




Dell Latitude 2110 Service Manual

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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.

If you purchased a Dell n Series computer, any references in this document to Microsoft Windows operating systems are not applicable.

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June 2010 Rev. A00

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Battery

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⚠ 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.

Removing the Battery



📎 NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Slide the battery release latch into the unlock position.

3. Slide and remove the battery from the computer.

Replacing the Battery

To replace the battery, perform the above steps in reverse order.

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Keyboard

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Removing the Keyboard



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [battery](#).
3. Remove the screws that secure the keyboard.

4. Open the display and then push a flathead screwdriver through the screw socket from where you removed the keyboard screw.

5. Starting in the top left corner of the keyboard, lift the keyboard up, and then flip the keyboard.

6. Open the keyboard data-cable clip.

7. Disconnect the keyboard data cable and remove the keyboard from the computer.

Replacing the Keyboard

To replace the keyboard, perform the above steps in reverse order.

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Access Panel

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Removing the Access Panel



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [keyboard](#).
3. Remove the access-panel screws under the keyboard.

4. Remove the access-panel screws on the bottom of the computer.

5. Starting near the hinges, lift the access panel and remove it from the computer.

Replacing the Access Panel

To replace the access panel, perform the above steps in reverse order.

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Memory Modules

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Removing the Memory Modules



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [keyboard](#).
3. Remove the [access panel](#).
4. Pry the retention clips away from the memory module.

5. Remove the memory module from the computer.

Replacing the Memory Modules

To replace the memory modules, insert the memory module in the memory slot at an angle, then press down the memory module to snap the memory module in place.

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Coin-Cell Battery

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Removing the Coin-Cell Battery



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [keyboard](#).
3. Remove the [access panel](#).
4. Disconnect the coin-cell battery cable from the system board.

5. Remove the coin-cell battery.

Replacing the Coin-Cell Battery

To replace the coin-cell battery, perform the above steps in reverse order.

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WLAN Card

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Removing the WLAN Card



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [keyboard](#).
3. Remove the [access panel](#).
4. Disconnect the WLAN antenna cables from the card.
5. Remove the screw that secures the WLAN card to the system board.
6. Remove the WLAN card from the computer.

Replacing the WLAN Card

To replace the WLAN card, perform the above steps in reverse order.

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WWAN Card

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Removing the WWAN Card



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [battery](#).
3. Remove the [keyboard](#).
4. Remove the [access panel](#).
5. Disconnect the WWAN antenna cables from the card.

6. Remove the screw that secures the WWAN card to the system board.

7. Remove the WWAN card from the computer.

Replacing the WWAN Card

To replace the WWAN card, perform the above steps in reverse order.

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Hard Drive/Hard-Drive Brackets

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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.

Removing the Hard Drive/Hard-Drive Brackets



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [battery](#).
3. Remove the [keyboard](#).
4. Remove the [access panel](#).
5. Remove the screws that secure the hard drive to the system board.

6. Slide the hard drive toward the side of the computer to disengage the hard drive from the system board.

7. Lift the hard drive up to remove it from the computer.

8. Remove the hard-drive bracket screws from both sides of the hard drive.

9. Remove the hard-drive bracket from the hard drive.

Replacing the Hard Drive/Hard-Drive Brackets

To replace the hard drive/hard-drive brackets, perform the above steps in reverse order.

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Heatsink

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Removing the Heatsink



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [battery](#).
3. Remove the [keyboard](#).
4. Remove the [access panel](#).
5. Disconnect the speaker cable from the system board and remove it from its routing path.
6. Disconnect the fan power cable from the system board.
7. Loosen the captive screws on the heat sink.
8. Lift the heat sink up to remove it from the computer.

Replacing the Heatsink

To replace the heatsink, perform the above steps in reverse order.

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DC Power Cable

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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.

Removing the DC Power Cable



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [battery](#).
3. Remove the [keyboard](#).
4. Remove the [access panel](#).
5. Disconnect the DC power cable from the system board.

6. Remove the screw that secures the DC power-cable connector to the system board.

7. Lift up to remove the DC power cable from the computer.

Replacing the DC Power Cable

To replace the DC power cable, perform the above steps in reverse order.

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Display Assembly

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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.

Removing the Display Assembly



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [battery](#).
3. Remove the [keyboard](#).
4. Remove the [access panel](#).
5. Disconnect the speaker cable from the system board and remove it from its routing path.

