

Hardware Reference Guide

HP Compaq 8100 Elite Convertible Minitower
Business PC and HP Z200 Convertible Minitower
Workstation

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Hardware Reference Guide

HP Compaq 8100 Elite Convertible
Minitower Business PC and HP Z200
Convertible Minitower Workstation

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About This Book

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

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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.

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! Energized and moving parts inside.

Disconnect power to the equipment before removing the enclosure.

Replace and secure the enclosure 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 45](#) 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.

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>.

Unlocking the Smart Cover Lock


 **NOTE:** The Smart Cover Lock is an optional feature included on some 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 *Maintenance and Service Guide* (available in English only).

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

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


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 (<http://www.hp.com>) for ordering information.
- Visit <http://www.hp.com/go/contacthp> or click **Start > Help and Support** to find the phone number of the support center near you.

Using the Smart Cover FailSafe Key to Remove the Smart Cover Lock

To open the access panel with the Smart Cover Lock engaged:

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


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

Figure 1 Removing the Smart Cover Lock Screws



You can now remove the access panel. See [Removing the Computer Access Panel on page 4](#).

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

Removing the Computer Access Panel

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. Lay the computer down on its large base for greater stability.
 6. Lift up on the access panel handle (1) then lift the access panel off the computer (2).
-
- 📝 **NOTE:** Your computer may look different than the illustration shown below.
-

Figure 2 Removing the Computer Access Panel



Replacing the Computer Access Panel

1. Lay the computer down on its large base for greater stability.
2. Slide the lip on the front end of the access panel under the lip on the front of the chassis (1) then press the back end of the access panel onto the unit so that it locks into place (2).


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

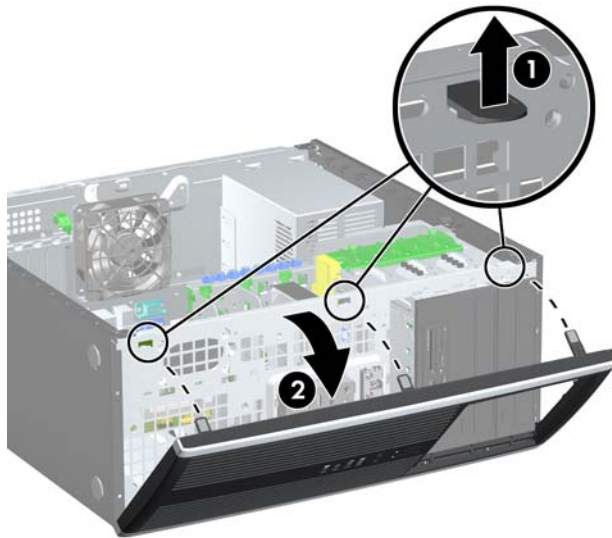
Figure 3 Replacing the Computer Access Panel



Removing the Front Bezel

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. Remove the computer access panel.
 6. Lift up the three tabs on the side of the bezel (1), then rotate the bezel off the chassis (2).
-
- 📝 **NOTE:** Your computer may look different than the illustration shown below.
-

Figure 4 Removing the Front Bezel



Removing Bezel Blanks

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.

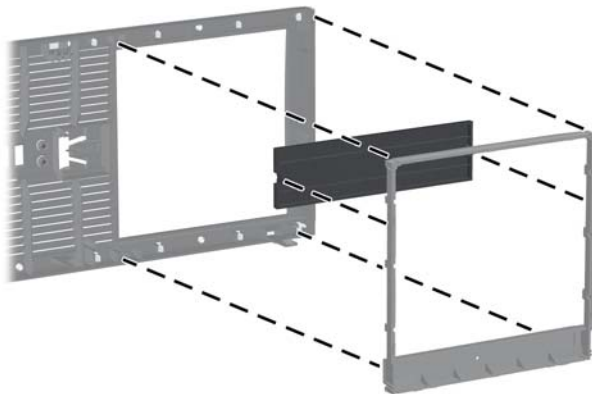
△ **CAUTION:** Regardless of the power-on state, voltage is always present on the system board as long as the system is plugged into an active AC outlet. You must disconnect the power cord to avoid damage to the internal components of the computer.

5. Remove the computer access panel.
6. Remove the front bezel.
7. Gently pull the subpanel, with the bezel blanks secured in it, away from the front bezel, then remove the desired bezel blank.

△ **CAUTION:** Hold the subpanel straight when you pull it away from the front bezel. Pulling the subpanel away at an angle could damage the pins that align it within the front bezel.

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

Figure 5 Removing Bezel Blanks from the Subpanel (Desktop Shown)



📝 **NOTE:** When replacing the subpanel, ensure that the aligning pins and any remaining bezel blanks are in their proper orientation.

Replacing the Front Bezel

Insert the three hooks on the bottom side of the bezel into the rectangular holes on the chassis (1) then rotate the top side of the bezel onto the chassis (2) and snap it into place.


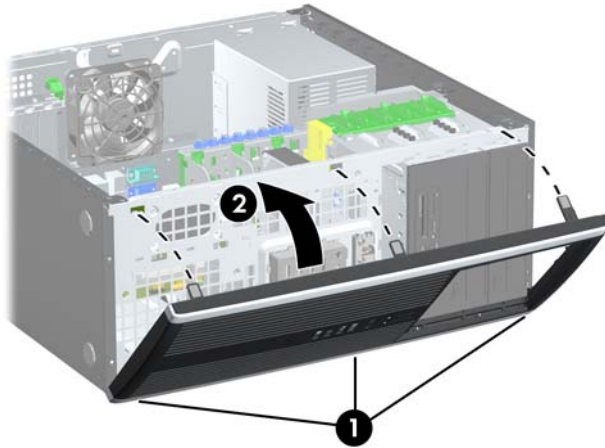
 **NOTE:** Your computer may look different than the illustration shown below.

Figure 6 Replacing the Front Bezel



Installing Additional Memory

The computer comes with double data rate 3 synchronous dynamic random access memory (DDR3-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 16-GB of memory.

DDR3-SDRAM DIMMs

For proper system operation, the DDR3-SDRAM DIMMs must be:

- industry-standard 240-pin
- 1.5 volt DDR3-SDRAM DIMMs


 **NOTE:** The 8100 Elite Business PC supports unbuffered non ECC PC3-8500 DDR3-1066 MHz compliant or PC3-10600 DDR3-1333 MHz compliant memory. The Z200 Workstation supports unbuffered ECC and non-ECC PC3-10600 DDR3-1333 MHz compliant memory.


The DDR3-SDRAM DIMMs must also:

- support CAS latency 7 DDR3 1066 MHz (7-7-7 timing) and CAS latency 9 DDR3 1333 MHz (9-9-9 timing)
- contain the mandatory JEDEC SPD information

In addition, the computer supports:

- single-sided and double-sided DIMMs
- DIMMs constructed with x8 and x16 DDR devices; DIMMs constructed with x4 SDRAM are not supported

 **NOTE:** The 8100 Elite Business PC supports 512Mbit, 1Gbit, and 2Gbit non-ECC memory technologies. The Z200 Workstation supports 512Mbit, 1Gbit, and 2Gbit ECC and non-ECC memory technologies.

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

Installing DIMMs

-
- △ **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.

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

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 information, refer to [Electrostatic Discharge on page 45](#).

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


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:** 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. Remove the access panel.

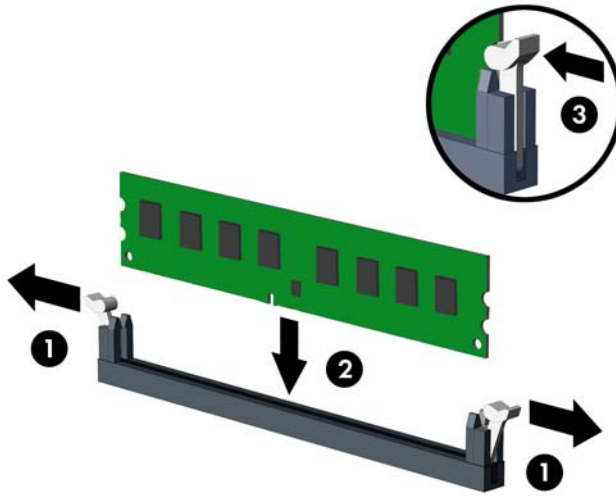
- △ **WARNING!** To reduce risk of personal injury from hot surfaces, allow the internal system components to cool before touching.
-

6. Locate the memory module on the system board.

-  **NOTE:** On the Z200 Workstation, see the service label on access panel for memory location and load order instructions.
-

7. Open both latches of the memory module socket (1), and insert the memory module into the socket (2).

Figure 7 Installing a DIMM



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

On the 8100 Elite Business PC, populate the DIMM sockets in the following order: DIMM0, DIMM2, DIMM1, then DIMM3. A DIMM must occupy the black DIMM0 socket.


On the Z200 Workstation, see the service label on the access panel for memory location and load order.

8. 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 (3).
9. Repeat steps 7 and 8 to install any additional modules.
10. Replace the access panel.
11. Reconnect the power cord and turn on the computer.
12. Lock any security devices that were disengaged when the access panel was removed.

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

Removing or Installing an Expansion Card

The computer has three standard full-height PCI expansion slots, one PCI Express x1 expansion slot, one PCI Express x16 expansion slot, and one PCI Express x16 expansion slot that is downshifted to a x4 slot.


