Dell Vostro 14–3458
Owner's Manual

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

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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: Disconnect all power sources before opening the computer cover or panels. After you finish working inside the computer, replace all covers, panels, and screws before connecting to the power source.**

⚠ **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), 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.

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

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 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.

Removing the Battery

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Slide the release latch outwards to unlock the battery.
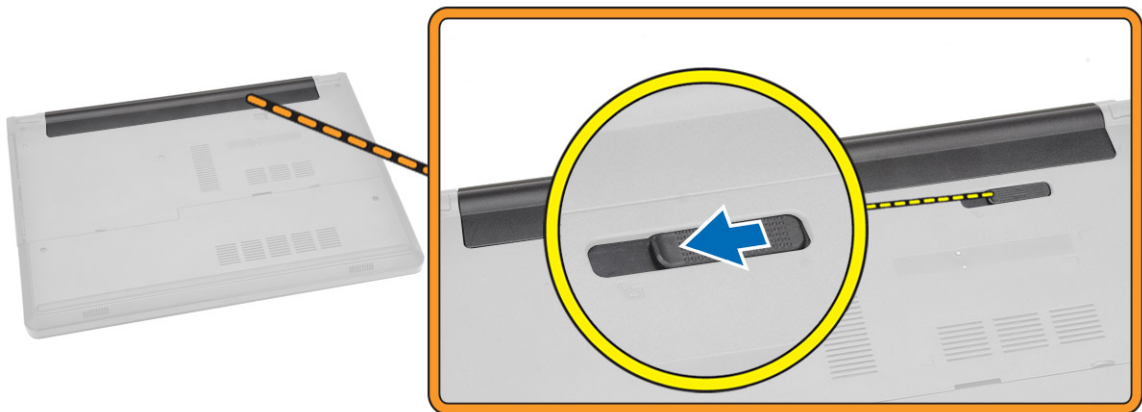
3. Lift the battery to remove it from the computer

Installing the Battery

1. Insert the battery into the battery slot and press to lock in place.
2. 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. Perform the following steps as shown in the illustration:
   a. Remove the screw that secures the optical-disk drive (ODD) to the computer [1].
   b. Press the tab indicated using a scribe [2].
   c. Slide the ODD out of the computer [3].
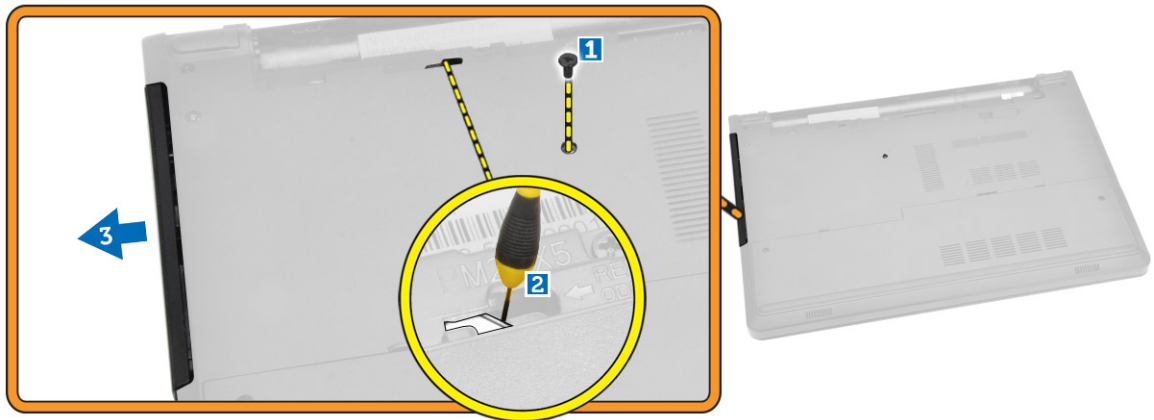
Installing the Optical Drive

1. Slide the optical drive into the computer.
2. Tighten the screw to secure the optical drive.
3. Install the battery.
4. 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. Perform the following steps as shown in the illustration:
   a. Remove the screws that secure the access panel to the computer [1].
   b. Lift the access panel away from the computer [2].
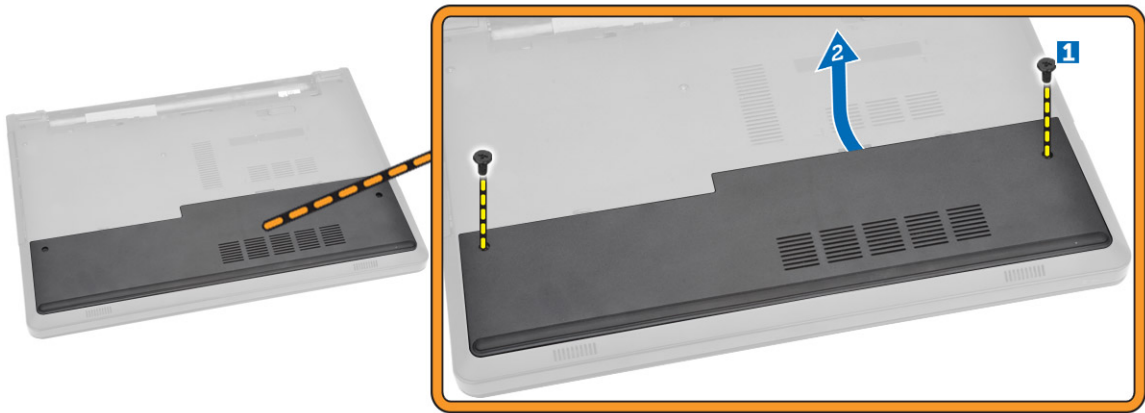
Installing the Access Panel

1. Insert the access panel into the chassis.
2. Tighten the screw to secure the access panel to the chassis.
3. Install battery.
4. 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. access panel
3. Perform the following steps as shown in the illustration:
   a. Lift to release the tab [1].
   b. Disconnect the hard-drive cable from the system board [2].
   c. Remove the screws that secure the hard drive to the computer [3].
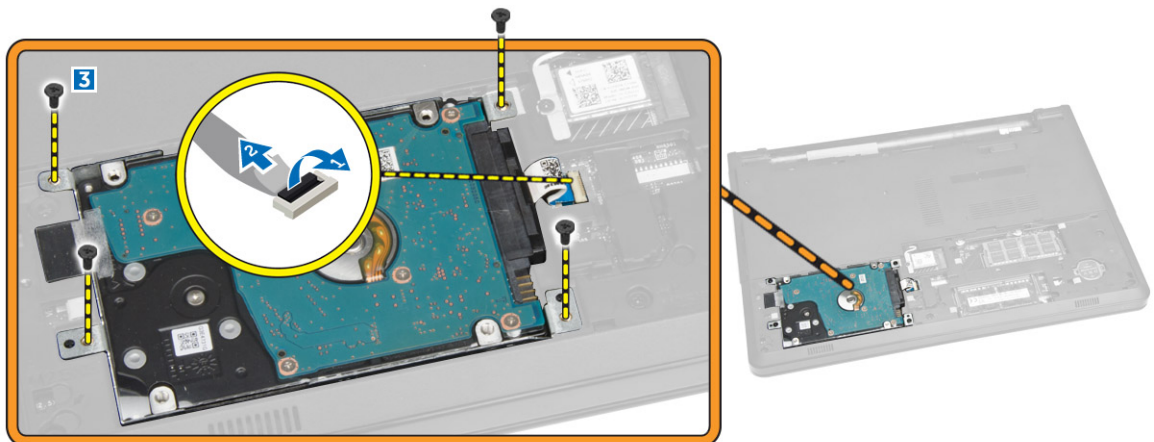
4. Perform the following steps as shown in the illustration:
   a. Remove the tape and lift the hard drive to remove it from the computer [1,2].
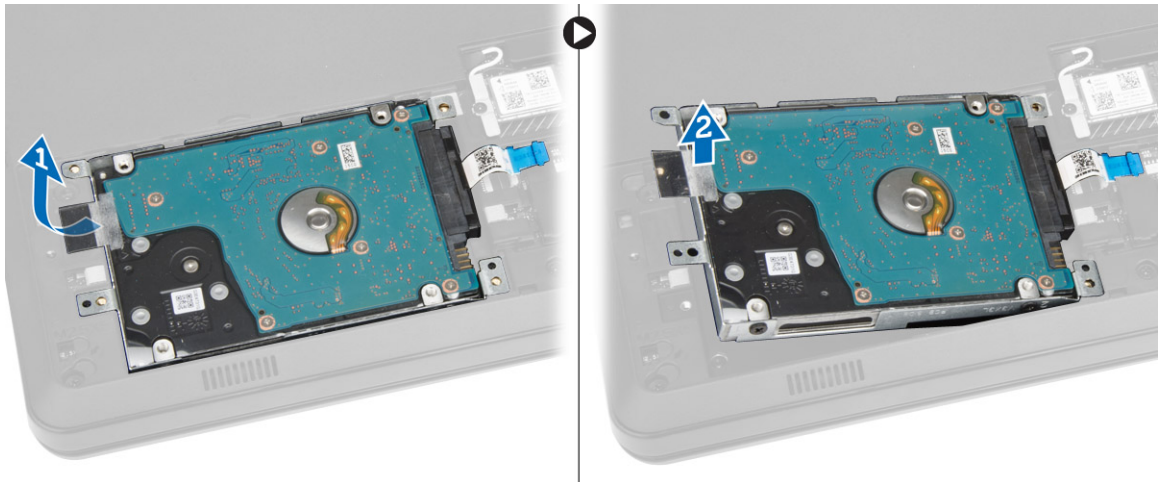
5. Perform the following steps as shown in the illustration:
   a. Remove the screws that secure the hard drive to the bracket [1].
   b. Lift the hard drive away from the bracket [2].
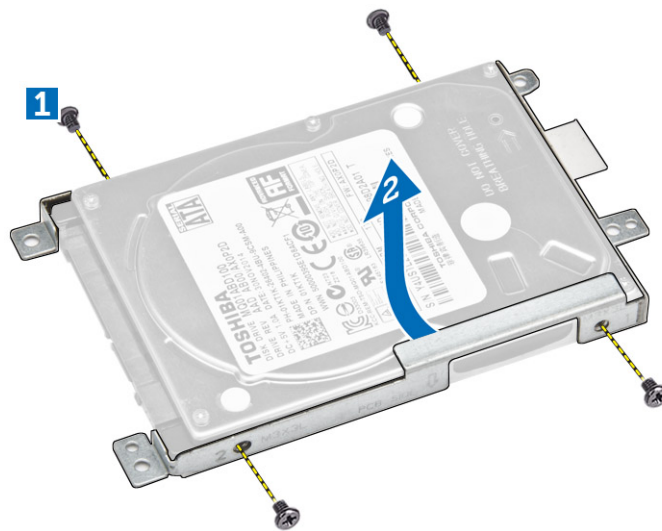
Installing the Hard Drive

