Notes, Cautions, and Warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.
This manual provides procedures for removing and installing the components in your computer. Unless otherwise noted, each procedure assumes that the following conditions exist:

- You have performed the steps in Turning Off Your Computer and Safety Instructions.
- You have read the safety information that ships with your computer.
- A component can be replaced or—if purchased separately—installed by performing the removal procedure in reverse order.

### Technical Specifications

For information on technical specifications of your computer, see the Comprehensive Specifications at support.dell.com/manuals.

### Recommended Tools

The procedures in this document may require the following tools:

- Small Phillips screwdriver
- Small flat-blade screwdriver
- BIOS executable update program available at support.dell.com

### Turning Off Your Computer

⚠️ **CAUTION:** To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

1. Save and close all open files and exit all open programs.

2. Shut down your computer:

   - **Windows Vista®:**
     
     Click Start , click the arrow , and then click Shut Down.

   - **Windows® 7:**
     
     Click Start , and click Shut Down.

3. The computer turns off after the operating system shutdown process is complete.

4. Ensure that the computer is turned off. If your computer did not automatically turn off when you shut down the operating system, press and hold the power button until the computer turns off.

### Safety Instructions

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

⚠️ **WARNING:** Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

⚠️ **CAUTION:** Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.
Ensure that the work surface is flat and clean to prevent the computer cover from being scratched.

Turn off your computer (see Turning Off Your Computer).

Disconnect all telephone or network cables from the computer.

Disconnect your computer and all attached devices from their electrical outlets.

Disconnect all attached devices from your computer.

Press and eject any installed cards from the optional Media Card Reader.

Press and hold the power button while the system is unplugged to ground the system board.

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

1. Follow the procedures in Before You Begin.
2. Remove the computer cover (see Removing the Computer Cover).
3. Grasp and lift the front-bezel grips one at a time to release them from the chassis.
4. Rotate and pull the front bezel away from the front of the computer to release the front-bezel clamps from the front-bezel inserts.

5. Set the front bezel aside in a secure location.

Replacing the Front Bezel

1. Follow the procedures in Before You Begin.
2. Align and insert the front-bezel clamps into the front-bezel inserts.
3. Rotate the front bezel towards the computer until the front-bezel grips snap into place.
4. Replace the computer cover (see Replacing the Computer Cover).
5. Connect your computer and devices to electrical outlets, and then turn them on.
Removing the Support Bracket

1. Follow the procedures in Before You Begin.
2. Remove the computer cover (see Removing the Computer Cover).
3. Pull back the support-bracket release latch and pivot the support bracket up.
4. Lift the support bracket off the hinge-tab slots and set it aside in a secure place.

Replacing the Support Bracket

1. Follow the procedures in Before You Begin.
2. Align and insert the hinge tabs at the bottom of the support bracket into the hinge-tab slots located along the edge of the computer.
3. Pull back the support-bracket release latch and pivot the support bracket downward, until the support-bracket release latch locks into place.
4. Replace the computer cover (see Replacing the Computer Cover).

5. Connect your computer and devices to electrical outlets, and then turn them on.
Removing PCI and PCI Express Cards

1. Follow the procedures in Before You Begin.

2. Remove the computer cover (see Removing the Computer Cover).

3. Remove the support bracket (see Removing the Support Bracket).

4. If necessary, disconnect any cables connected to the card and remove the card.
   - For a PCI or PCI Express x1 card, grasp the card by its top corners, and ease it out of its connector.
   - For a PCI Express x16 card, press down on the retention mechanism, grasp the card by its top corners, and then ease it out of its connector.

5. If you are removing the card permanently, install a filler bracket in the empty card-slot opening.
   
   **NOTE:** Installing filler brackets over empty card-slot openings is necessary to maintain FCC certification of the computer. The brackets also keep dust and dirt out of your computer.

6. Replace the support bracket (see Replacing the Support Bracket).

7. Replace the computer cover (see Replacing the Computer Cover).

8. Connect the computer and devices to electrical outlets, and then turn them on.

9. Remove the card’s driver from the operating system.

10. To complete the removal procedure, see Configuring Your Computer After Removing or Installing a PCI or PCI Express Card.

Replacing PCI and PCI Express Cards

**WARNING:** Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

**WARNING:** To guard against electrical shock, always unplug your computer from the electrical outlet before removing the cover.

**WARNING:** Do not operate your equipment with any cover(s) (including computer covers, bezels, filler brackets, front-panel inserts, etc.) removed.

**CAUTION:** Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell™ is not covered by your warranty.
1. Follow the procedures in Before You Begin.

2. Remove the computer cover (see Removing the Computer Cover).

3. Remove the support bracket (see Removing the Support Bracket).

4. If this is a new card installation, remove the filler bracket covering the card-slot opening.

5. Prepare the card for installation.

   See the documentation that came with the card for information on configuring the card, making internal connections, or otherwise customizing it for your computer.

6. If you are installing the PCI Express card into the x16 card connector, position the card so the securing slot is aligned with the securing tab.

