Alienware 18

Owner's Manual

ALIENWARE™

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.

_____

Contents

Before You Begin

Turn Off Your Computer and Connected Devices

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

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

2 Follow the instructions to shut down your computer based on the operating system installed on your computer.

- Windows 8:
  Move your mouse pointer to the upper-right or lower-right corner of the screen to open the Charms sidebar, and then click **Settings**→ **Power**→ **Shut Down**.

  Microsoft Windows shuts down and then the computer turns off.

- Windows 7:
  Click **Start** and click **Shut down.**

  📝 **NOTE:** If you are using a different operating system, see the documentation of your operating system for shut-down instructions.

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

4 Disconnect all telephone cables, network cables, and attached devices from your computer.

5 After the computer is unplugged, press and hold the power button for about 5 seconds to ground the system board.

Safety Instructions

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

⚠ **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 dell.com/regulatory_compliance.**

⚠ **CAUTION: To avoid damaging the computer, ensure that the work surface is flat and clean.**

⚠ **CAUTION: To avoid damaging the components and cards, handle them by their edges and avoid touching pins and contacts.**

⚠ **CAUTION: Only a certified service technician is authorized to remove the computer cover and access any of the components inside the computer. See the safety instructions for complete information about safety precautions, working inside your computer, and protecting against electrostatic discharge.**

⚠ **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.**

⚠ **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 or thumb-screws that you must disengage before disconnecting the cable. When disconnecting cables, keep them evenly aligned to avoid bending any connector pins. When connecting cables, ensure that the connectors and ports are correctly oriented and aligned.**

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

Recommended Tools

The procedures in this document may require the following tools:

- Phillips screwdriver
- Plastic scribe
- Small flat-blade screwdriver

After Working Inside Your Computer

After you complete the replacement procedures, ensure the following:

- Replace all screws and ensure that no stray screws remain inside your computer
- Connect any external devices, cables, cards, and any other part(s) you removed before working on your computer
- Connect your computer and all attached devices to their electrical outlets

⚠ **CAUTION: Before turning on your computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may damage your computer.**

Removing the Base Cover

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Remove the screws that secure the base cover to the computer base.
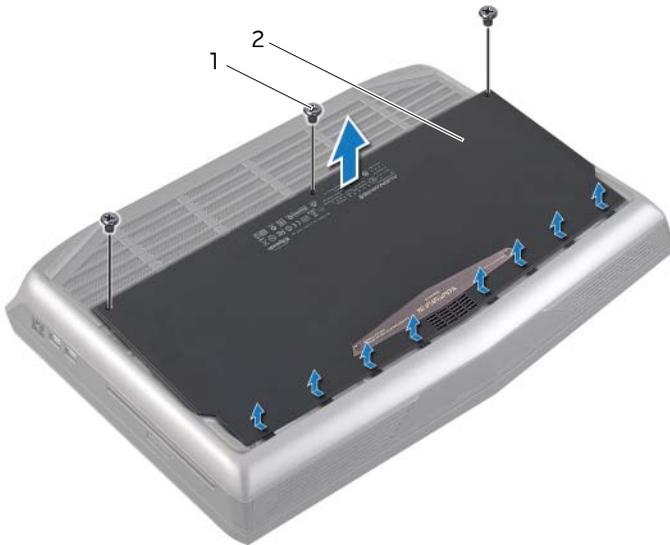
1	screws (3)	2	base cover

2 Slide the base cover towards the rear of the computer and lift it off the computer base.

Replacing the Base Cover

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Procedure

1 Align the tabs on the base cover with the slots on the computer base and slide the base cover into place.

2 Replace the screws that secure the base cover to the computer base.

Postrequisites

Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Battery Pack

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

Remove the base cover. See "Removing the Base Cover" on page 14.

Procedure

1 Remove the screws that secure the battery to the computer base.
2 Disconnect the battery cable from its connector on the system board.

1	battery cable	2	screws (2)
3	battery pack		

3 Lift the battery pack away from the computer base.

Replacing the Battery Pack

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⚠️ **CAUTION: To avoid damage to the computer, use only the battery designed for this particular Alienware computer.**

Procedure

1 Align the tabs on the battery with the slots on the computer base and place the battery on the computer base.
2 Connect the battery cable to its connector on the system board.
3 Replace the screws that secure the battery to the computer base.

Postrequisites

1 Replace the base cover. See "Replacing the Base Cover" on page 15.
2 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Memory Module(s)

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

📓 **NOTE:** Your computer supports up to four memory module connectors. You can access connectors DIMM3 and DIMM4 by removing the base cover at the bottom of your computer. You can access connectors DIMM1 and DIMM2 by removing the keyboard.

Prerequisites

1 Remove the base cover. See "Removing the Base Cover" on page 7.
2 Remove the battery. See "Removing the Battery Pack" on page 16.

Procedure

1 To remove memory module(s) from connectors DIMM3 and DIMM4, go to step 3.

2 To remove memory module(s) from connectors DIMM1 and DIMM2:

Remove the palm rest. See "Removing the Palm Rest" on page 39.

⚠ **CAUTION: To prevent damage to the memory-module connector, do not use tools to spread the memory module securing clips.**

3 Using your fingertips, spread apart the securing clips on each end of the memory-module connector until the memory module pops up.

4 Remove the memory module from the memory-module connector.
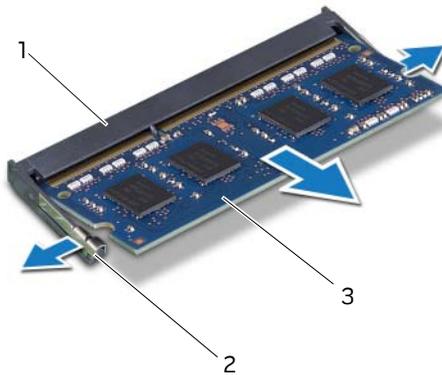
1	memory-module connector	2	securing clips (2)
3	memory module		

Replacing the Memory Module(s)

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📝 **NOTE:** Your computer supports up to four memory module connectors. You can access connectors DIMM3 and DIMM4 by removing the base cover at the bottom of your computer. You can access connectors DIMM1 and DIMM2 by removing the palmrest.

Procedure

📝 **NOTE:** If you need to install memory modules in two connectors, install a memory module in the lower connector before you install a memory module in the upper connector.

1 Align the notch on the memory module with the tab on the memory-module connector.

2 Slide the memory module firmly into the connector at a 45-degree angle and press the memory module down until it clicks into place. If you do not hear the click, remove the memory module and reinstall it.
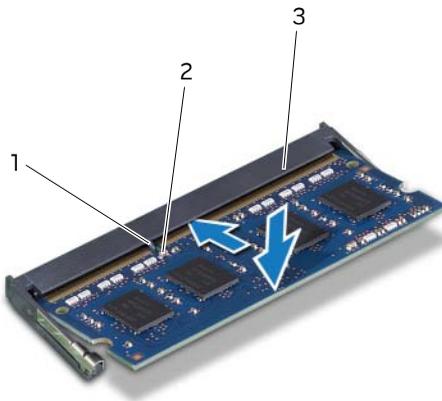
1	tab	2	notch
3	memory-module connector		

3   If you have replaced memory module(s) in connectors DIMM3 and DIMM4, go to Postrequisites.

4   If you have replaced memory module(s) in connectors DIMM1 and DIMM2:

Replace the palm rest. See "Replacing the Palm Rest" on page 42.

Postrequisites

1   Replace the battery pack. See "Replacing the Battery Pack" on page 17.

2   Replace the base cover. See "Replacing the Base Cover" on page 15.

3   Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Optical Drive

⚠ WARNING: **Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

1 Remove the base cover. See "Removing the Base Cover" on page 14.
2 Remove the battery pack. See "Removing the Battery Pack" on page 16.

Procedure

1 Disconnect the optical-drive cable from its connector on the system board.
2 Remove the screws that secure the optical-drive assembly to the computer base.
3 Lift the optical-drive assembly off the computer base.
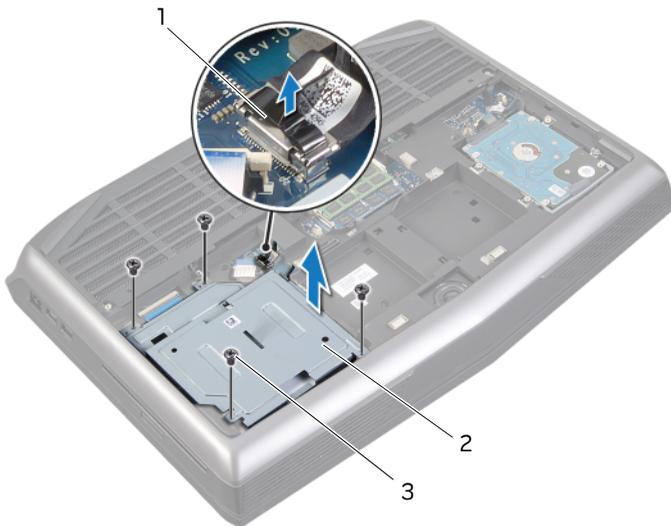
1	optical-drive cable	2	optical drive
3	screws (4)		

4 Remove the screws that secure the optical-drive bracket to the optical drive.

5 Lift the optical-drive bracket off the optical drive.
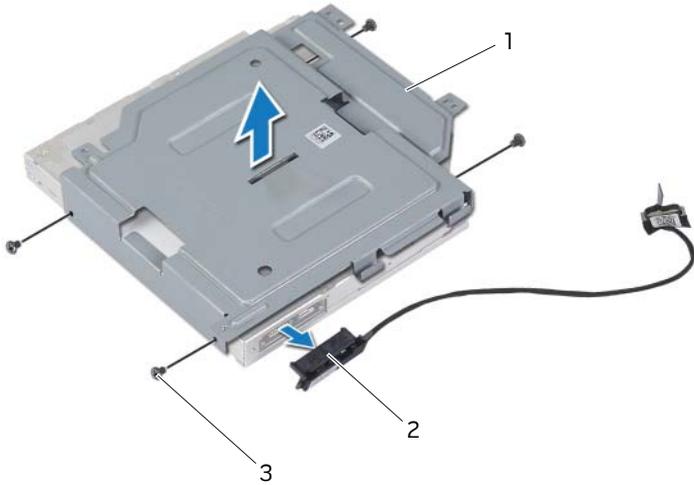
1	optical-drive bracket	2	interposer
3	screws (4)		

6 Remove the interposer from the optical drive.

Replacing the Optical Drive

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Procedure

1 Connect the interposer to the optical drive.

2 Align the screw holes on the optical-drive bracket with the screw holes on the optical drive and replace the screws that secure the optical-drive bracket to the optical drive.

3 Align the slot on the optical drive with the alignment posts on computer base and place the optical drive in the computer base.

4 Replace the screws that secure the optical drive to the computer base.

5 Connect the optical-drive cable to its connector on the system board.

Postrequisites

1 Replace the battery pack. See "Replacing the Battery Pack" on page 17.

2 Replace the base cover. See "Replacing the Base Cover" on page 15.

3 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Hard Drive(s)

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

⚠ **CAUTION: To avoid data loss, do not remove the hard drive while the computer is in Sleep or On state.**

⚠ **CAUTION: Hard drives are extremely fragile. Exercise care when handling the hard drive.**

Prerequisites

1   Remove the base cover. See "Removing the Base Cover" on page 14.
2   Remove the battery pack. See "Removing the Battery Pack" on page 16.

Procedure

1 Disconnect the hard-drive cable from its connector on the system board.

2 Loosen the captive screws that secure the hard-drive assembly to the computer base.

3 Using the pull-tab, lift the hard-drive assembly out of the computer base.
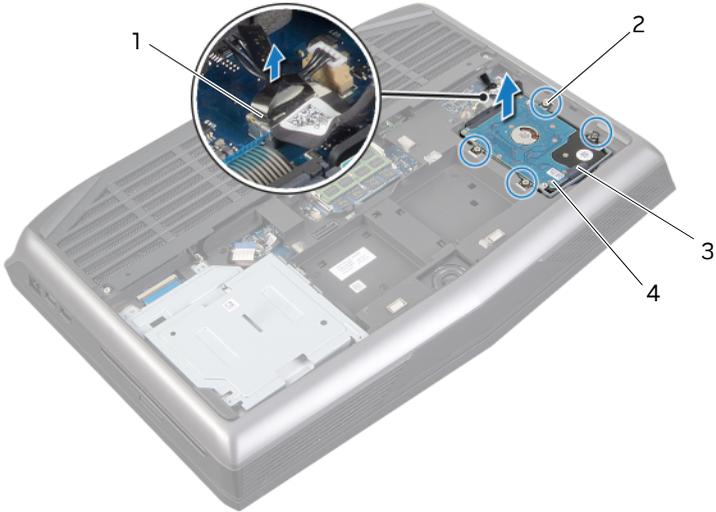
1	hard-drive cable	2	captive screws (4)
3	pull tab	4	hard drive

4 Disconnect the interposer from the hard drives.

🛈 **NOTE:** Your computer supports up to three drives.

5 Remove the screws that secure the hard drive(s) to the hard-drive bracket and slide the hard drive(s) out of the hard-drive bracket.

1	hard drive	2	interposer
3	screws (4)		

Replacing the Hard Drive(s)

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📖 **NOTE:** For drive configurations supported on your computer, see *Specifications* at **dell.com/support/manuals**.

Procedure

1 Place the primary hard drive in the hard-drive bracket.
2 If applicable, slide the secondary hard drive into the hard-drive bracket.
3 Replace the screws that secure the primary hard drive to the hard-drive bracket.
4 If applicable, replace the screws that secure the secondary hard drive to the hard-drive bracket.
5 Connect the interposer to the hard drives.
6 Place the hard-drive assembly in the computer base.
7 Tighten the captive screws that secure the hard-drive assembly to the computer base.
8 Connect the hard-drive cable to its connector on the system board.

Postrequisites

1 Replace the battery pack. See "Replacing the Battery Pack" on page 17.
2 Replace the base cover. See "Replacing the Base Cover" on page 15.
3 Follow the instructions in "After Working Inside Your Computer" on page 13.
4 Install the operating system for your computer, if needed.
5 Install the drivers and utilities for your computer, if needed.