 **NOTE:** You can install a PCI Express x1, x8, or x16 expansion card in the PCI Express x16 slots.

For dual graphics card configurations on the 8100 Elite Business PC, the first (primary) card must be installed in the black PCI Express x16 slot that is NOT downshifted to a x4 slot.

On the Z200 Workstation, see the service label on the access panel to identify the primary and secondary graphics slots.

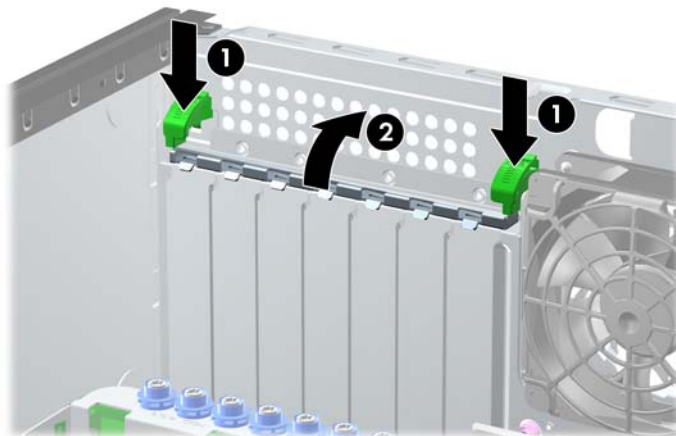
To remove, replace, or add an expansion card:

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.

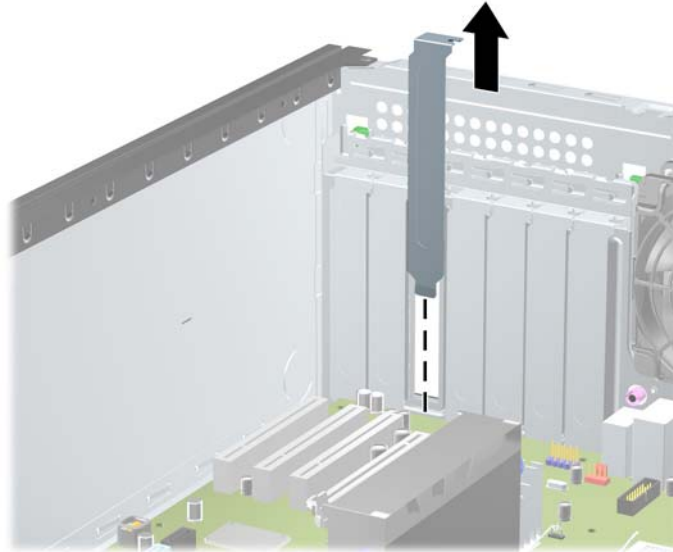
5. Remove the computer access panel.
6. Locate the correct vacant expansion socket on the system board and the corresponding expansion slot on the back of the computer chassis.
7. Press straight down on the two green thumb tabs inside the chassis (1) and rotate the expansion card retention latch up (2).

Figure 8 Opening the Expansion Slot Retainer



8. Before installing an expansion card, remove the expansion slot cover or the existing expansion card.
 - a. If you are installing an expansion card in a vacant socket, remove the appropriate expansion slot cover on the back of the chassis. Lift the expansion slot cover from the expansion slot.

Figure 9 Removing an Expansion Slot Cover



- b. If you are removing a standard PCI card or PCI Express x1 card, hold the card at each end and carefully rock it back and forth until the connectors pull free from the socket. Lift the card straight up to remove it. Be sure not to scrape the card against other components.


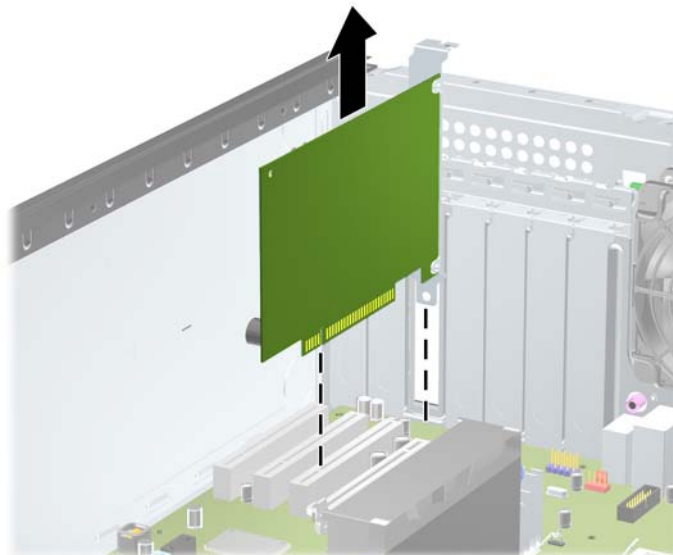

 **NOTE:** Before removing an installed expansion card, disconnect any cables that may be attached to the expansion card.

Figure 10 Removing a Standard PCI Expansion Card

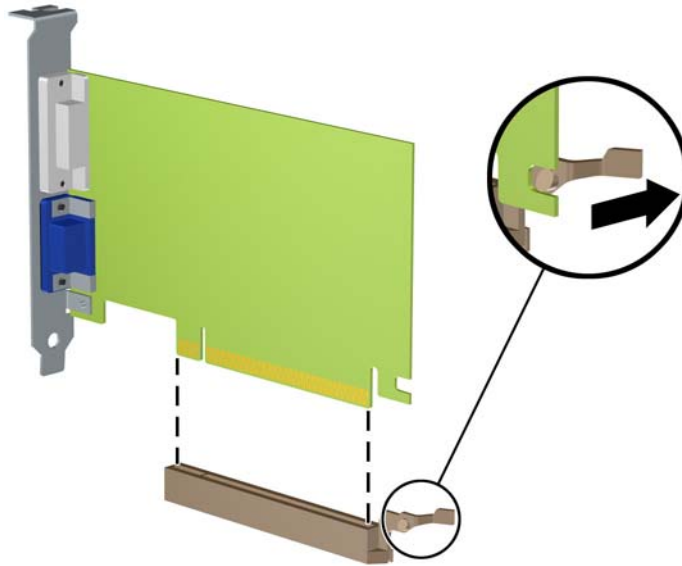


- c. If you are removing a PCI Express x16 card, pull the retention arm on the back of the expansion socket away from the card and carefully rock the card back and forth until the connectors pull free from the socket. Lift the card straight up to remove it. Be sure not to scrape the card against other components.

 **NOTE:** Some Z200 Workstation graphics cards may have an auxiliary power connector added. If so, remove the connector before removing the card.

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

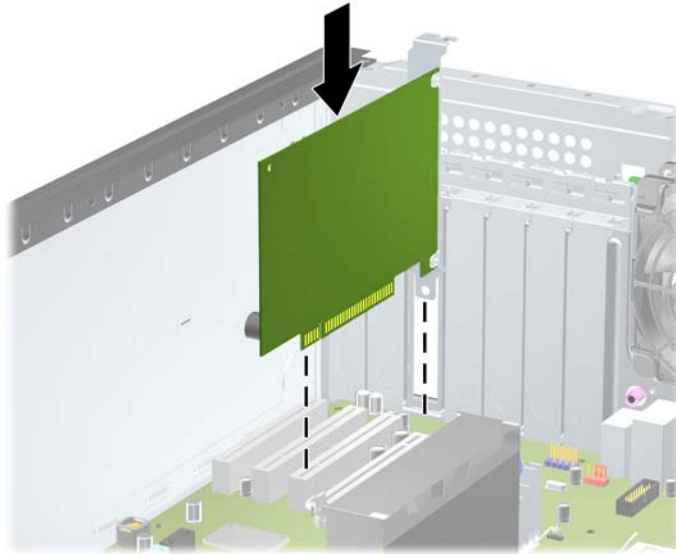
Figure 11 Removing a PCI Express x16 Expansion Card




9. Store the removed card in anti-static packaging.
 10. 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 expansion slot cover for proper cooling of internal components during operation.
-

11. To install a new expansion card, slide the bracket on the end of the card down into the slot on the back of the chassis and press the card down firmly into the socket on the system board.


Figure 12 Installing an Expansion Card



 **NOTE:** When installing an expansion card, press firmly on the card so that the whole connector seats properly in the expansion card slot.

If auxiliary power is required (on some Z200 Workstation graphics cards), attach the auxiliary graphics connector to the card after installation in the slot.

12. Close the expansion card retention latch, making sure that it snaps firmly into place.
13. Connect external cables to the installed card, if needed. Connect internal cables to the system board, if needed.

 **NOTE:** Some cards (for example, graphics, 1394) require additional power. See the card installation instructions to find the location of the appropriate power cable.

14. Replace the computer access panel.
15. Reconnect the power cord and turn on the computer.
16. Lock any security devices that were disengaged when the computer access panel was removed.
17. Reconfigure the computer, if necessary.