7. Place the card in the connector and press down firmly. Ensure that the card is fully seated in the slot.

8. Replace the support bracket (see Replacing the Support Bracket).

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

   See the documentation for the card for information about the card’s cable connections.

   **CAUTION:** Do not route card cables over or behind the cards. Cables routed over the cards can prevent the computer cover from closing properly or cause damage to the equipment.

10. Replace the computer cover (see Replacing the Computer Cover).

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

12. To complete the installation, see Configuring Your Computer After Removing or Installing a PCI or PCI Express Card.
## Configuring Your Computer After Removing or Installing a PCI or PCI Express Card

**NOTE:** For information on location of external connectors, see the Setup Guide. For information on installing drivers and software for your card, see the documentation that shipped with the card.

<table>
<thead>
<tr>
<th>Sound Card</th>
<th>Installed</th>
<th>Removed</th>
</tr>
</thead>
</table>
| 1. Enter system setup (see Entering System Setup).  
2. Go to Onboard Audio Controller and then change the setting to Disabled.  
3. Connect the external audio devices to the sound card’s connectors. | 1. Enter system setup (see Entering System Setup).  
2. Go to Onboard Audio Controller and then change the setting to Enabled.  
3. Connect the external audio devices to the computer’s back panel connectors. |

<table>
<thead>
<tr>
<th>Network Card</th>
<th>Installed</th>
<th>Removed</th>
</tr>
</thead>
</table>
| 1. Enter system setup (see Entering System Setup).  
2. Go to Onboard LAN Controller and then change the setting to Disabled.  
3. Connect the network cable to the network card’s connector. | 1. Enter system setup (see Entering System Setup).  
2. Go to Onboard LAN Controller and then change the setting to Enabled.  
3. Connect the network cable to the integrated network connector. |
Removing the Battery

1. Record all the screens in System Setup (see System Setup) so that you can restore the correct settings after the new battery has been installed.
2. Follow the procedures in Before You Begin.
3. Remove the computer cover (see Removing the Computer Cover).
4. Locate the battery socket (see System Board Components).

\[\text{CAUTION:} \text{ If you pry the battery out of its socket with a blunt object, be careful not to touch the system board with the object. Ensure that the object is inserted between the battery and the socket before you attempt to pry out the battery. Otherwise, you may damage the system board by prying off the socket or by breaking circuit traces on the system board.}\]

5. Press the battery release lever to remove the battery.

Replacing the Battery

1. Follow the procedures in Before You Begin.
2. Insert the new battery (CR2032) into the socket with the side labeled "+" facing up, and press the battery into place.
3. Replace the computer cover (see Replacing the Computer Cover).

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

5. Enter System Setup (see Entering System Setup) and restore the settings you recorded in step 1.
Removing the Computer Cover

1. Follow the procedures in Before You Begin.

2. Close the chassis feet.

3. Lay your computer on its side with the computer cover facing up.

4. Remove the two screws securing the cover, using a screwdriver.
5. Release the computer cover by pulling it away from the front of the computer and lifting it up.

6. Set the cover aside in a secure location.

---

**Replacing the Computer Cover**

1. Follow the procedures in [Before You Begin](#).

2. Ensure that all cables are connected, and fold cables out of the way.

3. Ensure that no tools or extra parts are left inside the computer.

4. Align the tabs at the bottom of the computer cover with the slots located along the edge of the computer.

5. Press the computer cover down and slide it towards the front of the computer until you feel a click or feel the computer cover securely installed.

6. Ensure that the cover is seated correctly.

7. Replace the two screws that secure the computer cover, using a screwdriver.

---

**CAUTION:** Ensure that none of the system air-vents are blocked. Blocking them would cause serious thermal problems.
Removing the Processor

1. Follow the procedures in Before You Begin.
2. Remove the computer cover (see Removing the Computer Cover).

CAUTION: Despite having a plastic shield, the processor fan and heat sink assembly may be very hot during normal operation. Be sure that it has had sufficient time to cool before you touch it.

3. Remove the processor fan and heat sink assembly from the computer (see Removing the Processor Fan and Heat Sink Assembly).

NOTE: Unless a new heat sink is required for the new processor, reuse the original heat sink assembly when you replace the processor.

4. Press and push the release lever down and out to release it from the tab that secures it.
5. Open the processor cover.

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

6. Gently lift the processor to remove it from the socket.

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

⚠️ **CAUTION:** Ground yourself by touching an unpainted metal surface on the back of the computer.

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

1. Follow the procedures in Before You Begin.

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

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

3. If the release lever on the socket is not fully extended, move it to that position.

4. Orient the front and rear alignment-notches on the processor with the front and rear alignment-notches on the socket.

5. Align the pin-1 corners of the processor and socket.

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

6. Set the processor lightly in the socket and ensure that the processor is positioned correctly.

7. When the processor is fully seated in the socket, close the processor cover.
   
   Ensure that the tab on the processor cover is positioned underneath the center cover latch on the socket.