Removing the Fans Cover

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Prerequisites

1 Remove the base cover. See "Removing the Base Cover" on page 14.
2 Remove the battery pack. See "Removing the Battery Pack" on page 16.

Procedure

Slide and lift the fans cover off the computer base.

| 1 | fans cover |

Replacing the Fans Cover

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Procedure

Align the tabs on the fans cover with the slots on the computer base and slide the fans cover into place.

Postrequisites

1   Replace the battery pack. See "Replacing the Battery Pack" on page 17.
2   Replace the base cover. See "Replacing the Base Cover" on page 15.
3   Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Video-Card Heat-Sink Fan(s)

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

1   Remove the base cover. See "Removing the Base Cover" on page 14.
2   Remove the battery pack. See "Removing the Battery Pack" on page 16.
3   Remove the fans cover. See "Removing the Fans Cover" on page 29.

Procedure

1   Disconnect the primary video-card heat-sink fan cable from its connector on the system board.
2   Loosen the captive screws that secure the primary video-card heat-sink fan to the computer base.

| 1 | captive screws (4) | 2 | primary video-card heat-sink fan |
| 3 | primary video-card heat-sink fan cable | | |

3 Disconnect the secondary video-card heat-sink fan cable from its connector on the system board.

4 Loosen the captive screws that secure the secondary video-card heat-sink fan to the computer base.

1	captive screws (4)	2	secondary video-card heat-sink fan
3	secondary video-card heat-sink fan cable		

5 Lift the video-card heat-sink fan(s) along with the cable away from the computer base.

Replacing the Video-Card Heat-Sink Fan(s)

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Align the screw holes on the video-card heat-sink fan(s) with the screw holes on the computer base.

2 Tighten the captive screws that secure the secondary video-card heat-sink fan to the computer base.

3 Tighten the captive screws that secure the primary video-card heat-sink fan to the computer base.

4 Route the primary video-card heat-sink fan cable through the routing guides on the computer base.

5 Connect the primary video-card heat-sink fan cable to its connector on the system board.

6 Connect the secondary video-card heat-sink fan cable to its connector on the system board.

Postrequisites

1 Replace the fans cover. See "Replacing the Fans Cover" on page 30.

2 Replace the battery pack. See "Replacing the Battery Pack" on page 17.

3 Replace the base cover. See "Replacing the Base Cover" on page 15.

4 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Processor Heat-Sink Fan

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

1 Remove the base cover. See "Removing the Base Cover" on page 14.
2 Remove the battery pack. See "Removing the Battery Pack" on page 16.
3 Remove the fans cover. See "Removing the Fans Cover" on page 29.

Procedure

1 Disconnect the processor heat-sink fan cable from its connector on the system board.
2 Loosen the captive screws that secure the processor heat-sink fan to the computer base.
3 Lift the processor heat-sink fan along with the cable away from the computer base.

| 1 | captive screws (3) | 2 | processor heat-sink fan cable |

Replacing the Processor Heat-Sink Fan

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Procedure

1. Align the screw holes on the processor heat-sink fan with the screw holes on the computer base.
2. Tighten the captive screws that secure the processor heat-sink fan to the computer base.
3. Connect the processor heat-sink fan cable to its connector on the system board.

Postrequisites

1. Replace the fans cover. See "Replacing the Fans Cover" on page 30.
2. Replace the battery pack. See "Replacing the Battery Pack" on page 17.
3. Replace the base cover. See "Replacing the Base Cover" on page 15.
4. Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Coin-Cell Battery

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

The coin-cell battery may need replacing if an incorrect time or date is displayed during the boot routine along with a message such as:

```
Time-of-day not set - please run SETUP program
```

or

```
Invalid configuration information -
please run SETUP program
```

or

```
Strike the F1 key to continue,
F2 to run the setup utility
```

To determine whether you need to replace the coin-cell battery, reenter the time and date in system setup and exit the program to save the information. Turn off your computer and disconnect it from the electrical outlet for a few hours; then reconnect the computer, turn it on, and enter system setup. If the date and time are not correct in system setup, replace the coin-cell battery.

You can operate your computer without a coin-cell battery; however, without a coin-cell battery, the configuration information is erased if the computer is turned off or disconnected from the electrical outlet. In this case, you must enter system setup and reset the configuration options.

⚠️ **WARNING: The battery may explode if installed incorrectly. Replace the battery only with the same or equivalent type. Discard used batteries according to the manufacturer's instructions.**

⚠️ **CAUTION: Removing the coin-cell battery resets the BIOS settings to default. It is recommended that you note the BIOS settings before removing the coin-cell battery.**

Prerequisites

1 Remove the base cover. See "Removing the Base Cover" on page 14.

2 Remove the battery pack. See "Removing the Battery Pack" on page 16.

3 Remove the fans cover. See "Removing the Fans Cover" on page 29.

Procedure

1 Disconnect the coin-cell battery cable from its connector on the system board.
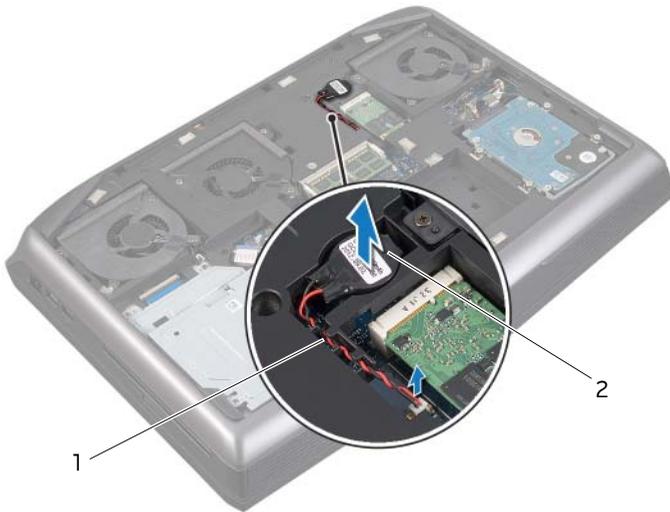
| 1 | coin-cell battery cable connector | 2 | coin-cell battery |

2 Remove the coin-cell battery cable from the routing guides on the computer base.

3 Pry up the coin-cell battery from the slot on the system board.

Replacing the Coin-Cell Battery

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⚠ **WARNING: The battery may explode if installed incorrectly. Replace the battery only with the same or equivalent type. Discard used batteries according to the manufacturer's instructions**

Procedure

1 Place the coin-cell battery into the slot and press gently to adhere it to the computer base.
2 Route the coin-cell battery cable through the routing guides on the computer base.
3 Connect the coin-cell battery cable to its connector on the system board.

Postrequisites

1 Replace the fans cover. See "Replacing the Fans Cover" on page 30.
2 Replace the battery pack. See "Replacing the Battery Pack" on page 17.
3 Replace the base cover. See "Replacing the Base Cover" on page 15.
4 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Palm Rest

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

 1 Remove any installed card or blank from the Media-Card Reader.

 2 Remove the base cover. See "Removing the Base Cover" on page 14.

 3 Remove the battery pack. See "Removing the Battery Pack" on page 16.

 4 Remove the fans cover. See "Removing the Fans Cover" on page 29.

 5 Remove the hard drive. See "Removing the Hard Drive(s)" on page 25.

 6 Remove the optical drive. See "Removing the Optical Drive" on page 22.

Procedure

1 Lift the connector latches and pull the pull-tabs to disconnect the media-card reader cable and keyboard cable from the connectors on the palm-rest assembly.

2 Lift the connector latches and pull the pull-tabs to disconnect the macro-keyboard cable and macro-keyboard backlight cable from the connectors on the system board.

3 Remove the screws that secure the palm-rest assembly to the computer base.
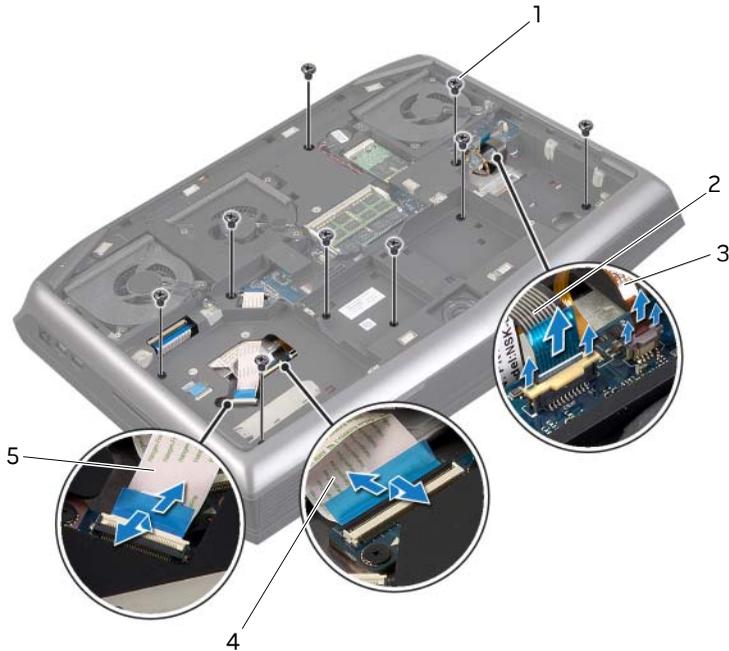
1	screws (9)	2	macro-keyboard cable
3	macro-keyboard backlight cable	4	keyboard cable
5	media-card reader cable		

4 Turn the computer over.

5 Carefully pry out the palm-rest assembly from the two tabs along the rear edge of the computer, and then ease the palm-rest assembly from the computer base.

⚠ **CAUTION: Carefully separate the palmrest from the computer base to avoid damage to the palmrest.**

6 Lift the palm-rest assembly off the computer base.

| 1 | palm-rest assembly |

7 Remove the status-light board. See "Removing the Status-Light Board" on page 47.

8 Remove the power-button board. See "Removing the Power-Button Board" on page 45.

Replacing the Palm Rest

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Procedure

1   Replace the power-button board. See "Replacing the Power-Button Board" on page 46.
2   Replace the status-light board. See "Replacing the Status-Light Board" on page 49.
3   Align the palm-rest assembly with the computer base and gently snap the palm-rest assembly into place.
4   Turn the computer over and replace the screws that secure the palm-rest assembly to the computer base.
5   Slide the media-card reader cable and keyboard cable into the respective connectors on the palm-rest assembly, and press down on the connector latches to secure the cables.
6   Slide the macro-keyboard cable and macro-keyboard backlight cable into the respective connectors on the system board, and press down on the connector latches to secure the cables.

Postrequisites

1   Replace the optical drive. See "Replacing the Optical Drive" on page 24.
2   Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.
3   Replace the fans cover. See "Replacing the Fans Cover" on page 30.
4   Replace the battery pack. See "Replacing the Battery Pack" on page 17.
5   Replace the base cover. See "Replacing the Base Cover" on page 15.
6   Replace any card or blank that you removed from the Media-Card Reader.
7   Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the mSATA Card

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Prerequisites

1 Remove the base cover. See "Removing the Base Cover" on page 14.
2 Remove the battery pack. See "Removing the Battery Pack" on page 16.
3 Remove the fans cover. See "Removing the Fans Cover" on page 29.

Procedure

1 Remove the screw that secures the mSATA to the system board.
2 Slide and remove the mSATA card off the system-board connector.

| 1 | screw | 2 | mSATA card |

Replacing the mSATA Card

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Procedure

 1 Insert the mSATA card connector at a 45-degree angle into the system- board connector.
 2 Press the other end of the mSATA card down into the slot on the system board and replace the screw that secures the mSATA card to the system-board connector.

Postrequisites

 1 Replace the battery pack. See "Replacing the Battery Pack" on page 17.
 2 Replace the base cover. See "Replacing the Base Cover" on page 15.au
 3 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Power-Button Board

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Prerequisites

1 Remove any installed card or blank from the Media-Card Reader.
2 Remove the base cover. See "Removing the Base Cover" on page 14.
3 Remove the fans cover. See "Removing the Fans Cover" on page 29.
4 Remove the battery pack. See "Removing the Battery Pack" on page 16.
5 Remove the hard drive. See "Removing the Hard Drive(s)" on page 25.
6 Remove the optical drive. See "Removing the Optical Drive" on page 22.
7 Follow the instructions from step 1 to step 6 in Removing the Palm Rest.

Procedure

1 Lift the connector latch and pull the pull-tab to disconnect the power-button board cable from its connector on the status-light board.
2 Remove the screws that secure the power-button board to the palm-rest assembly.
3 Lift the power-button board off the palm-rest assembly.
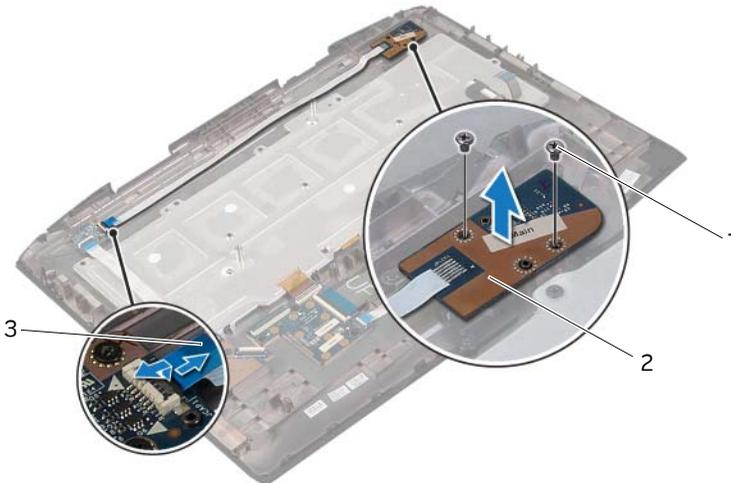
1	screws (2)	2	power-button board
3	power-button board cable		

Replacing the Power-Button Board

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Procedure

1 Align the screws holes on the power-button board with the screw holes on the palm-rest assembly.

2 Replace the screws that secure the power-button board to the palm-rest assembly.

3 Slide the power-button board cable into its connector on the status-light board, and press down on the connector latch to secure the cable.

4 Follow the instructions from step 3 to step 6 in Replacing the Palm Rest.

Postrequisites

1 Replace the optical drive. See "Replacing the Optical Drive" on page 24.

2 Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.

