



UPGRADING AND SERVICING GUIDE



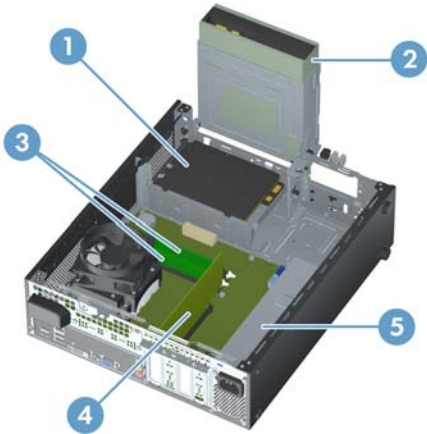
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Upgrading and Servicing Guide



Computer features may vary by model.

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Removing and Replacing a Hard Disk Drive

Computer features may vary by model.



15 - 20 minutes

Before you begin

Observe the following requirements before removing and replacing the hard disk drive.

⚠ WARNING! Never open the cover with the power applied. You might damage your computer or be injured by the spinning the fan blades.

⚠ WARNING! Avoid touching sharp edges inside the computer.

⚠ WARNING! Keep your hands away from the moving fan.

⚠ WARNING! Keep fingers and tools clear of the fan when the power is applied.

⚠ CAUTION: Static electricity can damage the electronic components inside the computer. Discharge static electricity by touching the metal cage of the computer before touching any internal parts or electronic components.

📌 IMPORTANT: A hard disk drive is extremely sensitive to shock impact. Do not bang or drop it. Do not touch the circuit board. Static electricity can damage the drive.

Tools Needed

- Flathead/T15 Torx screwdriver

Small screws are easily lost. Remove screws over a surface that enables you to retrieve them if they fall.

Removing the hard disk drive

1. Remove any media or storage devices such as CDs, DVDs, and USB.
2. Close all programs, and then shut down your operating system.
3. Unplug the computer by disconnecting the power cord and all attached cables from the back of the computer.



4. Using a flathead or Torx screwdriver, loosen the screw on the back panel that secures the panel to the computer.



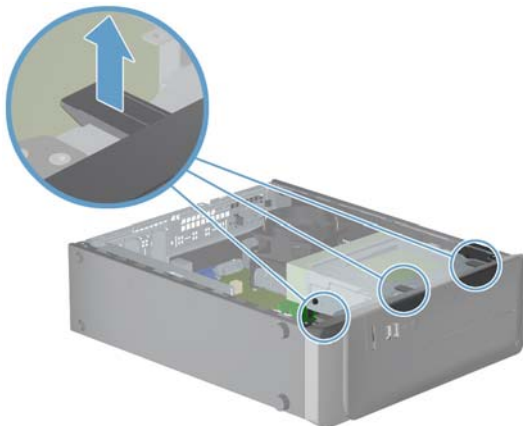
5. Slide the side panel toward the back of the computer, and then pull the side panel away from the computer.



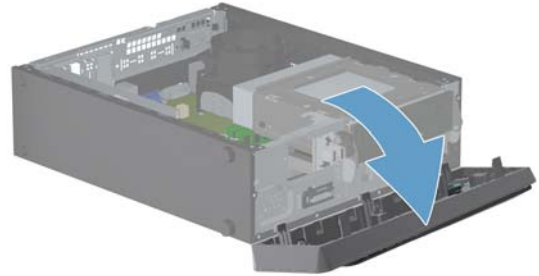
The inside of the computer is exposed.



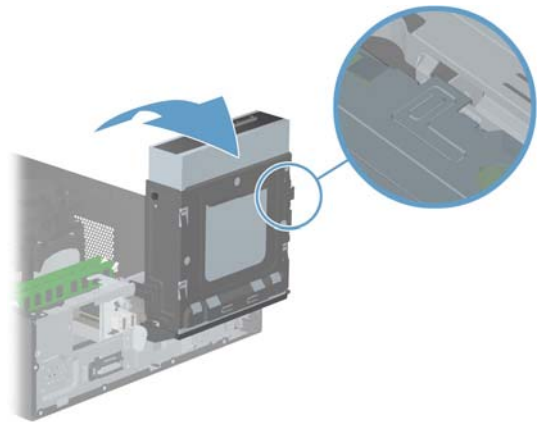
6. Lay the computer on a flat surface.
7. Lift the three tabs to release the front bezel.



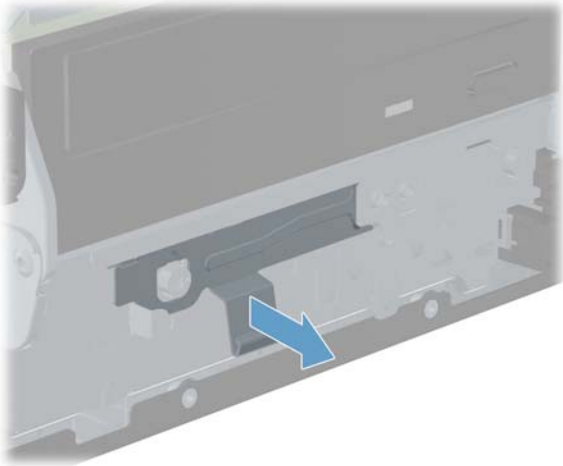
8. Open the front bezel, and then remove it from the computer.



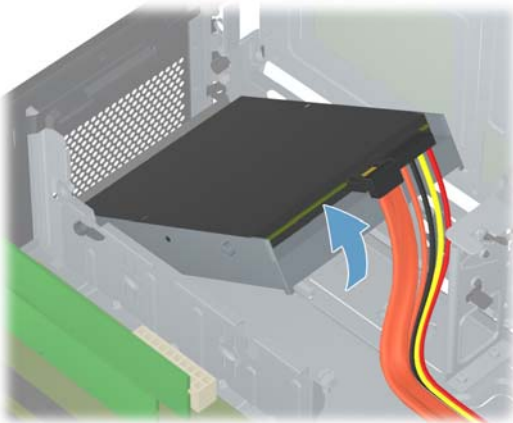
9. Lift the CD/DVD drive 90°, exposing the hard disk drive. As the CD/DVD drive is lifted, a latch is released.



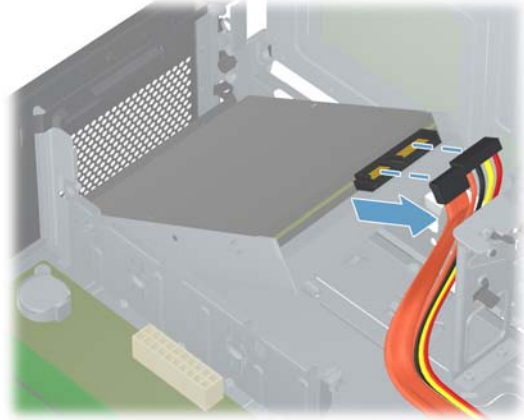
10. On the front of the computer, pull and hold the latch. The hard disk drive unlocks, and then you can remove it from inside the computer.



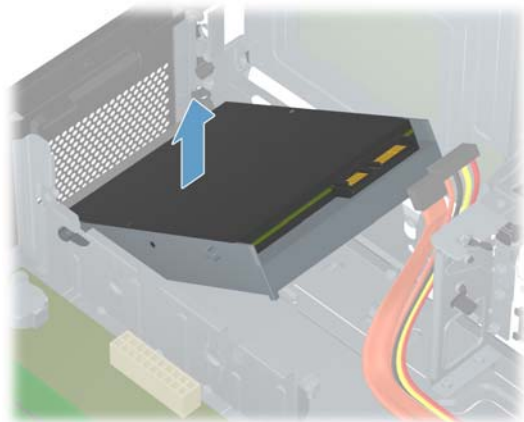
11. With the latch still pulled out, lift the hard disk drive as shown below.