1. Insert the hard drive into the hard drive bracket.
2. Slide the hard drive into it's slot.
3. Tighten the screw to secure it to the chassis.
4. Install:
   a. access panel
   b. battery
5. 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. access panel
3. Pry the securing clips away from the memory module until it pops up.
4. Remove the memory module from its socket on the system board.
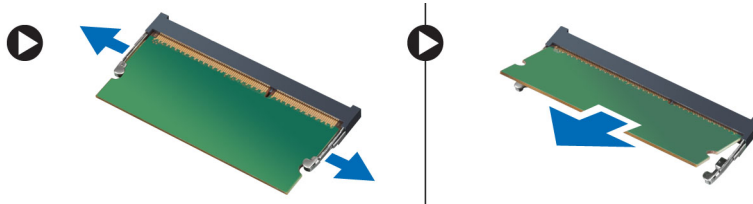
Installing the Memory Module

1. Insert the memory module into the socket and press to lock the securing clips.
2. Install the access panel.
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. access panel
3. Perform the following steps as shown in the illustration:
   a. Remove the screw that secures the WLAN card to the computer [1,2].
   b. Remove the two connectors that secure the WLAN card to the system board [3].
   c. Remove the WLAN card from its socket [4].
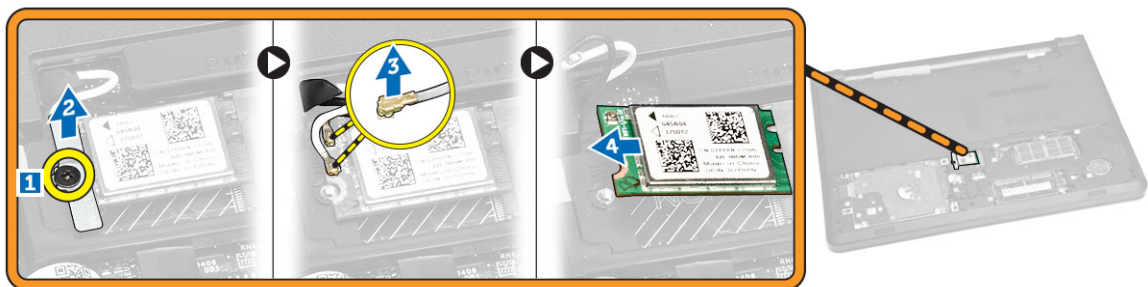
Installing the WLAN Card

1. Insert the WLAN card into its slot and tighten the screw to secure it to the computer.
2. Connect the two connectors (black cable to the black triangle and white cable to the white triangle).
3. Install:
   a. access panel
   b. battery
4. 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
3. Push the coin-cell release latch using a scribe and then pull the coin-cell battery to remove it from the computer.

Installing the Coin-cell battery

1. Insert the coin-cell battery and press to lock it.
2. Install:
   a. access panel
   b. battery
3. 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 prying on the keyboard release tabs using a scribe.

4. Slide and lift the keyboard to access the keyboard connector cable underneath [1,2].

5. Perform the following steps as shown in the illustration:
   a. Lift the tab to release the cable from it's connector [1].
   b. Disconnect the keyboard cable from the system board [2].

Installing the Keyboard

1. Connect the keyboard cable to the connector on the system board.
2. Slide the keyboard into the retention slots.
3. Press along the top edges to lock the keyboard in place.
4. Install the battery.
5. Follow the procedures in After Working Inside Your computer.

Removing the Base Cover

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. battery
   b. optical disk-drive
   c. access panel
   d. WLAN card
   e. hard drive
   f. memory module
   g. keyboard
3. Perform the following steps as shown in the illustration:
   a. Lift the tab to release the cable from the connector [1].
   b. Disconnect the ODD cable from the system board [2].
   c. Remove the screws from the palmrest [3].
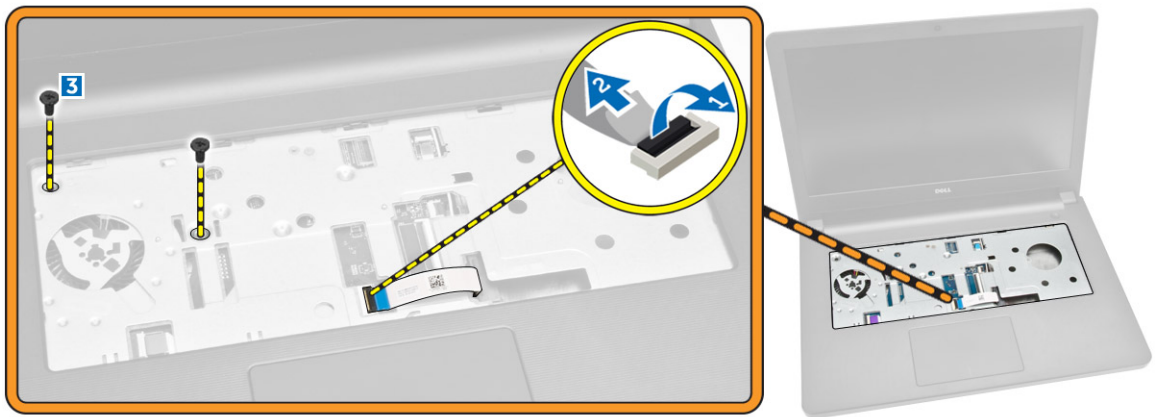
4. Perform the following steps as shown in the illustration:
   a. Turn the computer over and remove the screws from the base of the computer [1].
   b. Release the tabs that secure the base cover [2].
   c. Pry up the base cover and remove it away from the computer [3].
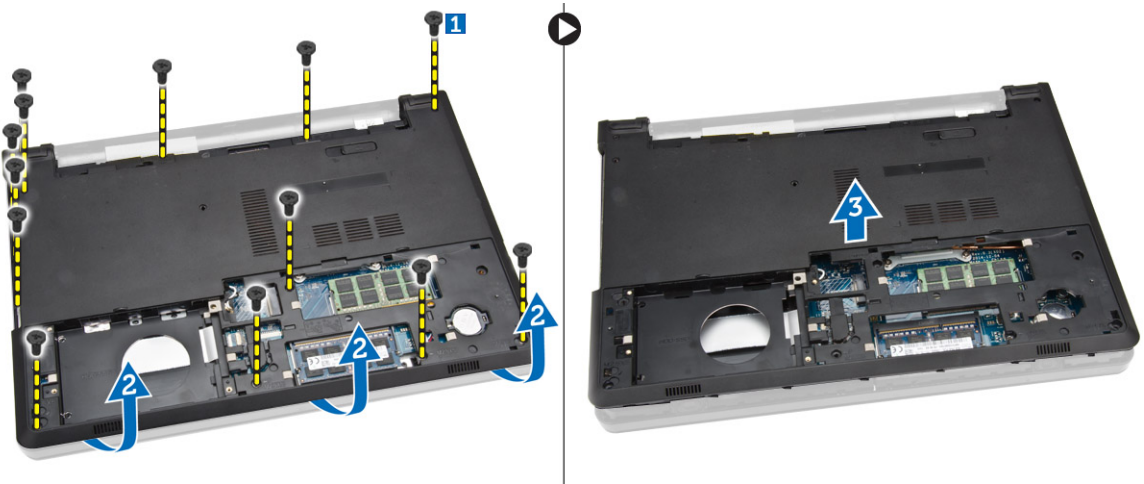
Installing the Base Cover