Drive Positions


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

Figure 13 Desktop and Minitower Drive Positions

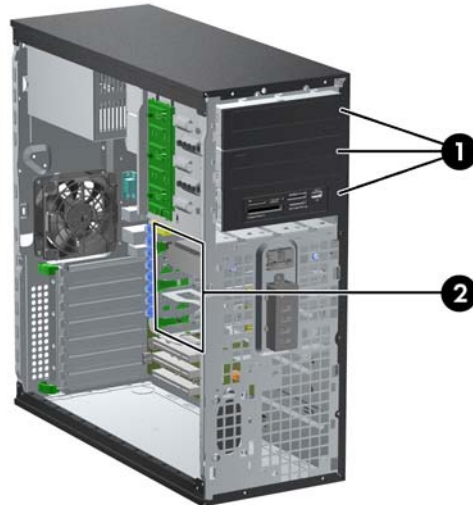


Table 1 Drive Positions

- | | |
|---|--|
| 1 | Three 5.25-inch external drive bays for optional drives (optical drives and media card reader shown) |
| 2 | Three 3.5-inch internal hard drive bays |

NOTE: The drive configuration on your computer may be different than the drive configuration shown above.

The bottom 5.25-inch drive bay has a shorter depth than the upper two bays. The bottom bay supports a drive or other device that is no more than 170mm in depth. Do not try to force a larger drive into the bottom bay. This could cause damage to the drive and the system board. The use of unnecessary force when installing any drive into the drive bay may result in damage to the drive.

To verify the type, size, and capacity of the storage devices installed in the computer, run Computer Setup.

Removing a Drive from a Drive Bay

△ **CAUTION:** All removable media should be taken out of a drive before removing the drive from the computer.

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.

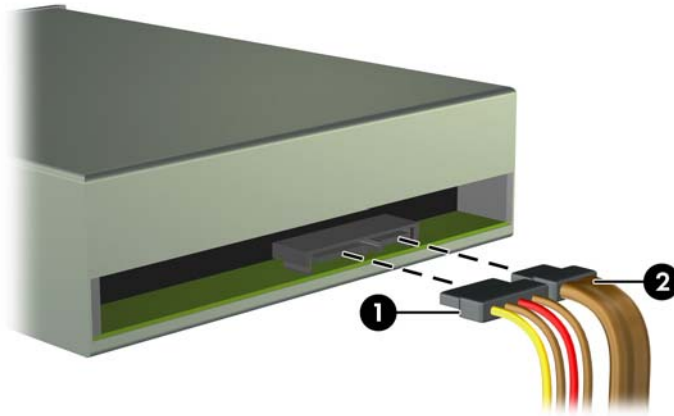
△ **CAUTION:** Regardless of the power-on state, voltage is always present on the system board as long as the system is plugged into an active AC outlet. You must disconnect the power cord to avoid damage to the internal components of the computer.

5. Remove the computer access panel.
6. Disconnect the drive cables, as indicated in the following illustrations:

△ **CAUTION:** When removing the cables, pull the tab or connector instead of the cable itself to avoid damaging the cable.

- If you are removing an optical drive, disconnect the power cable (1) and data cable (2) from the back of the drive.

Figure 14 Disconnecting the Optical Drive Cables



- If you are removing a media card reader, disconnect the USB cable from the system board. If the media card reader has a 1394 port, disconnect the 1394 cable from the PCI card.


 **NOTE:** Your computer may look different than the illustrations shown below. On the Z200 Workstation, see the service label on the access panel for the location of USB ports.

Figure 15 Disconnecting the Media Card Reader USB Cable

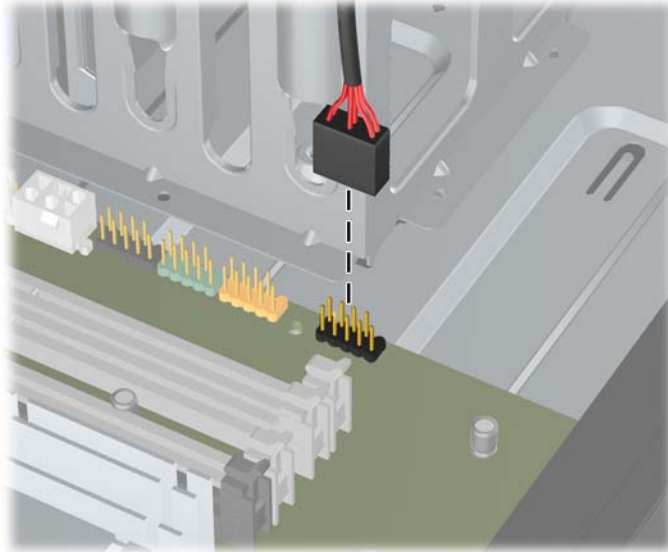
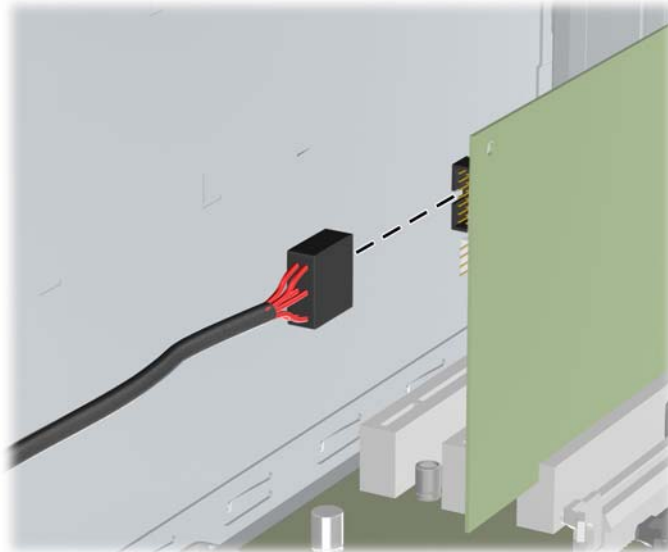



Figure 16 Disconnecting the Media Card Reader 1394 Cable



 **NOTE:** The Z200 Workstation has a standard front 1394 IO port and cable. If you install a 1394 card, attach the cable (clipped to the bottom of the chassis) to the 1394 card.

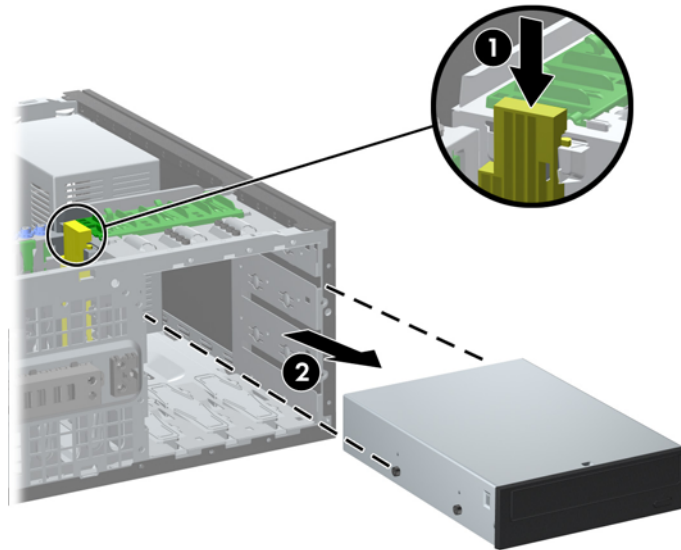
7. Remove the drive from the drive bay as follows:

- To remove a 5.25-inch drive in the desktop configuration, press down on the yellow drivelock mechanism (1) and slide the drive from the drive bay (2).

△ **CAUTION:** When the yellow drivelock is pressed, all the external 5.25-inch drives are released so do not tilt the unit and allow the drives to fall out.

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

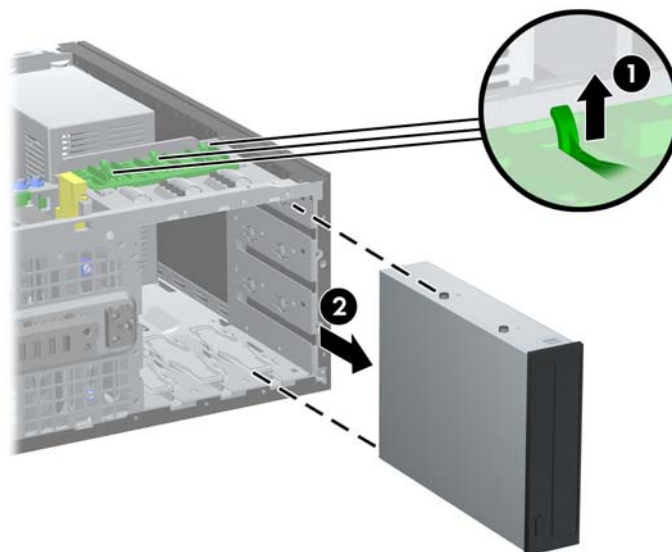
Figure 17 Removing a 5.25-inch Drive in the Desktop Configuration (Optical Drive shown)



- To remove a 5.25-inch drive in the minitower configuration, pull up on the green drivelock mechanism (1) for that specific drive and slide the drive from the drive bay (2).