8. Pivot the socket release lever back toward the socket, and snap it into place to secure the processor.

9. Clean the thermal grease from the bottom of the heat sink.

⚠️ **CAUTION:** Ensure that you apply new thermal grease. New thermal grease is critical for ensuring adequate thermal bonding, which is a requirement for optimal processor operation.

10. Apply the new thermal grease to the top of the processor.

11. Replace the processor fan and heat sink assembly (see Replacing the Processor Fan and Heat Sink Assembly).
⚠️ **CAUTION:** Ensure that the processor fan and heat sink assembly is correctly seated and secure.

12. Replace the computer cover (see `Replacing the Computer Cover`).

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

Hard Drive

Removing the Hard Drive

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

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

WARNING: Do not operate your equipment with any cover(s) (including computer covers, bezels, filler brackets, front-panel inserts, etc.) removed.

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

Hard Drive

Removing the Hard Drive

CAUTION: If you are replacing a hard drive that contains data that you want to keep, back up your files before you begin this procedure.

1. Follow the procedures in Before You Begin.
2. Remove the computer cover (see Removing the Computer Cover).
3. Remove the support bracket (see Removing the Support Bracket).
4. Disconnect the power cable and the data cable from the hard drive.

NOTE: If you are not replacing the hard drive at this time, disconnect the other end of the data cable from the system board and set it aside. You can use the data cable to install a hard drive at a later time.

5. Press in on the securing tab on the side of the hard drive and slide the hard drive out and up.
Recovering the Hard Drive

1. Follow the procedures in Before You Begin.
2. Check the documentation for the drive to verify that it is configured for your computer.
3. If not present, attach the four shoulder screws to the hard drive.
   \textbf{NOTE:} If you are replacing an existing drive, remove the shoulder screws from the existing drive and attach them to the replacement drive.
4. Connect the power cable and the data cable to the hard drive.
5. If disconnected, connect the data cable to the system board connector (see System Board Components).
6. Slide the hard drive into the hard drive bay, until the hard drive snaps into place.
7. Check all cables to be certain that they are properly connected and firmly seated.
8. Replace the support bracket (see Replacing the Support Bracket).
9. Replace the computer cover (see Replacing the Computer Cover).
10. Connect your computer and devices to electrical outlets, and then turn them on.
11. See the documentation that came with the hard drive for instructions on installing any software required for hard drive operation.
12. Check the System Setup for hard drive configuration changes (see Entering System Setup).

Media Card Reader

Removing the Media Card Reader

1. Follow the procedures in Before You Begin.
2. Remove the computer cover (see Removing the Computer Cover).
3. Remove the front bezel (see Removing the Front Bezel).
4. Disconnect the FlexBay USB cable from the system board connector (see System Board Components).
5. Press in on the securing tab on the side of the Media Card Reader and slide the Media Card Reader out.
Replacing the Media Card Reader

1. Follow the procedures in Before You Begin.

2. If this is a new Media Card Reader installation, remove the break-away metal plate. Align the tip of a Phillips screwdriver with the slot on the break-away metal plate and rotate the screwdriver outwards to break and remove the metal plate.

3. If not present, attach the two shoulder screws to the Media Card Reader.

   **NOTE:** If you are replacing an existing drive, remove the shoulder screws from the existing drive and attach them to the replacement drive.
4. Gently slide the Media Card Reader into place in the FlexBay slot, until the Media Card Reader snaps into place.

5. Connect the FlexBay USB cable to the system board connector (see System Board Components).

6. Replace the front bezel (see Replacing the Front Bezel).

7. Replace the computer cover (see Replacing the Computer Cover).

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

---

**Optical Drive**

**Removing the Optical Drive**

1. Follow the procedures in Before You Begin.

2. Remove the computer cover (see Removing the Computer Cover).

3. Remove the front bezel (see Removing the Front Bezel).

4. Disconnect the power cable and the data cable from the back of the optical drive.

   **NOTE:** If you are not replacing the optical drive at this time, disconnect the other end of the data cable from the system board and set it aside. You can use the data cable to install an optical drive at a later time.

5. Press in on the securing tab on the side of the optical drive and slide the optical drive out.

6. Replace the front bezel (see Replacing the Front Bezel).
7. Replace the computer cover (see Replacing the Computer Cover).

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

9. Configure the drives in system setup (see System Setup Options).

**Replacing the Optical Drive**

1. Follow the procedures in Before You Begin.

2. If not present, attach the two shoulder screws to the optical drive.

   **NOTE:** If you are replacing an existing drive, remove the shoulder screws from the existing drive and attach them to the replacement drive.

3. Gently slide the optical drive into the optical-drive bay, until the optical drive snaps into place.

4. Connect the power cable and the data cable to the optical drive.

5. If disconnected, connect the data cable to the system board connector (see System Board Components).

6. Replace the front bezel (see Replacing the Front Bezel).

7. Replace the computer cover (see Replacing the Computer Cover).

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

   See the documentation that came with the optical drive for instructions on installing any software required for optical drive operation.