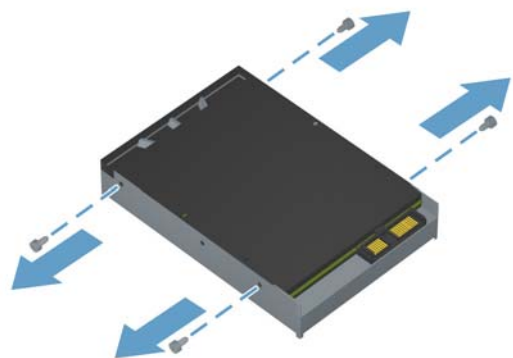
12. Disconnect the two cables from the end of the hard disk drive. The cables may have a latch that is pressed to release the cable.



13. Gently lift and remove the hard disk drive from the cage.



14. Remove the four screws that secure the hard disk drive to the cage.



NOTE: Keep the four screws available as they will be used in the new hard drive.

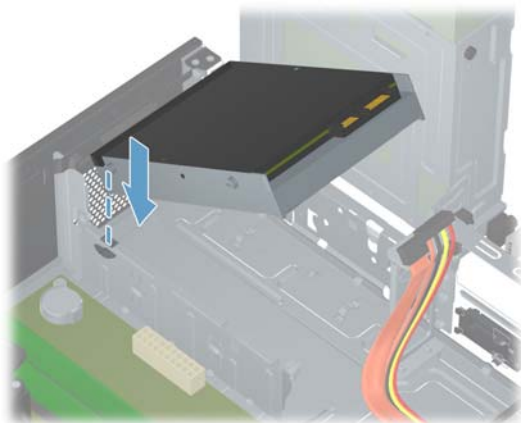
Installing a New Hard Disk Drive

NOTE: The replacement part may look different than the original part because of manufacturer or model differences; however, the replacement part meets or exceeds the specifications of the original part.

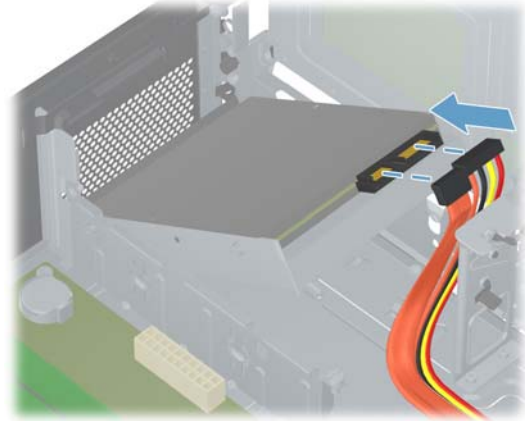
1. On the new hard disk drive, install the four screws that secure the drive to the cage.



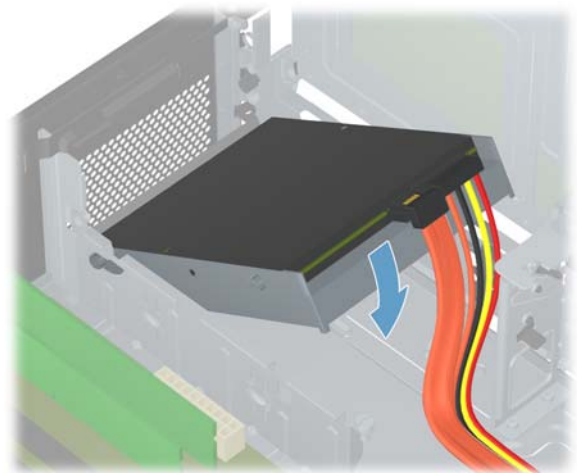
2. Gently lower the front end of the hard disk drive into the cage, ensuring that the screws on the hard disk drive align with the slots on the cage.



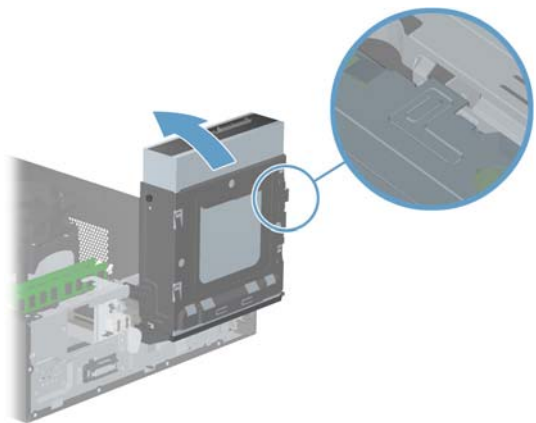
3. Reattach the cables to the end of the hard disk drive.



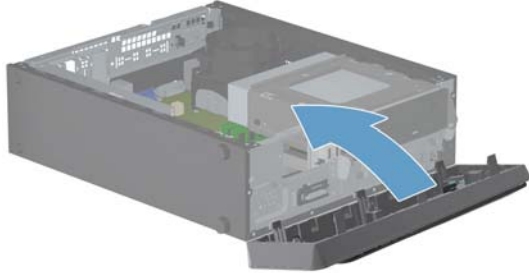
4. Lower the hard disk drive into the cage, until it latches in place.



5. While ensuring that the cables are clear, close the CD/DVD drive, covering the hard disk drive.




6. Reattach the front bezel by inserting the three tabs into the slots on the computer, and then close the bezel door until it locks in place.



7. Place the computer in an upright position.
8. Install the side panel on the side of the computer, and then slide it toward the front of the computer.



 **NOTE:** Make sure the panel is flush with the computer. Failure to do so might cause the panel to bend slightly outward and not close securely.

9. Tighten the screw, securing the side panel to the back of the computer.




10. Plug the power cord and any additional cables into the back of the computer.



11. Press the power button to turn on the computer.



 **NOTE:** If your hard disk drive was shipped without an operating system installed, you will need to reinstall it using the system recovery discs.

To install the operating system, refer to the instructions included with your system recovery discs, or available from the HP support site (www.hp.com/support).

After the operating system has been installed, you will need to reinstall any applications and restore any data you backed up.



Printed in:

Removing and Replacing a CD/DVD Drive

Computer features may vary by model.



10 - 15 minutes

Before you begin

Observe the following requirements before removing and replacing the CD/DVD drive.

⚠ WARNING! Never open the cover with the power applied. You might damage your computer or be injured by the spinning the fan blades.

⚠ WARNING! Avoid touching sharp edges inside the computer.

⚠ WARNING! Keep your hands away from the moving fan.

⚠ WARNING! Keep fingers and tools clear of the fan when the power is applied.

⚠ CAUTION: Static electricity can damage the electronic components inside the computer. Discharge static electricity by touching the metal cage of the computer before touching any internal parts or electronic components.

🔧 IMPORTANT: A CD/DVD drive is extremely sensitive to shock impact. Do not bang or drop it.

Tools Needed

- Flathead/T15 Torx screwdriver

Small screws are easily lost. Remove screws over a surface that enables you to retrieve them if they fall.

Removing the CD/DVD Drive

1. Remove any media or storage devices such as CDs, DVDs, and USB.
2. Close all programs, and then shut down your operating system.
3. Unplug the computer by disconnecting the power cord and all attached cables from the back of the computer.