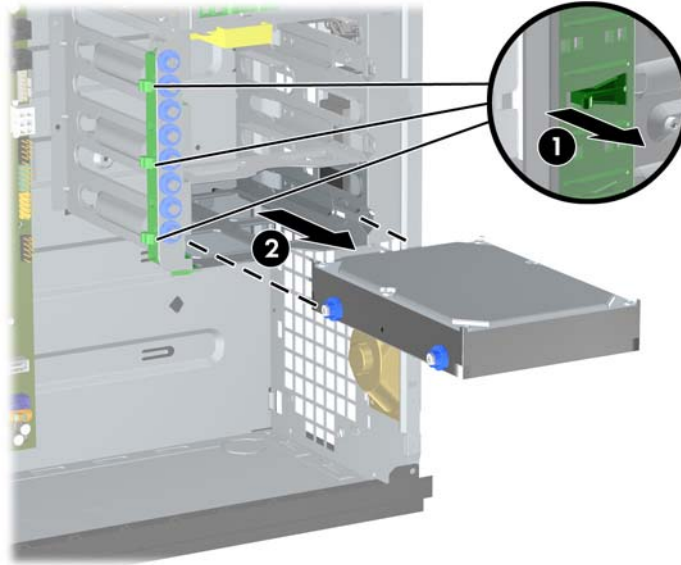
📝 **NOTE:** Your computer may look different than the illustration shown below.

Figure 18 Removing a 5.25-inch Drive in the Minitower Configuration (Optical Drive shown)



- To remove a hard drive from an internal 3.5-inch drive bay, pull up on the green hard drive drive lock mechanism (1) for that drive and slide the drive from the drive bay (2).

Figure 19 Removing a Hard Drive



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

Installing Additional Drives

When installing additional drives, follow these guidelines:

- The primary Serial ATA (SATA) hard drive must be connected to the dark blue SATA connector on the system board.
- On the 8100 Elite Business PC, connect the first SATA optical drive to the white SATA connector on the system board. On the Z200 Workstation, see the service label on the access panel for the location of SATA connectors and load order instructions.
- Connect an optional eSATA adapter cable to the black ESATA connector on the system board.
- Connect a media card reader USB cable to the media USB connector on the system board. If the media card reader has a 1394 port, connect the 1394 cable to the 1394 PCI card.
- The system does not support Parallel ATA (PATA) optical drives or PATA hard drives.
- 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 and lock in place. HP has provided extra guide screws installed on the chassis. The hard drive uses 6-32 isolation mounting guide screws, eight of which are installed on the hard drive bracket under the access panel. All other drives use M3 metric screws, eight of which are installed on the optical drive bracket under the access panel. The HP-supplied metric guide screws are black. The HP-supplied 6-32 isolation mounting guide screws are silver and blue. If you are replacing the primary hard drive, you must remove the four silver and blue 6-32 isolation mounting guide screws from the old hard drive and install them in the new hard drive.


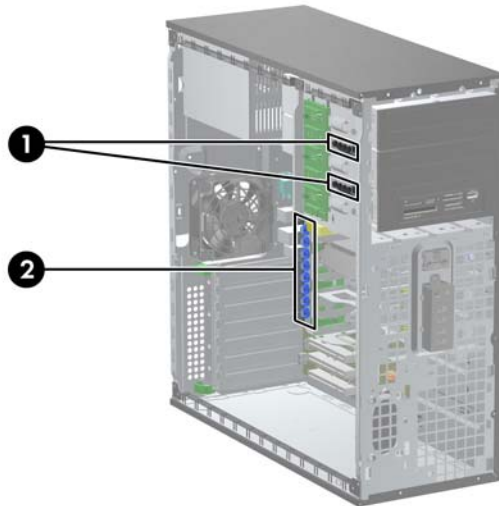
 **NOTE:** Your computer may look different than the illustration shown below.

Figure 20 Extra Guide Screw Locations



No.	Guide Screw	Device
1	Black M3 Metric Screws	5.25-inch Drives
2	Silver and Blue 6-32 Isolation Mounting Screws	3.5-inch Hard Drives

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

If you are inserting or removing a drive, shut down the operating system properly, turn off the computer, and unplug the power cord. Do not remove a 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 [Electrostatic Discharge on page 45](#).

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.


If a drive must be mailed, place the drive in a bubble-pack mailer or other protective packaging and label the package "Fragile: Handle With Care."

Installing a 5.25-inch Drive into an External Drive Bay

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. Remove the computer access panel.
6. Remove the front bezel. If you are installing a drive in a bay covered by a bezel blank, remove the bezel blank. See [Removing Bezel Blanks on page 7](#) for more information.
7. Install four M3 metric guide screws in the lower holes on each side of the drive (1). HP has provided four extra M3 metric guide screws on the 5.25-inch drive bracket under the access panel. The M3 metric guide screws are black. Refer to [Installing Additional Drives on page 21](#) for an illustration of the extra M3 metric guide screws location.

 **NOTE:** If you are replacing a drive, transfer the guides screws from the old drive to the new one.

△ **CAUTION:** Use only 5-mm long screws as guide screws. Longer screws can damage the internal components of the drive.

8. Install the drive in the desired drive bay by sliding it all the way into the front of the drive cage until it locks (2). The drivelock automatically secures the drive in the bay.


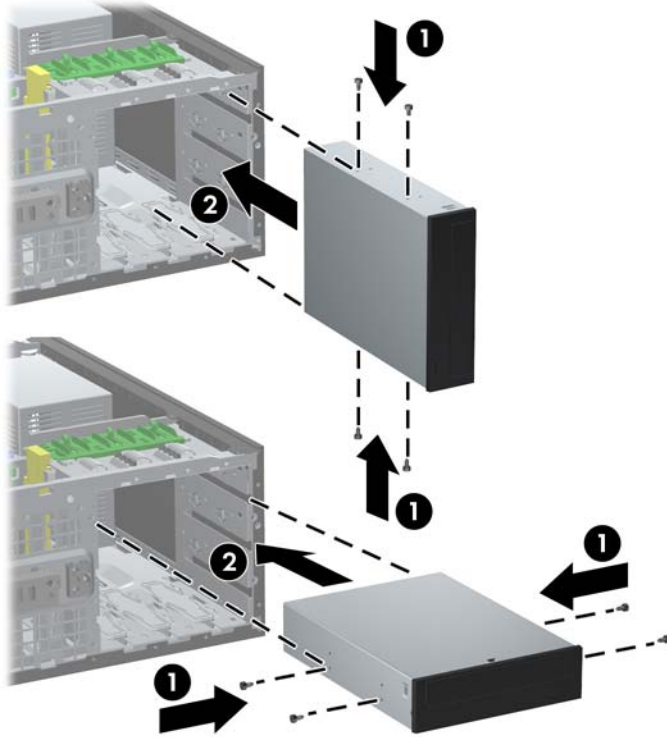

 **NOTE:** Your computer may look different than the illustration shown below.

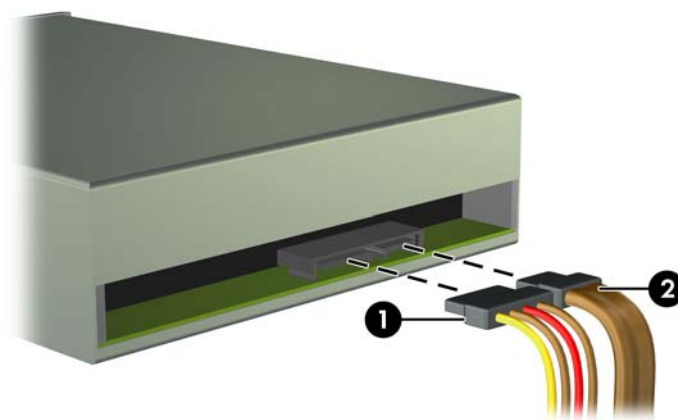
Figure 21 Installing a 5.25-Inch Drive in a Minitower (top) and Desktop (bottom)




 **CAUTION:** The bottom 5.25-inch drive bay has a shorter depth than the upper two bays. The bottom bay supports a drive or other device that is no more than 170mm in depth. Do not try to force a larger drive into the bottom bay. This could cause damage to the drive and the system board. The use of unnecessary force when installing any drive into the drive bay may result in damage to the drive.

9. Connect the power cable (1) and data cable (2) to the rear of the drive.

Figure 22 Connecting the Drive Cables (Optical Drive shown)



10. If you are installing a new drive, connect the opposite end of the data cable to the appropriate system board connector.


 **NOTE:** If you are installing a SATA optical drive in the 8100 Elite Business PC, connect the first optical drive to the white SATA connector on the system board. Connect additional optical drives to the light blue and orange SATA connectors.

If you are installing a SATA optical drive in the Z200 Workstation, see the service label on the access panel for the location of SATA connectors and load order instructions.

If you are installing a media card reader, connect the USB cable to the media USB system board connector. If the media card reader includes a 1394 port, connect the 1394 cable to the 1394 PCI card.

11. Replace the front bezel and computer access panel.
12. Reconnect the power cord and turn on the computer.
13. Lock any security devices that were disengaged when the computer access panel was removed.
14. Reconfigure the computer, if necessary.


Installing a 3.5-inch SATA Hard Drive into an Internal Drive Bay

 **NOTE:** The system does not support Parallel ATA (PATA) hard drives.

Before you remove the old hard drive, be sure to back up the data from the old hard drive so that you can transfer the data to the new hard drive.

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

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. Remove the computer access panel.

