Notes, Cautions, and Warnings

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

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.
Contents

1 Working on Your Computer ......................................................... 5
   Before Working Inside Your Computer ........................................... 5
   Turning Off Your Computer ........................................................ 6
   After Working Inside Your Computer ............................................. 7

2 Removing and Installing Components ........................................... 8
   System Overview ..................................................................... 8
   Recommended Tools ................................................................ 9
   Removing the SD Card ............................................................... 9
   Installing the SD Card ............................................................... 10
   Removing the Battery ............................................................... 10
   Installing the Battery ............................................................... 10
   Removing the Access Panel ....................................................... 10
   Installing the Access Panel ....................................................... 11
   Removing the Memory Module .................................................. 11
   Installing the Memory Module .................................................. 11
   Removing the Hard Drive ......................................................... 12
   Installing the Hard Drive ......................................................... 13
   Removing the Optical Drive ...................................................... 13
   Installing the Optical Drive ...................................................... 14
   Removing the Keyboard ........................................................... 14
   Installing the Keyboard ........................................................... 16
   Removing the WLAN Card ....................................................... 16
   Installing the WLAN Card ....................................................... 16
   Removing the Palmrest ............................................................. 17
   Installing the Palmrest ............................................................. 19
   Removing the Input/Output (I/O) Board ...................................... 19
   Installing the Input/Output (I/O) Board ...................................... 20
   Removing the System Board .................................................... 20
   Installing the System Board .................................................... 21
   Removing the Coin-Cell Battery ............................................... 22
   Installing the Coin-Cell Battery ............................................... 22
   Removing the Heatsink ............................................................ 23
   Installing the Heatsink ............................................................ 23
   Removing the System Fan ....................................................... 24
   Installing the System Fan ....................................................... 24
   Removing the Speakers .......................................................... 25
   Installing the Speakers .......................................................... 26
Working on Your Computer

Before Working Inside Your Computer

Use the following safety guidelines to help protect your computer from potential damage and to help to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:

- You have read the safety information that shipped with your computer.
- A component can be replaced or--if purchased separately--installed by performing the removal procedure in reverse order.

⚠️ 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: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

⚠️ CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.

⚠️ CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

⚠️ CAUTION: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

NOTE: The color of your computer and certain components may appear differently than shown in this document.

To avoid damaging your computer, perform the following steps before you begin working inside the computer.

1. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
2. Turn off your computer (see Turning Off Your Computer).
3. If the computer is connected to a docking device (docked) such as the optional Media Base or Battery Slice, undock it.

⚠️ CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.

4. Disconnect all network cables from the computer.
5. Disconnect your computer and all attached devices from their electrical outlets.
6. Close the display and turn the computer upside-down on a flat work surface.
NOTE: To avoid damaging the system board, you must remove the main battery before you service the computer.

7. Remove the main battery.
8. Turn the computer top-side up.
9. Open the display.
10. Press the power button to ground the system board.

**CAUTION:** To guard against electrical shock, always unplug your computer from the electrical outlet before opening the display.

**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.

11. Remove any installed ExpressCards or Smart Cards from the appropriate slots.

## 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. Shut down the operating system:
   - In Windows 8:
     - Using a touch-enabled device:
       a. Swipe in from the right edge of the screen, opening the Charms menu and select **Settings**.
       b. Select the ⏰ and then select **Shut down**
     - Using a mouse:
       a. Point to upper-right corner of the screen and click **Settings**.
       b. Click the ⏰ and select **Shut down**.
   - In Windows 7:
     1. Click **Start**.
     2. Click **Shut Down**.
     or
     1. Click **Start**.
     2. Click the arrow in the lower-right corner of the **Start** menu as shown below, and then click **Shut Down**.

2. Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 4 seconds to turn them off.
After Working Inside Your Computer

After you complete any replacement procedure, ensure you connect any external devices, cards, and cables before turning on your computer.

⚠️ CAUTION: To avoid damage to the computer, use only the battery designed for this particular Dell computer. Do not use batteries designed for other Dell computers.

1. Connect any external devices, such as a port replicator, battery slice, or media base, and replace any cards, such as an ExpressCard.
2. Connect any telephone or network cables to your computer.
   ⚠️ CAUTION: To connect a network cable, first plug the cable into the network device and then plug it into the computer.
3. Replace the battery.
4. Connect your computer and all attached devices to their electrical outlets.
5. Turn on your computer.
Removing and Installing Components

This section provides detailed information on how to remove or install the components from your computer.

System Overview

1. memory module(s)
2. SD card slot
3. hard drive
4. optical drive
5. battery bay
1. system board
2. I/O board
3. speakers
4. system fan
5. heatsink
6. power connector
7. WLAN card
8. display

**Recommended Tools**

The procedures in this document may require the following tools:

- Small flat-blade screwdriver
- #0 Phillips screwdriver
- #1 Phillips screwdriver
- Small plastic scribe

**Removing the SD Card**

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Press in on the SD memory card to release it from the computer.
Installing the SD Card
1. Push the memory card into the compartment until it clicks into place.
2. Follow the procedures in After Working Inside Your Computer.

Removing the Battery
1. Follow the procedures in Before Working Inside Your Computer.
2. Slide the release latches outwards to unlock the battery and lift the battery to remove it from the computer.

Installing the Battery
1. Slide the battery into its slot until it clicks into place.
2. Follow the procedures in After Working Inside Your Computer.

Removing the Access Panel
1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Loosen the captive screws that secure the access panel and remove it from the computer.
Installing the Access Panel

1. Slide the access panel into its slot.
2. Tighten the screws to secure the access panel to the computer.
3. Install the battery.
4. Follow the procedures in *After Working Inside Your Computer*.

Removing the Memory Module

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a. battery
   b. SD card
   c. access panel
3. Pry the securing clips away from the memory module until it pops up. Remove the memory module from its socket on the system board.

Installing the Memory Module

1. Insert the memory module into the memory socket and press until it clicks into place.
2. Install:
   a. access panel
   b. SD card
   c. battery
3. Follow the procedures in *After Working Inside Your Computer*.

### Removing the Hard Drive

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a. battery
   b. SD card
   c. access panel
3. Remove the screws that secure the hard drive to the computer.