4. Using a flathead or Torx screwdriver, loosen the screw on the back panel that secures the panel to the computer.



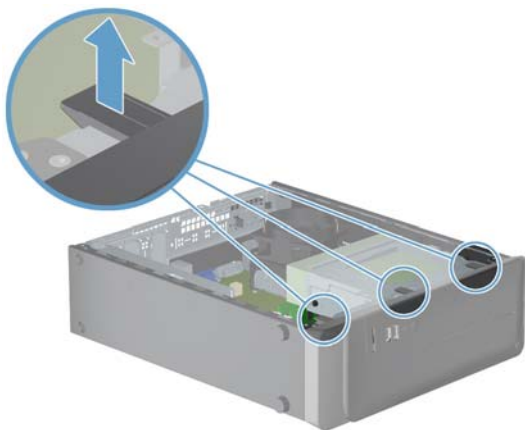
5. Slide the side panel toward the back of the computer, and then pull the side panel away from the computer.



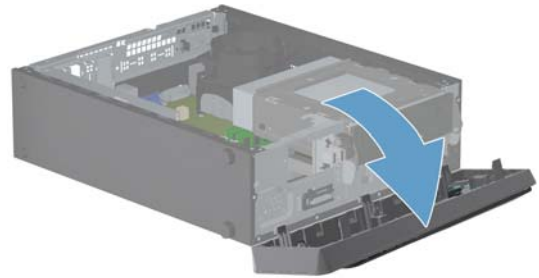
The inside of the computer is exposed.



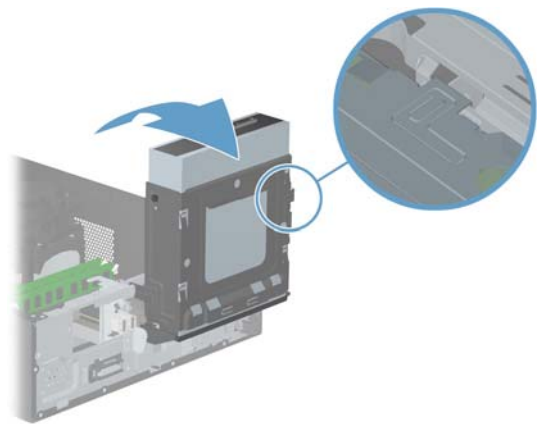
6. Lay the computer on a flat surface.
7. Lift the three tabs to release the front bezel.



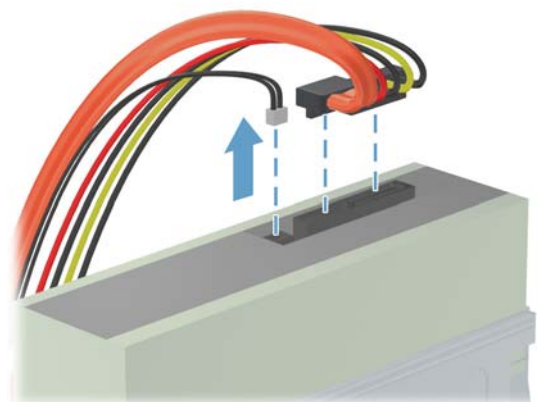
8. Open the front bezel, and then remove it from the computer.



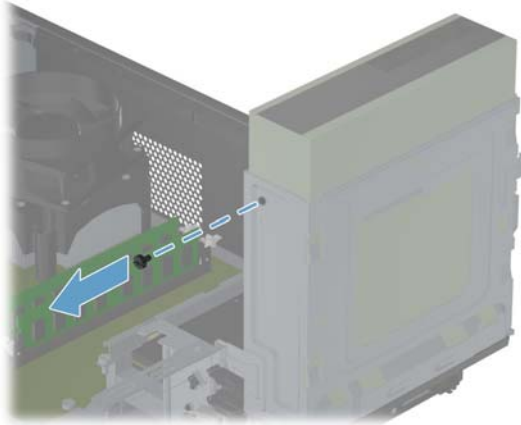
9. Lift the CD/DVD drive 90°, exposing the hard disk drive. As the CD/DVD drive is lifted, a latch is released.



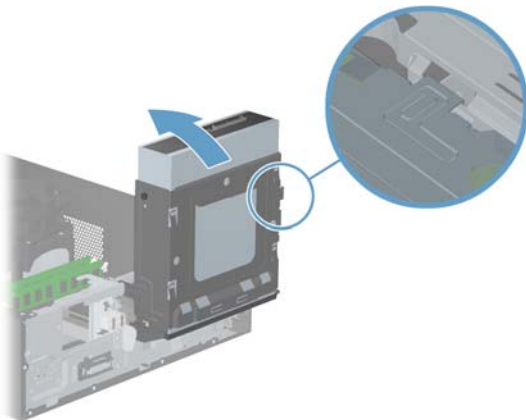
10. Remove the three cables from the back of the CD/DVD drive. The cables may have a latch that is pressed to release the cable.



- 11.** Using a flathead or Torx screwdriver, remove the screw from the cage.



- 12.** Lower the CD/DVD drive.



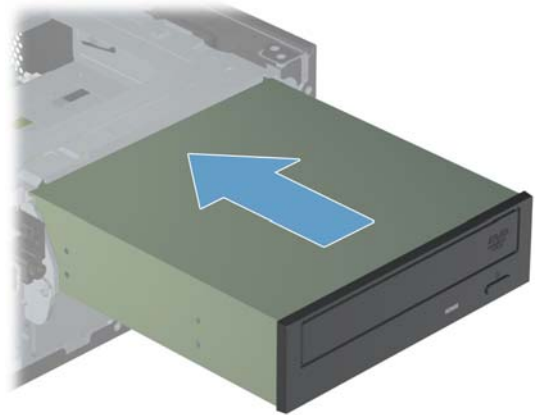
- 13.** Push the CD/DVD drive from behind, and then remove it from the front of the computer.



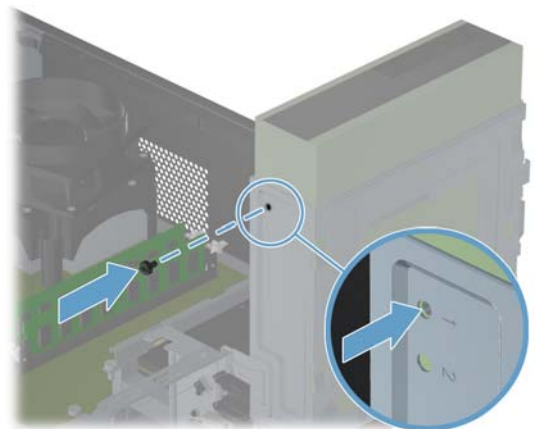
Installing a new CD/DVD drive

NOTE: The replacement part may look different than the original part because of manufacturer or model differences; however, the replacement part meets or exceeds the specifications of the original part.

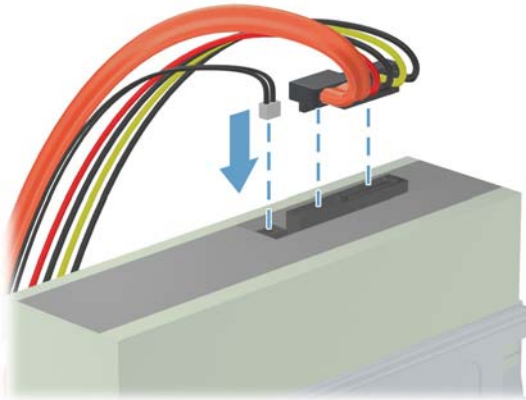
- 1.** Insert the new CD/DVD drive into the slot and slide it until the screw hole in the drive aligns with the screw hole on the computer.