9. Check the System Setup for drive configuration changes (see Entering System Setup).

Back to Contents Page
Removing the Processor Fan and Heat Sink Assembly

⚠️ **WARNING:** Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

⚠️ **WARNING:** To guard against likelihood of electric shock, laceration by moving fan blades or other unexpected injuries, always unplug your computer from the electrical outlet before removing the cover.

⚠️ **WARNING:** Do not operate your equipment with any cover(s) (including computer covers, bezels, filler brackets, front-panel inserts, etc.) removed.

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

### Removing the Processor Fan and Heat Sink Assembly

⚠️ **CAUTION:** The processor fan with the heat sink is one single unit. Do not try to remove the fan separately.

⚠️ **CAUTION:** Do not touch the fan blades when you are removing the processor fan and heat sink assembly. This could damage the fan.

1. Follow the procedures in **Before You Begin**.
2. Remove the computer cover (see **Removing the Computer Cover**).
3. Disconnect the processor fan cable from the system board connector (see **System Board Components**).
4. Carefully move away any cables that are routed over the processor fan and heat sink assembly.

⚠️ **CAUTION:** Despite having a plastic shield, the processor fan and heat sink assembly may be very hot during normal operation. Be sure that it has had sufficient time to cool before you touch it.

5. Loosen the four captive screws that secure the processor fan and heat sink assembly and lift it straight up.

![Illustration of processor fan and heat sink assembly](image)

1. Processor fan and heat sink assembly
2. Processor fan cable

**NOTE:** The processor fan and heat sink assembly in your computer may not look exactly like the one shown in the illustration above.
Replacing the Processor Fan and Heat Sink Assembly

⚠️ **CAUTION:** When reinstalling the fan, ensure that you do not pinch the wires that run between the system board and the fan.

1. Follow the procedures in [Before You Begin](#).
2. Clean the thermal grease from the bottom of the processor fan and heat sink assembly.

⚠️ **CAUTION:** Ensure that you apply new thermal grease. New thermal grease is critical for ensuring adequate thermal bonding, which is a requirement for optimal processor operation.

3. Apply the new thermal grease to the top of the processor.
4. Align the captive screws on the processor fan and heat sink assembly to the four metal screw-hole projections on the system board.
5. Tighten the four captive screws that secure the processor fan and heat sink assembly to the system board.

⚠️ **NOTE:** Ensure that the processor fan and heat sink assembly is correctly seated and secure.

6. Connect the processor fan cable to the system board connector (see [System Board Components](#)).
7. Replace the computer cover (see [Replacing the Computer Cover](#)).
8. Connect your computer and devices to electrical outlets, and turn them on.

Removing the Chassis Fan

⚠️ **CAUTION:** Do not touch the fan blades when you are removing the chassis fan. This could damage the fan.

1. Follow the procedures in [Before You Begin](#).
2. Remove the computer cover (see [Removing the Computer Cover](#)).
3. Disconnect the chassis fan cable from the system board connector (see [System Board Components](#)).
4. Remove the screw that secures the chassis fan to the chassis.
5. Slide the chassis fan towards the front of the computer and lift it out.
Replacing the Chassis Fan

1. Follow the procedures in Before You Begin.

2. Align the chassis-fan top and bottom tabs with the projections in the chassis, and slide the chassis fan towards the back of the computer.

3. Replace the screw that secures the chassis fan to the chassis.

4. Connect the chassis fan cable to the system board connector (see System Board Components).

5. Replace the computer cover (see Replacing the Computer Cover).

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

Back to Contents Page
Removing the Front I/O Panel

1. Follow the procedures in Before You Begin.
2. Remove the computer cover (see Removing the Computer Cover).
3. Remove the front bezel (see Removing the Front Bezel).
4. Remove the support bracket (see Removing the Support Bracket).
5. Remove the hard drive (see Removing the Hard Drive).

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

6. Disconnect all the cables that are connected to the front I/O panel from the system board connectors. Note the routing of all cables as you remove them so that you can re-route them correctly after installing the new front I/O panel.

7. Remove the screw that secures the front I/O panel to the chassis.
8. Slide the front I/O panel towards the left and gently pull it out.

Replacing the Front I/O Panel

⚠️ WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

⚠️ WARNING: To guard against electrical shock, always unplug your computer from the electrical outlet before removing the cover.

⚠️ WARNING: Do not operate your equipment with any cover(s) (including computer covers, bezels, filler brackets, front-panel inserts, etc.) removed.

⚠️ CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell™ is not covered by your warranty.
⚠️ **CAUTION:** Take care not to damage the cable connectors and the cable routing clips when sliding the front I/O panel into the front I/O panel clamp slot.

