

XPS 13

Owner's Manual

Computer model: XPS 9333
Regulatory model: P29G
Regulatory type: P29G003



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.

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Before Working Inside Your Computer

Before You Begin

 **CAUTION:** To avoid data loss, save and close all open files and exit all open programs before turning off your computer.


- 1 Save and close all open files, exit all open programs, and turn off your computer.
- 2 Follow the instructions to shut down your computer based on the operating system installed on your computer.

Windows 8:

Point to the lower or upper-right corner of the screen to open the charms sidebar and click **Settings**→ **Power**→ **Shut down**.

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 After the computer shuts down, disconnect it from the electrical outlet.
- 4 Disconnect all cables — such as power and USB cables — from your computer.
- 5 Disconnect all peripherals connected to your computer.








Recommended Tools

The procedures in this document require the following tools:

- Phillips screwdriver
- Torx #5 (T5) screwdriver
- Plastic scribe

Safety Instructions

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

-  **WARNING:** Before working inside your computer, read the safety information that shipped with your computer. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.
-  **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.
-  **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:** To avoid damaging the computer, make sure that the work surface is flat and clean.
-  **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, make sure that the ports and connectors are correctly oriented and aligned.
-  **CAUTION:** To avoid damaging the components and cards, handle them by their edges and avoid touching pins and contacts.

After Working Inside Your Computer



CAUTION: Leaving stray or loose screws inside your computer may severely damage your computer.

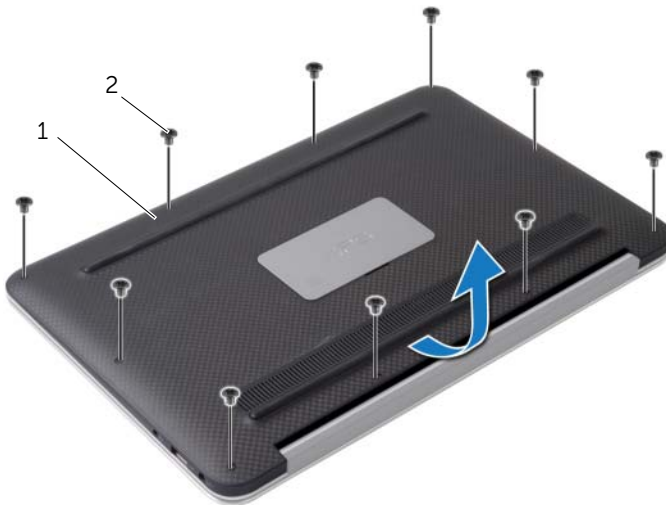
- 1** Replace all screws and make sure that no stray screws remain inside your computer.
- 2** Connect any cables, peripherals, and other parts you removed before working on your computer.
- 3** Connect your computer to the electrical outlet.
- 4** Turn on your computer.

Removing the Base Cover

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Procedure

- 1 Close the display and turn the computer over.
- 2 Using a Torx 5 screwdriver, remove the screws that secure the base cover to the palm-rest assembly.
- 3 Starting from the back of the computer, pry up the base cover using your fingertips.
- 4 Lift the base cover off the palm-rest assembly.



1 base cover

2 screws (10)

Replacing the Base Cover



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Procedure

- 1 Align the base cover with the palm-rest assembly and press the base cover into place.
- 2 Using a Torx 5 screwdriver, replace the screws that secure the base cover to the palm-rest assembly.

Removing the Power-Light Board

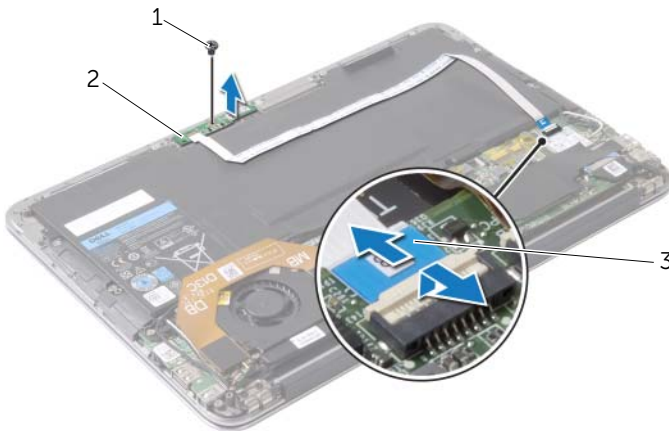
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Prerequisites

Remove the base cover. See "Removing the Base Cover" on page 10.

Procedure

- 1 Lift the connector latch and, using the pull-tab, disconnect the power-light board cable from the system board.
- 2 Remove the screw that secures the power-light board to the palm-rest assembly.
- 3 Lift the power-light board off the palm-rest assembly.