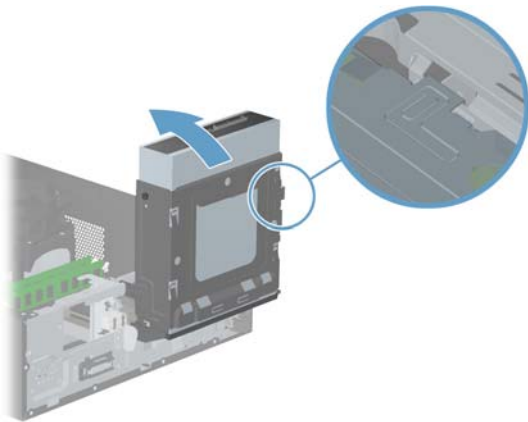
- 2.** Raise the CD/DVD drive 90°, and then insert the screw.



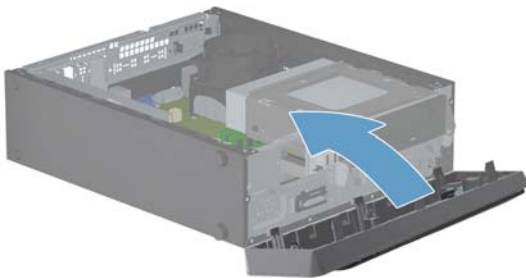
3. Connect the three cables to the back of the CD/DVD drive.



4. With the cables out of the way, lower the CD/DVD drive.



5. Reattach the front bezel by inserting the three tabs into the slots on the computer, and then close the bezel door until it locks in place.



6. Place the computer in an upright position.
7. Install the side panel on the side of the computer, and then slide it toward the front of the computer.



NOTE: Make sure the panel is flush with the computer. Failure to do so might cause the panel to bend slightly outward and not close securely.

8. Tighten the screw, securing the side panel to the back of the computer.



9. Plug the power cord and any additional cables into the back of the computer.



10. Press the power button to turn on the computer.



TASK COMPLETED

Printed in:

Upgrading and Replacing Memory

Computer features may vary by model.

The memory performance may vary due to different system configurations.



10 – 15 minutes

Before you begin

Observe the following requirements before removing and replacing memory.

WARNING! Never open the cover with the power applied. You might damage your computer or be injured by the spinning the fan blades.

WARNING! Avoid touching sharp edges inside the computer.

WARNING! Keep your hands away from the moving fan.

WARNING! Keep fingers and tools clear of the fan when the power is applied.

CAUTION: Static electricity can damage the electronic components inside the computer. Discharge static electricity by touching the metal cage of the computer before touching any internal parts or electronic components.

IMPORTANT: A memory card is extremely sensitive to shock impact. Do not bang or drop it. Static electricity can damage the card.

Tools Needed

- Flathead/T15 Torx screwdriver

Small screws are easily lost. Remove screws over a surface that enables you to retrieve them if they fall.

Memory Compatibility

Verify that the memory installed is compatible with this computer. SO-DIMMs are small outline dual inline memory modules. They are smaller and thinner than most other DIMMs, so that they take less space in the case. SO-DIMM modules must meet the following requirements:

- 240-pin DDR3-DIMM
- PC3-10600 (1333 MHz) DDR3-SDRAM
- Unbuffered, non-ECC (64-bit) DIMMs
- 1.5 V memory only
- 16.0 GB maximum installable memory using 4GB Modules. Actual available memory that can be used in Windows will be less.

Because the memory uses dual channels, you should use the same DIMM type for both sockets.

NOTE: The actual memory transfer speed can vary based on the CPU used in your computer.

Removing the memory

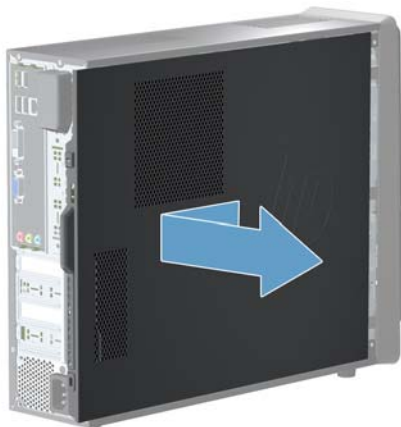
1. Remove any media or storage devices such as CDs, DVDs, and USB.
2. Close all programs, and then shut down your operating system.
3. Unplug the computer by disconnecting the power cord and all attached cables from the back of the computer.



4. Using a flathead or Torx screwdriver, loosen the screw on the back panel that secures the panel to the computer.



5. Slide the side panel toward the back of the computer, and then pull the side panel away from the computer.

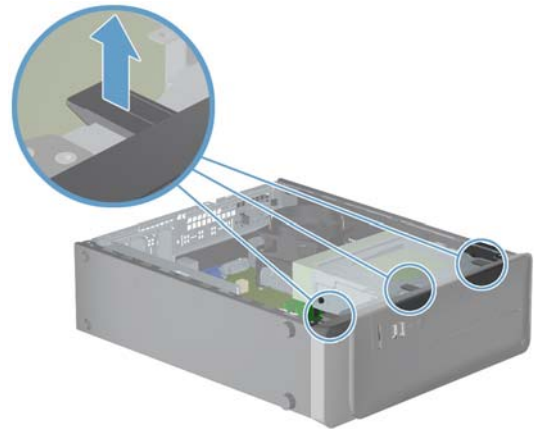


The inside of the computer is exposed.

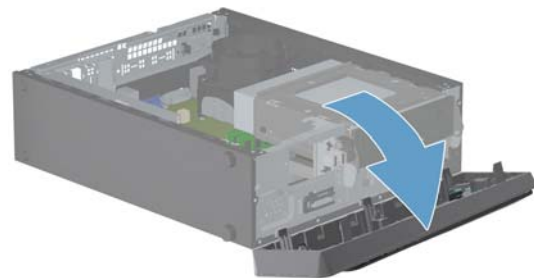


6. Lay the computer on a flat surface.

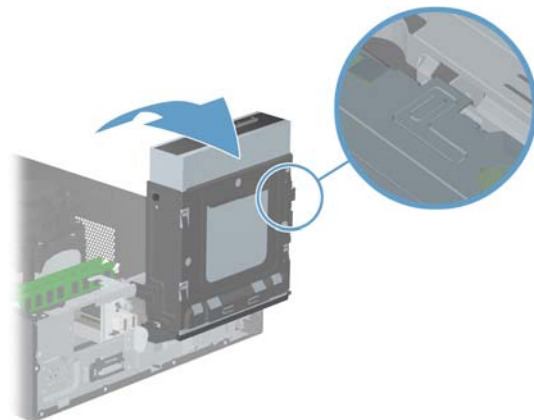
7. Lift the three tabs to release the front bezel.



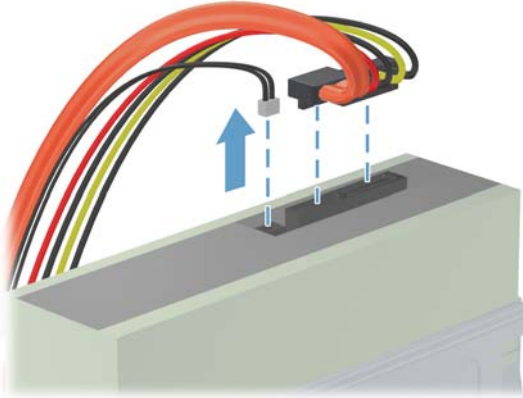
8. Open the front bezel, and then remove it from the computer.