6. Install four 6-32 isolation mounting guide screws, two on each side of the drive.

Figure 23 Installing the Hard Drive Guide Screws

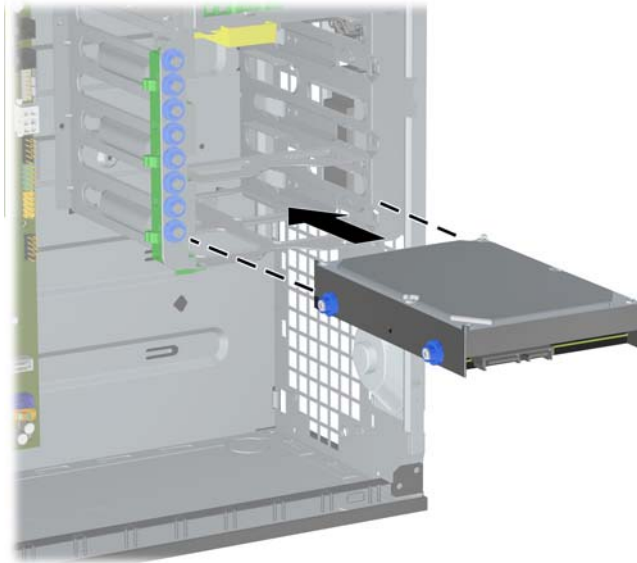



 **NOTE:** The hard drive uses 6-32 isolation mounting guide screws. Eight extra guide screws are installed on the hard drive bracket under the access panel. The HP-supplied isolation mounting guide screws are silver and blue. Refer to [Installing Additional Drives on page 21](#) for an illustration of the extra 6-32 isolation mounting guide screws location.

If you are replacing a drive, transfer the guide screws from the old drive to the new drive.

7. Slide the hard drive down into the drive cage until it locks. The drivelock automatically secures the drive in the bay.

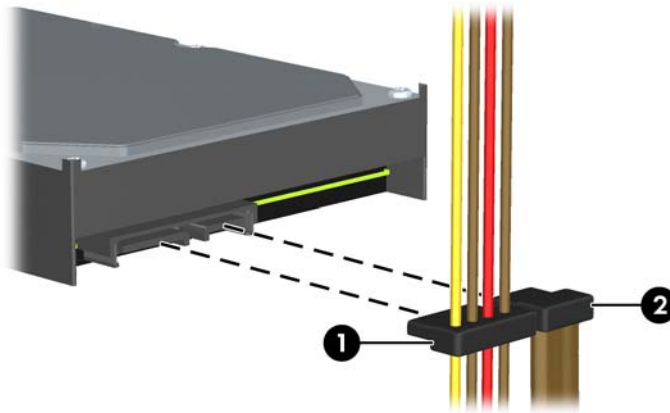
Figure 24 Installing a Hard Drive into the Hard Drive Bay




 **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 (1) and data cable (2) to the rear of the hard drive.

Figure 25 Connecting the Power Cable and Data Cable to a SATA Hard Drive



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

 **NOTE:** On the 8100 Elite Business PC, if your system has only one SATA hard drive, you must connect the hard drive data cable to the dark blue connector to avoid any hard drive performance problems. If you are adding a second hard drive, connect the data cable to the next available (unpopulated) SATA connector on the system board.


On the Z200 Workstation, see the service label on the access panel for the location of SATA connectors and load order instructions.

10. Replace the computer access panel.
11. Reconnect the power cord and turn on the computer.
12. Lock any security devices that were disengaged when the computer access panel was removed.
13. Reconfigure the computer, if necessary.

Removing and Replacing a Removable 3.5-inch SATA Hard Drive

Some models are equipped with a removable SATA hard drive enclosure in the 5.25-inch external drive bay. The hard drive is housed in a carrier that can be quickly and easily removed from the drive bay. Go to <http://h30094.www3.hp.com/cadefault.asp> to see a list of supported removable hard drive enclosures and carriers supported by your computer.

If your computer is equipped with a removable hard drive enclosure and carrier, refer to the following steps to remove and replace a drive in the carrier:

 **NOTE:** Before you remove the old hard drive, be sure to back up the data from the old hard drive so that you can transfer the data to the new hard drive.

1. Unlock the hard drive carrier with the key provided and slide the carrier out of the enclosure.

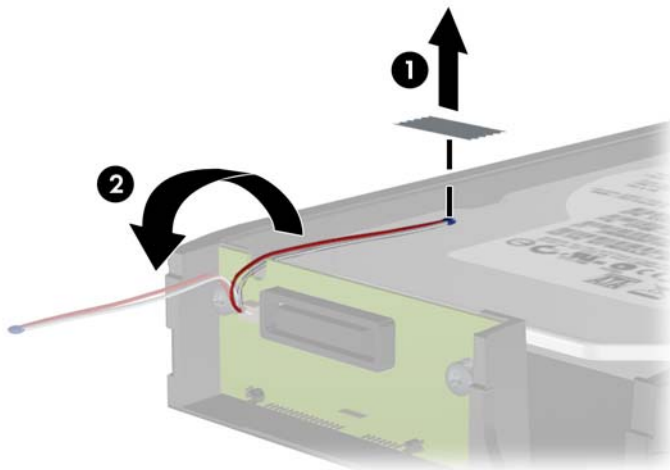
2. Remove the screw from the rear of the carrier (1) and slide the top cover off the carrier (2).

Figure 26 Removing the Carrier Cover



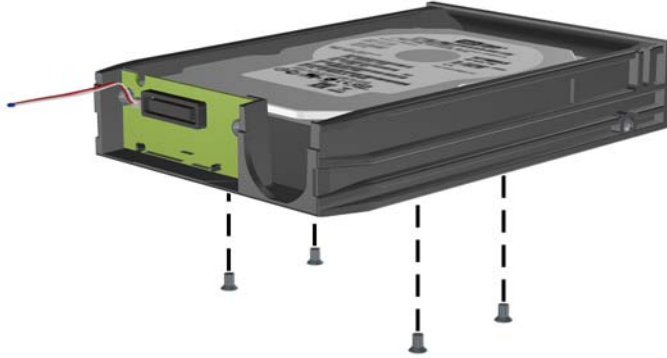
3. Remove the adhesive strip that secures the thermal sensor to the top of the hard drive (1) and move the thermal sensor away from the carrier (2).

Figure 27 Removing the Thermal Sensor



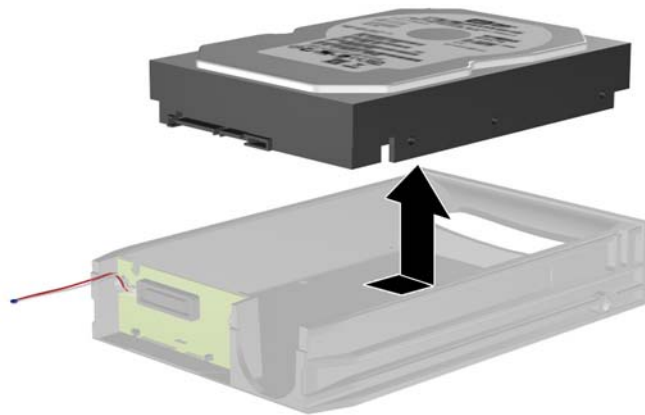
4. Remove the four screws from the bottom of the hard drive carrier.

Figure 28 Removing the Security Screws



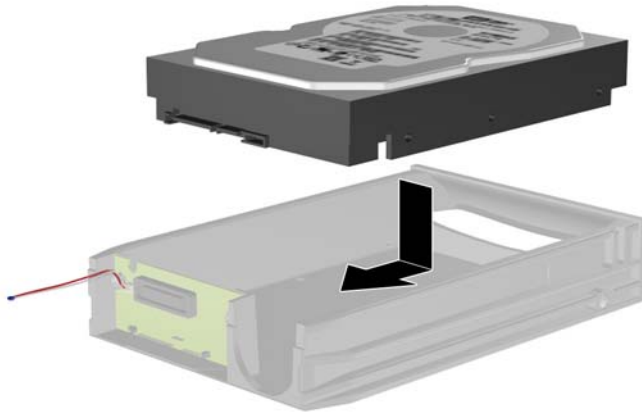
5. Slide the hard drive back to disconnect it from the carrier then lift it up and out of the carrier.

Figure 29 Removing the Hard Drive



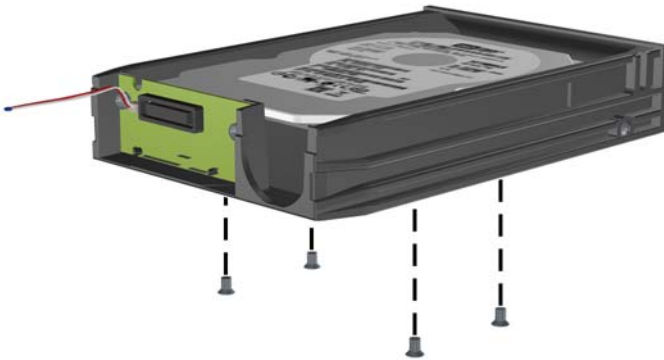
6. Place the new hard drive in the carrier then slide the hard drive back so that it seats in the SATA connector on the carrier's circuit board. Be sure the connector on the hard drive is pressed all the way into the connector on the carrier's circuit board.