4. Slide the hard drive to release it from its connector. Lift the tab to remove the hard drive from the computer.

5. Remove the screws that secure the hard-drive bracket. Lift the latch to remove the hard-drive bracket from the hard drive.
Installing the Hard Drive

1. Place the hard drive in the hard-drive bracket and secure the latch.
2. Tighten the screws to secure the hard-drive bracket to the hard drive.
3. Slide the hard drive in its slot in the computer.
4. Tighten the screws to secure the hard drive to the computer.
5. Install:
   a. access panel
   b. SD card
   c. battery
6. Follow the procedures in After Working Inside Your Computer.

Removing the Optical Drive

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the screw that secures the optical drive and slide the optical drive out of the drive bay.
4. Remove the screws that secure the optical-drive bracket to the optical drive. Remove the optical-drive bracket from the optical drive.

Installing the Optical Drive

1. Place the optical-drive bracket on to the optical drive.
2. Tighten the screws to secure the optical-drive bracket to the optical drive.
3. Slide the optical drive into the drive bay in the computer.
4. Tighten the screw to secure the optical drive to the computer.
5. Install the battery.
6. Follow the procedures in *After Working Inside Your Computer*.

Removing the Keyboard

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the battery.
3. Release the keyboard by pressing the tabs on the palmrest.
4. Slide the keyboard towards the display assembly and flip the keyboard over the palmrest.

5. Disconnect the keyboard cable from the connector on the system board and lift the keyboard off the palmrest.
Installing the Keyboard

1. Connect the keyboard cable to the connector on the system board.
2. Slide the keyboard in its place on the computer and snap it into place.
3. Install the battery.
4. Follow the procedures in *After Working Inside Your Computer*.

Removing the WLAN Card

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a. battery
   b. keyboard
3. Disconnect the antenna cables, remove the screw that secures the WLAN card to the system board and lift the WLAN card from the computer.

Installing the WLAN Card

1. Insert the WLAN card in its connector at a 45-degree angle in its slot.
2. Connect the antenna cables to their respective connectors marked on the WLAN card.
3. Tighten the screw to secure the WLAN card to the computer.
4. Install:
a. keyboard
b. battery
5. Follow the procedures in After Working Inside Your Computer.

Removing the Palmrest

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. battery
   b. SD card
   c. access panel
   d. hard drive
   e. optical-drive
   f. keyboard
3. Remove the screws that secure the palmrest to the computer.

4. Flip the computer and disconnect the touchpad cable and power-button cable from the system board.
5. Remove the screws that secure the palmrest to the system board. Lift and release the tabs on palmrest from the slots on the computer.

6. Lift the palmrest at 45-degree angle and remove it from the computer.
Installing the Palmrest

1. Align and press the palmrest on the computer until it snaps into place at all sides.
2. Connect the touchpad cable and the power-button cable to the system board.
3. Tighten the screws to secure the palmrest to the system board.
4. Flip the computer and tighten the screws to secure the palmrest to the computer.
5. Install:
   a. keyboard
   b. optical drive
   c. hard drive
   d. access panel
   e. SD card
   f. battery
6. Follow the procedures in After Working Inside Your Computer.

Removing the Input/Output (I/O) Board

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. battery
   b. access panel
   c. keyboard
   d. palmrest
3. Disconnect the I/O cable from the system board. Remove the screw that secures the I/O board to the computer and lift the I/O board from the computer.
Installing the Input/Output (I/O) Board

1. Place the I/O board in its slot.
2. Tighten the screw to secure the I/O board to the computer.
3. Connect the I/O cable to the system board.
4. Install:
   a. palmrest
   b. keyboard
   c. access panel
   d. battery
5. Follow the procedures in After Working Inside Your Computer.

Removing the System Board

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. SD card
   b. battery
   c. access panel
   d. memory module
   e. hard drive
   f. optical drive
   g. keyboard
   h. palmrest
   i. WLAN card
3. Disconnect the following cables:
   a. display cable
   b. power-connector port cable
   c. speaker cable
   d. I/O board cable
   e. Touch cable (for touch computer only)
4. Remove the screw that secures the system board to the computer. Lift the system board from the computer.

Installing the System Board

1. Align the system board in its place on the computer.
2. Tighten the screw to secure the system board to the computer.
3. Connect the following cables to their connectors on the system board:
   a. touch cable (for touch computer only)
   b. I/O board cable
   c. speaker cable
   d. power-connector cable
   e. display cable
4. Install:
   a. WLAN card
b. palmrest
c. keyboard
d. optical drive
e. hard drive
f. memory module
g. access panel
h. battery
i. SD card

5. Follow the procedures in *After Working Inside Your Computer.*

**Removing the Coin-Cell Battery**

1. Follow the procedures in *Before Working Inside Your Computer.*
2. Remove:
   a. battery
   b. access panel
c. memory module
d. hard drive
e. optical drive
f. keyboard
g. palmrest
h. WLAN card
i. system board

3. Flip the system board and place it on a flat surface.
4. Pry out the coin-cell battery from the system board.

**Installing the Coin-Cell Battery**

1. Place the coin-cell battery in its slot.
2. Install:
   a. system board
   b. WLAN card
c. palmrest
d. keyboard
e. optical drive
f. hard drive
g. memory module
h. access panel
i. battery

3. Follow the procedures in *After Working Inside Your Computer.*
Removing the Heatsink

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a. SD card
   b. battery
   c. access panel
   d. memory module
   e. hard drive
   f. optical drive
   g. keyboard
   h. palmrest
   i. WLAN card
   j. system board
3. Flip the system board and place it on a flat surface.
4. Remove the screws that secure the heatsink to the system board. Lift the heatsink from the system board.

Installing the Heatsink

1. Align the heatsink in its place on the system board.
2. Tighten the screws to secure the heatsink to the system board.
3. Install:
   a. system board
   b. palmrest
   c. keyboard
   d. optical drive
   e. hard drive
   f. memory module
   g. WLAN card
   h. access panel
   i. SD card
   j. battery
4. Follow the procedures in *After Working Inside Your Computer.*

**Removing the System Fan**

1. Follow the procedures in *Before Working Inside Your Computer.*
2. Remove:
   a. battery
   b. access panel
   c. memory module
   d. hard drive
   e. optical drive
   f. keyboard
   g. palmrest
   h. WLAN card
   i. system board
3. Perform the steps as shown in the illustration:
   a. Disconnect the system-fan cable from the system board.
   b. Remove the screw that secures the system fan to the system board.
   c. Lift the system fan from the system board.