6. Disconnect the antenna cables from the WLAN card and then remove the cables from their routing path.

7. Disconnect the display data cable from the system board.

8. Remove the screws that secure the display assembly.

9. Remove the display assembly by sliding it toward the base of the computer.

Replacing the Display Assembly

To replace the display assembly, perform the above steps in reverse order.

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Display Bezel

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Removing the Display Bezel



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [battery](#).
3. Remove the [keyboard](#).
4. Remove the [access panel](#).
5. Remove the [display assembly](#).
6. Using a plastic scribe, pry and remove the rubber screw-covers from the display bezel.
7. Remove the screws that secure the display bezel to the display assembly.
8. Starting at the bottom of the display bezel, disengage the display bezel from the display assembly, and then remove the display bezel.

Replacing the Display Bezel

To replace the display bezel, perform the above steps in reverse order.

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Display-Hinge Covers

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Removing the Display-Hinge Covers



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [battery](#).
3. Remove the [keyboard](#).
4. Remove the [access panel](#).
5. Remove the [display assembly](#).
6. Remove the [display bezel](#).
7. Pivot the hinge cover away from the hinge and remove the hinge cover.

Replacing the Display-Hinge Covers

To replace the display-hinge covers, perform the above steps in reverse order.

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Camera

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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.

Removing the Camera



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [battery](#).
3. Remove the [keyboard](#).
4. Remove the [access panel](#).
5. Remove the [display assembly](#).
6. Remove the [display bezel](#).
7. Disconnect the cable from the camera module.

8. Remove the screws that secure the camera to the display assembly.

9. Lift the camera module up to remove it from the display assembly.

Replacing the Camera

To replace the camera, perform the above steps in reverse order.

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Display Panel/Bracket

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Removing the Display Panel/Bracket



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [battery](#).
3. Remove the [keyboard](#).
4. Remove the [access panel](#).
5. Remove the [display assembly](#).
6. Remove the [display bezel](#).
7. Open the retention clip and disconnect the display touch-screen cable from the display assembly.

8. Remove the screws that secure the display panel to the display assembly, and then flip over the display panel.

9. Remove the display data cable from the display panel.

10. Remove the display panel from the display assembly.

11. Remove the screws that secure the display bracket, and then remove the display bracket from the display assembly.

Replacing the Display Panel/Bracket

To replace the display panel/bracket, perform the above steps in reverse order.

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Display Cable

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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.

Removing the Display Cable



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [battery](#).
3. Remove the [keyboard](#).
4. Remove the [access panel](#).
5. Remove the [display assembly](#).
6. Remove the [display bezel](#).
7. Remove the [display panel](#).
8. Disconnect the camera cable from the display assembly.

9. Disconnect the display LED board cable from the display assembly.

10. Remove the grounding captive screw from the display hinge.

11. Remove the display cable from the display assembly.

Replacing the Display Cable

To replace the display cable, perform the above steps in reverse order.

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Display Hinges

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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.

Removing the Display Hinges



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [battery](#).
3. Remove the [keyboard](#).
4. Remove the [access panel](#).
5. Remove the [display assembly](#).
6. Remove the [display bezel](#).
7. Remove the [display panel](#).
8. Loosen the display-cable captive screw and remove the screw that secures the display hinge to the display assembly.
9. Lift the display hinge and remove it from the display assembly.
10. Remove the screw that secures the second display hinge.
11. Lift the display hinge and remove it from the display assembly.

Replacing the Display Hinges

To replace the display hinges, perform the above steps in reverse order.

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System Board/Bluetooth Module

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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.

Removing the System Board/Bluetooth Module



NOTE: You may need to install Adobe Flash Player from Adobe.com in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [battery](#).
3. Remove the [keyboard](#).
4. Remove the [access panel](#).
5. Remove the [hard drive](#).
6. Remove the [WWAN card](#).
7. Remove the [WLAN card](#).
8. Remove the [display assembly](#).
9. Remove the [heatsink](#).
10. Open the touchpad-cable clip and disconnect the touchpad cable from the system board. Open the button-board-cable clip and disconnect the button-board data cable from the system board.
11. Remove the screws that secure the system board in place.
12. Starting from the side where the USB ports are located, lift up the system board and remove the system board.
13. Disconnect the Bluetooth module cable from the system board.
14. Remove the screw that secures the Bluetooth module to the system board.
15. Remove the Bluetooth module from the system board.