1. Follow the procedures in Before You Begin.
2. Route and connect the cables that you disconnected from the system board connectors.
3. Align and slide the front I/O panel into the front I/O panel clamp slot.
4. Replace the screw that secures the front I/O panel to the chassis.
5. Replace the hard drive (see Replacing the Hard Drive).
6. Replace the support bracket (see Replacing the Support Bracket).
7. Replace the front bezel (see Replacing the Front Bezel).
8. Replace the computer cover (see Replacing the Computer Cover).
9. Connect your computer and devices to electrical outlets, and turn them on.
Memory Module(s)
Dell™ Inspiron™ 560s Service Manual

Removing the Memory Module(s)

1. Follow the procedures in Before You Begin.
2. Remove the computer cover (see Removing the Computer Cover).
3. Locate the memory module(s) on the system board (see System Board Components).
4. Press out the securing clip at each end of the memory-module connector.

[Diagram: memory-module connector (1) and securing clips (2)]

5. Grasp the memory module and pull it upwards.
   If the memory module is difficult to remove, gently ease the memory module back and forth to remove it from the memory-module connector.

Replacing the Memory Module(s)

1. Follow the procedures in Before You Begin.
2. Press out the securing clip at each end of the memory-module connector.
3. Follow the memory installation guidelines (see Recommended Memory Configuration).

⚠️ CAUTION: Do not install ECC memory modules.

4. Align the notch on the bottom of the memory module with the tab in the memory-module connector.
5. Insert the memory module into the memory-module connector until the memory module snaps into position.

If you insert the memory module correctly, the securing clips snap into the cutouts at each end of the memory module.

6. Replace the computer cover (see Replacing the Computer Cover).

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

If the message appears stating that memory size has changed, press <F1> to continue.

8. Log on to your computer.

9. Right-click the My Computer icon on your Microsoft® Windows® desktop and click Properties.

10. Click the General tab.

11. To verify that the memory is installed correctly, check the amount of memory (RAM) listed.

---

**Recommended Memory Configuration**

While installing or replacing memory, refer to the table below. For the location of the memory-module connectors, see System Board Components.

<table>
<thead>
<tr>
<th>One module</th>
<th>Two modules</th>
<th>Three modules</th>
<th>Four modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIMM1</td>
<td>DIMM1, DIMM3</td>
<td>DIMM1, DIMM3</td>
<td>DIMM1, DIMM3</td>
</tr>
<tr>
<td></td>
<td>DIMM1</td>
<td>DIMM1, DIMM2</td>
<td>DIMM1, DIMM3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DIMM1, DIMM4</td>
<td>DIMM1, DIMM3</td>
</tr>
</tbody>
</table>

---

**Setting Up Dual-Channel Memory Configuration**
<table>
<thead>
<tr>
<th></th>
<th>Pair A: matched pair of memory modules in connectors DIMM1 and DIMM3</th>
<th>Pair B: matched pair of memory modules in connectors DIMM2 and DIMM4</th>
<th></th>
</tr>
</thead>
</table>

Back to Contents Page
Removing the Power Supply

1. Follow the procedures in Before You Begin.

2. Remove the computer cover (see Removing the Computer Cover).

3. Disconnect the DC power cables from the system board and the drives.

   Note the routing of the DC power cables underneath the tabs in the computer chassis as you remove them from the system board and drives. You must route these cables properly when you replace them to prevent them from being pinched or crimped.

4. Remove the support bracket (see Removing the Support Bracket).

5. Remove all the cables from the securing clip on the side of the power supply.

6. Remove the three screws that secure the power supply to the computer chassis.

    ![Diagram of power supply with screws and release latch indicated]

    1 screws (3)  2 power supply  3 release latch

7. While pressing down on the release latch, slide out the power supply and then lift it out.

Replacing the Power Supply

1. Follow the procedures in Before You Begin.

2. While pressing down on the release latch, slide the replacement power supply towards the back of the computer.
3. Replace the three screws that secure the power supply to the computer chassis.

   **NOTE:** Route the DC power cables under the chassis tabs. The cables must be properly routed to prevent the cables from being damaged.

4. Connect the DC power cables to the system board and drives.

5. Secure all the cables to the securing clip on the side of the power supply.

   **NOTE:** Double-check all cable connections to make sure they are secure.

6. Replace the support bracket (see [Replacing the Support Bracket](#)).

7. Replace the computer cover (see [Replacing the Computer Cover](#)).

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

---

**WARNING:** Failure to replace and tighten all screws may cause electrical shock as these screws are a key part of the system grounding.

---

[Back to Contents Page]
Overview

Use System Setup to:

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

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

⚠️ CAUTION: Do not change the settings in system setup unless you are an expert computer user. Certain changes can cause your computer to work incorrectly.

NOTE: Before you use System Setup, it is recommended that you write down the System Setup screen information for future reference.

Entering System Setup

1. Turn on (or restart) your computer.

2. When the DELL logo appears, press <F2> immediately.

   NOTE: Keyboard failure may result when a key on the keyboard is held down for extended periods of time. To avoid possible keyboard failure, press and release <F2> in even intervals until the system setup screen appears.

   If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop, then shut down your computer and try again.

System Setup Screens

Options List — This field appears on the top of the system setup window. The tabbed options contain features that define the configuration of your computer, including installed hardware, power conservation, and security features.