Figure 30 Replacing the Hard Drive



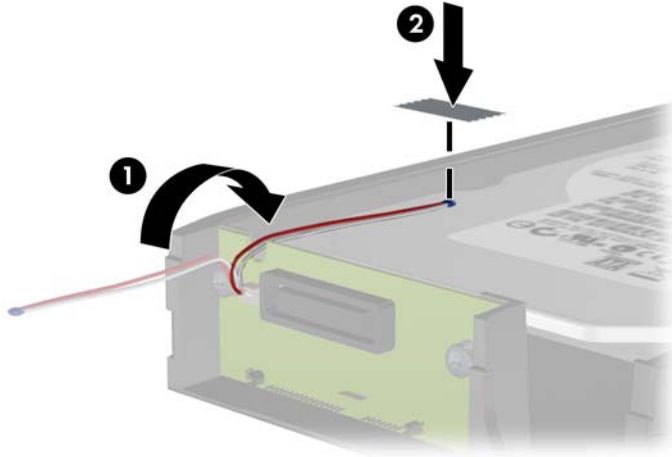
7. Replace the four screws in the bottom of the carrier to hold the drive securely in place.

Figure 31 Replacing the Security Screws



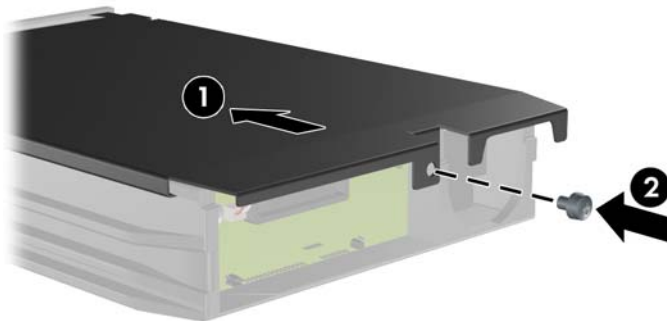
8. Place the thermal sensor on top of the hard drive in a position that does not cover the label (1) and attach the thermal sensor to the top of the hard drive with the adhesive strip (2).

Figure 32 Replacing the Thermal Sensor




9. Slide the cover on the carrier (1) and replace the screw on the rear of the carrier to secure the cover in place (2).

Figure 33 Replacing the Carrier Cover



10. Slide the hard drive carrier into the enclosure on the computer and lock it with the key provided.

 **NOTE:** The carrier must be locked for power to be supplied to the hard drive.

Changing from a Minitower to a Desktop Configuration

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. Remove the computer access panel.
 6. Remove the front bezel.
 7. Disconnect all power and data cables from the back of the drives in the 5.25-inch drive bays.
 8. To release the drives from the 5.25-inch drive bay, lift the release tab on the green latch drive bracket for the drive (1). While lifting the release tab, slide the drive from its drive bay (2). Repeat this step for each 5.25-inch drive.


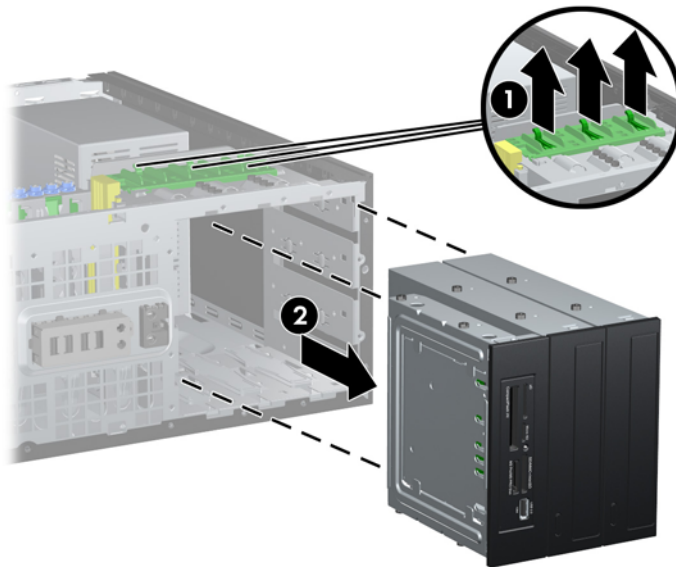
 **NOTE:** Your computer may look different than the illustration shown below.

Figure 34 Releasing the 5.25-inch Drives from the Drive Bays (Minitower)



9. Gently slide the drive into the uppermost available bay until it snaps into place. When the drive is properly inserted, the drivelock will secure it. Repeat this step for each drive.


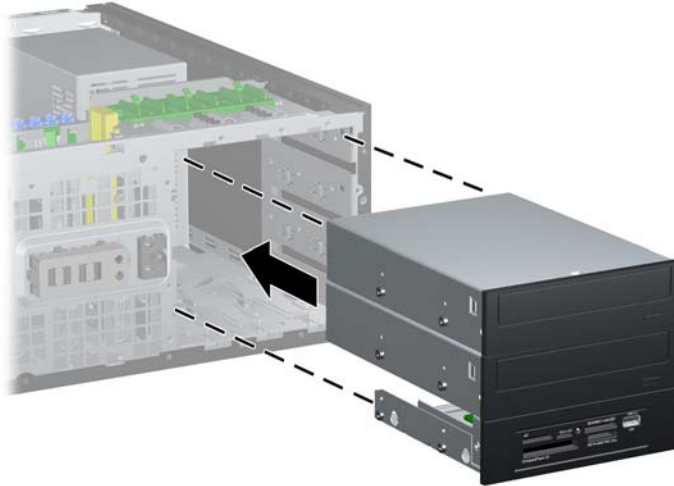
 **NOTE:** Your computer may look different than the illustration shown below.

Figure 35 Installing a Drive in the Desktop Configuration



△ **CAUTION:** The bottom 5.25-inch drive bay has a shorter depth than the upper two bays. The bottom bay supports a drive or other device that is no more than 170mm in depth. Do not try to force a larger drive into the bottom bay. This could cause damage to the drive and the system board. The use of unnecessary force when installing any drive into the drive bay may result in damage to the drive.

10. Reconnect all power and data cables to the drives in the 5.25-inch drive bays.
11. Remove the bezel subpanel as described in [Removing Bezel Blanks on page 7](#).

△ **CAUTION:** Hold the subpanel straight when you pull it away from the front bezel. Pulling the subpanel away at an angle could damage the pins that align it within the front bezel.

12. Reposition the bezel blanks within the subpanel in the proper orientation for the desktop configuration.

13. Reposition the subpanel (rotate it 90°), then snap it back into the bezel.


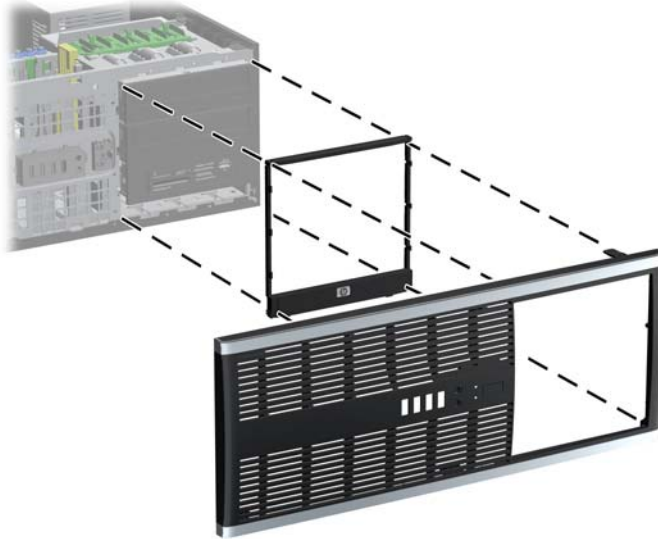
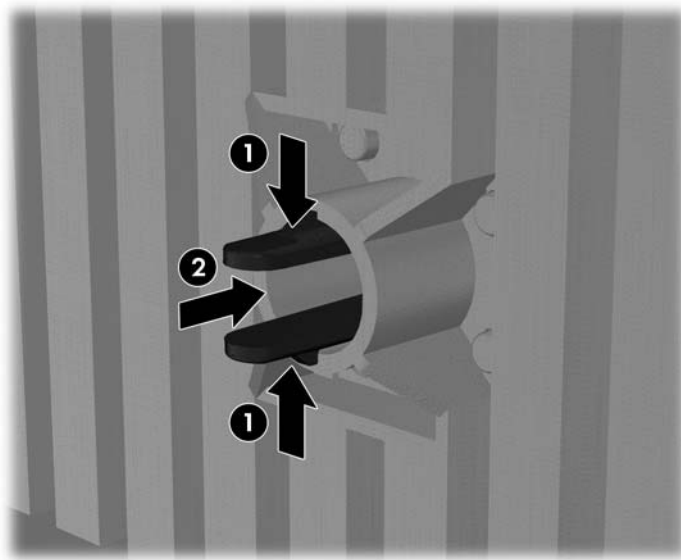
 **NOTE:** Your computer may look different than the illustration shown below.

Figure 36 Changing from a Minitower to a Desktop Configuration



14. On the back of the Z200 Workstation front bezel, squeeze the HP logo mounting tabs (1) and press the logo outward (2) as shown in the following illustration.

Figure 37 Rotating the Z200 Workstation Logo



Rotate the HP logo 90 degrees counterclockwise, and then release the logo and press it back into place in the front bezel.

15. Replace the front bezel and computer access panel.
16. Reconnect the power cord and turn on the computer.
17. Lock any security devices that were disengaged when the computer access panel was removed.