1. Place the base cover on the chassis and press the notches until it locks in place.
2. Connect the ODD connector to the system board.
3. Tighten the screws to secure the base cover to the palmrest.
4. Turn the computer over and tighten the screws at the base of the computer.
5. Install:
   a. keyboard
   b. memory module
   c. hard drive
   d. WLAN card
   e. access panel
   f. optical disk-drive

g. 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. optical disk-drive
   c. access panel
   d. hard drive
   e. memory module
   f. keyboard
   g. base cover
3. Perform the following steps as shown in the illustration:
   a. Remove the screw that secures the I/O board [1].
   b. Lift the I/O board from the computer [2].
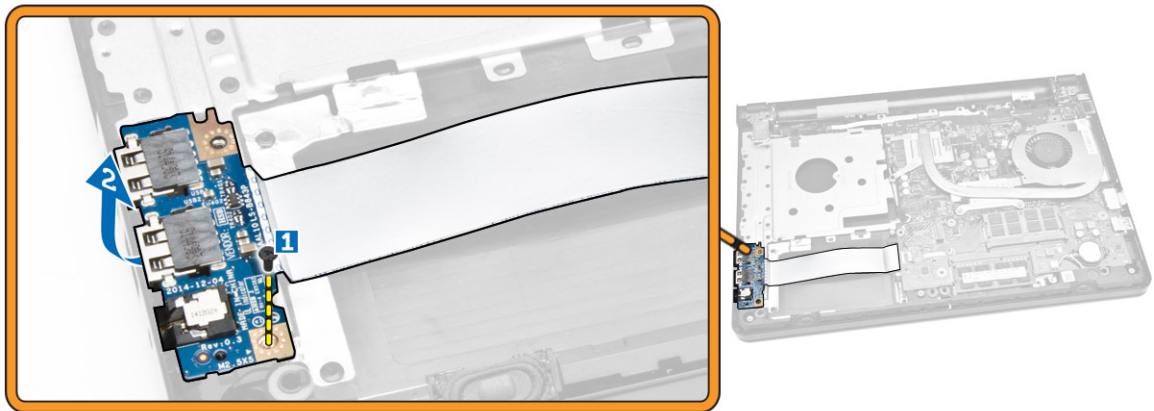
4. Perform the following steps as shown in the illustration:
   a. Lift the tab and disconnect the I/O board cable [1,2].
   b. Lift the I/O board and cable away from the computer [3].

Installing the Input/Output (I/O) Board

1. Connect the I/O board cable to the system board.
2. Install the I/O board into the chassis.
3. Install:
   a. base cover
   b. keyboard
   c. memory module
   d. hard drive
   e. WLAN card
   f. access panel
   g. optical disk-drive
   h. battery
4. Follow the procedures in After Working Inside Your computer.

Removing the Heatsink Assembly

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. battery
   b. optical disk-drive
   c. access panel
   d. hard drive
   e. memory module
   f. keyboard
   g. base cover
3. Perform the following steps as shown in the illustration:
   a. Disconnect the system fan cable from the system board [1].
   b. Remove the screws that secure the heatsink assembly to the system board.
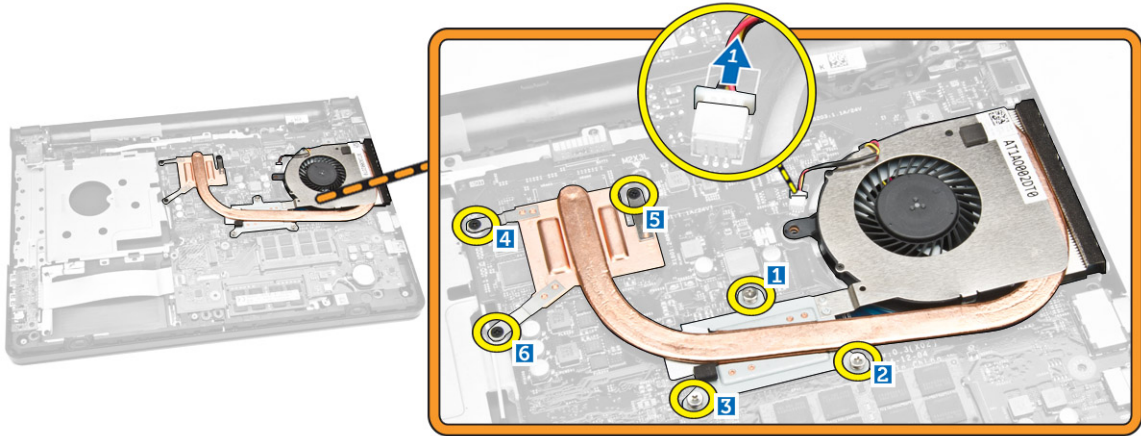
4. Lift the heatsink assembly from the system board.
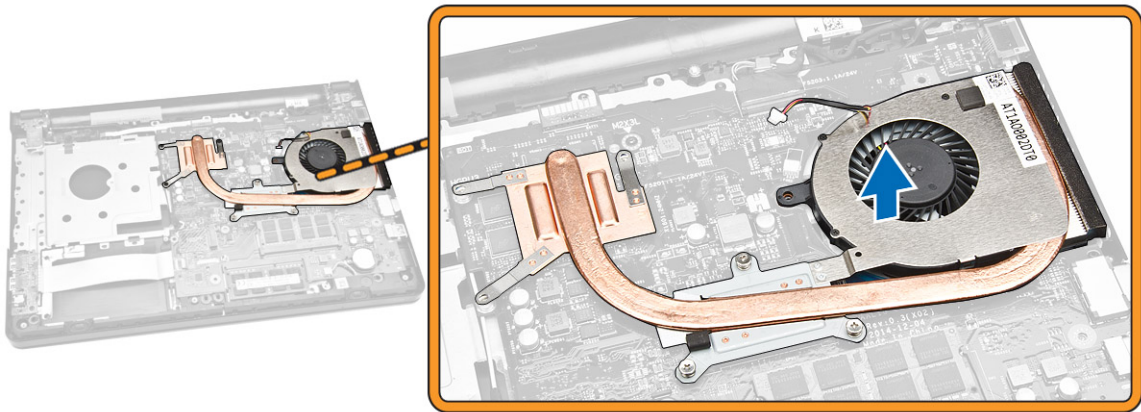
Installing the Heatsink Assembly

1. Install the heatsink assembly and tighten the screws to secure it to the system board.
2. Connect the system fan cable to the system board.
3. Install:
   a. base cover
   b. keyboard
   c. memory module
   d. hard drive
   e. WLAN card
   f. access panel
   g. optical disk-drive
   h. battery
4. 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. [optical disk-drive](#)
   c. [access panel](#)
   d. [hard drive](#)
   e. [memory module](#)
   f. [keyboard](#)
   g. [base cover](#)
3. Perform the following steps as shown in the illustration:
   a. Disconnect the speaker cables from the system board [1].
   b. Release the speaker cables from the retention clips [2].
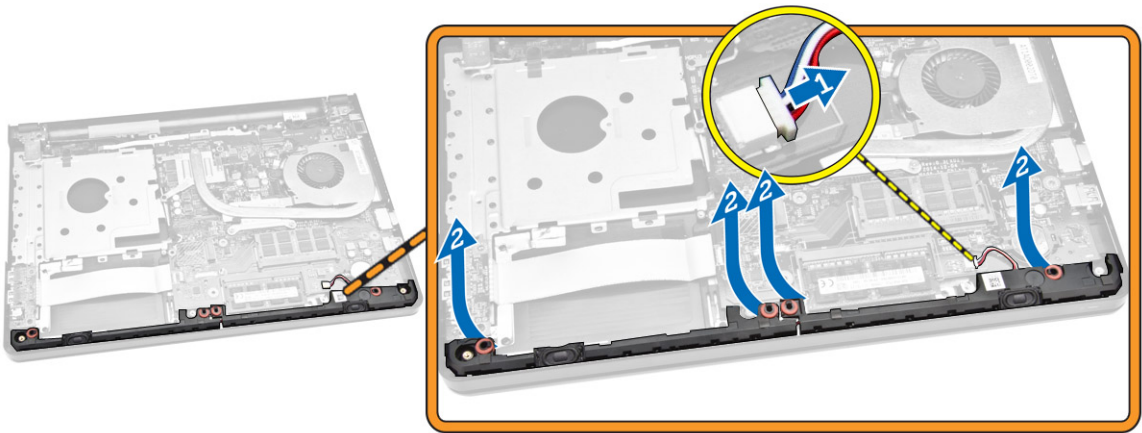
4. Release the speaker assembly from the retention clips and remove the speakers from the chassis.
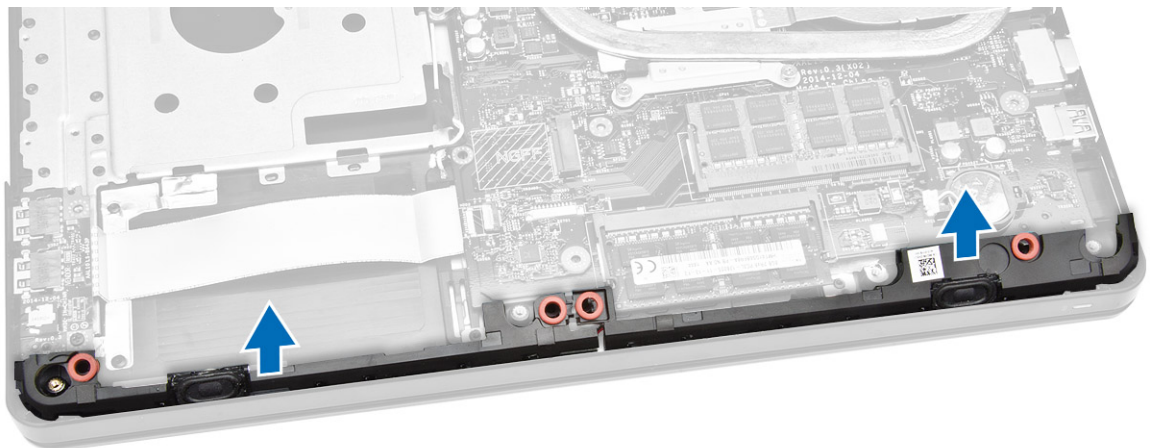
Installing the Speakers