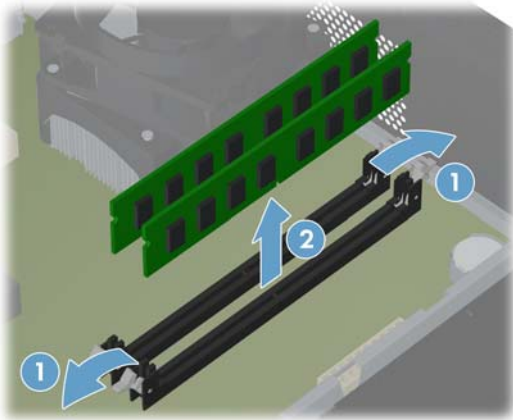
9. Lift the CD/DVD drive 90°. As the CD/DVD drive is lifted, a latch is released.



- 10.** To easily access the memory card, remove the three cables from the back of the CD/DVD drive. The cables may have a latch that is pressed to release the cable.




- 11.** To release the memory card, press outwards on the retaining clips on the left and right sides of the top memory card (1). Holding the memory card by the edges, gently remove it from the compartment (2).



- 12.** To remove additional memory cards, repeat step 11.

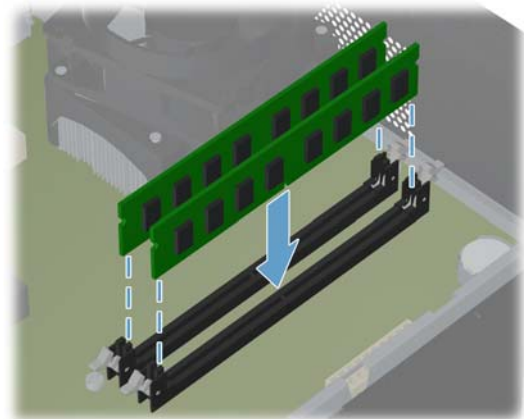
Installing a new memory card

 **NOTE:** The replacement part may look different than the original part because of manufacturer or model differences; however, the replacement part meets or exceeds the specifications of the original part.

- 1.** Orient the new memory card so that the notch in the memory card aligns with the tab in the socket.

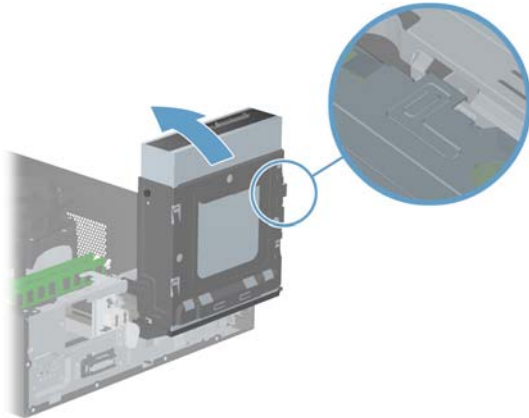


- 2.** Holding the memory card by the edges, press the card into the socket. Make sure the memory card is pressed completely into the socket, and then gently push down on the memory card until it snaps in place.

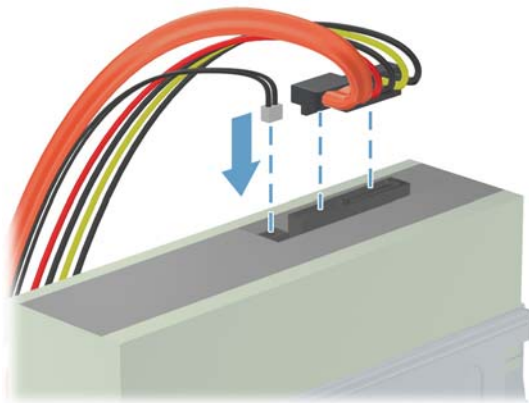


- 3.** If you are replacing more than one memory card, repeat step 2 for each memory card.

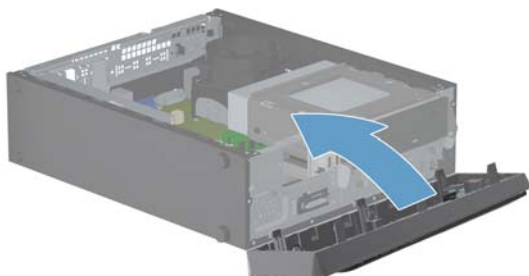
4. With the cables out of the way, lower the CD/DVD drive.



5. If you previously removed the cables, reinstall the three cables into the back of the CD/DVD drive.




6. Reattach the front bezel by inserting the three tabs into the slots on the computer, and then close the bezel door until it locks in place.



7. Place the computer in an upright position.
8. Install the side panel on the side of the computer, and then slide it toward the front of the computer.



 **NOTE:** Make sure the panel is flush with the computer. Failure to do so might cause the panel to bend slightly outward and not close securely.

9. Tighten the screw, securing the side panel to the back of the computer.



10. Plug the power cord and any additional cables into the back of the computer.



11. Press the power button to turn on the computer.



TASK COMPLETED

Troubleshooting

If the computer displays a memory error after you have turned it back on:

1. Turn the computer off and unplug the power cord.
2. Open up the memory compartment and make sure the memory card is firmly seated.
3. To install the memory card correctly, make sure it is inserted all the way into the compartment and then push down on it to snap it into place.

Printed in:

Removing or Replacing an Add-in Card

Computer features may vary by model.



10 - 15 minutes

Before you begin

Observe the following requirements before removing and replacing the add-in card.

- ⚠ WARNING!** Never open the cover with the power applied. You might damage your computer or be injured by the spinning the fan blades.
- ⚠ WARNING!** Avoid touching sharp edges inside the computer.
- ⚠ WARNING!** Keep your hands away from the moving fan.
- ⚠ WARNING!** Keep fingers and tools clear of the fan when the power is applied.
- ⚠ CAUTION:** Static electricity can damage the electronic components inside the computer. Discharge static electricity by touching the metal cage of the computer before touching any internal parts or electronic components.
- 🔧 IMPORTANT:** An add-in card is extremely sensitive to shock impact. Do not bang or drop it. Static electricity can damage the card.

Tools Needed

- Flathead/T15 Torx screwdriver

Small screws are easily lost. Remove screws over a surface that enables you to retrieve them if they fall.

Removing the add-in card

1. Remove any media or storage devices such as CDs, DVDs, and USB.
2. Close all programs, and then shut down your operating system.
3. Unplug the computer by disconnecting the power cord and all attached cables from the back of the computer.



4. Using a flathead or Torx screwdriver, loosen the screw on the back panel that secures the panel to the computer.



5. Slide the side panel toward the back of the computer, and then pull the side panel away from the computer.



The inside of the computer is exposed.



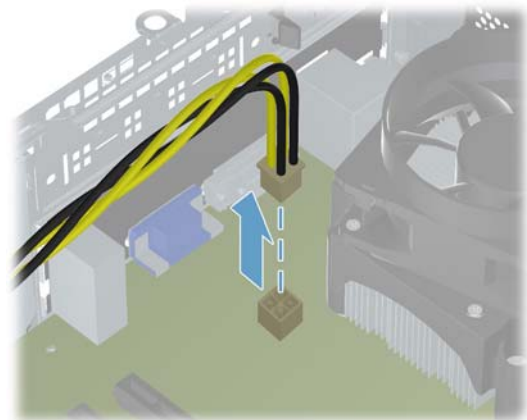
6. Lay the computer on a flat surface.
7. On the back of the computer, locate the screw holding the bracket in place.