3 Replace the battery pack. See "Replacing the Battery Pack" on page 17.

4 Replace the fans cover. See "Replacing the Fans Cover" on page 30.

5 Replace the base cover. See "Replacing the Base Cover" on page 15.

6 Replace any card or blank that you removed from the Media-Card Reader.

7 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Status-Light Board

📝 WARNING: **Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

1 Remove any installed card or blank from the Media-Card Reader.

2 Remove the base cover. See "Removing the Base Cover" on page 14.

3 Remove the fans cover. See "Removing the Fans Cover" on page 29.

4 Remove the battery pack. See "Removing the Battery Pack" on page 16.

5 Remove the hard drive. See "Removing the Hard Drive(s)" on page 25.

6 Remove the optical drive. See "Removing the Optical Drive" on page 22.

7 Follow the instructions from step 1 to step 6 in Removing the Palm Rest.

Procedure

1 Lift the connector latches and pull the pull-tabs to disconnect the power-button board cable and media-card reader cable from the connectors on the status-light board.

2 Remove the screws that secure the status-light board to the palm-rest assembly.
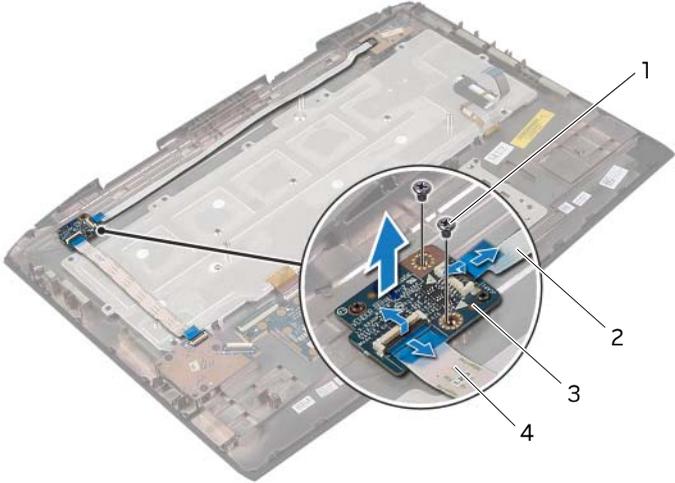
1	screws (2)	2	power-button board cable
3	status-light board	4	media-card reader cable

3 Lift the status-light board off the palmrest.

Replacing the Status-Light Board

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Align the slots on the status-light board with the alignment posts on the palm-rest assembly and secure the status-light board in place.

2 Replace the screws that secure the status-light board to the palm-rest assembly.

3 Slide the power-button board cable and media-card reader cable into the respective connectors on the status-light board, and press down on the connector latches to secure the cables.

4 Follow the instructions from step 3 to step 6 in Replacing the Palm Rest.

Postrequisites

1 Replace the optical drive. See "Replacing the Optical Drive" on page 24.

2 Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.

3 Replace the battery pack. See "Replacing the Battery Pack" on page 17.

4 Replace the fans cover. See "Replacing the Fans Cover" on page 30.

5 Replace the base cover. See "Replacing the Base Cover" on page 15.

6 Replace any card or blank that you removed from the Media-Card Reader.

7 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Keyboard

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

1 Remove any installed card or blank from the Media-Card Reader.

2 Remove the base cover. See "Removing the Base Cover" on page 14.

3 Remove the fans cover. See "Removing the Fans Cover" on page 29.

4 Remove the battery pack. See "Removing the Battery Pack" on page 16.

5 Remove the hard drive. See "Removing the Hard Drive(s)" on page 25.

6 Remove the optical drive. See "Removing the Optical Drive" on page 22.

7 Follow the instructions from step 1 to step 6 in Removing the Palm Rest.

Procedure

1 Remove the screws that secure the keyboard-bracket to the keyboard.

⚠ CAUTION: **The keycaps on the keyboard are fragile, easily dislodged, and time-consuming to replace. Be careful when removing and handling the keyboard.**

⚠ CAUTION: **Be extremely careful when removing and handling the keyboard. Failure to do so could result in scratching the display panel.Lift the connector latches and pull the pull-tabs to disconnect the media-card reader cable and the keyboard-backlight cable from the respective connectors.**

2 Lift the keyboard bracket off the keyboard.
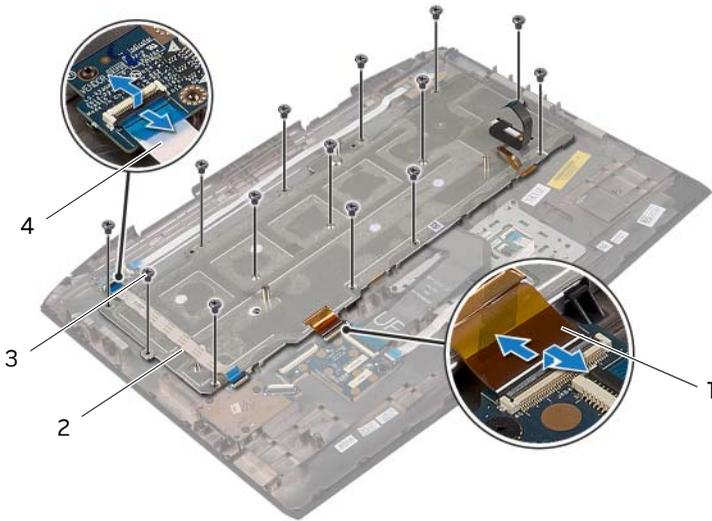
| 1 | keyboard-backlight cable | 2 | keyboard bracket |
| 3 | screws (14) | 4 | media-card reader cable |

3 Lift the connector latch and pull the pull-tab to disconnect the keyboard cable from the respective connector.

4 Remove the screws that secure the keyboard to the palm-rest assembly.
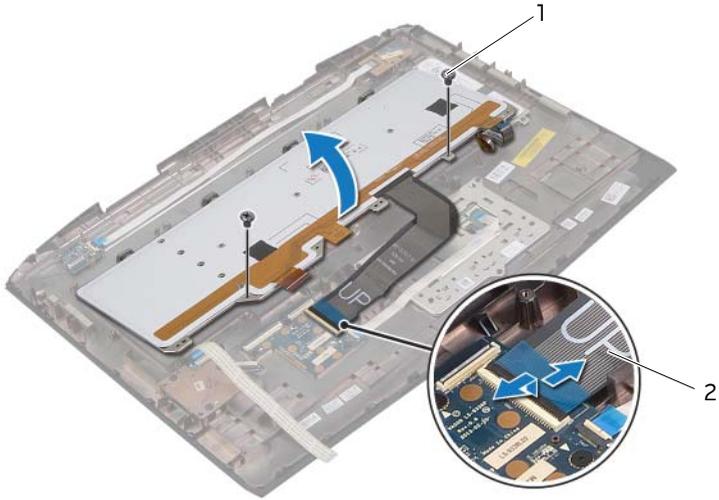
| 1 | screws (2) | 2 | keyboard cable |

5 Lift the keyboard off the palm-rest assembly.

Replacing the Keyboard

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Place the keyboard on the palm-rest assembly.

2 Replace the screws that secure the keyboard to the palm-rest assembly.

3 Slide the keyboard cable into the connector and press down on the connector latch to secure the keyboard cable.

4 Place the keyboard bracket on the keyboard.

5 Slide the media-card reader cable and keyboard-backlight cable into their respective connectors and press down on the connector latches to secure the cables.

6 Replace the screws that secure the keyboard bracket to the keyboard.

Postrequisites

1 Follow the instructions from step 3 to step 6 in Replacing the Palm Rest.

2 Replace the optical drive. See "Replacing the Optical Drive" on page 24.

3 Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.

4 Replace the battery pack. See "Replacing the Battery Pack" on page 17.

5 Replace the fans cover. See "Replacing the Fans Cover" on page 30.

6 Replace the base cover. See "Replacing the Base Cover" on page 15.

7 Replace any card or blank that you removed from the Media-Card Reader.

8 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Macro Keyboard

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

1 Remove the battery pack. See "Removing the Battery Pack" on page 16.
2 Remove the base cover. See "Removing the Base Cover" on page 14.
3 Remove the keyboard. See "Removing the Keyboard" on page 50.

Procedure

1 Remove the screw that secures the macro keyboard to the computer base.

⚠ **CAUTION: The keycaps on the macro keyboard are fragile, easily dislodged, and time-consuming to replace. Be careful when removing and handling the macro keyboard.**
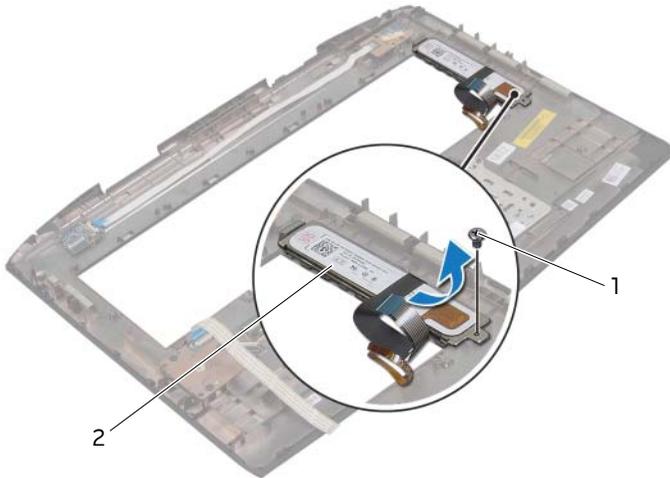

1	screw	2	macro keyboard

2 Lift the macro keyboard and slide the tab on the macro-keyboard out of the slot on the palm-rest assembly.

Replacing the Macro Keyboard

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Slide the tab on the macro keyboard into the slot on the palm-rest assembly and lower the macro keyboard into place.

2 Replace the screw that secures the macro keyboard to the computer base.

Postrequisites

1 Replace the keyboard. See "Replacing the Keyboard" on page 53.

2 Replace the base cover. See "Replacing the Base Cover" on page 15.

3 Replace the battery pack. See "Replacing the Battery Pack" on page 17.

4 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Display Assembly

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

1 Remove any installed card or blank from the Media-Card Reader.

2 Remove the base cover. See "Removing the Base Cover" on page 14.

3 Remove the fans cover. See "Removing the Fans Cover" on page 29.

4 Remove the battery pack. See "Removing the Battery Pack" on page 16.

5 Remove the hard drive. See "Removing the Hard Drive(s)" on page 25.

6 Remove the optical drive. See "Removing the Optical Drive" on page 22.

7 Follow the instructions from step 1 to step 6 in Removing the Palm Rest.

Procedure

1 Close the display and turn the computer over.

2 Remove the screws that secure the display assembly to the computer base.
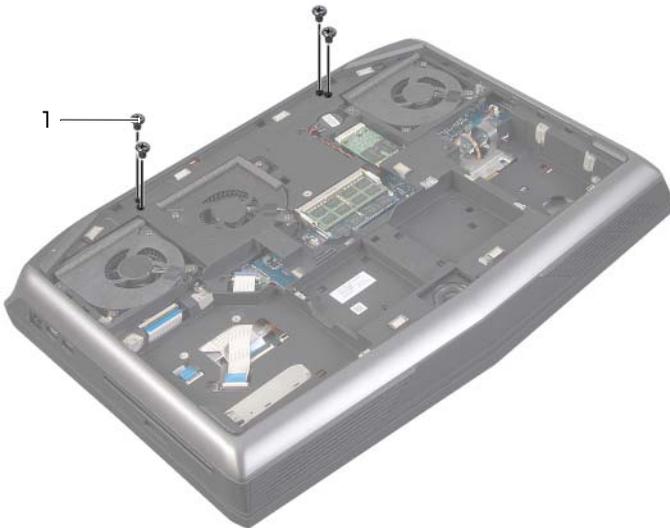
1	screws (4)

3 Turn the computer over and open the display.

4 Disconnect the video-card connector cable from its connector on the system board.

5 Pull the pull-tab to disconnect the display cable from its connector on the system board.

6 Disconnect the LED-logo board cable from its connector on the system board.
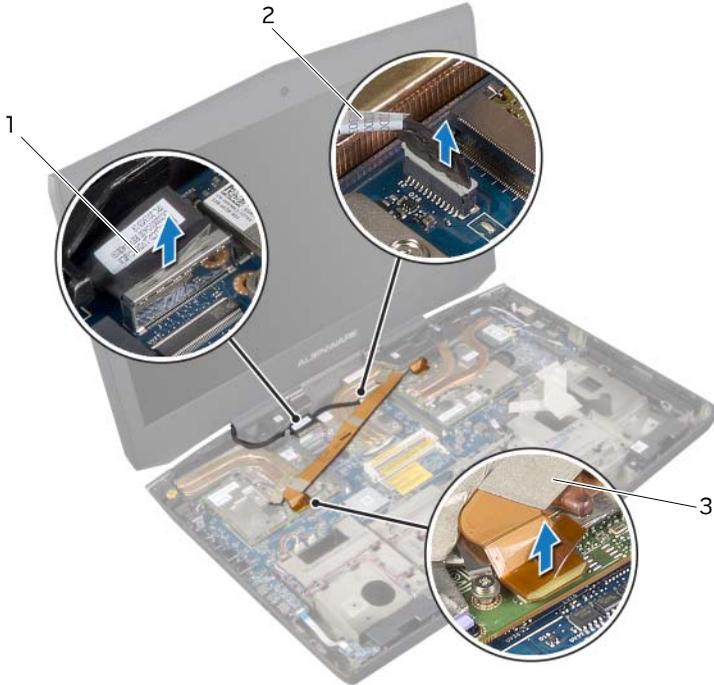
1	display cable connector	2	LED logo-board cable
3	video-card connector cable		

7 Disconnect the antenna cables from the connectors on the Mini-Card. See "Removing the Wireless Mini-Card" on page 105.

8 Note the routing of the antenna cables, and then remove the cables from the routing guides on the computer base.

9 Remove the screw that secures the routing guides to the computer base.

10 Slide and lift the routing guides off the computer base.
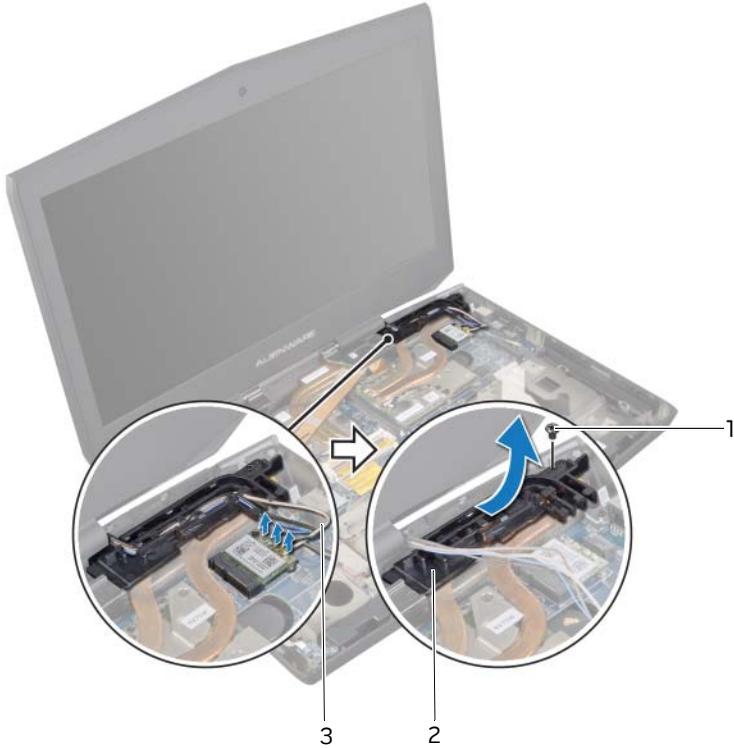
1	screw	2	routing guides
3	antenna cables (3)		

11 Remove the screws, on the display hinges, that secure the display assembly to the computer base.

12 Move the display to a perpendicular position to the computer base, and then lift the display assembly off the computer.

| 1 | display assembly | 2 | screws (3) |

Replacing the Display Assembly

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Place the display assembly in position and replace the screws, on the display hinges, that secure the display assembly to the computer base.