1. Insert the speakers into the system board and press along the retention clips to lock in place.
2. Connect the speaker cable to the system board.
3. Guide the speaker cable through the tabs.
4. Install:
   a. base cover
   b. keyboard
   c. memory module
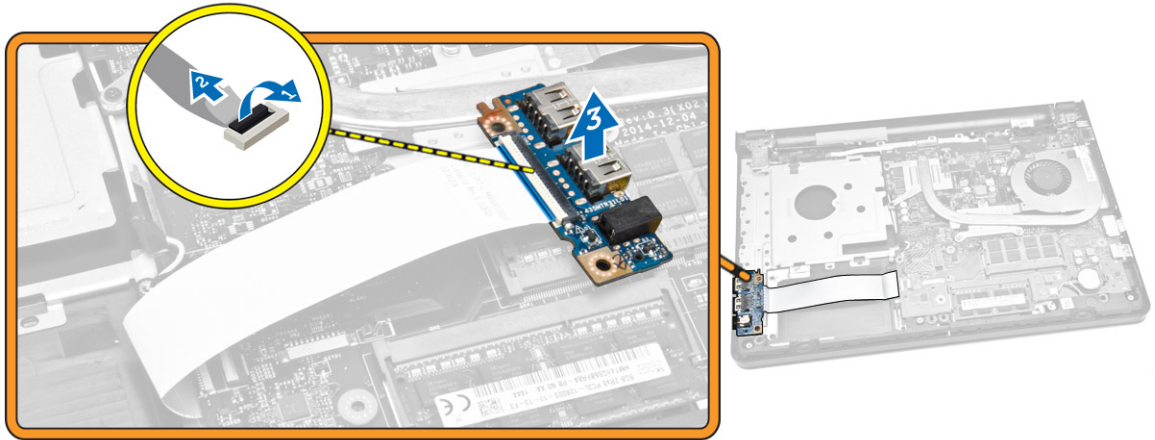   d. hard drive
   e. WLAN card
   f. access panel
   g. optical disk-drive
   h. battery
5. Follow the procedures in After Working Inside Your computer.

Removing the System Board

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. battery
   b. optical disk-drive
   c. access panel
   d. WLAN card
   e. hard drive
   f. memory module
   g. keyboard
   h. base cover
3. Perform the following steps as shown in the illustration:
   a. Lift to release the locking tab [1].
   b. Disconnect the touchpad and power-button cable [2].
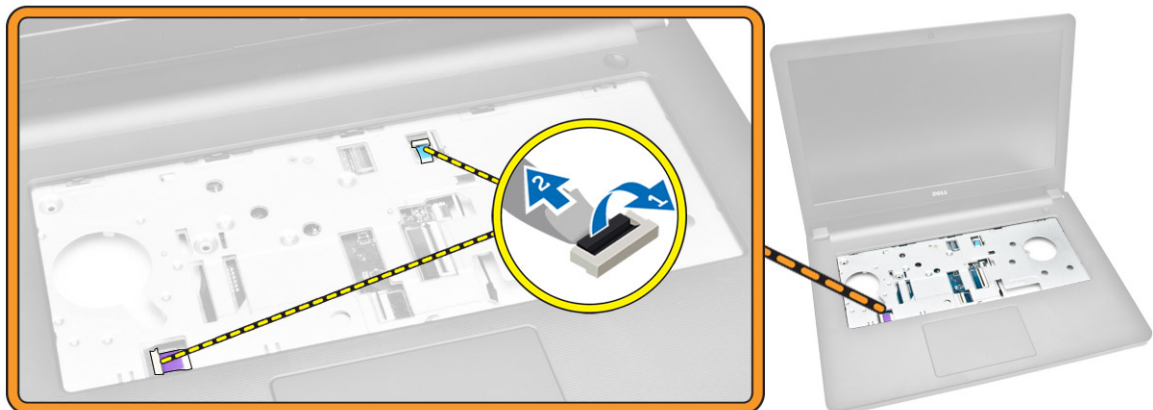
4. Perform the following steps as shown in the illustration:
    a. Flip the computer and lift the locking tab to disconnect the LVDS cable [1,2].
    b. Disconnect the speaker cable [3].
    c. Remove the screw that secures the power connector to the chassis [4].
    d. Unroute the power connector cable and remove it from the system board [5].
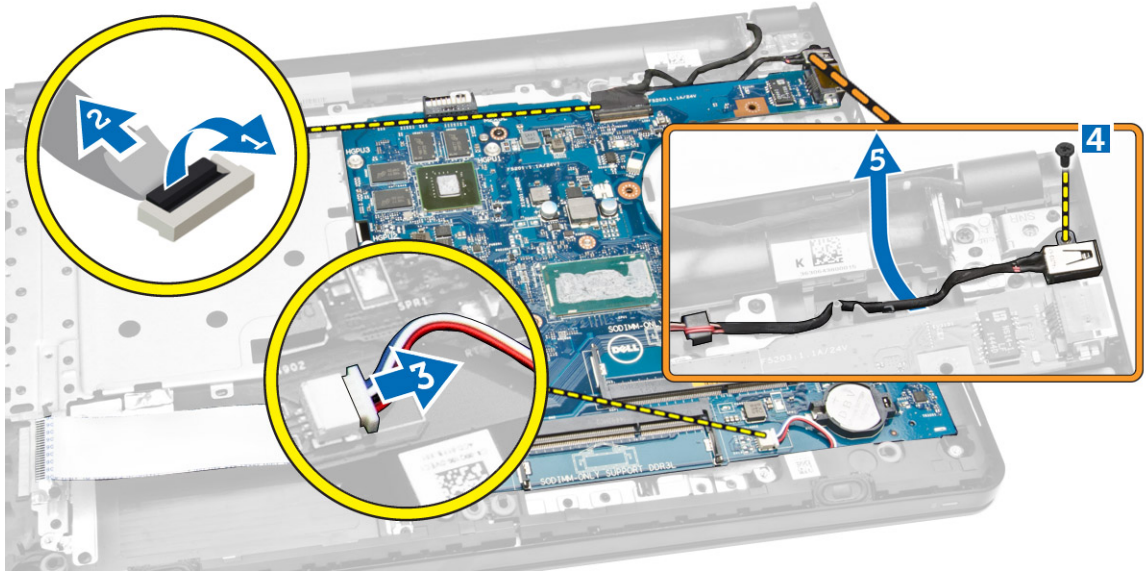
5. Perform the following steps as shown in the illustration:
    a. Remove the screw that secures the system board to the chassis [1].
    b. Lift and remove the system board from the chassis [2].