Replacing the System Board/Bluetooth Module

To replace the system board/Bluetooth module, perform the above steps in reverse order.

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System Setup

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Overview

Use System Setup to:

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

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

 **CAUTION:** Unless you are an expert computer user, do not change the settings for this program. Certain changes can cause your computer to work incorrectly.

Entering System Setup

1. Turn on (or restart) your computer.
2. When the DELL logo is displayed, press <F2> immediately.

Boot Menu

The Boot menu lists all the valid boot devices for your computer. Use the Boot menu to:

- 1 Run diagnostics on your computer
- 1 Enter system setup
- 1 Change the boot sequence without changing the boot sequence permanently in the system setup.

To access the Boot menu:

1. Turn on (or restart) your computer.
2. When the blue DELL logo is displayed, press <F12> immediately.

Navigation Keystrokes

Use the following keystrokes to navigate System Setup screens.


Navigation	
Action	Keystroke(s)
Expand and collapse field	<Enter>, left- or right-arrow key
Exit BIOS	<Esc>, Exit button
Select field to change	<Enter>
Change a field	Make the required change and click Apply
Cancel modification	<Esc>
Reset defaults	Load Defaults button

System Setup Menu Options

The following tables describe the menu options for the System Setup program.

General	
Option	Description
	<p>This section lists the primary hardware features of your computer. There are no configurable options in this section.</p> <ol style="list-style-type: none">1 System Information<ul style="list-style-type: none">○ BIOS Version○ Service Tag○ Asset Tag○ Ownership Tag1 Memory Information<ul style="list-style-type: none">○ Memory Installed○ Memory Available○ Memory Speed○ Memory Channel Mode

System Information	<ul style="list-style-type: none"> o Memory Technology o DIMM A Size 1 Processor Information <ul style="list-style-type: none"> o Processor Type o Core Count o Processor ID o Current Clock Speed 1 Device Information <ul style="list-style-type: none"> o Primary Hard Drive o Video Controller o Video BIOS Version o Video Memory o Panel Type o Native Resolution o Audio Controller o Wi-Fi Device o Cellular Device o Bluetooth Device o Integrated NIC MAC
Battery Information	Displays the status of the battery and the type of AC adapter connected to the computer.
Boot Sequence	<p>Specifies the order in which the computer attempts to find an operating system.</p> <ul style="list-style-type: none"> 1 Diskette drive 1 Internal HDD 1 USB Storage Device 1 CD/DVD/CD-RW Drive 1 Onboard NIC <p>This list specifies the order in which the BIOS searches for bootable devices. To change the boot order, select the device to be changed in the list and click the Up/Down arrows or use the Page Up/Page Down keys to change the position of the device. You can also exclude devices from this list using the check boxes.</p>
Date/Time	Displays current date and time settings. Allows you to change the computer's date and time.

 **NOTE:** System Configuration contains options and settings related to integrated system devices. Depending on your computer and installed devices, the items listed in this section may or may not appear.

System Configuration	
Option	Description
Integrated NIC	Allows you to configure the integrated network controller. The options are: Disabled , Enabled , Enabled w/PXE , and Enabled w/RPL .
System Management	Allows you to change the system management mechanism. The options are Disabled , Alert Only , and ASF 2.0 .
SATA Operation	Allows you to configure the operating mode of the internal SATA hard drive controller. The options are: Disabled , ATA , and AHCI
Miscellaneous Devices	<p>Allows you to enable or disable the following devices:</p> <ul style="list-style-type: none"> 1 External USB Port 1 Microphone 1 Media Card 1 Camera
Network Activity LED	<p>Allows you to configure the network LED behavior.</p> <p>The options are:</p> <ul style="list-style-type: none"> 1 Enable ACPI OS Control — Allows the activity LED to be controlled by an ACPI operating system and ACPI driver. 1 Wireless LAN Indicator — The network activity LED indicates WLAN activity. 1 Off — Switches off the network activity LED <p>NOTE: If you use Ubuntu operating system, the network activity LED can only function as a WLAN-radio on/off indicator, and you must select the option Wireless LAN Indicator. Selecting any other option disables the network activity LED.</p>

Video	
Option	Description
LCD Brightness	Allows you to set the display brightness depending up on the power source (On Battery and On AC).