2 Place the routing guides on the computer base and replace the screw that secures the routing guides to the computer base.

3 Route the Mini-Card antenna cables through the routing guides on the computer base.

4 Connect the Mini-Card antenna cables to the Mini-Card. See "Replacing the Wireless Mini-Card" on page 107.

5 Connect the display cable, video-card connector cable, and LED-logo board cable to the respective connectors on the system board.

6 Close the display and turn the computer over.

7 Replace the screws that secure the display assembly to the computer base.

Postrequisites

1 Follow the instructions from step 3 to step 6 in Replacing the Palm Rest.

2 Replace the optical drive. See "Replacing the Optical Drive" on page 24.

3 Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.

4 Replace the battery pack. See "Replacing the Battery Pack" on page 17.

5 Replace the fans cover. See "Replacing the Fans Cover" on page 30.

6 Replace the base cover. See "Replacing the Base Cover" on page 15.

7 Replace any card or blank that you removed from the Media-Card Reader.

8 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Camera Module

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

1 Remove any installed card or blank from the Media-Card Reader.

2 Remove the base cover. See "Removing the Base Cover" on page 14.

3 Remove the fans cover. See "Removing the Fans Cover" on page 29.

4 Remove the battery pack. See "Removing the Battery Pack" on page 16.

5 Remove the hard drive. See "Removing the Hard Drive(s)" on page 25.

6 Remove the optical drive. See "Removing the Optical Drive" on page 22.

7 Follow the instructions from step 1 to step 6 in Removing the Palm Rest.

8 Remove the display assembly. See "Removing the Display Assembly" on page 56.

9 Remove the display bezel. See "Removing the Display Bezel" on page 64.

Procedure

1 Remove the screw that secures the camera module to the display back-cover.

2 Disconnect the camera cable from the camera-module connector.

3 Pry and lift the camera module off the display back-cover.
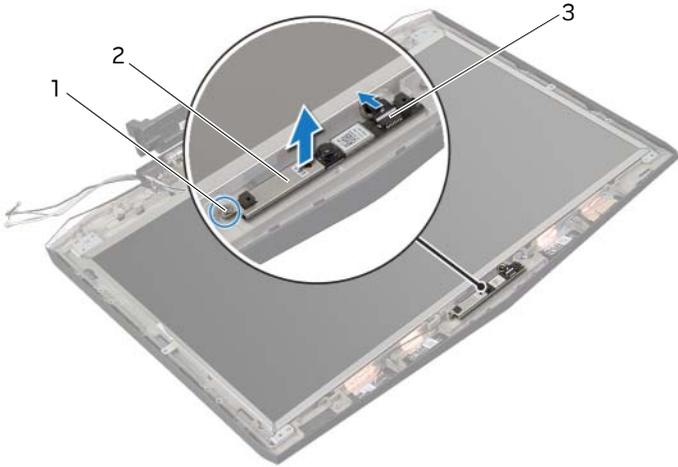
1	screw (1)	2	camera module
3	camera-cable connector		

Replacing the Camera Module

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Adhere the camera module to the display back-cover.
2 Connect the camera cable to the camera-module connector.
3 Replace the screw that secures the camera module to the display back-cover.

Postrequisites

1 Replace the display bezel. See "Replacing the Display Bezel" on page 65.
2 Replace the display assembly. See "Replacing the Display Assembly" on page 60.
3 Follow the instructions from step 3 to step 6 in Replacing the Palm Rest.
4 Replace the optical drive. See "Replacing the Optical Drive" on page 24.
5 Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.
6 Replace the battery pack. See "Replacing the Battery Pack" on page 17.
7 Replace the fans cover. See "Replacing the Fans Cover" on page 30.
8 Replace the base cover. See "Replacing the Base Cover" on page 15.
9 Replace any card or blank that you removed from the Media-Card Reader.
10 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Display Bezel

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

1 Remove any installed card or blank from the Media-Card Reader.
2 Remove the base cover. See "Removing the Base Cover" on page 14.
3 Remove the fans cover. See "Removing the Fans Cover" on page 29.
4 Remove the battery pack. See "Removing the Battery Pack" on page 16.
5 Remove the hard drive(s). See "Removing the Hard Drive(s)" on page 25.
6 Remove the optical drive. See "Removing the Optical Drive" on page 22.
7 Follow the instructions from step 1 to step 6 in Removing the Palm Rest.
8 Remove the display assembly. See "Removing the Display Assembly" on page 56.

Procedure

1 Using your fingertips, carefully pry up the inside edge of the display bezel.
2 Remove the display bezel off the display back-cover.

1	display bezel

Replacing the Display Bezel

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

Align the display bezel with the display back-cover, and gently snap the display bezel into place.

Postrequisites

1   Replace the display assembly. See "Replacing the Display Assembly" on page 60.
2   Follow the instructions from step 3 to step 6 in Replacing the Palm Rest.
3   Replace the optical drive. See "Replacing the Optical Drive" on page 24.
4   Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.
5   Replace the battery pack. See "Replacing the Battery Pack" on page 17.
6   Replace the fans cover. See "Replacing the Fans Cover" on page 30.
7   Replace the base cover. See "Replacing the Base Cover" on page 15.
8   Replace any card or blank that you removed from the Media-Card Reader.
9   Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Display Hinges

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

1 Remove any installed card or blank from the Media-Card Reader.
2 Remove the base cover. See "Removing the Base Cover" on page 14.
3 Remove the fans cover. See "Removing the Fans Cover" on page 29.
4 Remove the battery pack. See "Removing the Battery Pack" on page 16.
5 Remove the hard drive(s). See "Removing the Hard Drive(s)" on page 25.
6 Remove the optical drive. See "Removing the Optical Drive" on page 22.
7 Follow the instructions from step 1 to step 6 in Removing the Palm Rest.
8 Remove the display assembly. See "Removing the Display Assembly" on page 56.
9 Remove the display bezel. See "Removing the Display Bezel" on page 64.

Procedure

1 Remove the screws that secure the display hinges to the display back-cover.
2 Remove the display hinges off the display back-cover.
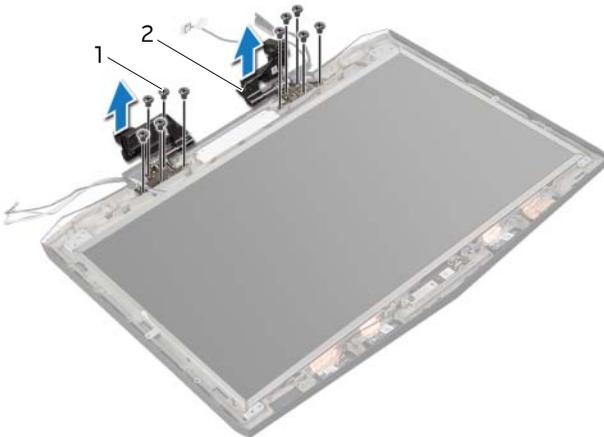
1	screws (10)	2	display hinges (2)

Replacing the Display Hinges

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Align the screw holes on the display hinges with the screw holes on the display backcover.

2 Replace the screws that secure the display hinges to the display back-cover.

Postrequisites

1 Replace the display bezel. See "Replacing the Display Bezel" on page 65.

2 Replace the display assembly. See "Replacing the Display Assembly" on page 60.

3 Follow the instructions from step 3 to step 6 in Replacing the Palm Rest.

4 Replace the optical drive. See "Replacing the Optical Drive" on page 24.

5 Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.

6 Replace the battery pack. See "Replacing the Battery Pack" on page 17.

7 Replace the fans cover. See "Replacing the Fans Cover" on page 30.

8 Replace the base cover. See "Replacing the Base Cover" on page 15.

9 Replace any card or blank that you removed from the Media-Card Reader.

10 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Display Panel

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

1 Remove any installed card or blank from the Media-Card Reader.

2 Remove the base cover. See "Removing the Base Cover" on page 14.

3 Remove the fans cover. See "Removing the Fans Cover" on page 29.

4 Remove the battery pack. See "Removing the Battery Pack" on page 16.

5 Remove the hard drive(s). See "Removing the Hard Drive(s)" on page 25.

6 Remove the optical drive. See "Removing the Optical Drive" on page 22.

7 Follow the instructions from step 1 to step 6 in Removing the Palm Rest.

8 Remove the display assembly. See "Removing the Display Assembly" on page 56.

9 Remove the display bezel. See "Removing the Display Bezel" on page 64.

Procedure

1 Remove the screws that secure the display panel to the display back-cover.

2 Lift the display panel off the display back-cover.
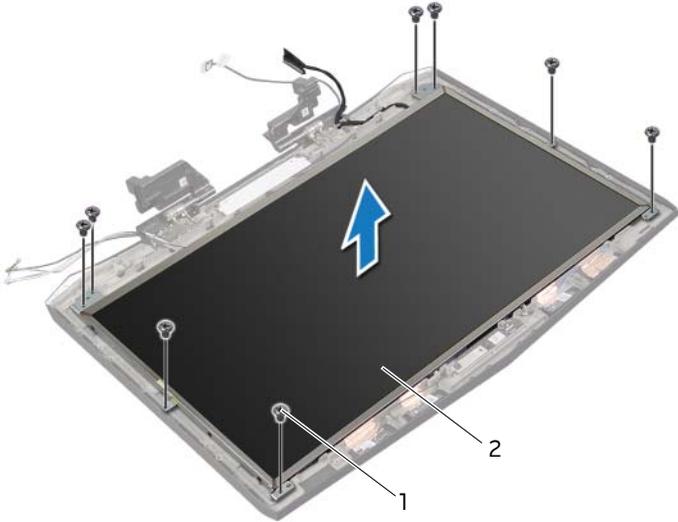
1	screws (8)	2	display panel

3   Turn the display panel over and place it on a clean surface.

4   Peel the tape that secures the display cable to the display-panel connector.

5   Lift the connector latch and disconnect the display cable from the display-panel connector.

6   Lift the display cable off the display panel.
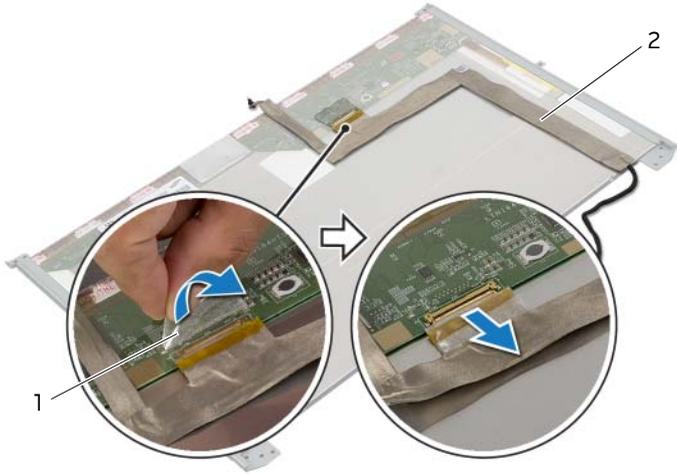
| 1 | tape | 2 | display cable |

7 Remove the screws that secure the display-panel brackets to the display panel.

8 Slide the display-panel brackets off the display panel.
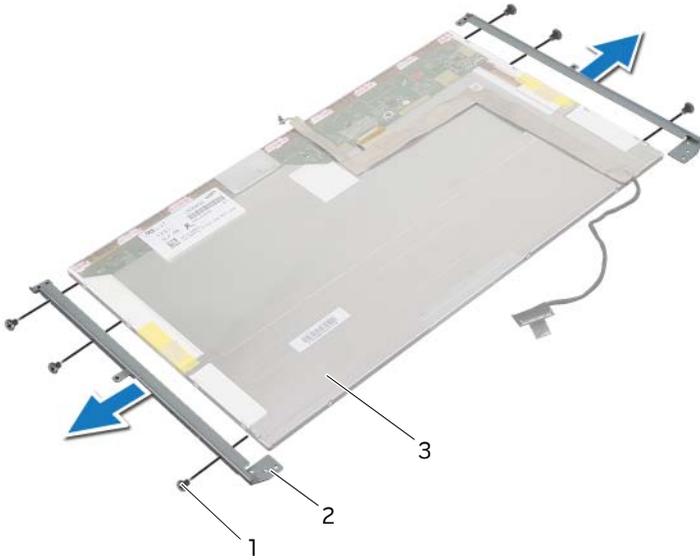
1	screws (6)	2	display-panel brackets
3	display panel		

Replacing the Display Panel

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Align the screw holes on the display-panel brackets with the screw holes on the display panel.