Option Field — This field contains information about each option. In this field you can view your current settings and make changes to your settings. Use the right- and left-arrow keys to highlight an option. Press <Enter> to make that selection active.

Help Field — This field provides context sensitive help based on the options selected.

Key Functions — This field appears below the Option Field and lists keys and their functions within the active system setup field.

System Setup Options

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

<table>
<thead>
<tr>
<th>System Info</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS Info</td>
<td>Displays the BIOS version and date.</td>
</tr>
<tr>
<td>System</td>
<td>Displays the computer model number.</td>
</tr>
<tr>
<td>Service Tag</td>
<td>Displays the service tag of the computer.</td>
</tr>
<tr>
<td>Asset Tag</td>
<td>Displays the asset tag for the computer, if present.</td>
</tr>
<tr>
<td>Processor Type</td>
<td>Displays the processor type.</td>
</tr>
</tbody>
</table>
### Processor L1 Cache
Displays the amount of processor Level 1 cache.

### Processor L2 Cache
Displays the amount of processor Level 2 cache.

### Memory Installed
Indicates the amount of installed memory.

### Memory Available
Indicates the amount of available memory.

### Memory Speed
Indicates the frequency of installed memory.

### Memory Technology
Indicates the type of installed memory.

### Standard CMOS Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Displays current date in the format (mm:dd:yyyy).</td>
</tr>
<tr>
<td>Time</td>
<td>Displays current time in the format (hh:mm:ss).</td>
</tr>
<tr>
<td>SATA 0</td>
<td>Displays the SATA drives connected to the SATA 0 connector.</td>
</tr>
<tr>
<td>SATA 1</td>
<td>Displays the SATA drives connected to the SATA 1 connector.</td>
</tr>
<tr>
<td>SATA 2</td>
<td>Displays the SATA drives connected to the SATA 2 connector.</td>
</tr>
<tr>
<td>SATA 3</td>
<td>Displays the SATA drives connected to the SATA 3 connector.</td>
</tr>
</tbody>
</table>

### Advanced BIOS Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Feature</td>
<td>Hyper-Threading Technology — Enabled; Disabled (Enabled by default)</td>
</tr>
<tr>
<td></td>
<td>Intel SpeedStep® — Enabled; Disabled (Enabled by default)</td>
</tr>
<tr>
<td></td>
<td>Virtualization — Enabled; Disabled (Disabled by default)</td>
</tr>
<tr>
<td></td>
<td>Limit CPUID Value — Enabled; Disabled (Disabled by default)</td>
</tr>
<tr>
<td></td>
<td>CPU XD Support — Enabled; Disabled (Enabled by default)</td>
</tr>
<tr>
<td></td>
<td>Multi Core Support — Enabled; Disabled (Enabled by default)</td>
</tr>
<tr>
<td>USB Device Setting</td>
<td>USB Controller — Enabled; Disabled (Enabled by default)</td>
</tr>
<tr>
<td></td>
<td>USB Operation Mode — HiSpeed; FullSpeed (HiSpeed by default)</td>
</tr>
</tbody>
</table>

### Advanced Chipset Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onboard Audio Controller</td>
<td>Enabled; Disabled (Enabled by default)</td>
</tr>
<tr>
<td>SATA Mode</td>
<td>ATA; RAID (ATA by default)</td>
</tr>
<tr>
<td>Onboard LAN Controller</td>
<td>Enabled; Disabled (Enabled by default)</td>
</tr>
<tr>
<td>Onboard LAN Boot ROM</td>
<td>Enabled; Disabled (Disabled by default)</td>
</tr>
</tbody>
</table>

### Boot Device Configuration

<table>
<thead>
<tr>
<th>Feature</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boot Settings</td>
<td>Fast Boot — Enabled; Disabled (Enabled by default)</td>
</tr>
<tr>
<td>Configuration</td>
<td>Numlock Key — On; Off (On by default)</td>
</tr>
<tr>
<td></td>
<td>Keyboard Errors — Report; Do Not Report (Report by default)</td>
</tr>
<tr>
<td>Removable Boot Priority</td>
<td>Used to set the device priority of removable devices like USB floppy drives. The items displayed are dynamically updated according to the removable devices connected.</td>
</tr>
<tr>
<td>Hard Disk Boot Priority</td>
<td>Used to set the device priority of hard drives. The items displayed are dynamically updated according to the hard drives detected.</td>
</tr>
<tr>
<td>CD/DVD Boot Priority</td>
<td>Used to set the device priority of CD/DVD drives. The items displayed are dynamically updated according to the CD/DVD drives detected.</td>
</tr>
<tr>
<td>Network Boot Priority</td>
<td>Used to set the device priority of network devices. The items displayed are dynamically updated according to the network devices detected.</td>
</tr>
<tr>
<td>USB Boot Priority</td>
<td>Used to set the device priority of USB drives. The items displayed are dynamically updated according to the USB drives detected.</td>
</tr>
<tr>
<td>1st Boot Device</td>
<td>Removable Dev.; Hard Drive; CD/DVD; Network; USB; Disabled (Hard Drive by default)</td>
</tr>
<tr>
<td>2nd Boot Device</td>
<td>Removable Dev.; Hard Drive; CD/DVD; Network; USB; Disabled (USB by default)</td>
</tr>
<tr>
<td>3rd Boot Device</td>
<td>Removable Dev.; Hard Drive; CD/DVD; Network; USB; Disabled (CD/DVD by default)</td>
</tr>
<tr>
<td>4th Boot Device</td>
<td>Removable Dev.; Hard Drive; CD/DVD; Network; USB; Disabled (Removable Dev. by default)</td>
</tr>
<tr>
<td>5th Boot Device</td>
<td>Removable Dev.; Hard Drive; CD/DVD; Network; USB; Disabled (Network by default)</td>
</tr>
</tbody>
</table>

