inside of the unit.

**Figure 2-13** Removing the Optical Drive Security Screw



9. Insert a tool into the slot behind the drive (1) and push the drive out of the bay, then slide the drive out of the computer (2).

**Figure 2-14** Removing an Optical Drive



10. Remove the screw and security bracket on the rear of the drive. You will need to install the bracket on the replacement drive.

**Figure 2-15** Removing the Optical Drive Security Bracket



11. To install a new drive see [Installing an Optical Drive on page 26](#).

## Installing an Optical Drive

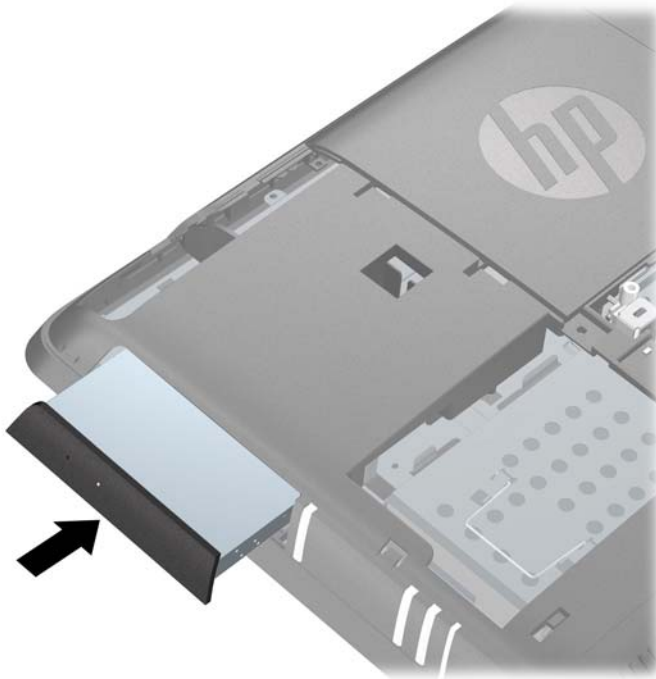
1. If you are replacing an existing optical drive, follow the instructions to remove the drive (see [Removing an Existing Optical Drive on page 23](#)). If you are installing an optical drive in a bay that did not previously have a drive in it, follow steps 1 through 7 in [Removing an Existing Optical Drive on page 23](#) then proceed to install the drive.
2. Install the security bracket on the rear of the drive.

**Figure 2-16** Installing the Optical Drive Security Bracket



3. Slide the drive all the way into the drive bay.

**Figure 2-17** Installing the Optical Drive





4. Secure the drive in place by installing the security screw next to the rear of the drive.


**Figure 2-18** Installing the Optical Drive Security Screw




5. Replace the drive access panel (see [Replacing the Drive Access Panel on page 17](#)).
6. Replace the center access panel (see [Replacing the Center Access Panel on page 13](#)).
7. Lock any security devices that were disengaged when the center access panel was removed.
8. Reconnect the power cord and turn on the computer.

## Replacing the Hard Drive

The hard drive is located under the drive access panel on the left side of the computer (when viewed from behind). The drive is secured with one captive screw and is housed in a removable cage.