**Installing the System Fan**

1. Align the system fan in its place on the system board.
2. Tighten the screw to secure the system fan to the system board.
3. Connect the system-fan cable to the system board.
4. Install:
   a. system board
   b. WLAN card
   c. palmrest
   d. keyboard
   e. optical drive
   f. hard drive
   g. memory module
h. access panel
i. battery

5. Follow the procedures in *After Working Inside Your Computer*.

**Removing the Speakers**

1. Follow the procedures in *Before Working Inside Your Computer*.

2. Remove:
   a. battery
   b. SD card
   c. access panel
   d. memory module
   e. hard drive
   f. optical drive
   g. keyboard
   h. palmrest
   i. WLAN card
   j. system board

3. Peel the tape that secures the LED silicon tubes to the computer. Lift and remove the LED silicon tubes from the computer.

4. Unroute the speaker cables from their routing channel.
5. Lift the speaker assembly from the computer.

Installing the Speakers

1. Place the speakers in their slot and route the cables through the channels.
2. Place the LED silicon tubes on the computer.
3. Affix the tape that secures the LED silicon tubes to the computer.
4. Install:
   a. system board
   b. WLAN card
   c. palmrest
   d. keyboard
   e. optical drive
   f. hard drive
   g. memory module
   h. access panel
   i. SD card
   j. battery
5. Follow the procedures in After Working Inside Your Computer.

Removing the Display Assembly (Touch)

⚠️ WARNING: For the Touch system, the display assembly is a single component and should not be further dismantled.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. battery
   b. access panel
   c. memory module
   d. hard drive
   e. optical drive
   f. keyboard
   g. palmrest
3. Disconnect the touch cable and display cable. Disconnect the antennae cables from the WLAN card.

4. Remove the screws that secure the display assembly to the computer. Lift the display assembly from the computer.

Installing the Display Assembly (Touch)

⚠️ **WARNING:** For the Touch system, the display assembly is a single component and should not be further dismantled.

1. Place the display assembly on the computer and tighten the screws to secure it to the computer.
2. Connect the touch cable and display cable to the system board.
3. Connect the antennae cables to the WLAN card.
4. Flip the computer and tighten the screws to secure the display assembly to the computer.
5. Install:
   a. palmrest
   b. keyboard
   c. optical drive
   d. hard drive
   e. memory module
   f. access panel
   g. battery
6. Follow the procedures in After Working Inside Your Computer.

Removing the Display Assembly

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. battery
   b. access panel
   c. memory module
   d. hard drive
   e. optical drive
   f. keyboard
   g. palmrest
3. Peel the tape that secures the display and camera cables to the system board. Disconnect the cables from their connector on the system board. Disconnect the antennae cables from the WLAN card.
4. Remove the screws that secure the display assembly to the computer and lift the display assembly off the computer.
Installing the Display Assembly

1. Place the display assembly on the computer.
2. Tighten the screws to secure the display assembly to the computer.
3. Connect the antennae cables to the WLAN card.
4. Connect the display and power-connector cables to the system board.
5. Affix the tape that secures the display and camera cable to the computer.
6. Install:
   a. palmrest
   b. keyboard
   c. optical drive
   d. hard drive
   e. memory module
   f. access panel
   g. battery
7. Follow the procedures in After Working Inside Your Computer.

Removing the Power Connector

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. battery
   b. access panel
   c. hard drive
   d. optical drive
Perform the following steps as shown in the illustration:

3. a. Disconnect the power-connector cable and release the power-connector cable from the routing channel.
   b. Remove the power connector from the computer.

---

**Installing the Power Connector**

1. Align the power connector to its position in the computer.
2. Route the power-connector cable through the routing channel.
3. Connect the power-connector cable to the system board.
4. Install:
   a. display assembly
   b. WLAN card
   c. palmrest
   d. keyboard
   e. optical board
   f. hard drive
   g. access panel
   h. battery
5. Follow the procedures in *After Working Inside Your Computer.*

---

**Removing the Display Bezel**

1. Follow the procedures in *Before Working Inside Your Computer.*
2. Remove:
   a. battery
   b. SD card
   c. access panel
d. memory module
e. WLAN card
f. hard drive
g. optical drive
h. keyboard
i. palmrest
j. system board
k. display assembly

3. Press the hinge covers on the side. Lift and remove the hinge covers from the computer.

4. Pry the edges of the display bezel. Remove the display bezel from the computer.

**Installing the Display Bezel**

1. Align the display bezel in place and snap it in place.
2. Align the hinge covers on display assembly and snap the hinge covers on its place.
3. Install:
   a. display assembly
b. system board
c. palmrest
d. keyboard
e. optical drive
f. hard drive
g. memory module
h. WLAN card
i. access panel
j. SD card
k. battery

4. Follow the procedures in *After Working Inside Your Computer.*

**Removing the Display Hinges**

1. Follow the procedures in *Before Working Inside Your Computer.*
2. Remove:
   a. battery
   b. SD card
c. access panel
d. memory module
e. WLAN card
f. hard drive
g. optical drive
h. keyboard
i. palmrest
j. system board
k. display assembly
l. display bezel

3. Remove the screws that secure the display hinges to the display assembly. Lift the display hinges off the display panel.
Installing the Display Hinges

1. Place the display hinges on its place.
2. Tighten the screws to secure the display hinges to the display assembly.
3. Install:
   a. display bezel
   b. display assembly
   c. system board
   d. palmrest
   e. keyboard
   f. optical drive
   g. hard drive
   h. memory module
   i. WLAN card
   j. access panel
   k. SD card
   l. battery
4. Follow the procedures in After Working Inside Your Computer.