Security	
Option	Description
Admin Password	<p>Allows you to set, change, or delete the administrator (admin) password. When set, the admin password enables several security features including:</p> <ul style="list-style-type: none"> 1 Restricts changes to the settings in Setup 1 Restricts the boot devices listed in the <F12> Boot Menu to those enabled in the "Boot Sequence" field 1 Prohibits changes to the owner and asset tags 1 Substitutes for the system and hard drive password <p>NOTE: You must set the admin password before you set the system or hard drive password. NOTE: Successful password changes take effect immediately. NOTE: Deleting the admin password automatically deletes the system password as well.</p>
System Password	Allows you to set, change, or delete the system password. When set, your computer requests you to enter the system password every time your computer turns on or restarts.

	NOTE: Successful password changes take effect immediately.
Internal HDD Password	This field lets you set, change, or delete the password on the system's internal hard disk drive (HDD). Successful changes take place immediately and require a system restart. The HDD password travels with the hard drive, so the HDD is protected even when installed in another system.
Password Bypass	Allows you to bypass the system and internal hard drive password prompts when your computer restarts or resumes from standby. You can set Password Bypass to: Disabled , Reboot Bypass , Resume Bypass , and Reboot & Resume Bypass . NOTE: You cannot bypass the system or hard drive password when you turn on your computer that has been shut down.
Password Change	Allows you to enable or disable changes to the System and hard drive passwords when the admin password is set.
Computrace	Allows you to enable or disable the optional Computrace software. The options are Deactivate , Disable , and Activate . NOTE: The Activate and Disable options will permanently activate or disable the feature and no further changes will be allowed.
CPU XD Support	Allows you to enable or disable the Execute Disable mode of the processor. Default setting: Enabled

Performance	
Option	Description
Intel SpeedStep	Enables or disables the Intel SpeedStep feature.

Power Management	
Option	Description
Wake on AC	Allows you to enable or disable the computer from turning on automatically when an AC adapter is connected.
Auto On Time	Allows you to set the time at which the computer must turn on automatically. You can set the days on which you want the computer to turn on automatically. The settings are Disabled , Everyday , or Weekdays . Default setting: Disabled
USB Wake Support	Allows you to enable or disable the ability of USB devices to wake the computer from Standby. This feature is only functional when the AC power adapter is connected. If the AC power adapter is removed during Standby, the BIOS will remove power from all of the USB ports to conserve battery power.
Wake on LAN	Allows the computer to turn on by a special LAN signal or from Hibernation state when triggered by a special wireless LAN signal. Wake-up from the Standby state is unaffected by this setting and must be enabled in the operating system. <ul style="list-style-type: none"> 1 Disabled — Do not allow the system to power on when it receives a wake-up signal from the LAN or wireless LAN. 1 LAN Only — Allow the system to be powered on by special LAN signals. The factory default setting is Disabled .
ExpressCharge	Allows you to enable or disable the ExpressCharge feature. NOTE: ExpressCharge may not be available for all batteries.
Charger Behavior	Allows you to enable or disable the battery charger. If disabled, the battery will not lose power when the system is connected to an AC adapter but it will not charge either. Default setting: Charger Enabled

POST Behavior	
Option	Description
Adapter Warnings	Allows you to enable or disable the BIOS warning messages when you use certain power adapters. The BIOS displays these messages if you attempt to use a power adapter that has too little capacity for your configuration. The factory default setting is Enable Adapter Warnings .
Keypad (Embedded)	Allows you to select one of two methods to enable the keypad that is embedded in the internal keyboard. <ul style="list-style-type: none"> 1 Fn Key Only — The keypad is only enabled when you hold down the <Fn> key. 1 By Num Lk — The keypad is enabled when (1) the Num Lock LED is on and (2) no external keyboard is attached. Note that the system might not notice immediately when an external keyboard is detached. NOTE: When Setup is running, this field has no effect—Setup works in the Fn Key Only mode. Default setting: Fn Key Only .
NumLock LED	Allows you to enable or disable the Num Lock LED when the computer boots. Default setting: Enabled .
USB Emulation	Defines how the BIOS handles the USB devices. USB emulation is always enabled during POST. The factory default setting is Enabled .
Fn Key Emulation	Allows you to use the <Scroll Lock> key on an external PS/2 keyboard the same way you use the <Fn> key on the computer's internal keyboard. NOTE: USB keyboards cannot emulate the <Fn> key if you are running an ACPI operating system such as Microsoft Windows XP. USB keyboards will only emulate the <Fn> key in non-ACPI mode (e.g., when you are running a DOS). Default setting: Enabled .