2 Replace the screws that secure the display-panel brackets to the display panel.

3 Connect the display cable to the display-panel connector and press down on the connector latch to secure the cable.

4 Adhere the tape to secure the display cable.

5 Align the screw holes on the display panel with the screw holes on the display back-cover.

6 Replace the screws that secure the display panel to the display back-cover.

Postrequisites

1 Replace the display hinges. See "Replacing the Display Hinges" on page 67.

2 Replace the display bezel. See "Replacing the Display Bezel" on page 65.

3 Replace the display assembly. See "Replacing the Display Assembly" on page 60.

4 Follow the instructions from step 3 to step 6 in Replacing the Palm Rest.

5 Replace the optical drive. See "Replacing the Optical Drive" on page 24.

6 Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.

7 Replace the battery pack. See "Replacing the Battery Pack" on page 17.

8 Replace the fans cover. See "Replacing the Fans Cover" on page 30.

9 Replace the base cover. See "Replacing the Base Cover" on page 15.

10 Replace any card or blank that you removed from the Media-Card Reader.

11 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Logo Board

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

  1 Remove any installed card or blank from the Media-Card Reader.

  2 Remove the base cover. See "Removing the Base Cover" on page 14.

  3 Remove the fans cover. See "Removing the Fans Cover" on page 29.

  4 Remove the battery pack. See "Removing the Battery Pack" on page 16.

  5 Remove the hard drive(s). See "Removing the Hard Drive(s)" on page 25.

  6 Remove the optical drive. See "Removing the Optical Drive" on page 22.

  7 Follow the instructions from step 1 to step 6 in Removing the Palm Rest.

  8 Remove the display assembly. See "Removing the Display Assembly" on page 56.

  9 Remove the display bezel. See "Removing the Display Bezel" on page 64.

 10 Replace the display hinges. See "Removing the Display Hinges" on page 66.

 11 Remove the display panel. See "Removing the Display Panel" on page 68.

Procedure

1 Remove the screws that secure the logo board to the display back-cover.

2 Carefully rotate the logo board over and disconnect the display-light board cables from the connectors on the logo board.

3 Lift the logo board off the display back-cover.
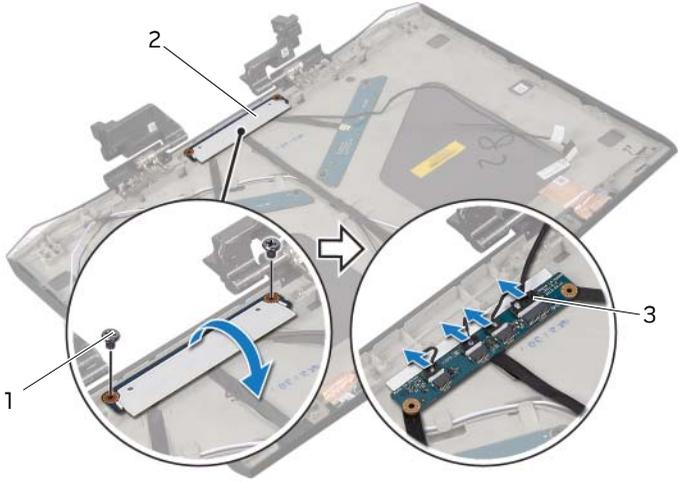
1	screws (2)	2	logo board
3	display-light board cables (4)		

Replacing the Logo Board

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Connect the display-light board cables to the logo-board connectors.

2 Carefully rotate the logo board over and align the screw holes on the logo board with the screw holes on the display back-cover.

3 Replace the screws that secure the logo board to the display back-cover.

Postrequisites

1 Replace the display panel. See "Replacing the Display Panel" on page 72.

2 Replace the display hinges. See "Replacing the Display Hinges" on page 67.

3 Replace the display bezel. See "Replacing the Display Bezel" on page 65.

4 Replace the display assembly. See "Replacing the Display Assembly" on page 60.

5 Follow the instructions from step 3 to step 6 in Replacing the Palm Rest.

6 Replace the optical drive. See "Replacing the Optical Drive" on page 24.

7 Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.

8 Replace the battery pack. See "Replacing the Battery Pack" on page 17.

9 Replace the fans cover. See "Replacing the Fans Cover" on page 30.

10 Replace the base cover. See "Replacing the Base Cover" on page 15.

11 Replace any card or blank that you removed from the Media-Card Reader.

12 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Display-Light Boards

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

1 Remove any installed card or blank from the Media-Card Reader.
2 Remove the base cover. See "Removing the Base Cover" on page 14.
3 Remove the fans cover. See "Removing the Fans Cover" on page 29.
4 Remove the battery pack. See "Removing the Battery Pack" on page 16.
5 Remove the hard drive(s). See "Removing the Hard Drive(s)" on page 25.
6 Remove the optical drive. See "Removing the Optical Drive" on page 22.
7 Follow the instructions from step 1 to step 6 in Removing the Palm Rest.
8 Remove the display assembly. See "Removing the Display Assembly" on page 56.
9 Remove the display bezel. See "Removing the Display Bezel" on page 64.
10 Replace the display hinges. See "Removing the Display Hinges" on page 66.
11 Remove the display panel. See "Removing the Display-Light Boards" on page 76.
12 Remove the logo board. See "Removing the Logo Board" on page 73.

Procedure

1 Remove the screws that secure the display-light boards to the display back-cover.

2 Lift the display-light boards off the display back-cover.
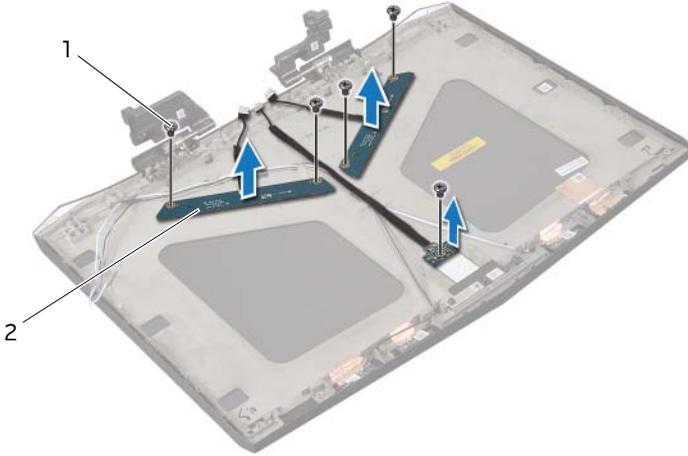
1	screws (5)	2	display-light boards (3)

Replacing the Display-Light Boards

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Align the screw holes on the display-light boards with the screw holes on the display back-cover.

2 Replace the screws that secure the display-light boards to the display back-cover.

Postrequisites

1 Replace the logo board. See "Replacing the Logo Board" on page 75.

2 Replace the display panel. See "Replacing the Display Panel" on page 72.

3 Replace the display hinges. See "Replacing the Display Hinges" on page 67.

4 Replace the display bezel. See "Replacing the Display Bezel" on page 65.

5 Replace the display assembly. See "Replacing the Display Assembly" on page 60.

6 Follow the instructions from step 3 to step 6 in Replacing the Palm Rest.

7 Replace the optical drive. See "Replacing the Optical Drive" on page 24.

8 Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.

9 Replace the battery pack. See "Replacing the Battery Pack" on page 17.

10 Replace the fans cover. See "Replacing the Fans Cover" on page 30.

11 Replace the base cover. See "Replacing the Base Cover" on page 15.

12 Replace any card or blank that you removed from the Media-Card Reader.

13 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Speakers

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

1 Remove any installed card or blank from the Media-Card Reader.

2 Remove the base cover. See "Removing the Base Cover" on page 14.

3 Remove the fans cover. See "Removing the Fans Cover" on page 29.

4 Remove the battery pack. See "Removing the Battery Pack" on page 16.

5 Remove the hard drive. See "Removing the Hard Drive(s)" on page 25.

6 Remove the optical drive. See "Removing the Optical Drive" on page 22.

7 Follow the instructions from step 1 to step 6 in Removing the Palm Rest.

Procedure

1 Disconnect the speakers cable from its connector on the system board.

2 Note the speakers cable routing and remove the cable from the routing guides on the computer base.

3 Remove the screws that secure the speakers to the computer base.

4 Lift the speakers, along with the speaker cable, off the computer base.
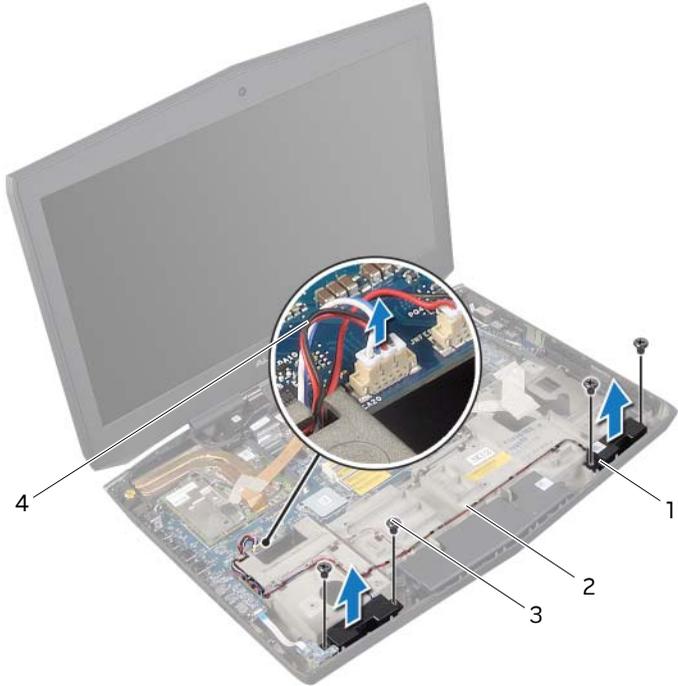
1	speakers (2)	2	speakers-cable routing
3	screws (4)	4	speakers cable

Replacing the Speakers

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Align the screw holes on the speakers with the screw holes on the computer base and replace the screws that secure the speakers to the computer base.

2 Route the speakers cable through the routing guides on the computer base and then connect the speakers cable to its connector on the system board.

Postrequisites

1 Follow the instructions from step 3 to step 6 in Replacing the Palm Rest.

2 Replace the optical drive. See "Replacing the Optical Drive" on page 24.

3 Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.

4 Replace the battery pack. See "Replacing the Battery Pack" on page 17.

5 Replace the fans cover. See "Replacing the Fans Cover" on page 30.

6 Replace the base cover. See "Replacing the Base Cover" on page 15.

7 Replace any card or blank that you removed from the Media-Card Reader.

8 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Subwoofer

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

Remove the speakers. See "Removing the Speakers" on page 79.

Procedure

1 Disconnect the subwoofer cable from its connector on the system board.

2 Note the subwoofer-cable routing and remove the cable from the routing guides on the computer base.

3 Loosen the captive screws that secure the subwoofer to the computer base.

4 Lift the subwoofer, along with the subwoofer cable, off the computer base.
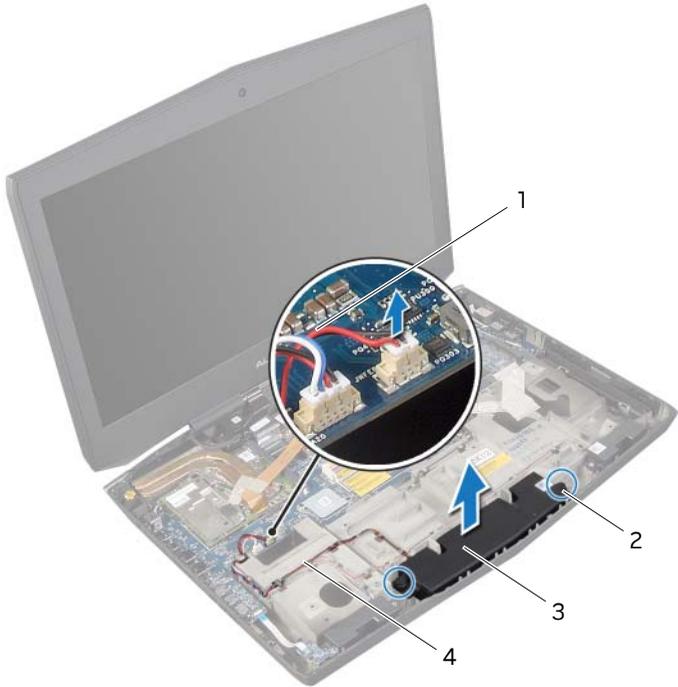
1	subwoofer cable	2	captive screws (2)
3	subwoofer	4	subwoofer-cable routing

Replacing the Subwoofer

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Align the screw holes on the subwoofer with the screw holes on the computer base.

2 Tighten the captive screws that secure the subwoofer to the computer base.

3 Route the subwoofer cable through the routing guides on the computer base and then connect the subwoofer cable to its connector on the system board.

Postrequisites

1 Replace the speaker. See "Replacing the Speakers" on page 81.

2 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Sound Board

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

1 Remove any installed card or blank from the Media-Card Reader.

2 Remove the base cover. See "Removing the Base Cover" on page 14.

3 Remove the fans cover. See "Removing the Fans Cover" on page 29.

4 Remove the battery pack. See "Removing the Battery Pack" on page 16.

5 Remove the hard drive. See "Removing the Hard Drive(s)" on page 25.

6 Remove the optical drive. See "Removing the Optical Drive" on page 22.

7 Follow the instructions from step 1 to step 6 in Removing the Palm Rest.

Procedure

1 Lift the connector latch and disconnect the hall-effect sensor board cable from its connector on the sound board.

2 Remove the screws that secure the sound board to the computer base.

3 Gently lift the sound board out of the slots on the computer base.
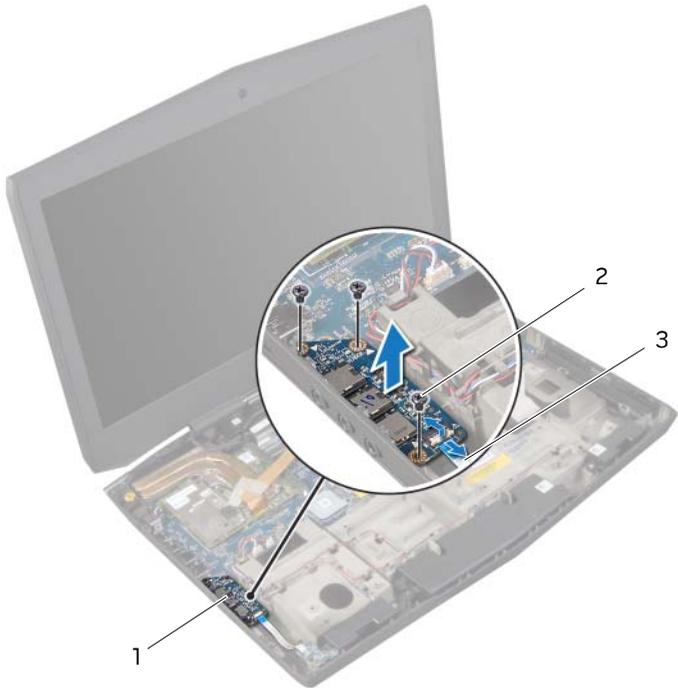
1	sound board	2	screws (3)
3	hall-effect sensor board		

Replacing the Sound Board

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Align the connectors on the sound board with the slots on the computer base and replace the screws that secure the sound board to the computer base.