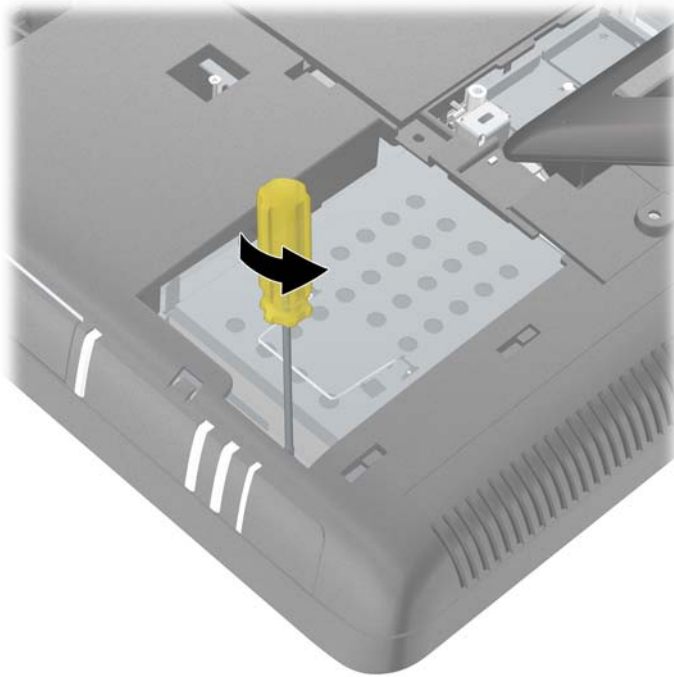
 **NOTE:** Depending on your computer configuration, the hard drive may be a 2.5-inch drive or a 3.5-inch drive. If you are replacing the hard drive, be sure to replace it with the same size drive that was originally installed. Otherwise, the drive will not fit into the hard drive cage.

1. Remove/disengage any security devices that prohibit opening the computer.
2. Remove all removable media, such as compact discs or USB flash drives, from the computer.
3. Turn off the computer properly through the operating system, then turn off any external devices.
4. Disconnect the power cord from the power outlet and disconnect any external devices.

 **CAUTION:** Regardless of the power-on state, voltage is always present on the system board as long as the system is plugged into an active AC outlet. You must disconnect the power cord to avoid damage to the internal components of the computer.

5. Place the computer face down on a soft flat surface. HP recommends that you set down a blanket, towel, or other soft cloth to protect the screen surface from scratches or other damage.
6. Remove the center access panel (see [Removing the Center Access Panel on page 12](#)).
7. Remove the drive access panel (see [Removing the Drive Access Panel on page 16](#)).
8. Loosen the captive screw next to the front of the drive that secures the drive to the computer.

**Figure 2-19** Loosening the Hard Drive Security Screw



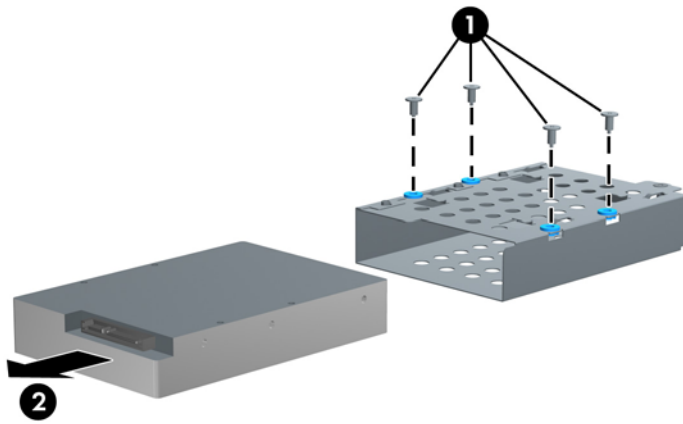
9. Grasp the handle on top of the hard drive cage and slide the cage toward the outer edge of the computer, then lift the cage out of the computer.

**Figure 2-20** Removing the Hard Drive Cage

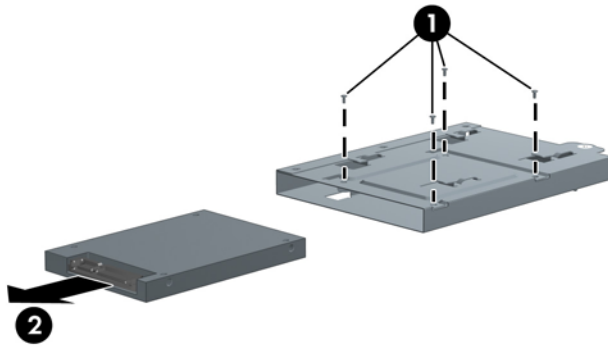


10. To remove the hard drive from the hard drive cage, remove the four screws that secure the drive to the cage (1), and then slide the drive out of the cage (2).