Removing the Display Panel

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. battery
   b. SD card
   c. access panel
   d. memory module
   e. WLAN card
   f. hard drive
   g. optical drive
   h. keyboard
   i. palmrest
   j. system board
   k. display assembly
   l. display bezel
   m. display hinges
3. Remove the screws that secure the display panel to the display assembly. Lift the display panel and flip to access the display cable.
4. Peel the tape that secures display cable and disconnect the cable from the connector. Remove the display panel from the display assembly.

Installing the Display Panel

1. Connect the display cable to the display panel.
2. Affix the tape to secure the display cable.
3. Place the display panel on the display assembly.
4. Tighten the screws to secure the display panel to the display assembly.
5. Install:
   a. display hinges
   b. display bezel
   c. display assembly
   d. system board
   e. palmrest
f. keyboard  
g. optical drive  
h. hard drive  
i. memory module  
j. WLAN card  
k. access panel  
l. SD card  
m. battery

6. Follow the procedures in *After Working Inside Your Computer.*

**Removing the Camera Module**

1. Follow the procedures in *Before Working Inside Your Computer.*
2. Remove:  
   a. battery  
   b. memory module  
   c. hard drive  
   d. optical drive  
   e. keyboard  
   f. palmrest  
   g. display assembly  
   h. display bezel

3. Remove the screw, peel the tape and disconnect the camera cable from the connector and remove the camera module from the display assembly.

**Installing the Camera Module**

1. Connect the camera cable to the connector on the camera module.  
2. Align the camera module in its position on the display assembly.  
3. Tighten the screw to secure the camera module to the display assembly.  
4. Affix the tape to the camera module.  
5. Install:
a. display bezel  
b. display assembly  
c. palmrest  
d. keyboard  
e. optical drive  
f. hard drive  
g. memory module  
h. battery

6. Follow the instructions in *After Working Inside Your Computer.*
System Setup

System Setup enables you to manage your computer hardware and specify BIOS-level options. From the System Setup, you can:

- Change the NVRAM settings after you add or remove hardware
- View the system hardware configuration
- Enable or disable integrated devices
- Set performance and power management thresholds
- Manage your computer security

Boot Sequence

Boot Sequence allows you to bypass the System Setup-defined boot device order and boot directly to a specific device (for example: optical drive or hard drive). During the Power-on Self Test (POST), when the Dell logo appears, you can:

- Access System Setup by pressing <F2> key
- Bring up the one-time boot menu by pressing <F12> key

The one-time boot menu displays the devices that you can boot from including the diagnostic option. The boot-menu options are:

- Removable Drive (if available)
- STXXXX Drive
  
  **NOTE:** XXX denotes the SATA drive number.
- Optical Drive
- Diagnostics
  
  **NOTE:** Choosing Diagnostics, will display the ePSA diagnostics screen.

The boot sequence screen also displays the option to access the System Setup screen.

Navigation Keys

The following table displays the system setup navigation keys.

**NOTE:** For most of the system setup options, changes that you make are recorded but do not take effect until you re-start the system.
Table 1. Navigation Keys

<table>
<thead>
<tr>
<th>Keys</th>
<th>Navigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up arrow</td>
<td>Moves to the previous field.</td>
</tr>
<tr>
<td>Down arrow</td>
<td>Moves to the next field.</td>
</tr>
<tr>
<td>&lt;Enter&gt;</td>
<td>Allows you to select a value in the selected field (if applicable) or follow the link in the field.</td>
</tr>
<tr>
<td>Spacebar</td>
<td>Expands or collapses a drop-down list, if applicable.</td>
</tr>
<tr>
<td>&lt;Tab&gt;</td>
<td>Moves to the next focus area.</td>
</tr>
</tbody>
</table>

**NOTE:** For the standard graphics browser only.

<table>
<thead>
<tr>
<th>Keys</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Esc&gt;</td>
<td>Moves to the previous page till you view the main screen. Pressing &lt;Esc&gt; in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.</td>
</tr>
<tr>
<td>&lt;F1&gt;</td>
<td>Displays the System Setup help file.</td>
</tr>
</tbody>
</table>

System Setup Options

**NOTE:** The system setup options may vary depending on the computer model.

The Main tab lists out the primary hardware features of the computer. The table below defines the function of each option.

Table 2. Main Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Time</td>
<td>Allows you to reset the time on the computer’s internal clock.</td>
</tr>
<tr>
<td>System Date</td>
<td>Allows you to reset the date on the computer’s internal calendar.</td>
</tr>
<tr>
<td>BIOS Version</td>
<td>Displays the BIOS revision.</td>
</tr>
<tr>
<td>Product Name</td>
<td>Displays the product name and the model number.</td>
</tr>
<tr>
<td>Service Tag</td>
<td>Displays the service tag of your computer.</td>
</tr>
<tr>
<td>Asset Tag</td>
<td>Displays the asset tag of your computer (if available).</td>
</tr>
<tr>
<td>CPU Type</td>
<td>Displays the type of processor.</td>
</tr>
<tr>
<td>CPU Speed</td>
<td>Displays the speed of the processor.</td>
</tr>
<tr>
<td>CPU ID</td>
<td>Displays the processor ID.</td>
</tr>
<tr>
<td>CPU Cache</td>
<td></td>
</tr>
</tbody>
</table>

38
### Table 3. Advanced Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel SpeedStep</td>
<td>Enable or disable the Intel SpeedStep feature. The default option is <strong>Enabled</strong></td>
</tr>
<tr>
<td>Virtualization</td>
<td>Enable or disable the Intel Virtualization feature. The default option is <strong>Enabled</strong></td>
</tr>
<tr>
<td>Integrated NIC</td>
<td>Enable or disable the power supply to the on-board network card. The default option is <strong>Enabled</strong></td>
</tr>
<tr>
<td>USB Emulation</td>
<td>Enable or disable the USB emulation feature. The default option is <strong>Enabled</strong></td>
</tr>
<tr>
<td>USB Wake Support</td>
<td>Allows USB devices to wake-up the computer from standby. This feature is enabled only when the AC adapter is connected. The default option is <strong>Disabled</strong></td>
</tr>
<tr>
<td>SATA Operation</td>
<td>The default SATA controller mode is AHCI.</td>
</tr>
<tr>
<td>Adapter Warnings</td>
<td>Enables or disables adapter warnings. The default option is <strong>Enabled</strong></td>
</tr>
<tr>
<td>Function Key Behavior</td>
<td>Specifies the behavior of the function key &lt;Fn&gt;. The default option is <strong>Function key first</strong></td>
</tr>
<tr>
<td>Battery Health</td>
<td>Specifies the health of the battery.</td>
</tr>
</tbody>
</table>
### Miscellaneous Devices