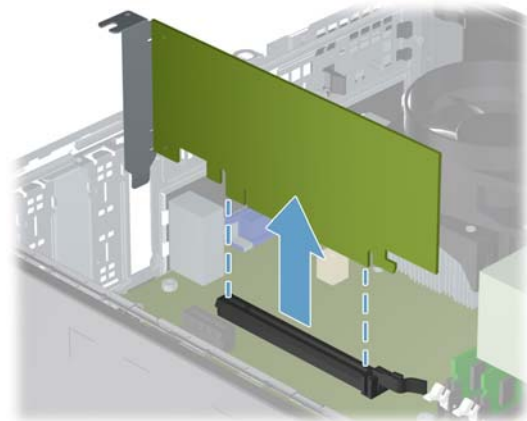
8. Remove the screw and the bracket from the back of the computer.



9. To make it easier to access the add-in cards, disconnect the auxiliary power cable from the motherboard.



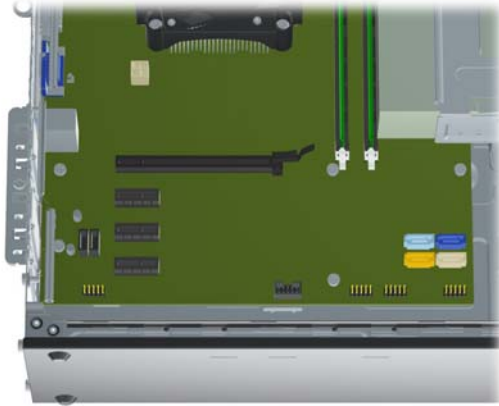
10. If needed, disconnect any cables, and then carefully lift the add-in card out by the edges.



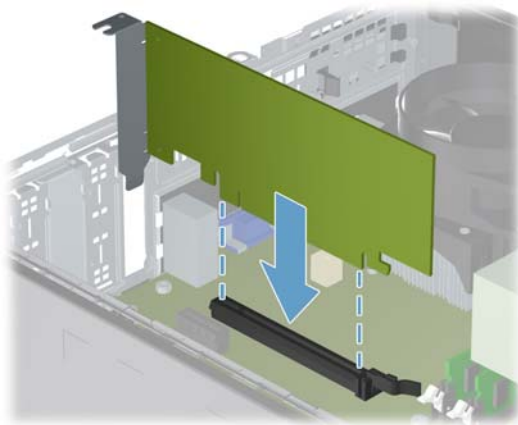
Installing a new add-in card

NOTE: The replacement part may look different than the original part because of manufacturer or model differences; however, the replacement part meets or exceeds the specifications of the original part.

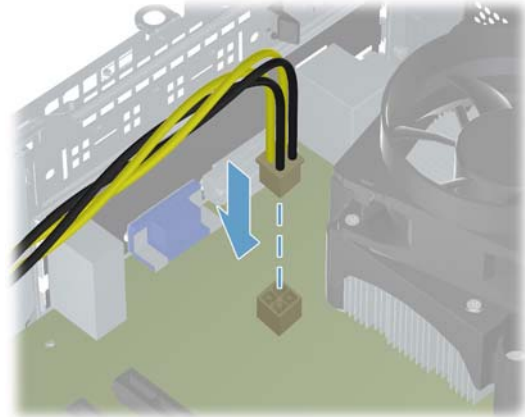
1. Locate where the card will be seated inside the computer.



2. Insert the add-in card into the slot on the motherboard. If needed, reconnect any removed cables.



3. Reconnect the auxiliary power cable to the motherboard.




4. To secure the add-in card in place, reattach the bracket to the back of the computer.



5. Place the computer in an upright position.

6. Install the side panel on the side of the computer, and then slide it toward the front of the computer.



 **NOTE:** Make sure the panel is flush with the computer. Failure to do so might cause the panel to bend slightly outward and not close securely.

7. Tighten the screw, securing the side panel to the back of the computer.



8. Plug the power cord and any additional cables into the back of the computer.



9. Press the power button to turn on the computer.



TASK COMPLETED

Printed in:

Removing and Replacing a Power Supply

Computer features may vary by model.



15 - 20 minutes

Before you begin

Observe the following requirements before removing and replacing the power supply.

- ⚠ WARNING!** Never open the cover with the power applied. You might damage your computer or be injured by the spinning the fan blades.
- ⚠ WARNING!** Avoid touching sharp edges inside the computer.
- ⚠ WARNING!** Keep your hands away from the moving fan.
- ⚠ WARNING!** Keep fingers and tools clear of the fan when the power is applied.
- ⚠ CAUTION:** Static electricity can damage the electronic components inside the computer. Discharge static electricity by touching the metal cage of the computer before touching any internal parts or electronic components.

Tools Needed

- Flathead/T15 Torx screwdriver

Small screws are easily lost. Remove screws over a surface that enables you to retrieve them if they fall.

Removing a power supply

1. Remove any media or storage devices such as CDs, DVDs, and USB.
2. Close all programs, and then shut down your operating system.

3. Unplug the computer by disconnecting the power cord and all attached cables from the back of the computer.



4. Using a flathead or Torx screwdriver, loosen the screw on the back panel that secures the panel to the computer.



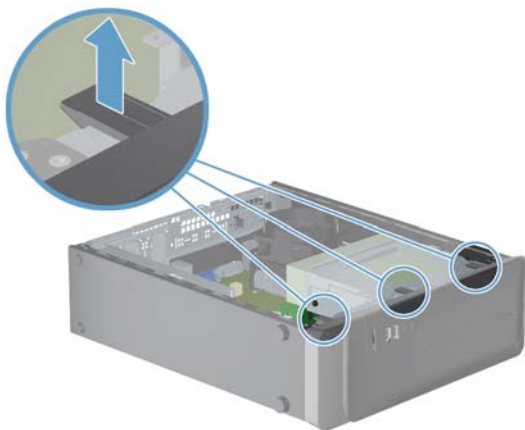
5. Slide the side panel toward the back of the computer, and then pull the side panel away from the computer.



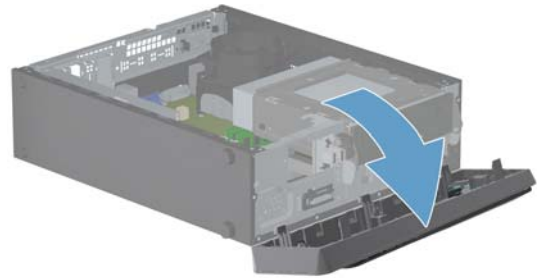
The inside of the computer is exposed.



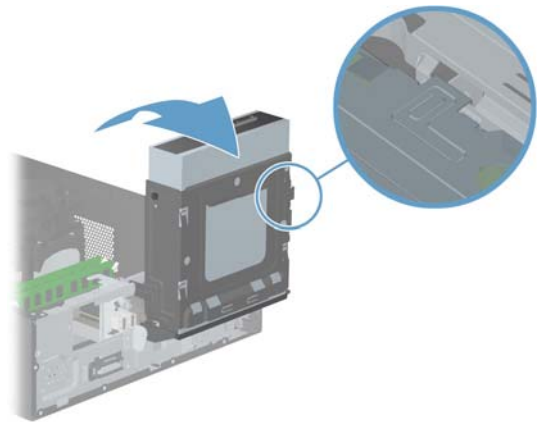
6. Lay the computer on a flat surface.
7. Lift the three tabs to release the front bezel.