**Figure 2-21** Removing a 3.5-Inch Hard Drive from the Hard Drive Cage

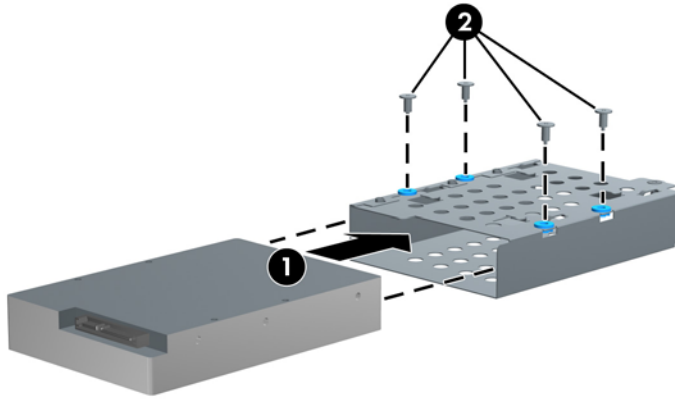


**Figure 2-22** Removing a 2.5-Inch Hard Drive from the Hard Drive Cage

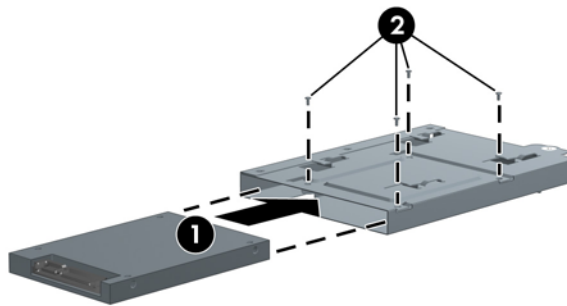


11. Slide the new hard drive into the hard drive cage (1) making sure that the connectors on the hard drive are aligned with the notched out area on the cage, and then install the four screws that secure the drive to the cage (2).

**Figure 2-23** Installing a 3.5-Inch Hard Drive in the Hard Drive Cage



**Figure 2-24** Installing a 2.5-Inch Hard Drive in the Hard Drive Cage



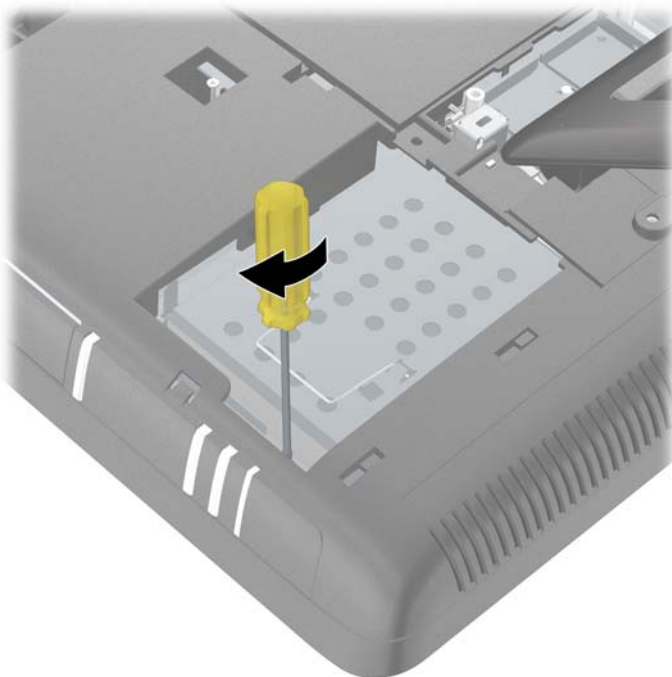
12. Set the hard drive cage down into the bay and slide it back toward the center of the computer until it stops.