Installing the System Board

1. Install the system board into the chassis.
2. Tighten the screw to secure the system board to the computer.
3. Connect the power connector to the system board.
4. Connect the speaker cable to the system board.
5. Connect the LVDS cable to the system board.
6. Install:
    a. base cover
    b. keyboard
    c. memory module
    d. hard drive
    e. WLAN card
    f. access panel
    g. optical disk-drive
    h. 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. optical disk-drive
    c. access panel
    d. hard drive
    e. memory module
    f. keyboard
    g. base cover
    h. system board
3. Disconnect the power connector from the system board and lift it away from the system board.
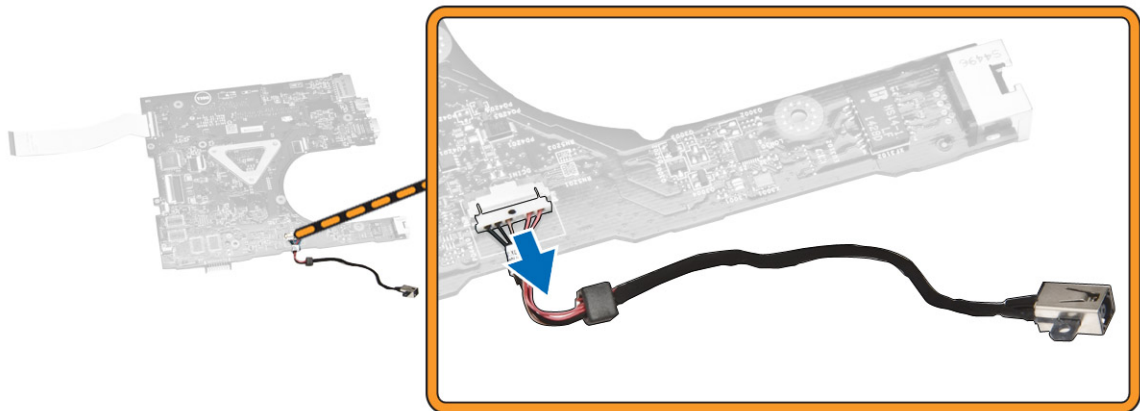
Installing the Power Connector

1. Insert the power connector into its slot on the system board and guide the cable into the retention tabs.
2. Connect the power connector cable to the system board.
3. Install:
   a. system board
   b. base cover
   c. keyboard
   d. memory module
   e. hard drive
   f. WLAN card
   g. access panel
   h. optical disk-drive
   i. battery
4. 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. optical disk-drive
   c. access panel
   d. hard drive
   e. memory module
   f. keyboard
   g. system board
3. Perform the following steps as shown in the illustration:
   a. Unroute the WLAN antenna cables [1].
   b. Remove the screws that secure the display hinges to the chassis [2].
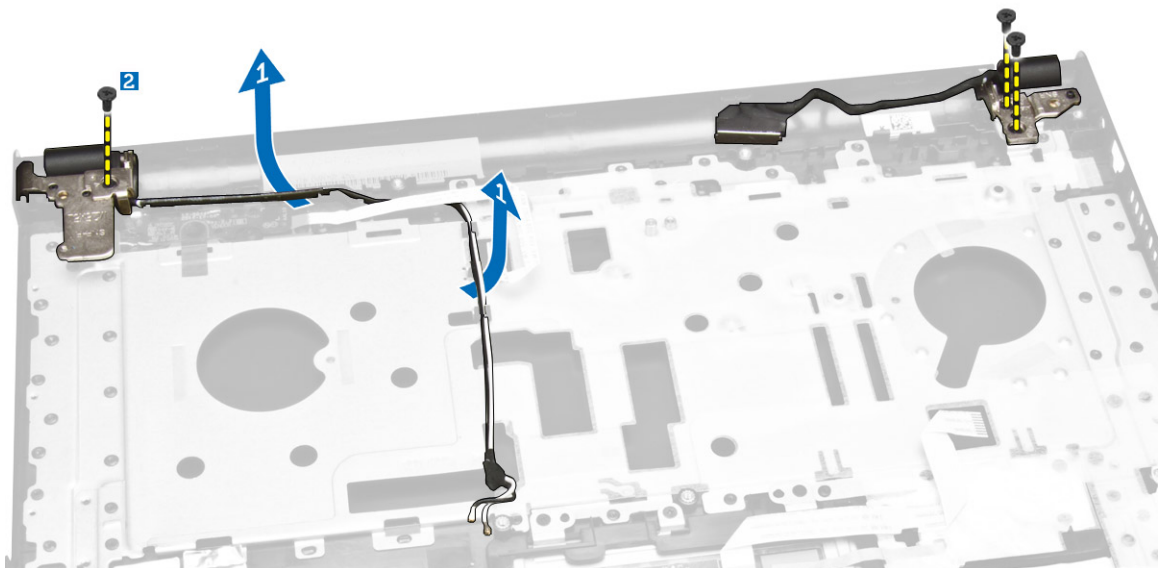
4. Perform the following steps as shown in the illustration:
   a. Lift the palmrest assembly [1].
   b. Slide the palmrest assembly in the direction indicated to remove it from the chassis [2].

Installing the Display Assembly

1. Align the palmrest assembly to the chassis.
2. Route the WLAN antenna cables through their tabs and then tighten the display hinge screws to secure the display assembly.
3. Install:
   a. system board
   b. keyboard
   c. memory module
   d. hard drive
   e. access panel
   f. optical disk-drive
   g. battery
4. Follow the procedures in After Working Inside Your computer.

Removing the Display Bezel
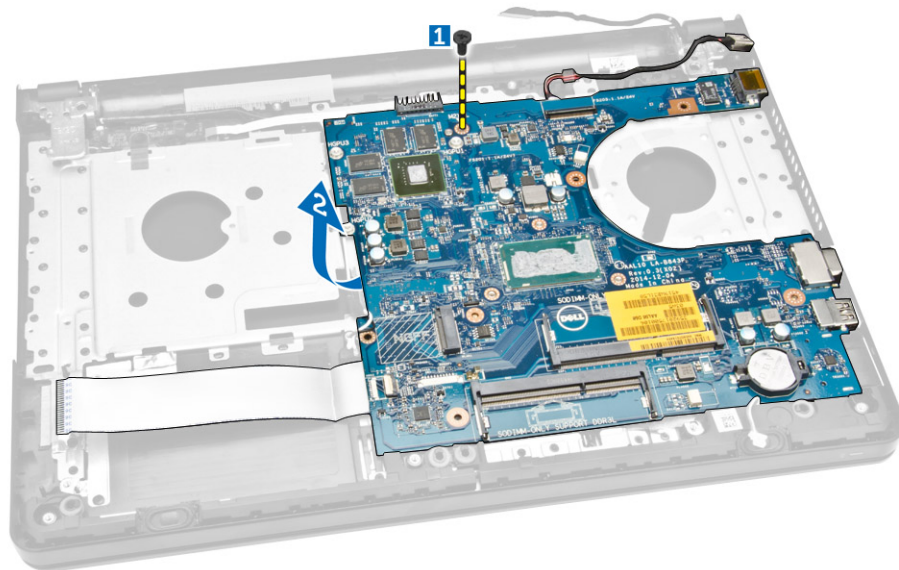
1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. battery
   b. optical disk-drive
   c. access panel
   d. hard drive
   e. memory module
   f. memory module
   g. system board
   h. display assembly
3. Perform the following steps as shown in the illustration:

a. Place the display assembly on a stable surface and pry along the edges of the display panel [1].
b. Lift the display bezel from the computer [2].
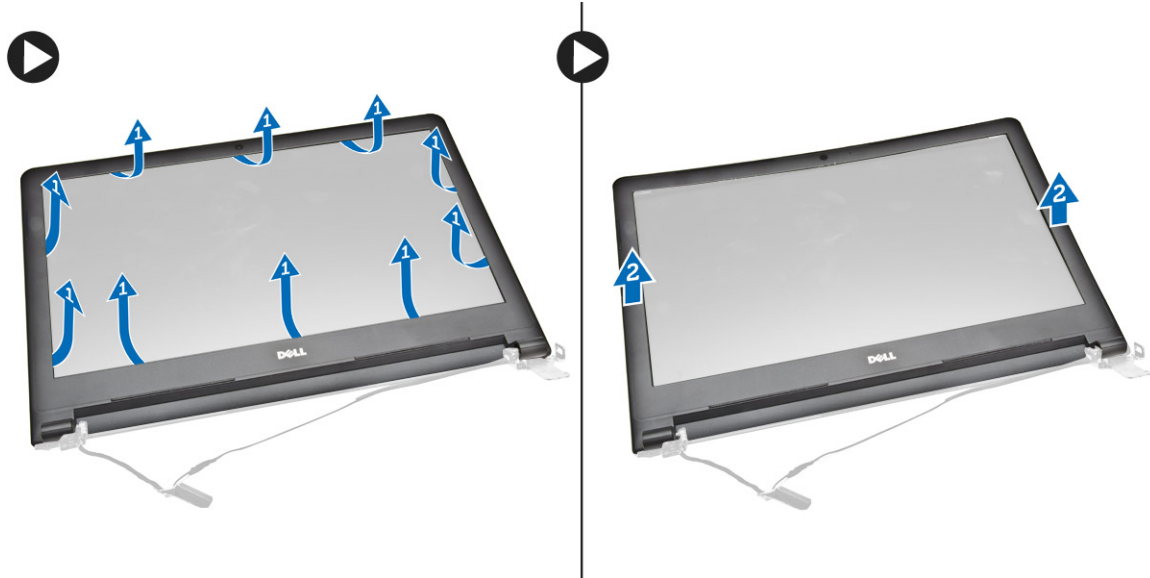
Installing the Display Bezel

1. Align and press the display bezel to fasten it to the display assembly.
2. Install:
    a. display assembly
    b. system board
    c. keyboard
    d. memory module
    e. hard drive
    f. access panel
    g. optical disk-drive
    h. battery
3. Follow the procedures in After Working Inside Your computer.