1 screw

2 power-light board

3 power-light board cable

Replacing the Power-Light Board



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Procedure

- 1 Align the screw hole on the power-light board with the screw hole on the palm-rest assembly.
- 2 Replace the screw that secures the power-light board to the palm-rest assembly.
- 3 Slide the power-light board cable into the power-light board cable connector on the system board and press down on the connector latch to secure the cable.

Postrequisites

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

Removing the Battery

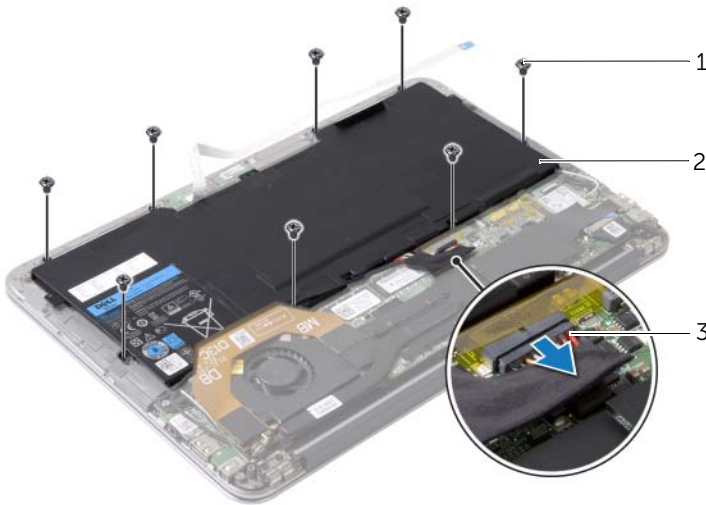
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Prerequisites

- 1 Remove the base cover. See "Removing the Base Cover" on page 10.
- 2 Disconnect the power-light board cable from the system board. See "Removing the Power-Light Board" on page 12.

Procedure

- 1 Disconnect the battery cable from the system board.
- 2 Remove the screws that secure the battery to the palm-rest assembly.
- 3 Lift the battery off the palm-rest assembly.



1 screws (8)

2 battery

3 battery cable

Replacing the Battery



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Procedure

- 1 Align the screw holes on the battery with the screw holes on the palm-rest assembly.
- 2 Replace the screws that secure the battery to the palm-rest assembly.
- 3 Connect the battery cable to the system board.

Postrequisites

- 1 Connect the power-light board cable to the system board. See "Replacing the Power-Light Board" on page 13.
- 2 Replace the base cover. See "Replacing the Base Cover" on page 11.

Removing the Speakers

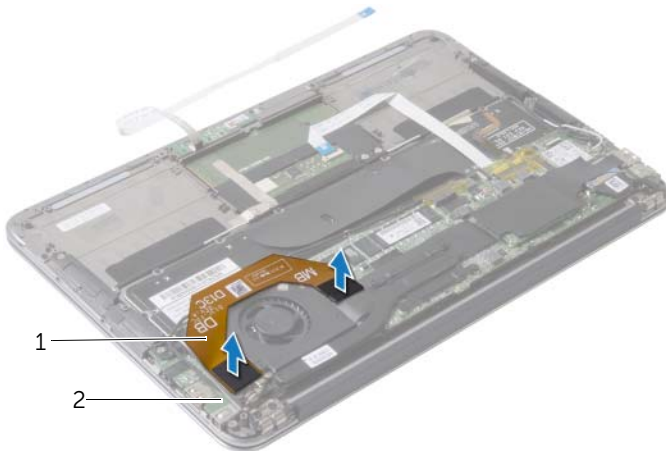
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Prerequisites

- 1 Remove the base cover. See "Removing the Base Cover" on page 10.
- 2 Disconnect the power-light board cable from the system board. See "Removing the Power-Light Board" on page 12.
- 3 Remove the battery. See "Removing the Battery" on page 14.

Procedure

- 1 Disconnect the I/O cable from the I/O board and the system board.

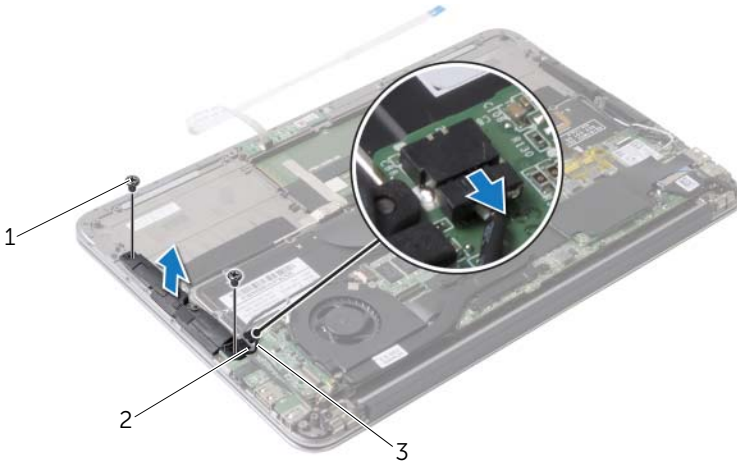


1 I/O cable

2 I/O board

- 2 Disconnect the left-speaker cable from the I/O board.
- 3 Release the wireless-card cables from the routing guide on the left speaker.
- 4 Remove the screws that secure the left speaker to the palm-rest assembly.