**Figure 2-25** Installing the Hard Drive Cage



13. Tighten the captive screw to secure the hard drive cage in place.

**Figure 2-26** Tightening the Hard Drive Security Screw



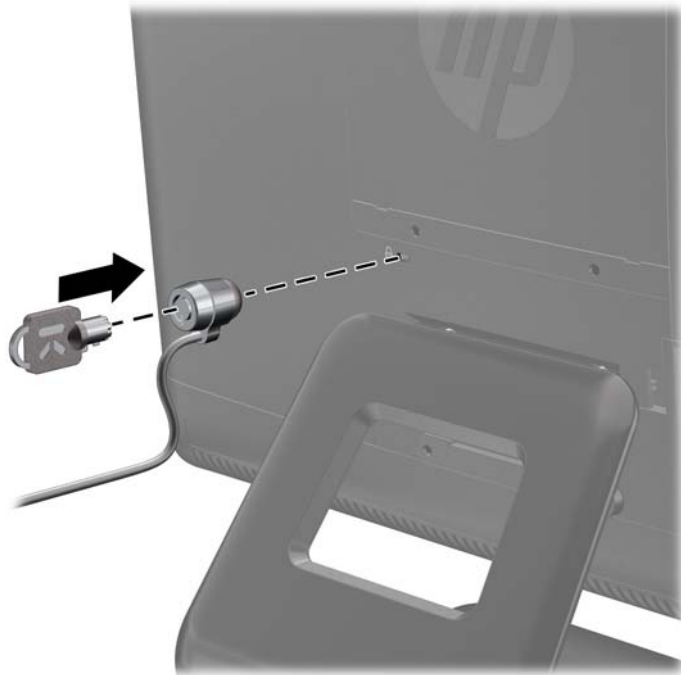
14. Replace the drive access panel (see [Replacing the Drive Access Panel on page 17](#)).

15. Replace the center access panel (see [Replacing the Center Access Panel on page 13](#)).
16. Lock any security devices that were disengaged when the center access panel was removed.
17. Reconnect the power cord and turn on the computer.

## Installing a Security Lock

A security lock (sold separately) enables you to secure your computer from theft and unwanted changes. A security lock is a key lock device that has a wire cable attached. You attach one end of the cable to your desk (or other stationary object) and the other to this security slot on the computer. Secure the security lock with the key.

**Figure 2-27** Installing a Security Lock



## Attaching the Computer to a Mounting Fixture

You can remove the computer from the stand and install it on a wall, monitor arm, or other mounting fixture.

**CAUTION:** This computer supports the VESA industry standard 100 mm mounting holes. To attach a third-party mounting solution to the computer, four 4 mm, 0.7 pitch, and 10 mm long screws are required. Longer screws must not be used because they may damage the computer. It is important to verify that the manufacturer's mounting solution is compliant with the VESA standard and is rated to support the weight of the computer.

**NOTE:** This apparatus is intended to be supported by UL or CSA Listed wall mount bracket.

1. Remove/disengage any security devices that prohibit opening the computer.
2. Remove all removable media, such as compact discs or USB flash drives, from the computer.

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

**⚠ CAUTION:** Regardless of the power-on state, voltage is always present on the system board as long as the system is plugged into an active AC outlet. You must disconnect the power cord to avoid damage to the internal components of the computer.

5. Place the computer face down on a soft flat surface. HP recommends that you set down a blanket, towel, or other soft cloth to protect the screen surface from scratches or other damage.
6. Remove the center access panel (see [Removing the Center Access Panel on page 12](#)).
7. Remove the port cover (see [Removing the Port Cover on page 15](#)).
8. Disconnect all cables from the computer.
9. In the order indicated by the numbers stamped into the stand bracket, remove the four screws that secure the stand to the computer.