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miscellaneous Devices</td>
<td>These fields let you enable or disable various on-board devices.</td>
</tr>
<tr>
<td>External USB Ports</td>
<td>Enables or disables external USB ports. The default option is <strong>Enabled</strong>.</td>
</tr>
<tr>
<td>USB debug</td>
<td>Enables or disables USB debug. The default option is <strong>Disabled</strong>.</td>
</tr>
</tbody>
</table>

The Security tab displays the security status and allows you to manage the security features of the computer.

#### Table 4. Security Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admin Password Status</td>
<td>Displays the status of the administrator password. The default option is <strong>Not Set</strong>.</td>
</tr>
<tr>
<td>System Password Status</td>
<td>Displays the status of the system password. The default option is <strong>Not Set</strong>.</td>
</tr>
<tr>
<td>Set Admin Password</td>
<td>Enables to set an administrator password.</td>
</tr>
<tr>
<td>Set System Password</td>
<td>Enables to set a system password.</td>
</tr>
<tr>
<td>Set HDD Password</td>
<td>Enables to set the hard drive password.</td>
</tr>
<tr>
<td>Password Change</td>
<td>Allows you to add/remove permission for changing passwords.</td>
</tr>
<tr>
<td>Computrace</td>
<td>Enables or disables the Computrace feature on your computer.</td>
</tr>
</tbody>
</table>

The Boot tab allows you to change the boot sequence.

#### Table 5. Boot Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legacy Boot</td>
<td>Allows you to set boot device sequence.</td>
</tr>
<tr>
<td>UEFI Boot</td>
<td>Allows you to set boot device sequence.</td>
</tr>
<tr>
<td>Secure Boot</td>
<td>Allows you to perform a secure boot to your computer. The default option is <strong>Enabled</strong>.</td>
</tr>
<tr>
<td>Load Legacy Option ROM</td>
<td>Allows you to load legacy option. The default option is <strong>Disabled</strong>.</td>
</tr>
<tr>
<td>Boot List Option</td>
<td>Displays the boot option of the computer. The default option is <strong>UEFI</strong>.</td>
</tr>
<tr>
<td>Add Boot Option</td>
<td>Allows you to add a boot option.</td>
</tr>
<tr>
<td>Delete Boot Option</td>
<td>Allows you to delete a boot option.</td>
</tr>
<tr>
<td>View Boot Option Priorities</td>
<td>Allows you to prioritize the system boot order.</td>
</tr>
</tbody>
</table>
Table 6. Exit

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exit Savings Changes</td>
<td>Allows you to exit while saving changes.</td>
</tr>
<tr>
<td>Save Change Without Exit</td>
<td>Allows you to save changes without exiting.</td>
</tr>
<tr>
<td>Exit Discarding Changes</td>
<td>Allows you to exit while discarding changes.</td>
</tr>
<tr>
<td>Load Optimal Defaults</td>
<td>Allows you to load optimal defaults.</td>
</tr>
<tr>
<td>Discard Changes</td>
<td>Allows you to discard changes.</td>
</tr>
</tbody>
</table>

Updating the BIOS

It is recommended to update your BIOS (system setup), on replacing the system board or if an update is available. For laptops, ensure that your computer battery is fully charged and connected to a power outlet.

1. Re-start the computer.
2. Go to dell.com/support.
3. Enter the Service Tag or Express Service Code and click Submit.
   
   - **NOTE:** To locate the Service Tag, click Where is my Service Tag?
   
   - **NOTE:** If you cannot find your Service Tag, click Detect My Product. Proceed with the instructions on screen.
4. If you are unable to locate or find the Service Tag, click the Product Category of your computer.
5. Choose the Product Type from the list.
6. Select your computer model and the Product Support page of your computer appears.
7. Click Get drivers and click View All Drivers.
   
   The Drivers and Downloads page opens.
8. On the Drivers and Downloads screen, under the Operating System drop-down list, select BIOS.
9. Identify the latest BIOS file and click Download File.
   
   You can also analyze which drivers need an update. To do this for your product, click Analyze System for Updates and follow the instructions on the screen.
10. Select your preferred download method in the Please select your download method below window; click Download File.

   The File Download window appears.
11. Click Save to save the file on your computer.
12. Click Run to install the updated BIOS settings on your computer.

   Follow the instructions on the screen.

System and Setup Password

You can create a system password and a setup password to secure your computer.

<table>
<thead>
<tr>
<th>Password Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>System password</td>
<td>Password that you must enter to log on to your system.</td>
</tr>
<tr>
<td>Setup password</td>
<td>Password that you must enter to access and make changes to the BIOS settings of your computer.</td>
</tr>
</tbody>
</table>
### Assigning a System Password and Setup Password

You can assign a new System Password and/or Setup Password or change an existing System Password and/or Setup Password only when Password Status is Unlocked. If the Password Status is Locked, you cannot change the System Password.

**NOTE:** If the password jumper is disabled, the existing System Password and Setup Password is deleted and you need not provide the system password to log on to the computer.

To enter a system setup, press <F2> immediately after a power-on or re-boot.

1. In the System BIOS or System Setup screen, select System Security and press <Enter>. The System Security screen appears.
2. In the System Security screen, verify that Password Status is Unlocked.
3. Select System Password, enter your system password, and press <Enter> or <Tab>.
   - A password can have up to 32 characters.
   - The password can contain the numbers 0 through 9.
   - Only lower case letters are valid, upper case letters are not allowed.
   - Only the following special characters are allowed: space, ("), (+), (-), (.), (/), (;), ([), (]), (`).
   - Re-enter the system password when prompted.
4. Type the system password that you entered earlier and click OK.
5. Select Setup Password, type your system password and press <Enter> or <Tab>.
   - A message prompts you to re-type the setup password.
6. Type the setup password that you entered earlier and click OK.
7. Press <Esc> and a message prompts you to save the changes.
8. Press <Y> to save the changes. The computer reboots.