### Power Management Setup

<table>
<thead>
<tr>
<th>Feature</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACPI Suspend Type</td>
<td>S1; S3 (S3 by default)</td>
</tr>
<tr>
<td>Remote Wake Up</td>
<td>Enabled; Disabled (Enabled by default)</td>
</tr>
<tr>
<td>AC Recovery</td>
<td>Power Off; Power On; Last Power State (Power Off by default)</td>
</tr>
<tr>
<td>Auto Power On</td>
<td>Enabled; Disabled (Disabled by default)</td>
</tr>
<tr>
<td>Auto Power On Date</td>
<td>0</td>
</tr>
<tr>
<td>Auto Power On Time</td>
<td>0:00:00</td>
</tr>
</tbody>
</table>
### BIOS Security Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set Supervisor Password</td>
<td>Press Enter to set the supervisor password.</td>
</tr>
<tr>
<td>User Access Level</td>
<td>No Access; View Only; Limited; Full Access (Full Access by default)</td>
</tr>
<tr>
<td>Set User Password</td>
<td>Press Enter to set the user password.</td>
</tr>
<tr>
<td>Password Check</td>
<td>Setup; Always (Setup by default)</td>
</tr>
</tbody>
</table>

### Changing Boot Sequence for the Current Boot

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

1. If you are booting to a USB device, connect the USB device to a USB connector.
2. Turn on (or restart) your computer.
3. When **F2 = Setup, F12 = Boot Options** appears on the screen, press `<F12>`.
   - If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop. Then shut down your computer and try again.
   - The **Boot Device Menu** appears, listing all available boot devices.
4. Use the up- or down-arrow keys to select the current boot device and press `<Enter>`.
   - For example, if you are booting to a USB memory key, highlight **USB Flash Device** and press `<Enter>`.

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

### Changing Boot Sequence for Future Boots

1. Enter system setup (see **Entering System Setup**).
2. Use the arrow keys to highlight the **Boot Device Configuration** menu option and press `<Enter>` to access the menu.

   **NOTE:** Write down your current boot sequence in case you want to restore it.
3. Press the up- and down-arrow keys to move through the list of devices.
4. Press plus (+) or minus (-) to change the boot priority of device.

### Clearing Forgotten Passwords

**WARNING:** Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at [www.dell.com/regulatory_compliance](http://www.dell.com/regulatory_compliance).

1. Follow the procedures in **Before You Begin**.
2. Remove the computer cover (see **Removing the Computer Cover**).
3. Locate the 3-pin password reset jumper on the system board (see **System Board Components**).
4. Remove the 2-pin jumper plug from pins 2 and 3 and fix it on pins 1 and 2.

5. Turn on the computer, wait for approximately five seconds, and then turn off the computer. If required, press and hold the power button to turn off the computer.

6. Remove the 2-pin jumper plug from pins 1 and 2 and replace it on pins 2 and 3 to enable the password feature.

7. Replace the computer cover (see Replacing the Computer Cover).

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

---

### Clearing CMOS Settings

1. Follow the procedures in Before You Begin.

   **NOTE**: The computer must be disconnected from the electrical outlet to clear the CMOS setting.

2. Remove the computer cover (see Removing the Computer Cover).

3. Reset the current CMOS settings:

   a. Locate the 3-pin CMOS reset jumper on the system board (see System Board Components).
   b. Remove the jumper plug from the CMOS reset jumper pins 2 and 3.
   c. Place the jumper plug on the CMOS reset jumper pins 1 and 2 and wait for approximately five seconds.
   d. Remove the jumper plug and replace it on the CMOS reset jumper pins 2 and 3.

4. Replace the computer cover (see Replacing the Computer Cover).

5. Connect your computer and devices to electrical outlets, and turn them on.
Flashing the BIOS

The BIOS may require flashing when an update is available or when replacing the system board. To flash the BIOS:

1. Turn on the computer.


3. Click Drivers & Downloads.

4. Locate the BIOS update file for your computer:
   
   - If you have your computer's Service Tag:
     a. Click Enter a Service Tag.
     b. Enter your computer's Service Tag in the Enter a service tag: field, click Go, and proceed to step 5.