**Figure 2-28** Removing the Stand Screws





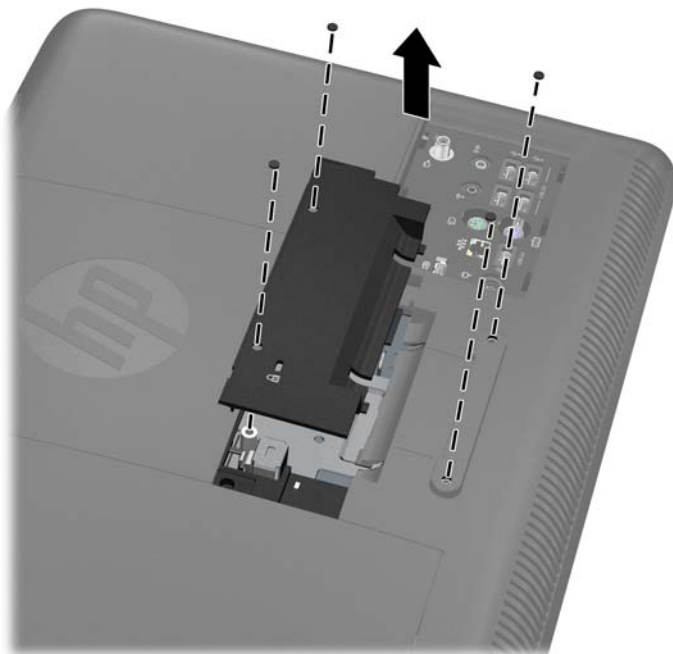
10. Slide the stand toward the logo about 2.5 cm (1 inch) (1), tilt the stand base upward, and then slide it back (away from the logo) (2) to lift it off the computer.

**Figure 2-29** Removing the Stand



11. Remove the two VESA hole knockouts from the center access panel and the two VESA hole knockouts from the rear panel below the center access area.

**Figure 2-30** Removing the VESA Knockouts




12. Replace the center access panel. Insert the tabs on the bottom of the access panel into the slots on the chassis then press the top of the panel straight down so that it snaps in place.

**Figure 2-31** Replacing the Center Access Panel

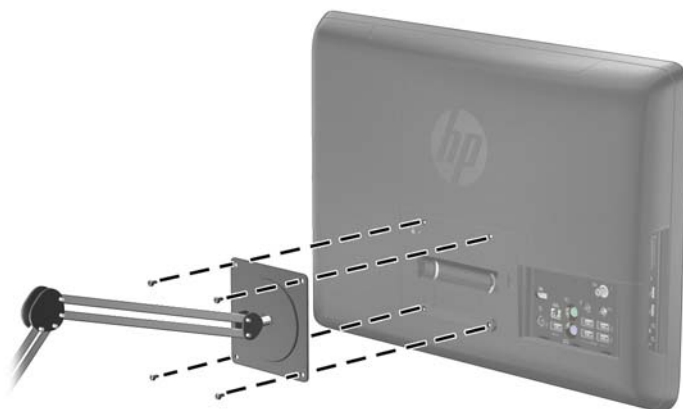


13. To attach the computer to a monitor arm, insert four 10mm screws through the holes on the monitor arm plate and into the VESA mounting holes on the computer.

 **NOTE:** HP offers an optional monitor arm specifically designed for this product.

To attach the computer to other mounting fixtures, follow the instructions included with the mounting fixture to ensure that the computer is safely attached.


**Figure 2-32** Mounting the Computer



14. Reconnect the cables and turn on the computer.

# Synchronizing the Optional Wireless Keyboard or Mouse

The optional wireless keyboard and mouse are easy to set up. Just remove the battery tabs on both the keyboard and the mouse. Also, make sure the Power switch on the bottom of the mouse is in the On position (the keyboard does not have a Power switch). Then, turn on the computer. If you have trouble using the keyboard and mouse, manually synchronize them as described below.

 **NOTE:** For better mouse battery life and performance, avoid using your mouse on a dark or high-gloss surface, and turn mouse power off when not in use.