5 Lift the left speaker off the palm-rest assembly.



1 screws (2)

2 routing guide

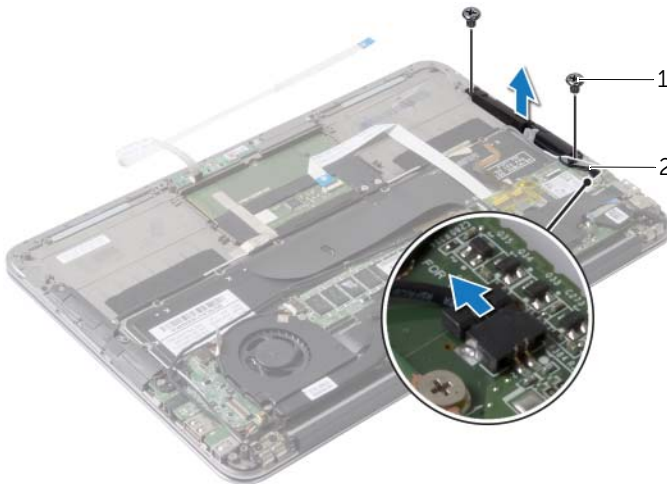
3 left-speaker cable

6 Remove the wireless-card cables from the routing guide on the right speaker.

7 Disconnect the right-speaker cable from the system board.

8 Remove the screws that secure the right speaker to the palm-rest assembly.

9 Lift the right speaker off the palm-rest assembly.



1 screws (2)

2 right-speaker cable

Replacing the Speakers



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Procedure

- 1 Align the screw holes on the left speaker with the screw holes on the palm-rest assembly.
- 2 Replace the screws that secure the left speaker to the palm-rest assembly.
- 3 Route the wireless-card cables through the routing guide on the left speaker.
- 4 Connect the left-speaker cable to the I/O board connector.
- 5 Connect the I/O cable to the I/O board and the system board.
- 6 Align the screw holes on the right speaker with the screw holes on the palm-rest assembly.
- 7 Replace the screws that secure the right speaker to the palm-rest assembly.
- 8 Connect the right-speaker cable to the system board.
- 9 Route the wireless-card cables through the routing guide on the right speaker.

Postrequisites

- 1 Replace the battery. See "Replacing the Battery" on page 15.
- 2 Connect the power-light board cable to the system board. See "Replacing the Power-Light Board" on page 13.
- 3 Replace the base cover. See "Replacing the Base Cover" on page 11.

Removing the Wireless Card

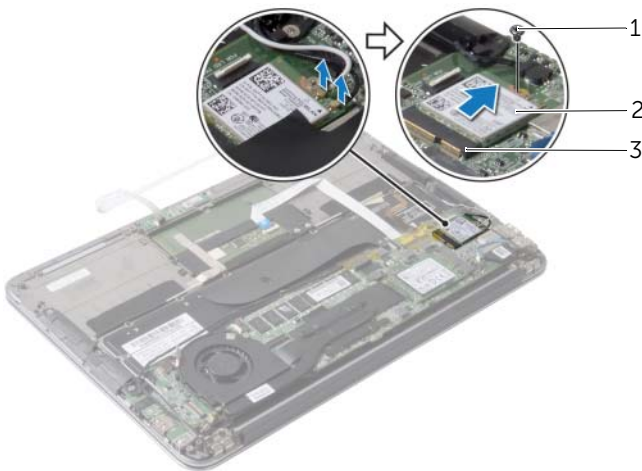
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Prerequisites

- 1 Remove the base cover. See "Removing the Base Cover" on page 10.
- 2 Disconnect the power-light board cable from the system board. See "Removing the Power-Light Board" on page 12.
- 3 Remove the battery. See "Removing the Battery" on page 14.

Procedure

- 1 Disconnect the wireless-card cables from the wireless card.
- 2 Remove the screw that secures the wireless card to the system board.
- 3 Slide and remove the wireless card out of the wireless-card connector.



1 screw

2 wireless card

3 wireless-card connector

Replacing the Wireless Card



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Procedure

- 1 Align the notch on the wireless card with the tab in the wireless-card connector.



CAUTION: To avoid damage to the wireless card, never place cables under the wireless card.