Changing from a Desktop to a Minitower Configuration

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. Remove the computer access panel.
 6. Remove the front bezel.
 7. Disconnect all power and data cables from the back of the drives in the 5.25-inch drive bays.
 8. To release the drives from the 5.25-inch drive bay, press down on the short yellow drivelock as shown (1). While pressing the drivelock, pull the drives out of the drive bay (2).


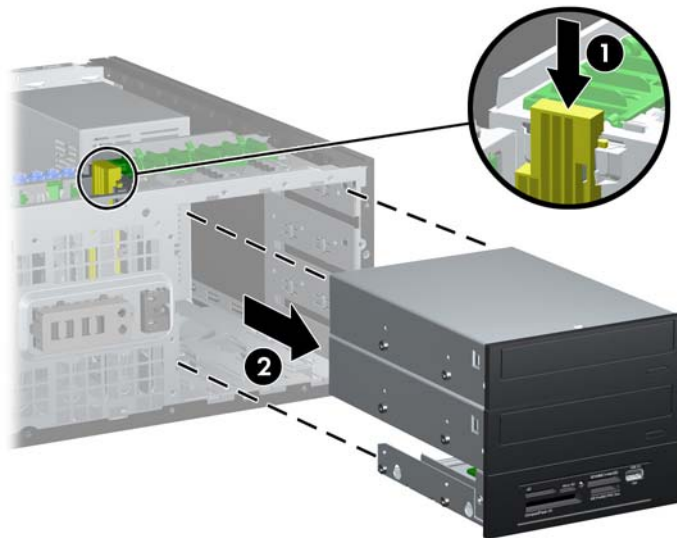
 **NOTE:** Your computer may look different than the illustration shown below.

Figure 38 Releasing the 5.25-inch Drives from the Drive Bays (Desktop)



9. Gently slide the drive into the uppermost available bay until it snaps into place. When the drive is properly inserted, the drivelock will secure it. Repeat this step for each drive.


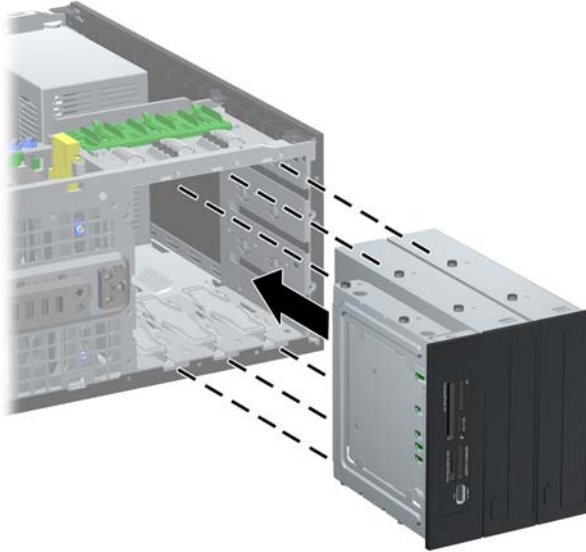
 **NOTE:** Your computer may look different than the illustration shown below.

Figure 39 Installing a Drive in the Minitower Configuration



△ **CAUTION:** The bottom 5.25-inch drive bay has a shorter depth than the upper two bays. The bottom bay supports a drive or other device that is no more than 170mm in depth. Do not try to force a larger drive into the bottom bay. This could cause damage to the drive and the system board. The use of unnecessary force when installing any drive into the drive bay may result in damage to the drive.

10. Reconnect all power and data cables to the drives in the 5.25-inch drive bays.

11. Remove the bezel subpanel as described in [Removing Bezel Blanks on page 7](#).

△ **CAUTION:** Hold the subpanel straight when you pull it away from the front bezel. Pulling the subpanel away at an angle could damage the pins that align it within the front bezel.

12. Reposition the bezel blanks within the subpanel in the proper orientation for the minitower configuration.

13. Reposition the subpanel (rotate it 90°), then snap it back into the bezel.


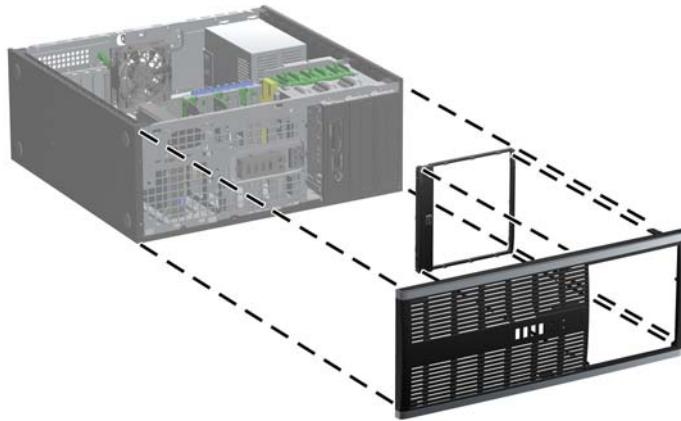
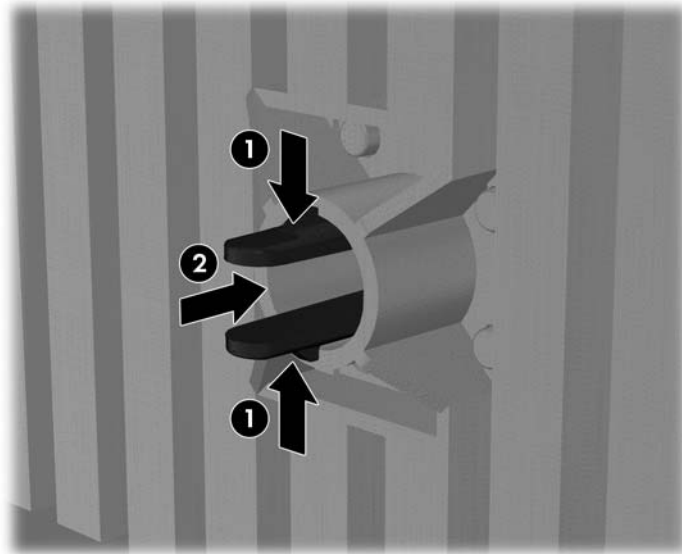
 **NOTE:** Your computer may look different than the illustration shown below.

Figure 40 Changing from a Desktop to a Minitower Configuration



14. On the back of the Z200 Workstation front bezel, squeeze the HP logo mounting tabs (1) and press the logo outward (2) as shown in the following illustration.

Figure 41 Rotating the Z200 Workstation Logo



Rotate the HP logo 90 degrees counterclockwise, and then release the logo and press it back into place in the front bezel.

15. Replace the front bezel and computer access panel.
16. Reconnect the power cord and turn on the computer.
17. Lock any security devices that were disengaged when the computer access panel was removed.

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.

- △ **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.

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.


-  **NOTE:** 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.

HP encourages customers to recycle used electronic hardware, HP original print cartridges, and rechargeable batteries. For more information about recycling programs, go to <http://www.hp.com/recycle>.

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. Remove the computer access panel.
6. Locate the battery and battery holder on the system board.

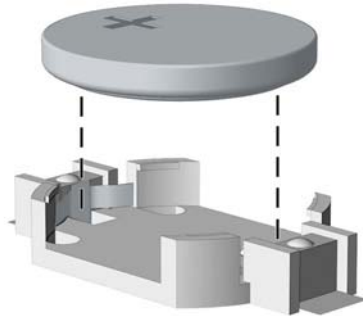
-  **NOTE:** On some computer models, it may be necessary to remove an internal component to gain access to the battery.

7. 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.

Figure 42 Removing a Coin Cell Battery (Type 1)

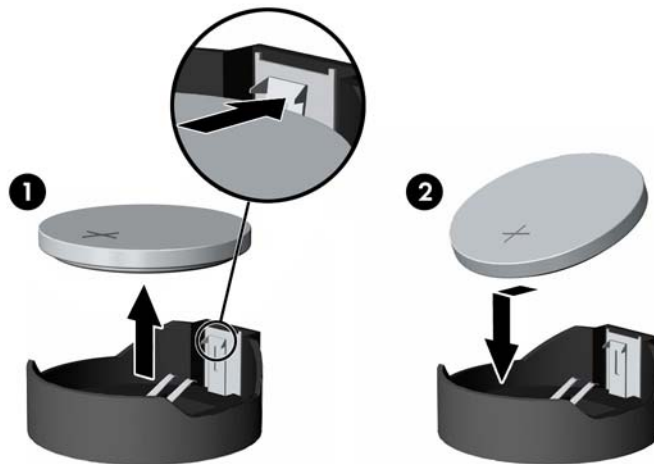


- b. Slide the replacement battery into position, positive side up. The battery holder automatically secures the battery in the proper position.

Type 2

- a. To release the battery from its holder, squeeze the metal clamp that extends above one edge of the battery. When the battery pops up, lift it out (1).
- b. 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 (2).

Figure 43 Removing and Replacing a Coin Cell Battery (Type 2)

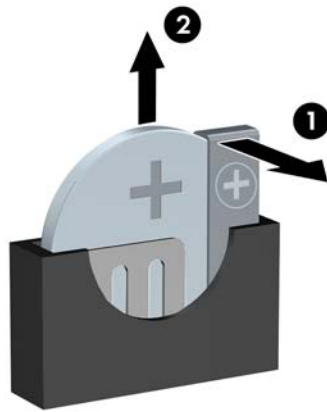



Type 3

- a. Pull back on the clip (1) that is holding the battery in place, and remove the battery (2).