The wireless keyboard and mouse are pre-synchronized to work with your computer. The keyboard and mouse should work immediately after you first pull the battery tabs to activate the preinstalled batteries, and then turn on the mouse.

You may need to manually synchronize the wireless keyboard or mouse if they are not functioning. To synchronize them:

1. Make sure the keyboard and mouse are next to the computer, within 30 cm (1 foot) and away from interference from other devices.
2. Turn on the computer.
3. Insert the wireless receiver into a USB port on the computer. HP recommends connecting the receiver to the USB port located between the power connector and the PS/2 keyboard connector on the rear I/O panel.

**Figure 2-33** Installing the Wireless Receiver




4. Make sure the Power switch on the bottom of the mouse is in the On position (1).

5. Press the Connect button on the bottom of the mouse (2) for five seconds. The blue activity LED from the wireless receiver illuminates when the synchronization command has been received and turns off when synchronization is complete.
6. Press the Connect button on the bottom of the keyboard (3) for five seconds. The blue activity LED from the wireless receiver illuminates when the synchronization command has been received and turns off when synchronization is complete.

**Figure 2-34** Synchronizing the Wireless Keyboard and Mouse




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 **NOTE:** If the procedure does not work, remove and then re-insert the wireless keyboard and mouse receiver from the back of the computer and then synchronize the keyboard and mouse again.

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## Connecting the Computer to a Set-Top Box


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 **NOTE:** A TV tuner is included with select models only.

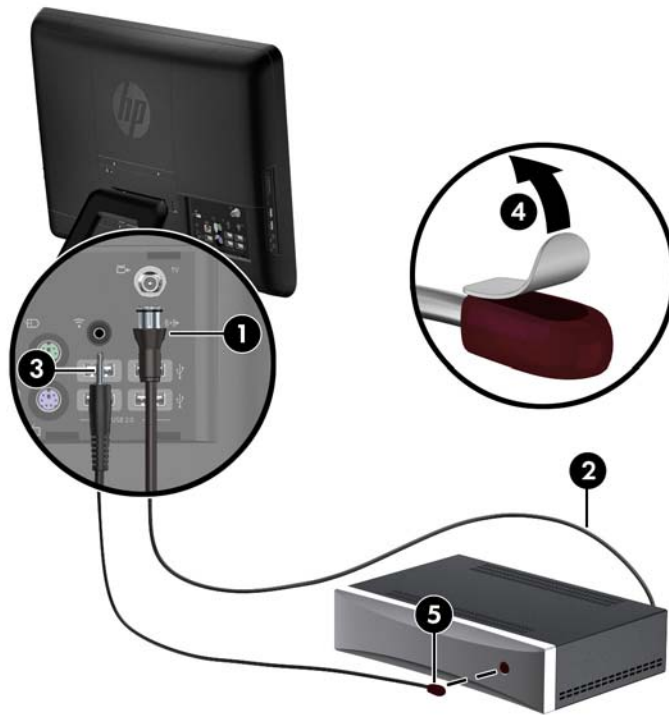
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1. Turn off power to the computer and the set-top box.
2. Connect a coaxial cable between the TV tuner (1) and the set-top box (2).

3. To use the remote control properly, connect an IR emitter (blaster) cable to the IR Out connector on the computer (3), remove the paper from the backing tape on the end of the IR emitter cable (4), and then press the end of the cable over the remote IR sensor (receiver) window on the set-top box (5).

 **NOTE:** The IR emitter cable is a remote control sensing device that connects to the computer and covers the remote sensor on a set-top box. When you are selecting TV channels, it enables the remote control to work with your set-top box.

**Figure 2-35** Connecting the Computer to a Set-Top Box



4. Turn on power to the computer and the set-top box.

5. When you use the remote control, point it at the front of the computer, not at the set-top box.

**Figure 2-36** Using the Remote Control




## Connecting an Optional DisplayPort Video Adapter

If you are adding a second display that has a DisplayPort, then no DisplayPort video adapter is required. If you are adding a second display that does not have a DisplayPort, you can purchase a DisplayPort video adaptor from HP for your configuration.