Fast Boot	Allows you to enable or disable the Fast Boot feature. The following options are available:
	<ul style="list-style-type: none"> Minimal — Boot quickly unless the BIOS has been updated, memory changed, or the previous POST did not complete. Thorough — Do not skip any steps in the boot process. Auto — Allow the operating system to control this setting (this works only when the operating system supports Simple Boot Flag). <p>Default setting: Minimal</p>

Wireless	
Option	Description
Wireless Devices	Allows you to enable or disable the following internal wireless devices: WWAN , WLAN , and Bluetooth .

Maintenance	
Option	Description
Service Tag	Displays your computer's Service Tag. If for some reason the Service Tag was not already set, you can use this field to set the Service Tag. If a Service Tag has not been set for this computer, the computer will automatically bring up this screen when you enter the System Setup. You will be prompted to enter the Service Tag.
Asset Tag	Allows you to create a system Asset Tag. The field can only be updated if the Asset Tag is not already set.

System Logs	
Option	Description
BIOS Events	Allows you to view and clear BIOS POST events. It includes the date and time of the event as well as the LED code.
DellDiag Events	Allows you to view the diagnostic results from Dell Diagnostics and PSA. It includes the time and date, the diagnostic and version which was run and the resulting code.
Thermal Events	Allows you to view and clear thermal events. It includes the date and time as well as the name of the event.
Power Events	Allows you to view and clear power events. It includes the date and time of the event as well as the power state and reason.

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Diagnostics

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- [Battery Status Lights](#)
- [Battery Charge and Health](#)
- [Keyboard Status Lights](#)
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Device Status Lights



Turns on when you turn on the computer and blinks when the computer is in a power management mode.



Turns on when the computer reads or writes data.



Turns on steadily or blinks to indicate battery charge status.



Turns on when wireless networking is enabled.

Battery Status Lights

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

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

Battery Charge and Health

To check the battery charge, press and release the status button on the battery charge gauge to illuminate the charge-level lights. Each light represents approximately 20 percent of the total battery charge. For example, if four lights are on, the battery has 80 percent of its charge remaining. If no lights appear, the battery has no charge.

To check battery health using the charge gauge, press and hold the status button on the battery charge gauge for at least three seconds. If no lights appear, the battery is in good condition and more than 80 percent of its original charge capacity remains. Each light represents incremental degradation. If five lights appear, less than 60 percent of the charge capacity remains, and you should consider replacing the battery.

Keyboard Status Lights

The green lights located above the keyboard indicate the following:



Turns on when the numeric keypad is enabled.



Turns on when the Caps Lock function is enabled.









Turns on when the Scroll Lock function is enabled.

LED Error Codes

The following table shows the possible LED codes that may display in a no-Power On Self Test (POST) situation.

Appearance	Description	Next Step
<p>ON-FLASH-FLASH</p>	No SODIMMs are installed	<ol style="list-style-type: none"> 1. Install supported memory modules. 2. If memory is already present, reseal the module(s) one at a time in each slot. 3. Try known good memory from another computer or replace the memory. 4. Replace the system board.
<p>FLASH-ON-ON</p>	System board error	<ol style="list-style-type: none"> 1. Replace the system board.
<p>FLASH-ON-FLASH</p>		

	LCD panel error	<ol style="list-style-type: none"> 1. Reseat the LCD cable. 2. Replace the LCD panel. 3. Replace the video card/system board.
<p style="text-align: center;">OFF-FLASH-OFF</p> 	Memory compatibility error	<ol style="list-style-type: none"> 1. Install compatible memory modules. 2. If two modules are installed, remove one and test. Try the other module in the same slot and test. Test the other slot with both modules. 3. Replace the memory. 4. Replace the system board.
<p style="text-align: center;">ON-FLASH-ON</p> 	Memory is detected but has errors	<ol style="list-style-type: none"> 1. Reseat the memory. 2. If two modules are installed, remove one and test. Try the other module in the same slot and test. Test the other slot with both modules. 3. Replace the memory. 4. Replace the system board.
<p style="text-align: center;">FLASH-FLASH-FLASH</p> 	System board error	<ol style="list-style-type: none"> 1. Replace the system board.
<p style="text-align: center;">OFF-ON-OFF</p> 	Storage device error	<ol style="list-style-type: none"> 1. Reseat the hard drive. 2. Replace the hard drive. 3. Replace the system board.
<p style="text-align: center;">FLASH-FLASH-ON</p> 	Video card error	<ol style="list-style-type: none"> 1. Replace the system board.