### Deleting or Changing an Existing System and/or Setup Password

Ensure that the Password Status is Unlocked (in the System Setup) before attempting to delete or change the existing System and/or Setup password. You cannot delete or change an existing System or Setup password, if the Password Status is Locked.

To enter the System Setup, press <F2> immediately after a power-on or reboot.

1. In the System BIOS or System Setup screen, select System Security and press <Enter>. The System Security screen is displayed.
2. In the System Security screen, verify that Password Status is Unlocked.
3. Select System Password, alter or delete the existing system password and press <Enter> or <Tab>.
4. Select Setup Password, alter or delete the existing setup password and press <Enter> or <Tab>.
NOTE: If you change the System and/or Setup password, re-enter the new password when prompted. If you delete the System and/or Setup password, confirm the deletion when prompted.

5. Press <Esc> and a message prompts you to save the changes.
6. Press <Y> to save the changes and exit from the System Setup.
The computer reboots.
Troubleshooting

Enhanced Pre-Boot System Assessment (ePSA) Diagnostics

The ePSA diagnostics (also known as system diagnostics) performs a complete check of your hardware. The ePSA is embedded with the BIOS and is launched by the BIOS internally. The embedded system diagnostics provides a set of options for particular devices or device groups allowing you to:

- Run tests automatically or in an interactive mode
- Repeat tests
- Display or save test results
- Run thorough tests to introduce additional test options to provide extra information about the failed device(s)
- View status messages that inform you if tests are completed successfully
- View error messages that inform you of problems encountered during testing

⚠️ **CAUTION:** Use the system diagnostics to test only your computer. Using this program with other computers may cause invalid results or error messages.

**NOTE:** Some tests for specific devices require user interaction. Always ensure that you are present at the computer terminal when the diagnostic tests are performed.

1. Power-on the computer.
2. As the computer boots, press the <F12> key as the Dell logo appears.
3. On the boot menu screen, select the **Diagnostics** option.
   The **Enhanced Pre-boot System Assessment** window is displayed, listing all devices detected in the computer. The diagnostics starts running the tests on all the detected devices.
4. If you wish to run a diagnostic test on a specific device, press <Esc> and click **Yes** to stop the diagnostic test.
5. Select the device from the left pane and click **Run Tests**.
6. If there are any issues, error codes are displayed.
   Note the error code and contact Dell.

Device Status Lights

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🔥</td>
<td>Turns on when you turn on the computer and blinks when the computer is in a power management mode.</td>
</tr>
<tr>
<td>💡</td>
<td>Turns on when the computer reads or writes data.</td>
</tr>
<tr>
<td>🔋</td>
<td>Turns on steadily or blinks to indicate battery charge status.</td>
</tr>
</tbody>
</table>
Battery Status Lights

If the computer is connected to an electrical outlet, the battery light operates as follows:

- **Alternately blinking amber light and white light** — An unauthenticated or unsupported non-Dell AC adapter is attached to your laptop.
- **Alternately blinking amber light with steady white light** — Temporary battery failure with AC adapter present.
- **Constantly blinking amber light** — Fatal battery failure with AC adapter present.
- **Light off** — Battery in full charge mode with AC adapter present.
- **White light on** — Battery in charge mode with AC adapter present.

Beep Codes

The computer may emit a series of beeps during start-up if the display cannot show errors or problems. These series of beeps, called beep codes, identify various problems. The delay between each beep is 300 ms, the delay between each set of beeps is 3 seconds, and the beep sound lasts 300 ms. After each beep and each set of beeps, the BIOS should detect if the user presses the power button. If so, BIOS will jump out from looping and execute the normal shutdown process and power system.

<table>
<thead>
<tr>
<th>Code</th>
<th>Cause and Troubleshooting Steps</th>
</tr>
</thead>
</table>
| 1    | BIOS ROM checksum in progress or failure  
      | System board failure, covers BIOS corruption or ROM error |
| 2    | No RAM detected  
      | No memory detected |
| 3    | Chipset Error (North and South Bridge Chipset, DMA/IMR Timer Error), Time-Of-Day Clock test failure, Gate A20 failure, Super I/O chip failure, Keyboard controller test failure  
      | System board failure |
| 4    | RAM Read/Write failure  
      | Memory failure |
| 5    | Real-time clock power fail  
      | CMOS battery failure |
| 6    | Video BIOS test failure  
      | Video card failure |
| 7    | CPU - cache test failure  
      | Processor failure |
| 8    | Display  
      | Display failure |
**LED Error Codes**

Diagnostic LED codes are communicated via the Power Button LED. The Power Button LED blinks the corresponding LED codes for the corresponding fault condition. Example: For No Memory detected (LED code 2), The Power Button LED blinks two times followed by a pause, blinks two times, pause, etc. This pattern continues until the system is powered off.

<table>
<thead>
<tr>
<th>Code</th>
<th>Cause and Troubleshooting Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>System board: BIOS ROM failure</td>
</tr>
<tr>
<td></td>
<td>System board failure, covers BIOS corruption or ROM error</td>
</tr>
<tr>
<td>2</td>
<td>Memory</td>
</tr>
<tr>
<td></td>
<td>No memory/RAM detected</td>
</tr>
<tr>
<td>3</td>
<td>Chipset Error (North and South Bridge Chipset, DMA/IMR/ Timer Error), Time-Of-Day Clock test failure, Gate A20 failure, Super I/O chip failure, Keyboard controller test failure</td>
</tr>
<tr>
<td></td>
<td>System board failure</td>
</tr>
<tr>
<td>4</td>
<td>RAM Read/Write failure</td>
</tr>
<tr>
<td></td>
<td>Memory failure</td>
</tr>
<tr>
<td>5</td>
<td>Real-time clock power fail</td>
</tr>
<tr>
<td></td>
<td>CMOS battery failure</td>
</tr>
<tr>
<td>6</td>
<td>Video BIOS test failure</td>
</tr>
<tr>
<td></td>
<td>Video card failure</td>
</tr>
<tr>
<td>7</td>
<td>CPU - cache test failure</td>
</tr>
<tr>
<td></td>
<td>Processor failure</td>
</tr>
<tr>
<td>8</td>
<td>Display</td>
</tr>
<tr>
<td></td>
<td>Display failure</td>
</tr>
</tbody>
</table>
Specifications

**NOTE:** Offerings may vary by region. For more information regarding the configuration of your computer, click Start (Start icon) → **Help and Support**, and then select the option to view information about your computer.