Removing the Camera

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
    a. battery
    b. optical disk-drive
    c. access panel
    d. hard drive
    e. memory module
    f. keyboard
    g. base cover
    h. system board
    i. display assembly

3. Perform the following steps as shown in the illustration:
   a. Remove the tape that secures the camera cable [1].
   b. Disconnect the camera cable from the camera [2].
   c. Remove the camera from the display assembly [3].
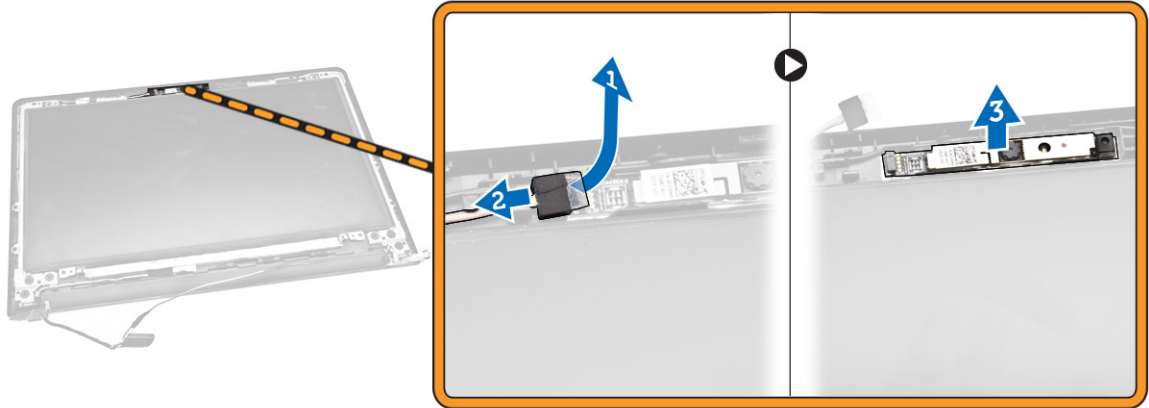
Installing the Camera

1. Insert the camera into the display assembly.
2. Connect the camera cable.
3. Install:
   a. display assembly
   b. base cover
   c. keyboard
   d. memory module
   e. hard drive
   f. WLAN card
   g. access panel
   h. optical disk-drive
   i. 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. optical disk-drive
   c. access panel
   d. hard drive
   e. memory module
   f. keyboard
   g. system board
   h. display assembly

    i.   [display bezel](#)
3. Perform the following steps as shown in the illustration:
    a. Remove the screws that secure the display hinges to the display assembly [1].
    b. Lift the display hinges [2].
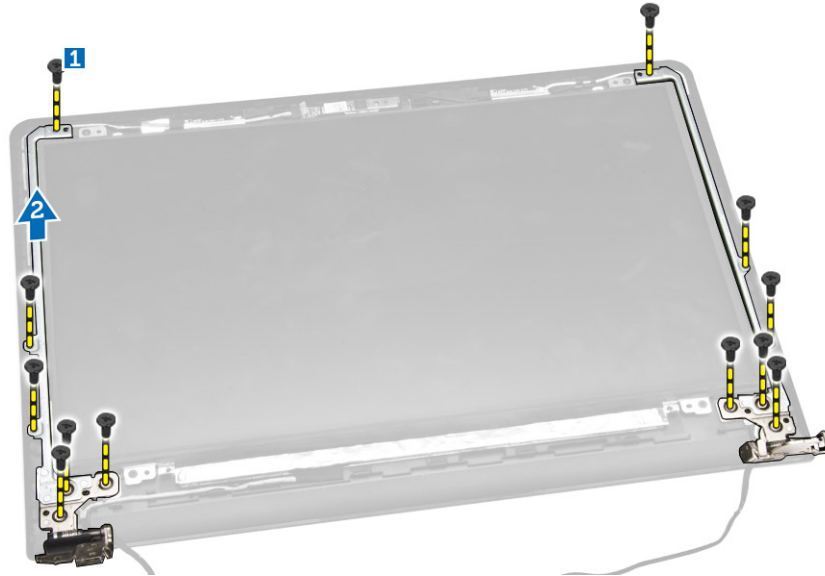
Installing the Display Hinges

1. Tighten the screws to secure the display hinges to the display assembly.
2. Install:
    a. [display bezel](#)
    b. [display assembly](#)
    c. [system board](#)
    d. [keyboard](#)
    e. [memory module](#)
    f. [hard drive](#)
    g. [access panel](#)
    h. [optical disk-drive](#)
    i. [battery](#)
3. 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. [optical disk-drive](#)
    c. [access panel](#)
    d. [hard drive](#)
    e. [memory module](#)
    f. [keyboard](#)

g. system board
h. display assembly
i. display bezel
j. display hinges

3. Perform the following steps as shown in the illustration:
   a. Remove the screws that secure the display panel to the display assembly [1].
   b. Lift the display panel to access the cables underneath [2].
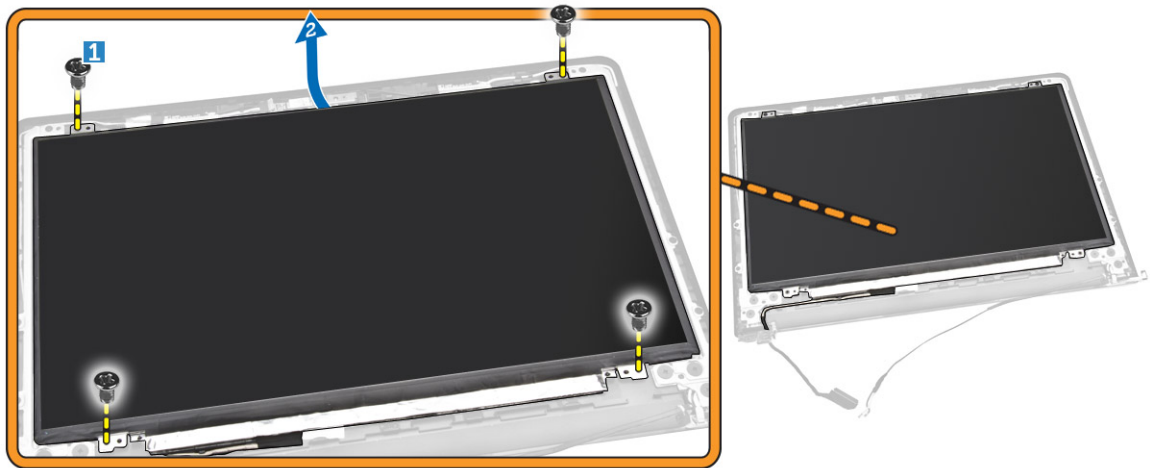
4. Perform the following steps as shown in the illustration:
   a. Remove the tape that secures the eDP cable to the computer [1].
   b. Lift and remove the eDP cable [2].
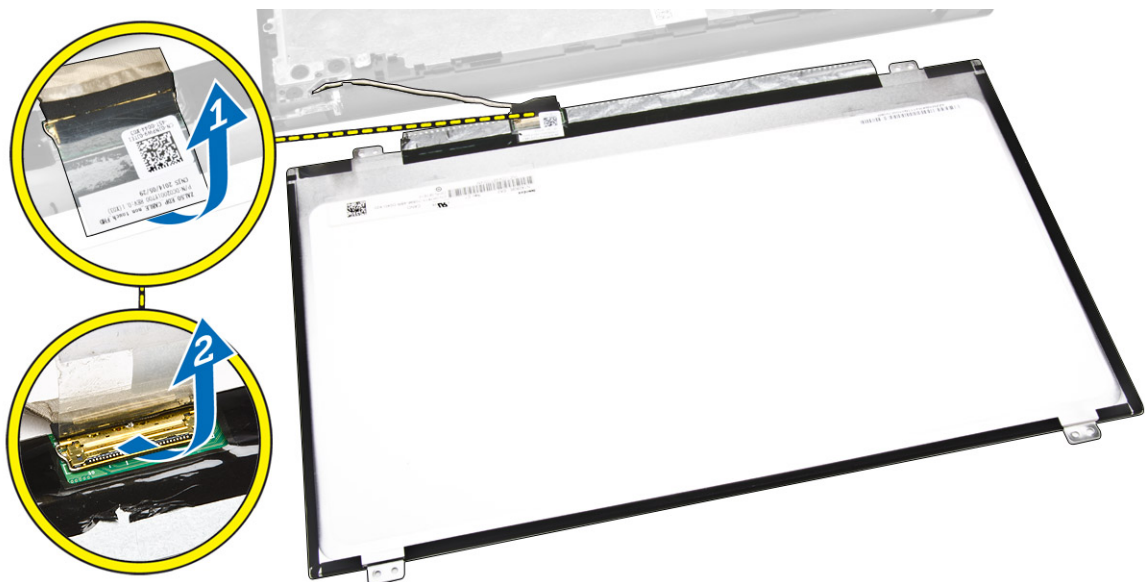
5. Perform the following steps as shown in the illustration:
   a. Disconnect the eDP cable from the computer [1].
   b. Lift the display panel from the computer [2].
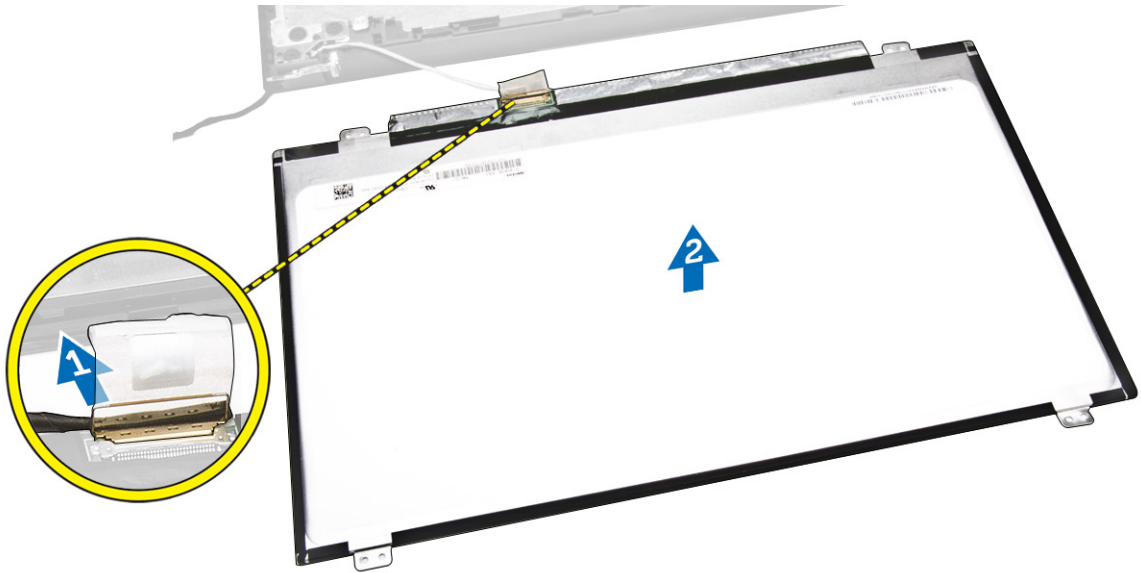
Installing the Display Panel