2 Slide the hall-effect sensor board cable into its connector on the sound board and press down on the connector latch to secure the cable.

Postrequisites

1 Follow the instructions from step 3 to step 6 in Replacing the Palm Rest.

2 Replace the optical drive. See "Replacing the Optical Drive" on page 24.

3 Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.

4 Replace the battery pack. See "Replacing the Battery Pack" on page 17.

5 Replace the fans cover. See "Replacing the Fans Cover" on page 30.

6 Replace the base cover. See "Replacing the Base Cover" on page 15.

7 Replace any card or blank that you removed from the Media-Card Reader.

8 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Video-Card Heat-Sink(s)

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

1 Remove any installed card or blank from the Media-Card Reader.

2 Remove the base cover. See "Removing the Base Cover" on page 14.

3 Remove the fans cover. See "Removing the Fans Cover" on page 29.

4 Remove the battery pack. See "Removing the Battery Pack" on page 16.

5 Remove the hard drive. See "Removing the Hard Drive(s)" on page 25.

6 Remove the optical drive. See "Removing the Optical Drive" on page 22.

7 Remove the display assembly. See "Removing the Display Assembly" on page 56.

8 Remove the video card(s). See "Removing the Video Card(s)" on page 91.

Procedure

1 Loosen the captive screws that secure the primary video-card heat-sink to the video card.

2 Loosen the captive screws that secure the secondary video-card heat-sink to the video card.

3 Lift the video-card heat-sink(s) off the video card(s).

Primary video-card heat-sink
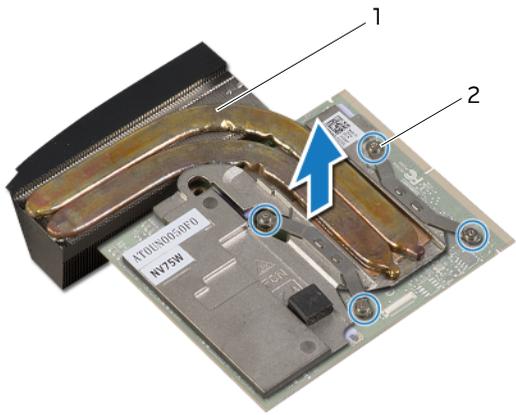
| 1 | primary video-card heat-sink | 2 | captive screws (4) |

Secondary video-card heat-sink
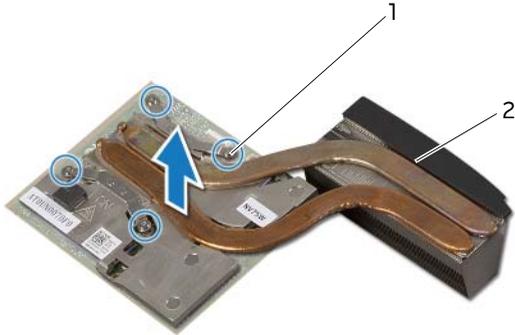
| 1 | captive screws (4) | 2 | secondary video-card heat-sink |

Replacing the Video-Card Heat-Sink(s)

⚠ WARNING: **Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Align the screw holes on the video-card heat-sink(s) with the screw holes on the video cards.
2 Tighten the captive screws that secure the primary video-card heat-sink to the video card.
3 Tighten the captive screws that secure the secondary video-card heat-sink to the video card.

Postrequisites

1 Replace the video card(s). See "Replacing the Video Card(s)" on page 93.
2 Replace the display assembly. See "Replacing the Display Assembly" on page 60.
3 Replace the optical drive. See "Replacing the Optical Drive" on page 24.
4 Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.
5 Replace the battery pack. See "Replacing the Battery Pack" on page 17.
6 Replace the fans cover. See "Replacing the Fans Cover" on page 30.
7 Replace the base cover. See "Replacing the Base Cover" on page 15.
8 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Video Card(s)

⚠ WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.

Prerequisites

1 Remove any installed card or blank from the Media-Card Reader.

2 Remove the base cover. See "Removing the Base Cover" on page 14.

3 Remove the fans cover. See "Removing the Fans Cover" on page 29.

4 Remove the battery pack. See "Removing the Battery Pack" on page 16.

5 Remove the hard drive(s). See "Removing the Hard Drive(s)" on page 25.

6 Remove the optical drive. See "Removing the Optical Drive" on page 22.

7 Remove the display assembly. See "Removing the Display Assembly" on page 56.

Procedure

1 Disconnect the video-card connector cable from the connectors on the system board.

2 Lift the video-card connector cable off the computer base.
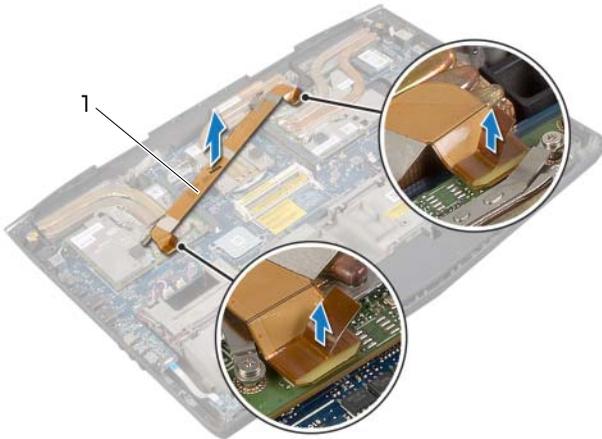
1	video-card connector cable

3 Remove the screws that secure the video-card(s) to the system board.

4 Lift and slide the video-card(s) along with heat sink(s) out to disconnect it from the connectors on the system board.

Primary Video Card
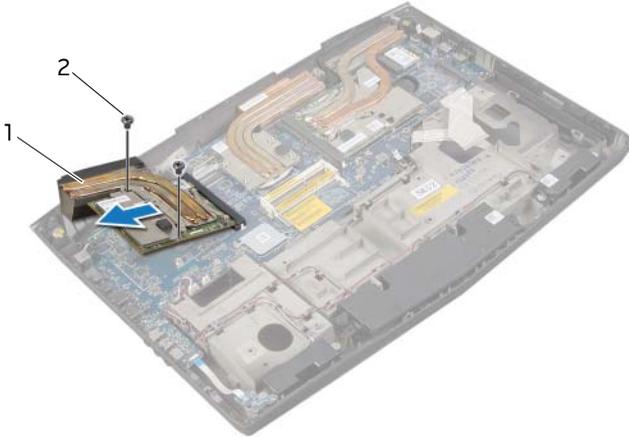
| 1 | primary video card | 2 | screws (2) |

Secondary Video Card
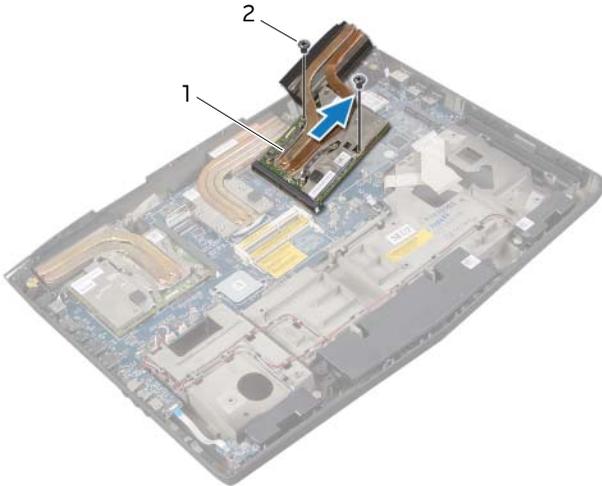
| 1 | secondary video card | 2 | screws (2) |

Replacing the Video Card(s)

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Insert the video card(s) at a 45-degree angle into its connector on the system board.

2 Press the other end of the video-card down into the slot on the system board and replace the screws that secure the video-card(s) to the system board.

3 Connect the video-card connector cable to the connectors on the system board.

Postrequisites

1 Replace the display assembly. See "Replacing the Display Assembly" on page 60.

2 Replace the optical drive. See "Replacing the Optical Drive" on page 24.

3 Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.

4 Replace the battery pack. See "Replacing the Battery Pack" on page 17.

5 Replace the fans cover. See "Replacing the Fans Cover" on page 30.

6 Replace the base cover. See "Replacing the Base Cover" on page 15.

7 Replace any card or blank that you removed from the Media-Card Reader.

8 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Processor Heat-Sink

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Prerequisites

1 Remove any installed card or blank from the Media-Card Reader.
2 Remove the base cover. See "Removing the Base Cover" on page 14.
3 Remove the fans cover. See "Removing the Fans Cover" on page 29.
4 Remove the battery pack. See "Removing the Battery Pack" on page 16.
5 Remove the hard drive(s). See "Removing the Hard Drive(s)" on page 25.
6 Remove the optical drive. See "Removing the Optical Drive" on page 22.
7 Follow the instructions from step 1 to step 6 in Removing the Palm Rest.
8 Remove the display assembly. See "Removing the Display Assembly" on page 56.

Procedure

1 In sequential order (indicated on the processor heat-sink), loosen the captive screws that secure the processor heat-sink to the system board.
2 Carefully lift the processor heat-sink out of the computer base.
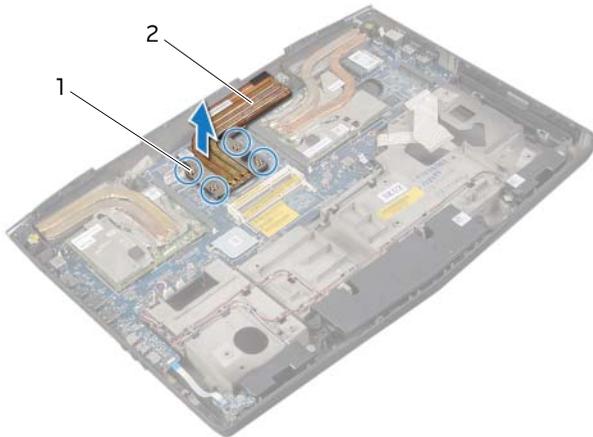
| 1 | captive screws (4) | 2 | processor heat-sink |

Replacing the Processor Heat-Sink

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

⚠️ **CAUTION: Incorrect alignment of the processor heat-sink can damage the processor.**

📝 **NOTE:** The original thermal grease can be reused if the original processor heat-sink is reinstalled. If the processor heat-sink is replaced, use the thermal grease provided in the kit to ensure that thermal conductivity is achieved.

Procedure

Align the captive screws on the processor heat-sink with the screw holes on the system board and tighten the screws in sequential order (indicated on the processor heat-sink).

Postrequisites

1 Replace the display assembly. See "Replacing the Display Assembly" on page 60.
2 Follow the instructions from step 3 to step 6 in Replacing the Palm Rest.
3 Replace the optical drive. See "Replacing the Optical Drive" on page 24.
4 Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.
5 Replace the battery pack. See "Replacing the Battery Pack" on page 17.
6 Replace the fans cover. See "Replacing the Fans Cover" on page 30.
7 Replace the base cover. See "Replacing the Base Cover" on page 15.
8 Replace any card or blank that you removed from the Media-Card Reader.
9 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the Processor Module

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

⚠ **CAUTION: Processors are extremely fragile. Handle the processor only by the edges and do not touch the metal pins.**

Prerequisites

1. Remove any installed card or blank from the Media-Card Reader.
2. Remove the base cover. See "Removing the Base Cover" on page 14.
3. Remove the fans cover. See "Removing the Fans Cover" on page 29.
4. Remove the battery pack. See "Removing the Battery Pack" on page 16.
5. Remove the hard drive(s). See "Removing the Hard Drive(s)" on page 25.
6. Remove the optical drive. See "Removing the Optical Drive" on page 22.
7. Follow the instructions from step 1 to step 6 in Removing the Palm Rest.
8. Remove the display assembly. See "Removing the Display Assembly" on page 56.
9. Remove the processor heat-sink. See "Removing the Processor Heat-Sink" on page 94.

Procedure

1 To loosen the ZIF socket, use a small, flat-blade screwdriver to rotate the ZIF-socket cam screw counterclockwise until it comes to the cam stop.

⚠ **CAUTION: To ensure maximum cooling for the processor module, do not touch the heat-transfer areas on the processor thermal cooling assembly. The oils in your skin can reduce the heat transfer capability of the thermal pads.**

⚠ **CAUTION: When removing the processor module, lift the module straight up. Be careful not to bend the pins on the processor module.**

2 Lift the processor module from the ZIF socket.
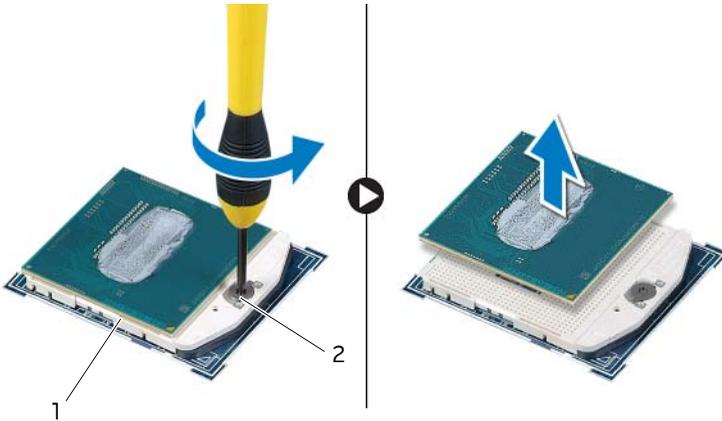
| 1 | ZIF socket | 2 | ZIF-socket cam screw |

Replacing the Processor Module

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

📝 **NOTE:** If a new processor module is installed, you will receive a new processor heat-sink assembly, which will include an affixed thermal pad, or you will receive a new thermal pad along with documentation to illustrate proper installation.