Table 7. System Information

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRAM bus width</td>
<td>64 bits and 128 bits</td>
</tr>
<tr>
<td>Flash EPROM</td>
<td>8 MB</td>
</tr>
</tbody>
</table>

Table 8. Processor

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>• Intel Core i3 ULV (4th Generation)</td>
</tr>
<tr>
<td></td>
<td>• Intel Core i5 ULV (4th Generation)</td>
</tr>
<tr>
<td></td>
<td>• Intel Core i7 ULV (4th Generation)</td>
</tr>
<tr>
<td>L1 cache</td>
<td>64 KB</td>
</tr>
<tr>
<td>L2 cache</td>
<td>256 KB</td>
</tr>
<tr>
<td>L3 cache</td>
<td>Up to 4 MB</td>
</tr>
</tbody>
</table>

Table 9. Memory

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory connector</td>
<td>two internally accessible DDR3L connectors</td>
</tr>
<tr>
<td>Memory capacity</td>
<td>2 GB and 4 GB</td>
</tr>
<tr>
<td>Memory type</td>
<td>1600 MHz (dual channel DDR3L configuration)</td>
</tr>
<tr>
<td>Minimum memory</td>
<td>2 GB, 4 GB, 6 GB, and 8 GB</td>
</tr>
<tr>
<td>Maximum memory</td>
<td>8 GB</td>
</tr>
</tbody>
</table>

Table 10. Audio

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>2 channel high definition audio</td>
</tr>
<tr>
<td>Controller</td>
<td>Realtek ALC3223</td>
</tr>
<tr>
<td>Stereo conversion</td>
<td>24-bit (analog to digital and digital to analog)</td>
</tr>
<tr>
<td>Interface</td>
<td>Intel HDA bus</td>
</tr>
</tbody>
</table>
### Table 11. Video

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video type</td>
<td>Integrated on system board / discrete</td>
</tr>
<tr>
<td>Video controller:</td>
<td></td>
</tr>
<tr>
<td>UMA</td>
<td>Intel HD Graphics 4400 (shared memory)</td>
</tr>
<tr>
<td>Discrete</td>
<td></td>
</tr>
<tr>
<td>Latitude 3440</td>
<td>NVIDIA GeForce GT740M (2GB DDR3)</td>
</tr>
<tr>
<td>Latitude 3540</td>
<td>AMD Radeon HD 8850M (2GB DDR5)</td>
</tr>
<tr>
<td>Data bus:</td>
<td></td>
</tr>
<tr>
<td>Latitude 3440</td>
<td>64 bits</td>
</tr>
<tr>
<td>Latitude 3540</td>
<td>128 bits</td>
</tr>
</tbody>
</table>

### Table 12. Camera

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camera resolution</td>
<td>0.92 megapixels</td>
</tr>
<tr>
<td>Video resolution (maximum)</td>
<td>1280 x 720 (HD) at 30 fps (maximum)</td>
</tr>
<tr>
<td>Diagonal viewing angle</td>
<td>66°</td>
</tr>
</tbody>
</table>

### Table 13. Communication

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network adapter</td>
<td>10/100/1000 Mbps Ethernet LAN on Motherboard (LOM)</td>
</tr>
<tr>
<td>Wireless</td>
<td></td>
</tr>
<tr>
<td>• Wi-fi 802.11 b/g/n</td>
<td></td>
</tr>
<tr>
<td>• bluetooth 4.0</td>
<td></td>
</tr>
</tbody>
</table>

### Table 14. Ports and Connectors

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>one headphone/microphone combo port (headset)</td>
</tr>
<tr>
<td>Video</td>
<td>one 19-pin VGA port</td>
</tr>
<tr>
<td>Network adapter</td>
<td>one RJ45 port</td>
</tr>
<tr>
<td>USB:</td>
<td></td>
</tr>
<tr>
<td>Latitude 3440</td>
<td>• two USB 3.0 ports (rear one with window debug)</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td>one USB 2.0 port</td>
<td></td>
</tr>
<tr>
<td>Latitude 3540</td>
<td>two USB 3.0 ports (rear one with window debug)</td>
</tr>
<tr>
<td></td>
<td>two USB 2.0 port</td>
</tr>
</tbody>
</table>

**NOTE:** The powered USB 3.0 connector also supports Microsoft Kernel Debugging. The ports are identified in the documentation shipped with your computer.

| Media card reader | one 4-in-1 slot |

**Table 15. Display**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Latitude 3440</th>
<th>Latitude 3540</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>14.0 inches HD WLED</td>
<td>15.6 inches HD WLED</td>
</tr>
<tr>
<td>Height</td>
<td>205.60 mm (8.09 inches)</td>
<td>344.23 mm (13.55 inches)</td>
</tr>
<tr>
<td>Width</td>
<td>320.90 mm (12.63 inches)</td>
<td>193.54 (7.61 inches)</td>
</tr>
<tr>
<td>Diagonal</td>
<td>355.60 mm (14.00 inches)</td>
<td>396.24 mm (15.60 inches)</td>
</tr>
<tr>
<td>Active area (X/Y)</td>
<td>309.40 mm x 173.95 mm (12.18 inches x 6.85 inches)</td>
<td>344.23 x 193.54 mm (13.55 inches x 7.61 inches)</td>
</tr>
<tr>
<td>Maximum resolution</td>
<td></td>
<td>1366 x 768 pixels</td>
</tr>
<tr>
<td>Maximum brightness</td>
<td></td>
<td>200 nits</td>
</tr>
<tr>
<td>Operating angle</td>
<td>0° (closed) to 135°</td>
<td>0° (closed) to 140°</td>
</tr>
<tr>
<td>Refresh rate</td>
<td>60 Hz</td>
<td></td>
</tr>
<tr>
<td>Minimum viewing angles:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Horizontal</td>
<td>40°/40°</td>
<td></td>
</tr>
<tr>
<td>Vertical</td>
<td>10°/30°</td>
<td></td>
</tr>
<tr>
<td>Pixel pitch</td>
<td>0.2265 mm x 0.2265 mm</td>
<td>0.252 mm x 0.252 mm</td>
</tr>
<tr>
<td>External display</td>
<td></td>
<td>VGA</td>
</tr>
</tbody>
</table>