1. Connect the eDP cable to the display panel.
2. Affix the tape to secure the eDP 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. keyboard
   f. memory module
   g. hard drive
   h. access panel
   i. optical disk-drive
   j. battery
6. Follow the procedures in After Working Inside Your computer.

3

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

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.
<Enter>	Allows you to select a value in the selected field (if applicable) or follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
<Tab>	Moves to the next focus area. NOTE: For the standard graphics browser only.
<Esc>	Moves to the previous page till you view the main screen. Pressing <Esc> in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.
<F1>	Displays the System Setup help file.

System Setup Options

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

Table 2. General

Option	Description
System Information	This section lists the primary hardware features of your computer. • System Information: Displays BIOS Version, Service Tag, Asset Tag, Ownership Tag, Ownership Date, Manufacture Date, and the Express Service Code. • Memory Information: Displays Memory Installed, Memory Available, Memory Speed, Memory Channels Mode, Memory Technology, DIMM A Size, DIMM B Size, • Processor Information: Displays Processor Type, Core Count, Processor ID, Current Clock Speed, Minimum Clock Speed, Maximum Clock Speed, Processor L2 Cache, Processor L3 Cache, HT Capable, and 64-Bit Technology. • Device Information: Displays Primary Hard Drive, ODD Device, LOM MAC Address, Video Controller, Video BIOS Version, Video Memory, Panel Type, Native Resolution, Audio Controller, Wi-Fi Device, Bluetooth Device.
Battery Information	Displays the battery status and the type of AC adapter connected to the computer.
Boot Sequence	**Boot Sequence** — Allows you to change the order in which the computer attempts to find an operating system. The options are: • Windows Boot Manager • UEFI By default, all the options are checked. You can also deselect any option or change the boot order.

Option	Description
Boot List Option	Allows you to change the boot list option. • Legacy • UEFI
Advanced Boot Options	This option allows you the legacy option ROMs to load. By default, the **Enable Legacy Option ROMs** is disabled.
Date/Time	Allows you to change the date and time.

Table 3. System Configuration

Option	Description
Integrated NIC	Allows you to configure the integrated network controller. The options are: • Disabled • Enabled • Enabled w/PXE: This option is enabled by default.
SATA Operation	Allows you to configure the internal SATA hard-drive controller. The options are: • Disabled • AHCI: This option is enabled by default.
Drives	Allows you to configure the SATA drives on board. All drives are enabled by default. The options are: • SATA-0: This option is selected by default. • SATA-1: This option is selected by default.
SMART Reporting	This field controls whether hard drive errors for integrated drives are reported during system startup. This technology is part of the SMART (Self Monitoring Analysis and Reporting Technology) specification. This option is disabled by default. • Enable SMART Reporting
USB Configuration	This field configures the integrated USB controller. If Boot Support is enabled, the system is allowed to boot any type of USB Mass Storage Devices (HDD, memory key, floppy). If USB port is enabled, device attached to this port is enabled and available for OS. If USB port is disabled, the OS cannot see any device attached to this port. • Enable Boot Support • Enable External USB Port • Enable USB3.0 Controller

Option	Description
	NOTE: USB keyboard and mouse always work in the BIOS setup irrespective of these settings.
Audio	This field enables or disables the integrated audio controller. By default, the **Enable Audio** option is selected.
Miscellaneous Devices	Allows you to enable or disable the following devices: • Enable Microphone • Enable Camera • Enable Media Card • Disable Media Card **NOTE:** All devices are enabled by default. You can also enable or disable Media Card.

Table 4. Video

Option	Description
LCD Brightness	Allows you to set the display brightness depending up on the power source (On Battery and On AC). **NOTE:** The Video setting will only be visible when a video card is installed into the system.
Switchable Graphics	This option enables or disables switchable graphics technologies. Allows you to set the display brightness depending up on the power source (On Battery and On AC). **NOTE:** It should only be enabled for Windows 7 and later version of Windows or the Ubuntu OS.

Table 5. Security

Option	Description
Admin Password	Allows you to set, change, or delete the administrator (admin) password. **NOTE:** You must set the admin password before you set the system or hard drive password. Deleting the admin password automatically deletes the system password and the hard drive password. **NOTE:** Successful password changes take effect immediately. Default Setting: Not set
System Password	Allows you to set, change or delete the system password. **NOTE:** Successful password changes take effect immediately. Default Setting: Not set

Option	Description
Internal HDD-0 Password	Allows you to set, change or delete the password on the system's internal hard-disk drive. *NOTE:* Successful password changes take effect immediately. Default Setting: Not set
Strong Password	Allows you to enforce the option to always set strong passwords. Default Setting: Enable Strong Password is not selected. *NOTE:* If Strong Password is enabled, Admin and System passwords must contain at least one uppercase character, one lowercase character and be at least 8 characters long.
Password Configuration	Allows you to determine the minimum and maximum length of Administrator and System passwords.
Password Bypass	Allows you to enable or disable the permission to bypass the System and the Internal HDD password, when they are set. The options are: • Disabled • Reboot bypass Default Setting: Disabled
Password Change	Allows you to enable the disable permission to the System and Hard Drive passwords when the admin password is set. Default Setting: Allow Non-Admin Password Changes is selected.
Non-Admin Setup Changes	Allows you to determine whether changes to the setup options are allowed when an Administrator Password is set. If disabled the setup options are locked by the admin password.
CPU XD Support	Allows you to enable the Execute Disable mode of the processor. Enable CPU XD Support (default)
Admin Setup Lockout	Allows you to prevent users from entering Setup when an Administrator password is set. Default Setting: Enable Admin Setup Lockout is not selected.

Table 6. Secure Boot

Option	Description
Secure Boot Enable	This option enables or disables the Secure Boot Feature. • Disabled • Enabled

Option	Description
	Default Setting: The option is disabled.
Expert Key Management	Allows you to manipulate the security key databases only if the system is in Custom Mode. The **Enable Custom Mode** option is disabled by default. The options are: • PK • KEK • db • dbx If you enable the **Custom Mode**, the relevant options for **PK, KEK, db, and dbx** appear. The options are: • **Save to File**- Saves the key to a user-selected file • **Replace from File**- Replaces the current key with a key from a user-selected file • **Append from File**- Adds a key to the current database from a user-selected file • **Delete**- Deletes the selected key • **Reset All Keys**- Resets to default setting • **Delete All Key**s- Deletes all the keys NOTE: If you disable the Custom Mode, all the changes made will be erased and the keys will restore to default settings.

Table 7. Performance

Option	Description
Multi Core Support	This field specifies whether the process will have one or all cores enabled. The performance of some applications will improve with the additional cores. This option is enabled by default. Allows you to enable or disable multi-core support for the processor. The installed processor supports two cores. If you enable Multi Core Support, two cores will be enabled. If you disable Multi Core Support, one core will be enabled. • Enable Multi Core Support Default Setting: The option is enabled.
Intel SpeedStep	Allows you to enable or disable the Intel SpeedStep feature. • Enable Intel SpeedStep Default Setting: The option is enabled.
C States Control	Allows you to enable or disable the additional processor sleep states. • C states Default Setting: The option is enabled.