Procedure

1 Align the pin-1 corner of the processor module with the pin-1 corner of the ZIF socket, then place the processor module.

   📝 **NOTE:** The pin-1 corner of the processor module has a triangle that aligns with the triangle on the pin-1 corner of the ZIF socket.

   When the processor module is properly seated, all four corners are aligned at the same height. If one or more corners of the module are higher than the others, the module is not seated properly.

   ⚠ **CAUTION: To avoid damage to the processor module, hold the screwdriver perpendicular to the processor module when turning the cam screw.**

2 Tighten the ZIF socket by turning the cam screw clockwise to secure the processor module to the system board.
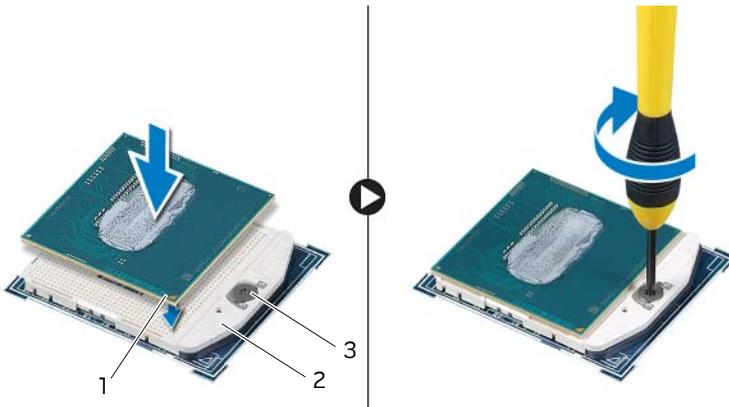
1	pin1-corner	2	ZIF-socket
3	ZIF-socket cam screw		

Postrequisites

1 Replace the processor heat-sink. See "Replacing the Processor Heat-Sink" on page 95.

2 Replace the display assembly. See "Replacing the Display Assembly" on page 60.

3 Follow the instructions from step 3 to step 6 in Replacing the Palm Rest.

4 Replace the optical drive. See "Replacing the Optical Drive" on page 24.

5 Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.

6 Replace the battery pack. See "Replacing the Battery Pack" on page 17.

7 Replace the fans cover. See "Replacing the Fans Cover" on page 30.

8 Replace the base cover. See "Replacing the Base Cover" on page 15.

9 Replace any card or blank that you removed from the Media-Card Reader.

10 Follow the instructions in "After Working Inside Your Computer" on page 13.

Removing the System Board

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

📝 **NOTE:** Your computer's Service Tag is stored in the system board. You must enter the Service Tag in the BIOS after you replace the system board. See "System Setup" on page 109.

📝 **NOTE:** Before disconnecting the cables from the system board, note the location of the connectors so that you can reconnect them correctly after you replace the system board.

Prerequisites

1 Remove any installed card or blank from the Media-Card Reader.

2 Remove the base cover. See "Removing the Base Cover" on page 14.

3 Remove the fans cover. See "Removing the Fans Cover" on page 29.

4 Remove the battery pack. See "Removing the Battery Pack" on page 16.

5 Remove the memory modules. See "Removing the Memory Module(s)" on page 18.

6 Remove the hard drive(s). See "Removing the Hard Drive(s)" on page 25.

7 Remove the optical drive. See "Removing the Optical Drive" on page 22.

8 Follow the instructions from step 1 to step 6 in Removing the Palm Rest.

9 Remove the display assembly. See "Removing the Display Assembly" on page 56.

10 Remove the coin-cell battery. See "Removing the Coin-Cell Battery" on page 36.

11 Remove the video-card heat-sink fan(s). See "Removing the Video-Card Heat-Sink Fan(s)" on page 31.

12 Remove the processor heat-sink fan. See "Removing the Processor Heat-Sink Fan" on page 34.

13 Remove the video-card heat-sink(s). See "Removing the Video-Card Heat-Sink(s)" on page 88.

14 Remove the video card(s). See "Removing the Video Card(s)" on page 91.

15 Remove the mSATA card. See "Removing the mSATA Card" on page 43.

16 Remove the wireless Mini-Card. See "Removing the Wireless Mini-Card" on page 105.

17 Remove the processor heat-sink. See "Removing the Processor Heat-Sink" on page 94.

18 Remove the processor module. See "Removing the Processor Module" on page 96.

Procedure

1 Disconnect the speaker cable and the subwoofer cable from the connectors on the system board.

2 Lift the connector latch and disconnect the tron-light cables from the connectors on the system board.
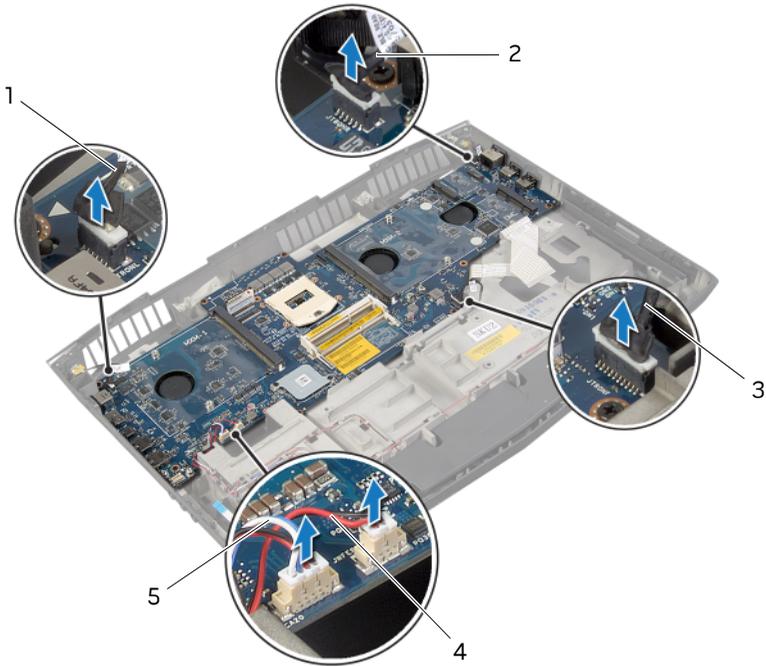
1	tron-lights cable 1	2	tron-lights cable 2
3	tron-lights cable 3	4	subwoofer cable
5	speakers cable		

3 Remove the screws that secure the system board to the computer base.

4 Carefully ease the connectors on the system board out of the slots in the computer base and lift the system board off the computer base.
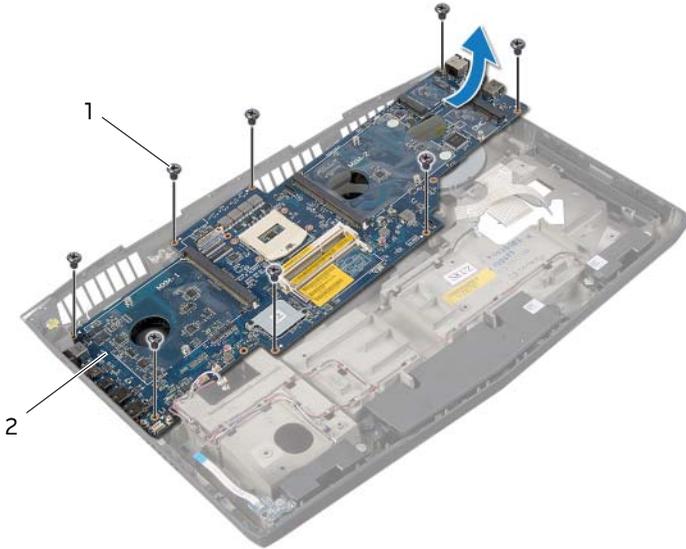
1	screws (8)	2	system board

Replacing the System Board

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Align the connectors on the system board with the slots on the computer base and place the system board on the computer base.

2 Replace the screws that secure the system board to the computer base.

3 Connect the speakers cable, subwoofer cable, and the tron-light cables to the connectors on the system board.

Postrequisites

1 Replace the processor module. See "Replacing the Processor Module" on page 98.

2 Replace the processor heat-sink. See "Replacing the Processor Heat-Sink" on page 95.

3 Replace the wireless Mini-Card. See "Replacing the Wireless Mini-Card" on page 107.

4 Replace the mSATA card. See "Replacing the mSATA Card" on page 44.

5 Replace the video card(s). See "Replacing the Video Card(s)" on page 93.

6 Replace the video-card heat-sink(s). See "Replacing the Video-Card Heat-Sink(s)" on page 90.

7 Replace the processor heat-sink fan. See "Replacing the Processor Heat-Sink Fan" on page 35.

8 Replace the video-card heat-sink fan(s). See "Replacing the Video-Card Heat-Sink Fan(s)" on page 33.

9 Replace the coin-cell battery. See "Replacing the Coin-Cell Battery" on page 38.

10 Replace the display assembly. See "Replacing the Display Assembly" on page 60.

11 Follow the instructions from step 3 to step 6 in Replacing the Palm Rest.

12 Replace the optical drive. See "Replacing the Optical Drive" on page 24.

13 Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.

14 Replace the memory modules. See "Replacing the Memory Module(s)" on page 20.

15 Replace the battery pack. See "Replacing the Battery Pack" on page 17.

16 Replace the fans cover. See "Replacing the Fans Cover" on page 30.

17 Replace the base cover. See "Replacing the Base Cover" on page 15.

18 Replace any card or blank that you removed from the Media-Card Reader.

19 Follow the instructions in "After Working Inside Your Computer" on page 13

Entering the Service Tag in the BIOS

1 Turn on the computer.

2 Press <F2> during POST to enter the system setup program.

3 Navigate to the main tab and enter the service tag in the **Service Tag Setting** field.

Removing the Wireless Mini-Card

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

📝 **NOTE:** Dell does not guarantee compatibility or provide support for wireless Mini-Cards from sources other than Dell.

If you ordered a wireless Mini-Card with your computer, the card is already installed.

Your computer has one half Mini-Card slot which supports a Wireless Local Area Network (WLAN) + Bluetooth combo card.

Prerequisites

1 Remove any installed card or blank from the Media-Card Reader.
2 Remove the base cover. See "Removing the Base Cover" on page 14.
3 Remove the fans cover. See "Removing the Fans Cover" on page 29.
4 Remove the battery pack. See "Removing the Battery Pack" on page 16.
5 Remove the hard drive(s). See "Removing the Hard Drive(s)" on page 25.
6 Remove the optical drive. See "Removing the Optical Drive" on page 22.
7 Follow the instructions from step 1 to step 6 in Removing the Palm Rest.

Procedure

1 Disconnect the antenna cables from the connectors on the wireless Mini-Card.
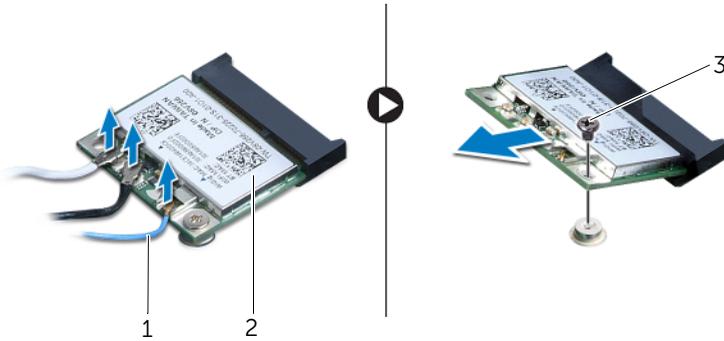
1	antenna cables (2)	2	wireless mini-card
3	screw		

2 Remove the screw that secures the wireless Mini-Card to the system board.

3 Lift the wireless Mini-Card away from the system-board connector.

Replacing the Wireless Mini-Card

⚠️ **WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 11. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.**

Procedure

1 Align the notch on the wireless Mini-Card with the tab on the system-board connector.

⚠️ **CAUTION: Use firm and even pressure to slide the wireless Mini-Card into place. If you use excessive force, you may damage the connector.**

⚠️ **CAUTION: The connectors are keyed to ensure correct insertion. If you feel resistance, check the connectors on the wireless Mini-Card and on the system board, and realign the wireless Mini-Card.**

⚠️ **CAUTION: To avoid damage to the wireless Mini-Card, never place cables under the wireless Mini-Card.**

2 Insert the wireless Mini-Card connector at a 45-degree angle into the system-board connector.

3 Press the other end of the wireless Mini-Card down into the slot on the system board and replace the screws that secure the wireless Mini-Card to the system board.

4 Connect the antenna cables to the connectors on the wireless Mini-Card.

The following table provides the antenna cable color scheme for the wireless Mini-Card supported by your computer.

Connectors on the wireless Mini-Card	Antenna Cable Color Scheme
WLAN + Bluetooth (2 or 3 cables)	
Main WLAN + Bluetooth (white triangle)	white
Auxiliary WLAN + Bluetooth (black triangle)	black
Auxiliary WLAN + Bluetooth (black triangle)	grey

Postrequisites

1   Follow the instructions from step 3 to step 6 in Replacing the Palm Rest.

2   Replace the optical drive. See "Replacing the Optical Drive" on page 24.

3   Replace the hard drive(s). See "Replacing the Hard Drive(s)" on page 28.

4   Replace the battery pack. See "Replacing the Battery Pack" on page 17.

5   Replace the fans cover. See "Replacing the Fans Cover" on page 30.

6   Replace the base cover. See "Replacing the Base Cover" on page 15.

7   Replace any card or blank that you removed from the Media-Card Reader.

8   Follow the instructions in "After Working Inside Your Computer" on page 13.

System Setup

Overview

Use the system setup to:

- Get information about the hardware installed in your computer, such as the amount of RAM, the size of the hard drive, and so on
- Change the system configuration information
- Set or change a user-selectable option, such as the user password, type of hard drive installed, enabling or disabling base devices, and so on

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

📝 **NOTE:** Before you change system setup, it is recommended that you write down the system setup screen information for future reference.