DisplayPort video adapters allow you to connect a second display, such as a monitor or TV, to the computer.

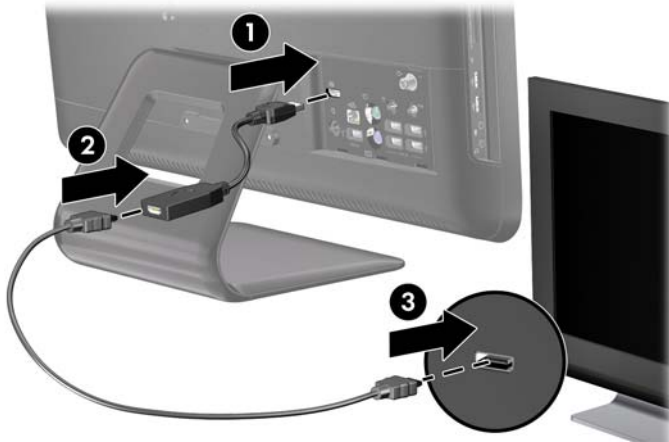
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 **NOTE:** DisplayPort adapters and cables are purchased separately. HP offers a DisplayPort to VGA adapter, a DisplayPort to DVI adapter, and a DisplayPort to HDMI adapter.


---

1. Turn off power to the computer and the second display that you are connecting to the computer.
2. Connect the adapter to the DisplayPort connector on the rear I/O panel (1).

3. Connect a cable (VGA, DVI, or HDMI, depending on your application) between the adapter (2) and a second display (3).



4. Turn on power to the computer and the second display.

 **NOTE:** Use the graphics card software or the Windows Display Settings to configure the second display as a mirrored image of the primary monitor or an extension of the primary monitor.

---

# A 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.



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

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# B Computer Operating Guidelines, Routine Care and Shipping Preparation

## Computer Operating Guidelines and Routine Care

Follow these guidelines to properly set up and care for the computer:


- Keep the computer away from excessive moisture, direct sunlight, and extremes of heat and cold.
- Operate the computer on a sturdy, level surface. Leave a 10.2-cm (4-inch) clearance on all vented sides of the computer to permit the required airflow.
- Never restrict the airflow into the computer by blocking any vents or air intakes.
- Never operate the computer with the any of the access panels removed.
- Do not place computers so near each other that they are subject to each other's re-circulated or preheated air.
- If the computer is to be operated within a separate enclosure, intake and exhaust ventilation must be provided on the enclosure, and the same operating guidelines listed above will still apply.
- Keep liquids away from the computer and keyboard.
- Never cover the ventilation slots with any type of material.
- Install or enable power management functions of the operating system or other software, including sleep states.
- When cleaning the computer turn off power to the computer and unplug the power cord before you do any 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.
  - Do not use cleaners that contain any petroleum based materials such as benzene, thinner, or any volatile substance to clean the screen or cabinet. These chemicals may damage the computer.
  - Wipe the screen with a soft, clean antistatic cloth. For more difficult cleaning situations, use a 50/50 mix of water and Isopropyl alcohol. Spray the cleaner onto a cloth and use the damp cloth to gently wipe the screen surface. Never spray the cleaner directly on the screen surface. It may run behind the bezel and damage the electronics.
  - Occasionally clean the air vents on all vented sides of the computer. Lint, dust, 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.

- 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.

---

 **CAUTION:** 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 USB flash drives. Be sure that the backup media is not exposed to electrical or magnetic impulses while stored or in transit.


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 **NOTE:** The hard drive locks automatically when the system power is turned off.

---

2. Remove and store all removable media.
3. Turn off the computer and external devices.
4. Disconnect the power cord from the electrical outlet, then from the computer.
5. Disconnect the system components and external devices from their power sources, then from the computer.

---

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

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

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