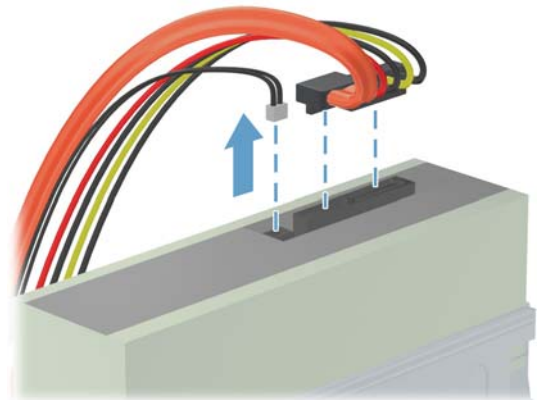
8. Open the front bezel, and then remove it from the computer.



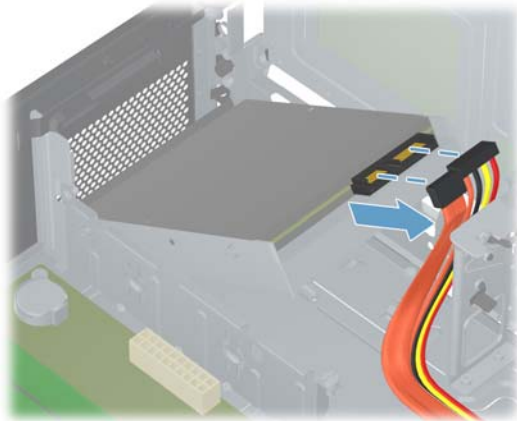
9. Lift the CD/DVD drive 90°, exposing the hard disk drive.



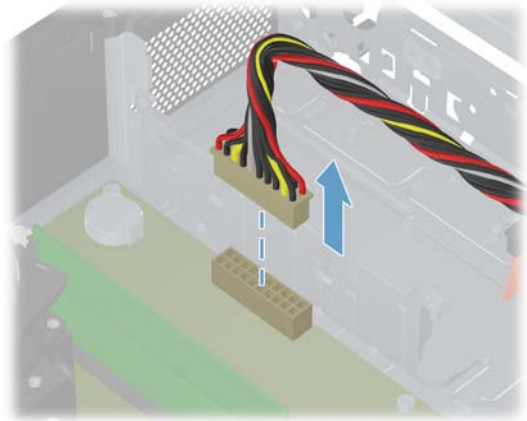
10. Remove the three cables from the back of the CD/DVD drive. The cables may have a latch that is pressed to release the cable.



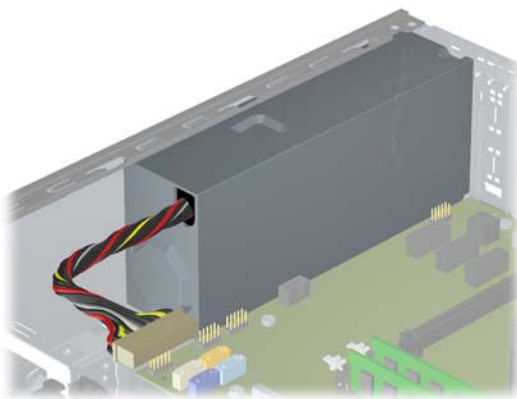
- 11.** Disconnect the two cables from the end of the hard disk drive. The cables may have a latch that is pressed to release the cable.




- 14.** Press the latch on the power supply connector close to the hard disk drive to disconnect it from the motherboard.



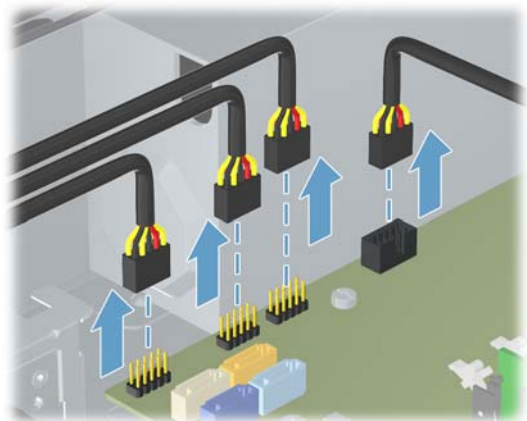
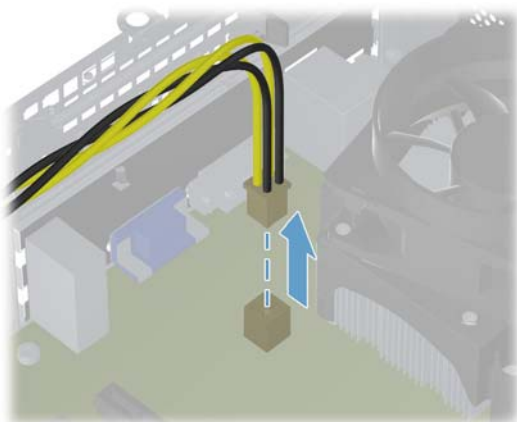
- 12.** Locate the power supply.



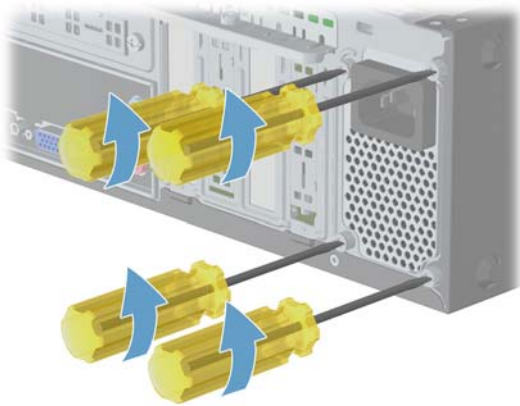
- 15.** (Optional) Disconnect the cables on the motherboard next to the power supply.

 **NOTE:** Before removing any of the connections, be sure to note the location of all the power connections.

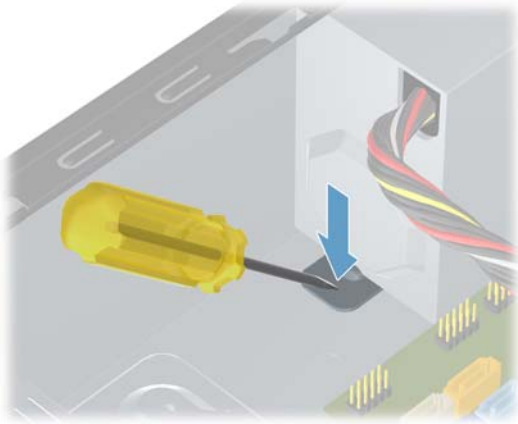
- 13.** Press the latch on the power supply connector to disconnect it from the motherboard.



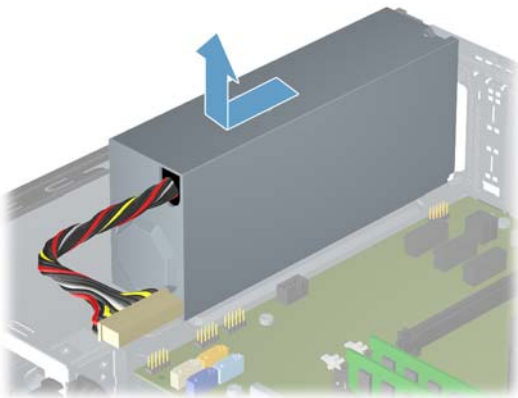
16. Remove the four screws that secure the power supply to the back of the computer.