Option	Description
Intel TurboBoost	Allows you to enable or disable the Intel TurboBoost mode of the processor. • Enable Intel TurboBoost Default Setting: The option is enabled.
Hyper-Thread Control	Allows you to enable or disable the HyperThreading in the processor. • Disabled • Enabled Default Setting: The option is enabled.

Table 8. Power Management

Option	Description
AC Behavior	Allows you to enable or disable the computer from turning on automatically when an AC adapter is connected. Default Setting: Wake on AC is not selected.
Auto On Time	Allows you to set the time at which the computer must turn on automatically. The options are: • Disabled (default) • Every Day • Weekdays • Select Days
USB Wake Support	Allows you to enable USB devices to wake the system from Standby. ⚠ NOTE: This feature is only functional when the AC power adapter is connected. If the AC power adapter is removed during Standby, the system setup will remove power from all of the USB ports to conserve battery power. • Enable USB Wake Support Default Setting: The option is disabled.
Wake on LAN/WLAN	Allows you to enable or disable the feature that powers on the computer from the Off state when triggered by a LAN signal. • Disabled: This option is enabled by default • LAN Only
Advanced Battery Charge Configuration	This option enables you to maximize the battery health. By enabling this option, your system uses the standard charging algorithm and other techniques, during the non-work hours to improve the battery health. Disabled (default)

Option	Description
Primary Battery Charge Configuration	Allows you to select the charging mode for the battery. The options are: • Adaptive • Standard - Fully charges your battery at a standard rate. • Primarily AC use • Custom If Custom Charge is selected, you can also configure Custom Charge Start and Custom Charge Stop. NOTE: All charging mode may not be available for all the batteries. To enable this option, disable the **Advanced Battery Charge Configuration** option.

Table 9. POST Behavior

Option	Description
Adapter Warnings	Allows you to enable or disable the system setup (BIOS) warning messages when you use certain power adapters. Default Setting: Enable Adapter Warnings
Fn Lock Option	Allows the hot key combination <Fn> +<Esc> toggle the primary behavior of F1–F12, between the standard and secondary functions. • Lock Mode Disable/Standard. This option is enabled by default. • Lock Mode Enable/Secondary
Fastboot	Allows you to speed up the boot process by bypassing some of the compatibility steps. The options are: • Minimal • Thorough (default) • Auto

Table 10. Virtualization Support

Option	Description
Virtualization	Allows you to enable or disable the Intel Virtualization Technology. • **Enable Intel Virtualization Technology** (default)
VT for Direct I/O	Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by Intel® Virtualization technology for direct I/O. **Enable VT for Direct I/O** — enabled by default.

Table 11. Wireless

Option	Description
Wireless Switch	Allows to set the wireless devices that can be controlled by the wireless switch. The options are: • WLAN/WiGig • Bluetooth All the options are enabled by default.
Wireless Device Enable	Allows you to enable or disable the internal wireless devices. • WLAN/WiGig • Bluetooth All the options are enabled by default.

Table 12. Maintenance

Option	Description
Service Tag	Displays the Service Tag of your computer.
Asset Tag	Allows you to create a system asset tag if an asset tag is not already set. This option is not set by default.
BIOS Downgrade	This field controls flashing of the system firmware to pervious revisions. Allows BIOS Downgrade (Enabled by default)

Table 13. System Logs

Option	Description
BIOS Events	Allows you to view and clear the System Setup (BIOS) POST events.

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.

Password Type	Description
System password	Password that you must enter to log on to your system.
Setup password	Password that you must enter to access and make changes to the BIOS settings of your computer.

⚠ CAUTION: The password features provide a basic level of security for the data on your computer.

⚠ CAUTION: Anyone can access the data stored on your computer if it is not locked and left unattended.

✎ NOTE: Your computer is shipped with the system and setup password feature disabled.

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 are 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>.

   Use the following guidelines to assign the system password:
   • 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 promoted. If you delete the System and/or Setup password, confirm the deletion when promoted.

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.

4

Diagnostics

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.

Specifications

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 14. System Information

Feature	Description
Chipset	integrated in processor
DRAM bus width	64 bits
Flash EPROM	8 MB

Table 15. Processor

Feature	Description
Processor type	• 4th Generation Intel core i3 • 5th Generation Intel core i3/i5/i7 • Intel Celeron Dual Core • Intel Pentium Dual Core
L1 cache	128 KB
L2 cache	512 KB
L3 cache	Up to 4 MB

Table 16. Memory

Feature	Description
Memory connector	two internally accessible DDR3L connector
Memory capacity	2 GB, 4 GB, and 8 GB
Memory speed	1600 MHz
Minimum memory	2 GB
Maximum memory	16 GB

Table 17. Audio

Feature	Description
Type	2 channel high-definition audio
Controller	Realtek ALC3234 with Waves Maxx Audio
Stereo conversion	24-bit (analog-to-digital and digital-to-analog)
Interface	Intel HDA bus
Speakers	2 x 2 W
Volume controls	program menu and keyboard media-control keys

Table 18. Video

Feature	Description
Video type	eDP
Video Controller:	
UMA	Intel HD Graphics (shared memory)
Discrete	NVIDIA GeForce 820M (up to 2 GB DDR3)
Data bus:	64 bits
External display support	VGA

Table 19. Camera

Feature	Description
Camera Resolution	HD resolution
Video Resolution (maximum)	1280 x 720 (HD) at 30 fps (maximum)
Diagonal viewing angle	74°

Table 20. Communication

Feature	Description
Network adapter	10/100/1000 Mbps Ethernet LAN on Motherboard (LOM)
Wireless	• Wi-Fi 802.11 b/g/n • Bluetooth 4.0

Table 21. Ports and Connectors

Feature	Description
Audio	one headphone/microphone combo port (headset)
Video	VGA
Network adapter	one RJ-45 port
USB:	• one USB 3.0 port

Feature	Description
	• two USB 2.0 ports

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 SD slot

Table 22. Display

Feature	Description
Type	14.0 inches HD
Dimensions:	
Height	173.95 mm (6.85 inches)
Diagonal	354.95 mm (13.97 inches)
Width	309.40 mm (12.18 inches)
Active area (X/Y)	320.90 mm x 205.60 mm (12.63 inches x 8.09 inches)
Maximum resolution	1366 x 768 pixels
Maximum Brightness	200 nits
Operating angle	0° (closed) to 135°
Refresh rate	60 Hz
Minimum Viewing angles:	
Horizontal	40° / 40°
Vertical	10° / 30°
Pixel pitch	0.2265 mm

Table 23. Keyboard

Feature	Description
Number of keys:	US 80, Brazil 82, UK 81, and Japan 84

Table 24. Touchpad

Feature	Description
Active Area:	
X-axis	105.00 mm (4.13 inches)
Y-axis	65.00 mm (2.50 inches)

Table 25. Battery

Feature	Description
Type	• 4-cell "smart" lithium ion (47 WHr)
Dimensions:	
Height	20.00 mm (0.78 inch)
Width	270.00 mm (10.63 inches)
Depth	37.50 mm (1.47 inches)
Weight	0.26 kg (0.56 lb)
Life span	300 discharge/charge cycles
Voltage	14.80 VDC
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)
Coin-cell battery	3 V CR2032 lithium ion

Table 26. AC Adapter

Feature	Description
Type	45 W
	65 W
Input voltage	100 VAC to 240 VAC
Input frequency	50 Hz-60 Hz
Input current (maximum)	
45 W	1.30 A
65 W	1.70 A
Output current	
45 W	2.31 A
65 W	3.34 A
Rated output voltage	19.50 VDC
Temperature range:	
Operating	0 °C to 40 °C (32 °F to 104 °F)
Non-Operating	−40 °C to 70 °C (−40 °F to 158 °F)

Table 27. Physical

Feature	Description
Height	
Touch	23.6 mm (0.93 inch)
Non-Touch	23.35 mm (0.91 inch)
Width	345.00 mm (13.58 inches)
Depth	243.00 mm (9.57 inches)
Weight	
Touch	2.18 kg (4.8 lb)
Non-Touch	1.92 kg (4.23 lb)

Table 28. Environmental

Feature	Description
Temperature:	
Operating	0 °C to 35 °C (32 °F to 95 °F)
Storage	−40 °C to 65 °C (−40 °F to 149 °F)
Relative humidity (maximum):	
Operating	10 % to 90 % (non-condensing)
Storage	0 % to 95 % (non-condensing)
Altitude (maximum):	
Operating	−15.2 m to 3048 m (−50 ft to 10,000 ft)
	0° to 35°C
Non-Operating	−15.2 m to 10,668 m (−50 ft to 35,000 ft)
Airborne contaminant level	G1 as defined by ISA-S71.04-1985

6

Contacting Dell

Contacting Dell

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:

1. Go to **dell.com/support**.
2. Select your support category.
3. Verify your country or region in the **Choose a Country/Region** drop-down list at the bottom of the page.
4. Select the appropriate service or support link based on your need.