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Adding and Replacing Parts

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- [Battery](#)
 - [Access Panel](#)
 - [Coin-Cell Battery](#)
 - [WWAN Card](#)
 - [Heatsink](#)
 - [Display Assembly](#)
 - [Display-Hinge Covers](#)
 - [Display/Display Brackets](#)
 - [Display Hinge](#)
 - [Keyboard](#)
 - [Memory](#)
 - [WLAN Card](#)
 - [Hard Drive/Hard-Drive Bracket](#)
 - [DC Power Cable](#)
 - [Display Bezel](#)
 - [Camera](#)
 - [Display Cable](#)
 - [System Board/Bluetooth Module](#)
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Specifications

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- [Memory](#)
- [Audio](#)
- [Ports and Connectors](#)
- [Display](#)
- [Touchpad](#)
- [AC Adapter](#)
- [Physical](#)
- [Processor](#)
- [Video](#)
- [Communications](#)
- [Drives](#)
- [Keyboard](#)
- [Battery](#)
- [Environmental](#)

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

System Information	
Chipset	Intel NM10 Express Chipset
DRAM bus width	64 bits
Flash EPROM	2 MB
PCI-e bus	x1 PCI Express, 4 ports

Processor	
Types	Intel Atom
L1 cache	32 KB per instruction, 24 KB write-back data cache
L2 cache	512 KB

Memory	
Type	DDR2 SDRAM
Speed	667 MHz
Connectors	one SODIMM slot
Module capacities	1 GB, 2 GB
Minimum memory	1 GB
Maximum memory	2 GB

Video	
Type	Intel UMA graphics (integrated on the processor)
Controller	Intel Graphics Media Accelerator
Output	15-pin VGA connector

Audio	
Type	two-channel integrated audio
Controller	Realtek ALC269
Speakers	two
Internal speaker amplifier	2 W per channel
Volume controls	media control buttons, program menus

Communications	
Network adapter	Gigabit Ethernet
Wireless	wireless local area network (WLAN) wireless wide area network (WWAN) worldwide Interoperability for microwave access (WiMAX) Bluetooth

Ports and Connectors	
Audio	microphone connector, stereo headphone/speakers connector
Video	15-pin VGA connector
Network adapter	RJ-45 connector
USB	three USB 2.0-compliant connectors
Memory card reader	3-in-1 memory-card reader

Drives	
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Hard drive	2.5" SATA 2 HDD
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Display	
Type	WSVGA (1024 x 600 pixels) and HD (1366 x 768 pixels), high definition, anti glare (AG), white light-emitting diode (WLED)
Size	10.1 inches
Active area (X/Y)	
WSVGA	222.72 mm x 125.28 mm (8.76 inches x 4.93 inches)
HD	222.73 mm x 125.22 mm (8.76 inches x 4.93 inches)
Dimensions	
Height	235.00 mm (9.2 inches)
Width	143.00 mm (5.6 inches)
Diagonal	256.00 mm (10.1 inches)
Maximum resolution	1366 x 768 at 262 K colors
Maximum brightness	250 nits
Operating angle	
WSVGA	Horizontal—40°/40°, Vertical—15°/30°
HD	Horizontal—40°/40°, Vertical—10°/30°
Refresh rate	60 Hz
Viewing angles	
Horizontal	40°/40°
Vertical	13°/35°
Pixel pitch	
Horizontal	0.21750 mm x 0.20880 mm
Vertical	0.16305 mm x 0.16305 mm

Keyboard	
Number of keys	United States: 83 keys United Kingdom: 84 keys Brazil: 85 keys Japan: 87 keys
Layout	QWERTY/AZERTY/Kanji

Touchpad	
Active area	
X-axis	60.40 mm (2.37 inches)
Y-axis	34.00 mm (1.34 inches)