Entering System Setup

1 Turn on (or restart) your computer.
2 During POST, when the ALIENWARE logo is displayed, watch for the F2 prompt to appear and then press <F2> immediately.

> 📝 **NOTE:** The F2 prompt indicates that the keyboard has initialized. This prompt can appear very quickly, so you must watch for it, and then press <F2>. If you press <F2> before the F2 prompt, this keystroke is lost. If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop. Then, turn off your computer and try again. See "Turn Off Your Computer and Connected Devices" on page 11.

System Setup Screens

The system setup screen displays current or changeable configuration information for your computer. Information on the screen is divided into three areas: the **setup item**, active **help screen**, and **key functions**.

Setup Item — This field appears on the left side of the system setup window. The field is a scrollable list containing features that define the configuration of your computer, including installed hardware, power conservation, and security features. Scroll up and down the list with the up- and down-arrow keys. As an option is highlighted, the **Help Screen** displays more information about that option and available settings.	**Help Screen** — This field appears on the right side of the system setup window and contains information about each option listed in the **Setup Item**. In this field you can view information about your computer and make changes to your current settings. Press the up- and down-arrow keys to highlight an option. Press <Enter> to make that selection active and return to the **Setup Item**. **NOTE:** Not all settings listed in the **Setup Item** are changeable.
Key Functions — This field appears below the **Help Screen** and lists keys and their functions within the active system setup field.	

System Setup Options

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

Main Menu

System Time (hh:mm:ss)	Displays the system time.
System Date (mm/dd/yyyy)	Displays the system date.
BIOS Version	Displays the BIOS version.
Product Name	Displays the model number of your computer.
Service Tag	Displays the service tag of your computer.
Asset Tag	Displays the Asset Tag of your computer.
CPU Type	Displays the type of processor installed.
CPU Speed	Displays the speed of the processor.
CPU ID	Displays the processor identification value.

Main Menu

CPU Cache	
L1 Cache	Displays the processor's L1 cache size.
L2 Cache	Displays the processor's L2 cache size.
L3 Cache	Displays the processor's L3 cache size.
Integrated Graphics	Displays the integrated graphics.
Discrete Graphics 1	Displays the first discrete graphics installed on your computer.
Fixed HDD	Displays the type of hard drive installed.
SATA ODD	Displays the type of optical drive installed.
Second HDD	Displays the type of secondary hard-drive installed.
eSATA Device	Displays the type of eSATA device installed.
mSATA Device	Displays the type of mSATA device installed.
AC Adapter Type	Displays the type of AC adapter connected to your computer.
Total Memory	Displays the total memory available in your computer.
Memory Bank 0	Displays the memory size installed in DIMM 0.
Memory Bank 1	Displays the memory size installed in DIMM 1.

Advanced Menu

Intel(R) SpeedStep	Allows you to enable or disable the Intel SpeedStep technology. Disabling this feature may improve performance, but will greatly reduce battery life.
Virtualization	Allows you to enable or disable the Intel Virtualization technology.
Integrated NIC	Allows you to enable or disable the on-board LAN controller. • Disabled: Internal LAN is disabled and is not visible to the operating system. • Enabled: Internal LAN is enabled.

Advanced Menu

USB Emulation	Allows you to enable or disable the USB emulation feature.
	This feature defines how the BIOS, in the absence of a USB-aware operating system, handles USB devices. USB emulation is always enabled during POST.
	NOTE: You cannot boot any type of USB device (floppy, hard drive, or memory key) when this option is off.
USB PowerShare	Allows you to charge USB devices when the computer is turned off or in standby mode. - AC Only: Charge USB devices when connected to AC adapter only. - AC and Battery: Charge USB devices when connected to AC adapter and when the computer is running on battery. - Disabled: Disables USB PowerShare.
USB Wake Support	Allows you to enable USB devices to wake the computer from standby or to disable the USB wake support feature.
	NOTE: If USB PowerShare is enabled, a device connected to the USB PowerShare connector may not wake the computer.
SATA Operation	Allows you to configure the operating mode of the integrated SATA hard drive controller. - AHCI: SATA is configured for AHCI mode. - RAID: SATA is configured for RAID mode.
Adapter Warnings	Allows you to choose if the computer should display warning messages when you use AC adapters that are not supported by your computer.
	Enabled: BIOS will detect unsupported AC adapters and display an error on the screen.
Function Key Behavior	Allows you to set function key or multimedia key as the default function key behavior.
Express Charge	Allows you to charge your computer battery using Standard Charge or Express Charge mode.

Advanced Menu

`Touchpad Backlight`	Allows you to set the touchpad backlight to be on or in auto mode.
`Battery Health`	Displays the battery health.
`USB debug`	Allows you to enable or disable this port for Windows debugging.
`External USB Ports`	Allows you to disable or enable the external USB ports.

Advanced Menu—Performance Options

`CPU Turbo Mode`	Allows you to disable or enable the processor turbo mode.
`Overclocking Feature`	Allows you to disable or enable the global overclocking feature. ▪ Disabled: The overclocking feature is disabled. ▪ Enabled: Displays additional overclocking options.
`Non-Turbo Flex Support`	Allows you to enable or disable non-turbo flex support.
`Flex Ratio Override`	Allows you to set the flex ratio override value.
`Extreme Edition`	Allows you to disable or choose BIOS or cTDP.
`Extreme Edition Core Ratio Limits`	Allows you to set the extreme edition core ratio limit.
`Override Turbo Settings`	Allows you to enable or disable the override turbo settings.
`Long Duration PWR Limit`	Allows you to set the turbo mode long duration power limit.
`Long Duration Time Window`	Allows you to set the turbo mode time 1 value in seconds.
`Set Short Duration PWR Limit`	Allows you to enable or disable short duration power limit.
`Set Short Duration PWR Limit Options`	Allows you to set the turbo mode power limit 2value in watts.
`Bus Clock`	

Advanced Menu—Performance Options

`Current Frequency`	Displays the current bus clock frequency.
`New Frequency in 10KHz increments`	Allows you to set the bus clock frequency in increments of 10KHz.
`Apply New Bus Clock Frequency`	Applies the new bus clock frequency immediately, temporarily, or permanently.
`GT Overclocking Frequency`	Allows you to set the GT Overclocking frequency.
`Memory Frequency`	Allows you to set memory frequency.
`DIMM Profile (XMP)`	Allows you to configure different XMP options.

Wireless Menu

`Bluetooth`	Allows you to enable or disable the internal Bluetooth device. • Disabled: The internal Bluetooth device is disabled and is not visible to the operating system. • Enabled: The internal Bluetooth device is enabled.
`Wireless Network`	Allows you to enable or disable the internal wireless device. • Disabled: The internal wireless device is disabled and is not visible to the operating system. • Enabled: The internal wireless device is enabled.
`DMC`	Allows you to enable or disable the internal DMC device.
`Wireless Switch/Hotkey`	Allows you to disable all internal wireless devices.

Security Menu

`Admin Password`	Displays if the administrator password is clear or set.
`System Password`	Displays if the system password is clear or set.

Security Menu

Service Tag	Displays the service tag of the computer when the service tag is present.
	Displays a field to input the service tag manually when the service tag is absent.
Admin Password	Allows you to set the administrator password. The administrator password controls access to the system setup utility.
System Password	Allows you to set the system password. The system password controls access to the computer at boot.
Computrace	Allows you to disable, activate, or deactivate Computrace security feature.

Boot Menu

NOTE: UEFI BOOT is set to the default boot mode. See "Changing Boot Mode for Future Boots" on page 118 to set the default boot mode to LEGACY BOOT.

Secure Boot	Allows you to enable or disable secure boot.
Load Legacy Option Rom	Allows you to enable or disable the option to load a legacy Rom. **NOTE:** This option is disabled when Secure Boot option is enabled.
Boot List Option	Allows you to set the boot sequence order—UEFI or Legacy. **NOTE:** This option is disabled when Secure Boot option is enabled.
Secure Boot Mode	Allows you to set Custom or Standard secure boot mode. **NOTE:** This option is disabled when Secure Boot option is disabled.
Restore Factory Defaults	Allows you to restore your computer to factory default settings. **NOTE:** This option is disabled when Secure Boot Mode option is set to Standard.
Delete all Security Boot Keys	Allows you to delete all security boot keys.
Add Boot Option	Allows you to add a new boot option.
Delete a Boot Option	Allows you to delete an added boot option.
View Boot Option Properties	Allows you to view the properties of an added boot option.

Boot Menu

Boot Menu—LEGACY BOOT

`Diskette Drive (or Removable Drive)`	The computer attempts to boot from the floppy disk drive or an external drive. If no operating system is on the drive, the computer generates an error message.
`Hard Drive`	The computer attempts to boot from the primary hard-drive. If no operating system is on the drive, the computer generates an error message.
`USB Storage Device`	The computer attempts to boot from the USB device. If no operating system is on the drive, the computer generates an error message.
`CD/DVD/CD-RW Drive`	The computer attempts to boot from the optical drive. If no disc is in the drive, or if the disc is not bootable, the computer generates an error message.
`Second Hard Drive`	The computer attempts to boot from the secondary hard-drive. If no operating system is on the drive, the computer generates an error message.
`eSATA`	The computer attempts to boot from the device connected to your computer eSATA port. If no operating system is on the drive, the computer generates an error message.
`Network`	The computer attempts to boot from the network. If no operating system is found on the network, the computer generates an error message.

Boot Menu—UEFI BOOT

`Windows Boot Manager`	Allows you to boot from the operating system.
`UEFI Onboard LAN IPv4`	Allows you to boot from onboard LAN through Internet Protocol version 4 (IPv4).
`UEFI Onboard LAN IPv6`	Allows you to boot from onboard LAN through Internet Protocol version 6 (IPv46).

Exit Menu

`Exit Saving Changes`	Allows you to exit System Setup and save your changes to CMOS.
`Save Change Without Exit`	Allows you to remain in System Setup and save your changes to CMOS.
`Exit Discarding Changes`	Allows you to exit System Setup and load previous values from CMOS for all Setup items.
`Load Optimal Defaults`	Allows you to load default values for all Setup items.
`Discard Changes`	Allows you to load previous values from CMOS for all Setup items.

Boot Sequence

This feature allows you to change the boot sequence for devices.

Boot Options

- **Diskette Drive (or Removable Drive)** — The computer attempts to boot from the floppy drive or an external drive. If no operating system is on the drive, the computer generates an error message.
- **Hard Drive** — The computer attempts to boot from the primary hard drive. If no operating system is on the drive, the computer generates an error message.
- **USB Storage Device** — The computer attempts to boot from the USB device. If no operating system is on the drive—or if the drive is not bootable—the computer generates an error message.
- **CD/DVD/CD-RW Drive** — The computer attempts to boot from the optical drive. If no disc is in the drive, or if the disc is not bootable, the computer generates an error message.
- **Second Hard Drive** — The computer attempts to boot from the secondary hard-drive. If no operating system is on the drive, the computer generates an error message.
- **eSATA** — The computer attempts to boot from the device connected to your computer eSATA port. If no operating system is on the drive, the computer generates an error message.
- **Network** — The computer attempts to boot from the network. If no operating system is found on the network, the computer generates an error message.

Changing Boot Sequence for the Current Boot

You can use this feature to change the current boot sequence, for example, to boot from the optical drive to run Dell Diagnostics from the *Drivers and Utilities* disc. The previous boot sequence is restored at the next boot.

1 If you are booting from a USB device, connect the USB device to a USB port.

2 Turn on (or restart) your computer.

3 When `F2 Setup, F12 Boot Options` appears in the lower-right corner of the screen, press <F12>.

> ✍ **NOTE:** If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop. Then shut down your computer and try again.

The **Boot Device Menu** appears, listing all available boot devices.

4 On the Boot Device Menu choose the device you want to boot from.

For example, if you are booting to a USB memory key, highlight **USB Storage Device** and press <Enter>.

Changing Boot Mode for Future Boots

1 Turn on (or restart) your computer.

2 During POST, when the DELL logo is displayed, watch for the F2 prompt to appear and then press <F2> immediately.

> ✍ **NOTE:** The F2 prompt indicates that the keyboard has initialized. This prompt can appear very quickly, so you must watch for it, and then press <F2>. If you press <F2> before the F2 prompt, this keystroke is lost. If you wait too long and the operating system logo appears, continue to wait until you see the operating system's desktop. Then, turn off your computer and try again.

3 Use the arrow keys to highlight **Change boot mode setting** menu option and press <Enter> to access the menu.

4 Use the arrow keys to select legacy boot mode or UEFI boot mode and press <Enter>.

Changing Boot Sequence for Future Boots

1 Enter system setup. See "Entering System Setup" on page 109.

2 Use the arrow keys to highlight the **Boot** menu option and press <Enter> to access the menu.

> ✍ **NOTE:** Write down your current boot sequence in case you want to restore it.

3 Press the up- and down-arrow keys to select **LEGACY BOOT** or **UEFI BOOT**.

4 Press plus (+) or minus (−) to change the boot priority of the device.

Flashing the BIOS

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

1 Turn on the computer.

2 Go to **dell.com/support/download**.

3 Locate the BIOS update file for your computer:

> ![note icon] **NOTE:** The Service Tag for your computer is located on a label at the bottom of your computer. For more information, see the Quick Start Guide that shipped with your computer.

If you have your computer's Service Tag or Express Service Code:

a Enter your computer's Service Tag or Express Service Code in the **Service Tag or Express Service Code** field.

b Click **Submit** and proceed to step 4.

If you do not have your computer's Service Tag or Express Service Code:

a Select one of the following options:
- **Automatically detect my Service Tag for me**
- **Choose from My Products and Services List**
- **Choose from a list of all Dell products**

b Click **Continue and** follow the instructions on the screen.

4 A list of results appears on the screen. Click **BIOS**.

5 Click **Download File** next to the latest version, to download the latest BIOS file.

6 In the **Please select your download method below** window, click **For Single File Download via Browser**, and then click **Download Now**.

7 In the **Save As** window, select an appropriate location to download the file on your computer.

8 If the **Download Complete** window appears, click **Close**.

9 Navigate to the folder where you downloaded the BIOS update file. The file icon appears in the folder and is titled the same as the downloaded BIOS update file.

10 Double-click the BIOS update file icon and follow the instructions that appear on the screen.