   - If you do not have your computer's Service Tag:
     a. Click Select Your Product Model in the Select Your Entry Method list.
     b. Select the type of product in the Select Your Product Family list.
     c. Select the product brand in the Select Your Product Line list.
     d. Select the product model number in the Select Your Product Model list.

   \[NOTE:] If you have selected a different model and want to start over again, click Start Over on the top right of the menu.

   e. Click Confirm.

5. A list of results appear on the screen. Click BIOS.

6. Click Download Now to download the latest BIOS file.

   The File Download window appears.

7. Click Save to save the file on your desktop. The file downloads to your desktop.

8. Click Close if the Download Complete window appears.

   The file icon appears on your desktop and is titled the same as the downloaded BIOS update file.

9. Double-click the file icon on the desktop and follow the procedures that appear on the screen.

Back to Contents Page
Removing the System Board

1. Follow the procedures in Before You Begin.

2. Remove the computer cover (see Removing the Computer Cover).

3. Remove the support bracket (see Removing the Support Bracket).

4. Remove any PCI and PCI Express cards on the system board (see Removing PCI and PCI Express Cards).

5. Remove the optical drive (see Removing the Optical Drive).

6. Remove the processor fan and heat sink assembly (see Removing the Processor Fan and Heat Sink Assembly).

7. Remove the processor (see Removing the Processor).

8. Remove the memory modules (see Removing Memory Module(s)) and document which memory module is removed from each memory-module connector so that the memory modules can be installed in the same location after the board is replaced.

9. Disconnect all cables from the system board. Note the routing of all cables as you remove them so that you can re-route them correctly after installing the new system board.

10. Remove the eight screws that secure the system board to the chassis.

11. Lift the system board up and out of the chassis.

Replacing the System Board

NOTE: Compare the system board that you removed with the replacement system board to ensure that they are identical.
1. Follow the procedures in Before You Begin.

⚠️ **CAUTION:** Ensure that the port retention springs are not damaged while replacing the system board.

2. Gently align the system board into the chassis and slide it towards the back of the computer.

3. Replace the eight screws that secure the system board to the chassis.

4. Route and connect the cables that you disconnected from the system board.

⚠️ **CAUTION:** Ensure that the processor fan and heat sink assembly is correctly seated and secure.

5. Replace the processor (see Replacing the Processor).

6. Replace the processor fan and heat sink assembly (see Replacing the Processor Fan and Heat Sink Assembly).

7. Replace the optical drive (see Replacing the Optical Drive).

8. Replace the memory modules (see Replacing the Memory Module(s)).

9. Replace any PCI and PCI Express cards on the system board (see Replacing PCI and PCI Express Cards).

10. Replace the support bracket (see Replacing the Support Bracket).

11. Replace the computer cover (see Replacing the Computer Cover).

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

13. Flash the system BIOS, as needed (see Flashing the BIOS).

---

*Back to Contents Page*
Inside View of Your Computer

1. power supply
2. support bracket
3. system board
4. optical drive
5. Media Card Reader (optional)
6. primary hard-drive

System Board Components

1. 12 V power connector (ATX12V1)
2. processor socket
3. processor fan connector (FAN_CPU)
4. memory-module connector (DIMM1)
5. memory-module connector (DIMM2)
6. memory-module connector (DIMM3)
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>memory-module connector (DIMM4)</td>
<td>8</td>
<td>password reset jumper (CLR_PSW)</td>
</tr>
<tr>
<td>9</td>
<td>main power connector (ATX1_POWER1)</td>
<td>10</td>
<td>SATA connector (SATA_0)</td>
</tr>
<tr>
<td>11</td>
<td>SATA connector (SATA_1)</td>
<td>12</td>
<td>SATA connector (SATA_2)</td>
</tr>
<tr>
<td>13</td>
<td>SATA connector (SATA_3)</td>
<td>14</td>
<td>front-panel connector (FRONTPANEL)</td>
</tr>
<tr>
<td>15</td>
<td>front-panel USB connector (F_USB1)</td>
<td>16</td>
<td>front-panel USB connector (F_USB2)</td>
</tr>
<tr>
<td>17</td>
<td>front-panel USB connector (F_USB3)</td>
<td>18</td>
<td>battery socket (BATTERY)</td>
</tr>
<tr>
<td>19</td>
<td>front-panel audio connector (FP_AUDIO)</td>
<td>20</td>
<td>PCI card slot (PCI_1)</td>
</tr>
<tr>
<td>21</td>
<td>PCI-Express x1 card slot (PCIEX1_2)</td>
<td>22</td>
<td>CMOS reset jumper (CLR_CMOS)</td>
</tr>
<tr>
<td>23</td>
<td>PCI-Express x1 card slot (PCIEX1_1)</td>
<td>24</td>
<td>PCI-Express x16 card slot (PCIEX16)</td>
</tr>
<tr>
<td>25</td>
<td>chassis fan connector (FAN_SYS)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>