**Table 16. Keyboard**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of keys:</td>
<td></td>
</tr>
<tr>
<td>Latitude 3440</td>
<td>US 86, Brazil 87, UK 87 and Japan 90</td>
</tr>
<tr>
<td>Latitude 3540</td>
<td>US 102, Brazil 105, UK 103 and Japan 106</td>
</tr>
</tbody>
</table>
Table 17. Touchpad

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active area:</td>
<td>240 dpi</td>
</tr>
<tr>
<td>X-axis</td>
<td>56.00 mm (2.20 inches)</td>
</tr>
<tr>
<td>Y-axis</td>
<td>100.00 mm (3.94 inches)</td>
</tr>
</tbody>
</table>

Table 18. Battery

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>• 4-cell “smart” lithium ion (40 WHr)</td>
</tr>
<tr>
<td></td>
<td>• 6-cell “smart” lithium ion (65 WHr)</td>
</tr>
<tr>
<td>Dimensions:</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>• 4–cell — 20.00 mm (0.79 inch)</td>
</tr>
<tr>
<td></td>
<td>• 6–cell — 35.40 mm (1.39 inches)</td>
</tr>
<tr>
<td>Width</td>
<td>46.30 mm (1.82 inches)</td>
</tr>
<tr>
<td>Depth</td>
<td>272.40 mm (10.72 inches)</td>
</tr>
<tr>
<td>Weight</td>
<td>• 4–cell — 260 g</td>
</tr>
<tr>
<td></td>
<td>• 6–cell — 360 g</td>
</tr>
<tr>
<td>Life span</td>
<td>300 discharge/charge cycle</td>
</tr>
<tr>
<td>Voltage</td>
<td>• 14.80 VDC (4–cell)</td>
</tr>
<tr>
<td></td>
<td>• 11.10 VDC (6–cell)</td>
</tr>
<tr>
<td>Temperature range:</td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>0 °C to 35 °C (32 °F to 95 °F)</td>
</tr>
<tr>
<td>Non-Operating</td>
<td>−40 °C to 65 °C (−40 °F to 149 °F)</td>
</tr>
<tr>
<td>Coin-cell battery</td>
<td>3 V CR2032 lithium ion</td>
</tr>
</tbody>
</table>

Table 19. AC Adapter

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>65 W and 90 W</td>
</tr>
<tr>
<td>Input voltage</td>
<td>100 VAC to 240 VAC</td>
</tr>
<tr>
<td>Input current (maximum)</td>
<td>1.50 A/1.60 A/1.70 A/2.50 A</td>
</tr>
<tr>
<td>Input frequency</td>
<td>50 Hz–60 Hz</td>
</tr>
<tr>
<td>Output power</td>
<td>65 W/90 W</td>
</tr>
<tr>
<td>Output current</td>
<td>3.34 A/4.62 A</td>
</tr>
<tr>
<td>Rated output voltage</td>
<td>19.50 VDC</td>
</tr>
</tbody>
</table>
Table 20. Physical

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature range:</strong></td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>0 °C to 40 °C (32 °F to 104 °F)</td>
</tr>
<tr>
<td>Non-Operating</td>
<td>−40 °C to 70 °C (−40 °F to 158 °F)</td>
</tr>
</tbody>
</table>

Table 21. Environmental

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature:</strong></td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>0 °C to 35 °C (32 °F to 95 °F)</td>
</tr>
<tr>
<td>Storage</td>
<td>−40 °C to 65 °C (−40 °F to 149 °F)</td>
</tr>
<tr>
<td><strong>Relative humidity (maximum):</strong></td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>10 % to 90 % (non-condensing)</td>
</tr>
<tr>
<td>Storage</td>
<td>10 % to 95 % (non-condensing)</td>
</tr>
<tr>
<td><strong>Altitude (maximum):</strong></td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>−15.2 m to 3048 m (−50 to 10,000 ft)</td>
</tr>
<tr>
<td></td>
<td>0° to 35°C</td>
</tr>
<tr>
<td>Non-Operating</td>
<td>−15.2 m to 10,668 m (−50 ft to 35,000 ft)</td>
</tr>
</tbody>
</table>

Airborne contaminant level | G1 as defined by ISA-S71.04-1985

Table 20. Physical

<table>
<thead>
<tr>
<th>Physical Feature</th>
<th>Latitude 3440</th>
<th>Latitude 3540</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Height:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with 4-cell battery</td>
<td>25.00 mm (0.98 inch)</td>
<td>27.90 mm (1.10 inches)</td>
</tr>
<tr>
<td>with 6-cell battery</td>
<td>29.60 mm (1.17 inches)</td>
<td>32.90 mm (1.30 inches)</td>
</tr>
<tr>
<td><strong>Width:</strong></td>
<td>346.00 mm (13.62 inches)</td>
<td>376.00 mm (14.80 inches)</td>
</tr>
<tr>
<td><strong>Depth:</strong></td>
<td>245.00 mm (9.65 inches)</td>
<td>259.00 mm (10.20 inches)</td>
</tr>
<tr>
<td><strong>Weight (minimum):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with 4-cell battery</td>
<td>2.00 kg (4.30 lb)</td>
<td>2.20 kg (4.85 lb)</td>
</tr>
<tr>
<td>with 6-cell battery</td>
<td>2.10 kg (4.60 lb)</td>
<td>2.35 kg (5.18 lb)</td>
</tr>
</tbody>
</table>
NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

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2. Select your support category.
3. Verify your country or region in the Choose a Country/Region drop-down menu at the top of page.
4. Select the appropriate service or support link based on your need.