Battery	
Type	3-cell "smart" lithium ion (28 WHr) 6-cell "smart" lithium ion (56 WHr)
Charge time with computer off	approximately 80% charge on the battery is restored in 1 hour (on a fully discharged battery)
Operating time	battery operating time varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.
Life span	approximately 300 charge/discharge cycles
Depth	
3-cell	40.50 mm (1.59 inches)
6-cell	48.13 mm (1.89 inches)
Height	
3-cell	23.24 mm (0.92 inches)
6-cell	42.46 mm (1.67 inches)
Width	
3-cell	204.00 mm (8.03 inches)
6-cell	204.00 mm (8.03 inches)
Weight	
3-cell	185 g - 190 g (0.40 lb - 0.41 lb)
6-cell	340 g - 350 g (0.74 lb - 0.77 lb)
Voltage	11.1 VDC (6-cell and 3-cell)
Temperature range	
Operating	0 °C to 35 °C (32 °F to 95 °F)

Storage	-40 °C to ~65 °C (-40 °F to ~149 °F)
Coin-cell battery	3 V CR2032 lithium coin cell

AC Adapter	
Input voltage	100 VAC-240 VAC
Input current (maximum)	1.5 A
Input frequency	50 Hz-60 Hz
Output power	65 W
Output current	4.34 A (maximum at 4-second pulse) 3.34 A (continuous)
Depth	66.00 mm (2.59 inches)
Height	16.00 mm (0.63 inches)
Width	127.00 mm (4.99 inches)
Temperature range	
Operating	0 °C to 35 °C (32 °F to 95 °F)
Storage	-40 °C to 65 °C (-40 °F to 149 °F)

Physical	
Height	
without touchscreen	22.50 mm – 39.90 mm (0.89 inch – 1.57 inches)
with touchscreen	24.10 mm – 41.50 mm (0.95 inch – 1.63 inches)
Width	265.00 mm (10.43 inches)
Depth	187.00 mm (7.36 inches)
Weight	
(3-cell battery without touchscreen)	1.30 kg (2.86 lb)
(6-cell battery without touchscreen)	1.50 kg (3.30 lb)

Environmental	
Temperature range	
Operating	0 °C to 35 °C (32 °F to 95 °F)
Non-operating	-40 °C to ~65 °C (-40 °F to ~149 °F)
Relative humidity (maximum)	
Operating	10 % to 90 % (noncondensing)
Non-operating	20 % to 95 % (noncondensing)
Altitude (maximum)	
Operating	-15.20 m to 3048 m (-50 ft to 10,000 ft)
Storage	-15.20 m to 10,668 m (-50 ft to 35,000 ft)
Maximum vibration	
Operating	0.66 Grms (2 Hz-600 Hz)
Non-operating	1.30 Grms (2 Hz-600 Hz)
NOTE: Vibration is measured using a random-vibration spectrum that simulates user environment.	
Maximum shock	
Operating	110 G (2 ms)
Non-operating	160 G (2 ms)
NOTE: Shock is measured with hard drive in head-parked position and a 2 ms half-sine pulse.	

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Working on Your Computer







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 - [Recommended Tools](#)
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 - [After Working Inside Your Computer](#)
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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:

- 1 You have read the safety information that shipped with your computer.
- 1 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 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. Remove any installed ExpressCards or Smart Cards from the appropriate slots.
 4. 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.
 - 5. Disconnect all network cables from the computer.
 - 6. Disconnect your computer and all attached devices from their electrical outlets.
 - 7. Close the display and turn the computer upside-down on a flat work surface.
 -  **CAUTION:** To avoid damaging the system board, you must remove the main battery before you service the computer.
 - 8. Remove the main [battery](#).
 - 9. Turn the computer top-side up.
 - 10. Open the display.
 - 11. 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.
 - 12. Remove the [hard drive](#).

Recommended Tools


The procedures in this document may require the following tools:

- 1 Small flat-blade screwdriver
- 1 #0 Phillips screwdriver
- 1 #1 Phillips screwdriver
- 1 Small plastic scribe
- 1 Flash BIOS update program CD


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:

1 In Windows® 7:

Click **Start** , then click **Shut Down**.

1 In Windows Vista®:

Click **Start** , then click the arrow in the lower-right corner of the **Start** menu as shown below, and then click **Shut Down**.



1 In Windows® XP:

Click **Start** → **Turn Off Computer** → **Turn Off**.

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


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 four 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 [hard drive](#).
4. Replace the [battery](#).
5. Connect your computer and all attached devices to their electrical outlets.
6. Turn on your computer.

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