17. With a screwdriver, push down on the latch to unlock it.




18. Move the power supply toward the back of the computer, and then tilt it out of the computer.

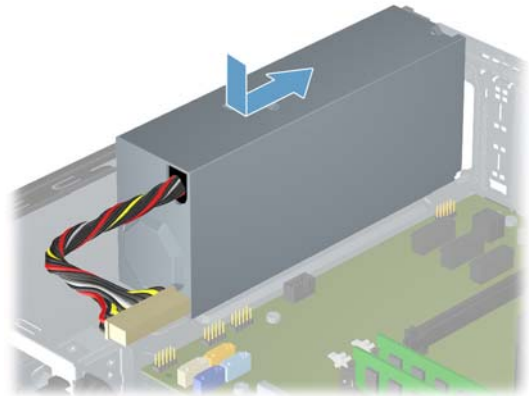


Replacing a power supply

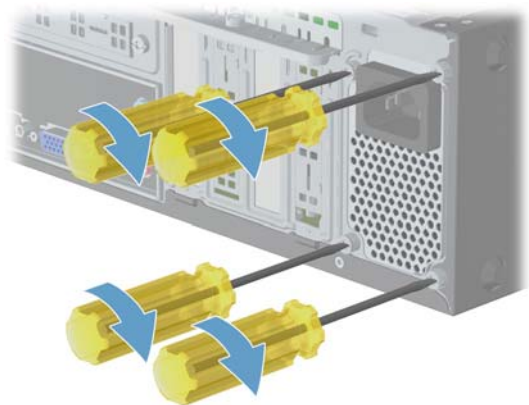
 **NOTE:** The replacement part may look different than the original part because of manufacturer or model differences; however, the replacement part meets or exceeds the specifications of the original part.

 **NOTE:** Always replace the entire power supply. Never attempt to work within the power supply unit.

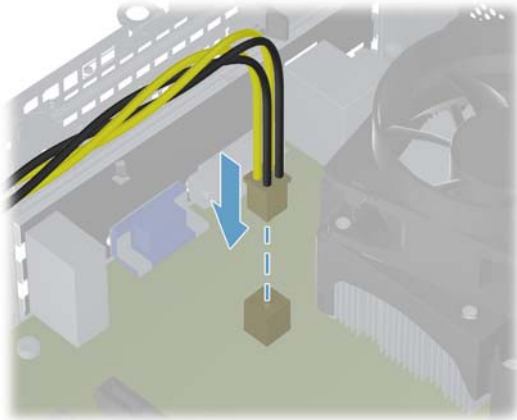
1. Make sure the replacement power supply is oriented the same way as the original power supply.
2. Carefully tilt the power supply into the computer and then slide it toward the front of the computer until it locks into place.



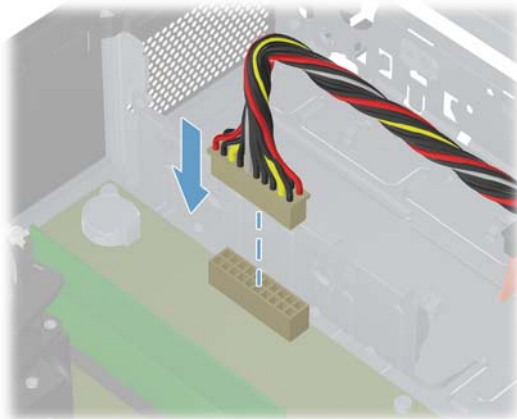
3. Install the four screws that secure the power supply to the computer.



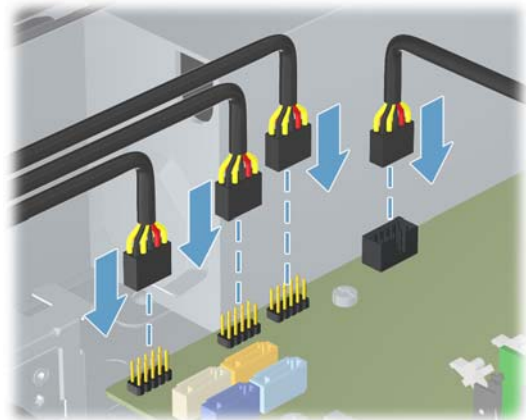
4. Insert the power supply connector into the motherboard until it locks in place. Make sure the cables do not interfere with the processor fan.



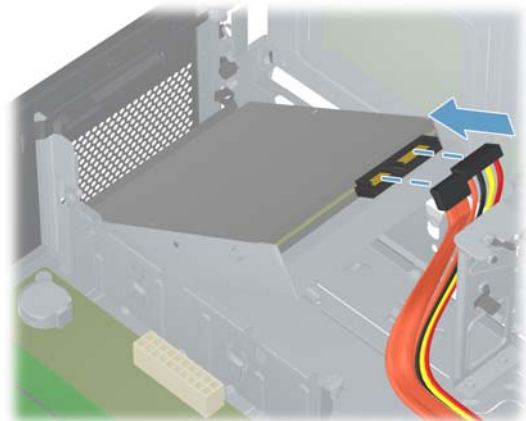
5. Reattach the power supply connector, that is close to the hard disk drive, into the motherboard. Make sure the cables do not interfere with the processor fan.



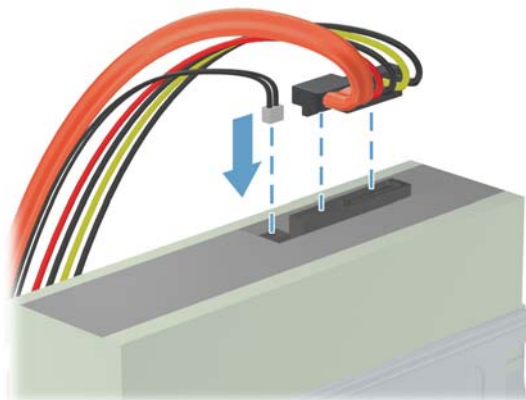
6. (Optional) Connect any cables on the motherboard that were disconnected. Make sure the cables do not interfere with the processor fan.



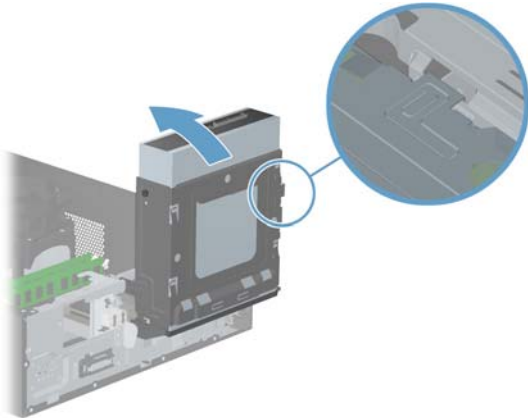
7. Reattach the cables to the end of the hard disk drive.



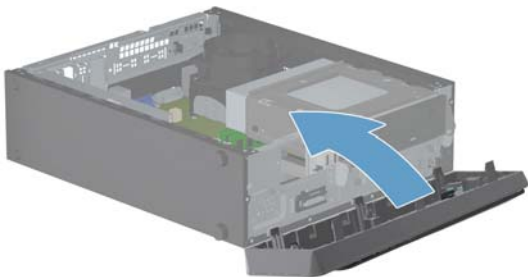
8. Connect the three cables to the back of the CD/DVD drive.



9. With the cables out of the way, close the CD/DVD drive, covering the hard disk drive.



10. Reattach the front bezel by inserting the three tabs into the slots on the computer, and then close the bezel door until it locks in place.



11. Place the computer in the upright position.

12. Install the side panel on the side of the computer, and then slide it toward the front of the computer.



NOTE: Make sure the panel is flush with the computer. Failure to do so might cause the panel to bend slightly outward and not close securely.

13. Tighten the screw, securing the side panel to the back of the computer.



14. Plug the power cord and any additional cables into the back of the computer.



15. Press the power button to turn on the computer.



TASK COMPLETED

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