- b. Insert the new battery and position the clip back into place.

Figure 44 Removing a Coin Cell Battery (Type 3)



 **NOTE:** After the battery has been replaced, use the following steps to complete this procedure.

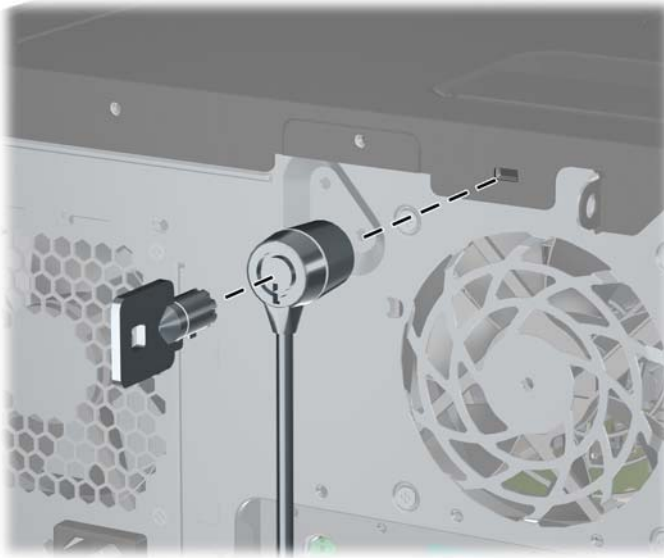
8. Replace the computer access panel.
9. Plug in the computer and turn on power to the computer.
10. Reset the date and time, your passwords, and any special system setups using Computer Setup.
11. Lock any security devices that were disengaged when the computer access panel was removed.

Installing a Security Lock

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

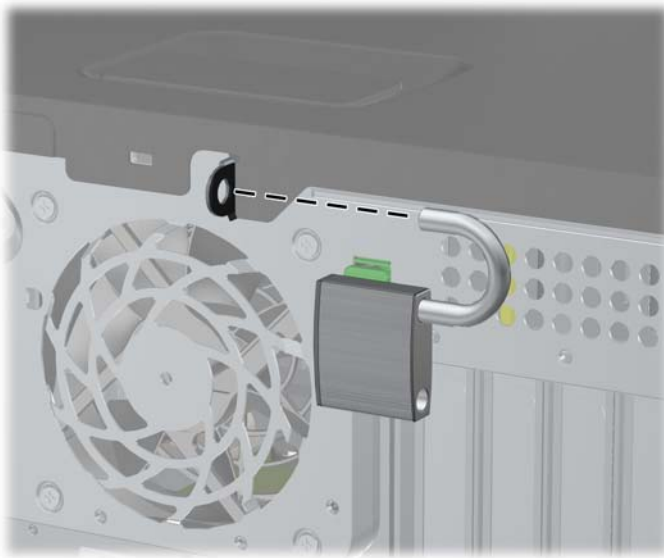
HP/Kensington MicroSaver Security Cable Lock

Figure 45 Installing a Cable Lock



Padlock

Figure 46 Installing a Padlock



HP Business PC Security Lock

1. Fasten the security cable by looping it around a stationary object.

Figure 47 Securing the Cable to a Fixed Object



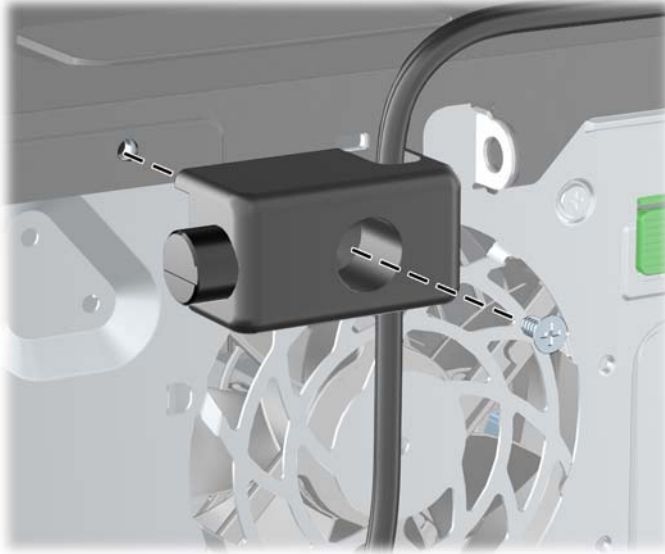
2. Thread the keyboard and mouse cables through the lock.

Figure 48 Threading the Keyboard and Mouse Cables



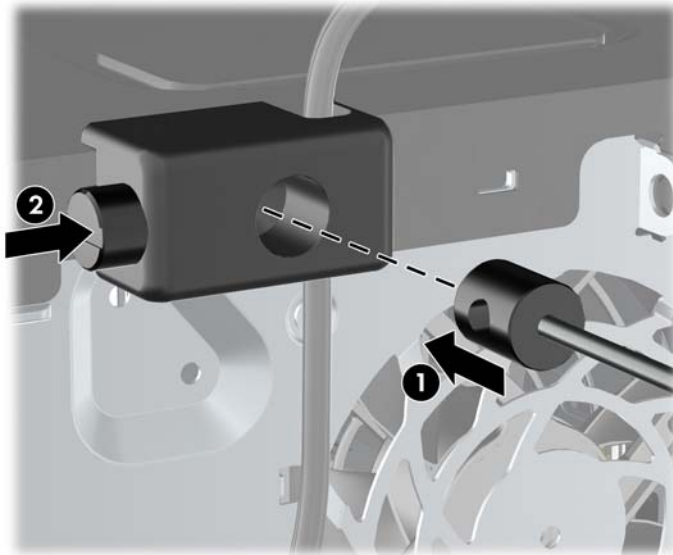
3. Screw the lock to the chassis using the screw provided.

Figure 49 Attaching the Lock to the Chassis




4. Insert the plug end of the security cable into the lock (1) and push the button in (2) to engage the lock. Use the key provided to disengage the lock.

Figure 50 Engaging the Lock



Front Bezel Security

 **NOTE:** This feature only applies to the 8100 Elite Business PC. The Z200 Workstation does not support the front bezel security screw.

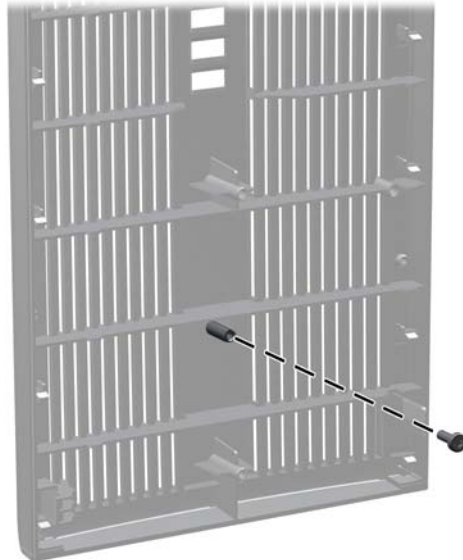
The front bezel can be locked in place by installing a security screw provided by HP. To install the security screw:

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. Remove the access panel and front bezel.
6. Remove the security screw from the inside of the front bezel.

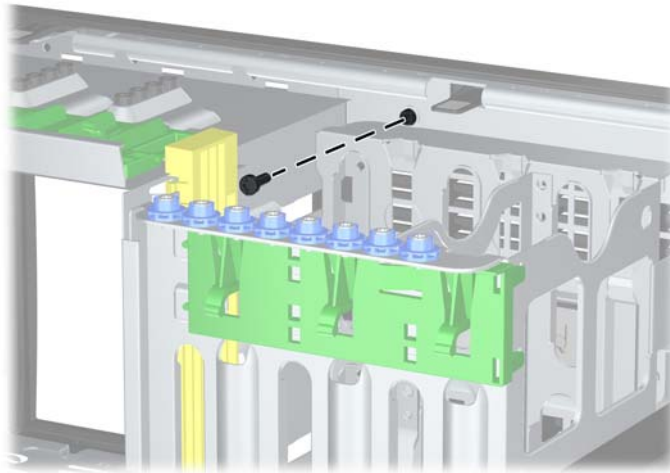
Figure 51 Retrieving the Front Bezel Security Screw



7. Replace the front bezel.

8. Install the screw through the interior of the front of the chassis into the front bezel. The screw hole is located on the left edge of the chassis next to the top hard drive bay.

Figure 52 Installing the Front Bezel Security Screw



9. Replace the access panel.
10. Reconnect the power cord and turn on the computer.
11. Lock any security devices that were disengaged when the access panel was removed.

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.

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 and monitor:

- 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 and above the monitor to permit the required airflow.
- Never restrict the airflow into the computer by blocking any vents or air intakes. Do not place the keyboard, with the keyboard feet down, directly against the front of the desktop unit as this also restricts airflow.
- Never operate the computer with the access panel or any of the expansion card slot covers removed.
- Do not stack computers on top of each other or 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 on the monitor with any type of material.
- Install or enable power management functions of the operating system or other software, including sleep states.
- 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 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.

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

 **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.

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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