- 2 Slide the wireless-card at an angle into the wireless-card connector.
- 3 Press the other end of the wireless card down and replace the screw that secures the wireless card to the system board.
- 4 Connect the wireless-card cables to the wireless card.

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

Connectors on the Wireless Card	Wireless-Card Cable Color Scheme
WLAN + Bluetooth (2 cables)	
Main WLAN + Bluetooth (white triangle)	white
Auxiliary WLAN + Bluetooth (black triangle)	black

Postrequisites

- 1 Replace the battery. See "Replacing the Battery" on page 15.
- 2 Connect the power-light board cable to the system board. See "Replacing the Power-Light Board" on page 13.
- 3 Replace the base cover. See "Replacing the Base Cover" on page 11.

Removing the Solid-State Drive

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For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

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

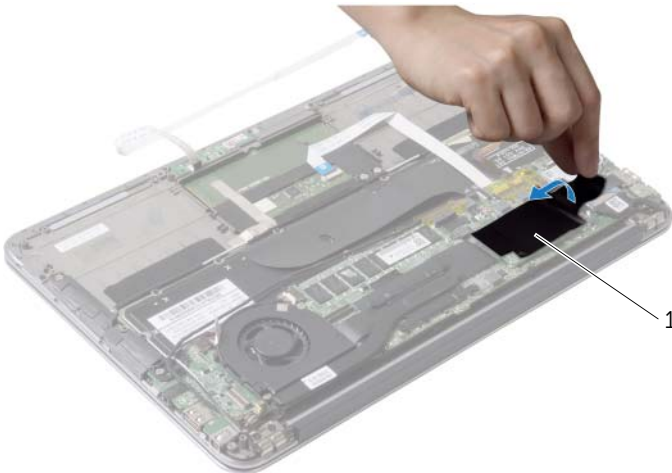
⚠ CAUTION: Solid-state drives are extremely fragile. Exercise care when handling the solid-state drive.

Prerequisites

- 1 Remove the base cover. See "Removing the Base Cover" on page 10.
- 2 Disconnect the power-light board cable from the system board. See "Removing the Power-Light Board" on page 12.
- 3 Remove the battery. See "Removing the Battery" on page 14.

Procedure

- 1 Peel the tape that is adhered over the solid-state drive.



1 tape

- 2 Remove the screw that secures the solid-state drive to the system board.
- 3 Slide and remove the solid-state drive out of the solid-state drive connector.



1	screw	2	solid-state drive connector
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3	solid-state drive
---	-------------------

Replacing the Solid-State Drive



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For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

- 1 Align the notch on the solid-state drive with the tab in the solid-state drive connector.



CAUTION: Use firm and even pressure to slide the solid-state drive into place. If you use excessive force, you may damage the connector.

- 2 Slide the solid-state drive at an angle into the solid-state drive connector.
- 3 Press down the other end of the solid-state drive and replace the screw that secures the solid-state drive to the system board.
- 4 Adhere the tape over the solid-state drive.

Postrequisites

- 1 Replace the battery. See "Replacing the Battery" on page 15.
- 2 Connect the power-light board cable to the system board. See "Replacing the Power-Light Board" on page 13.
- 3 Replace the base cover. See "Replacing the Base Cover" on page 11.

Removing the Heat Sink

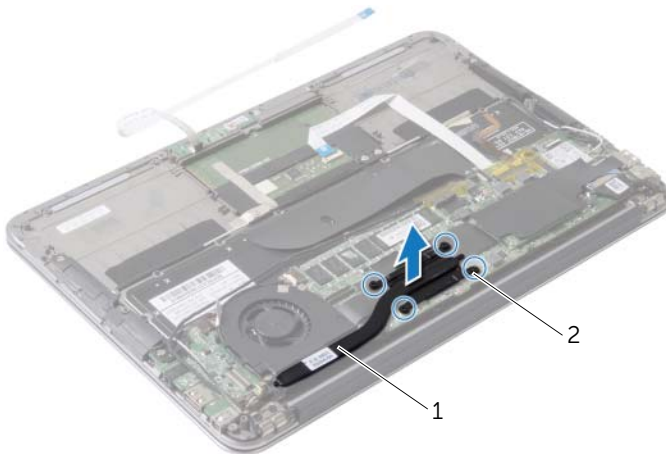
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Prerequisites

- 1 Remove the base cover. See "Removing the Base Cover" on page 10.
- 2 Disconnect the power-light board cable from the system board. See "Removing the Power-Light Board" on page 12.
- 3 Remove the battery. See "Removing the Battery" on page 14.

Procedure

- 1 In sequential order (indicated on the heat sink), loosen the captive screws that secure the heat sink to the system board.
- 2 Lift the heat sink off the system board.



1 heat sink

2 captive screws (4)

Replacing the Heat Sink



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Procedure



NOTE: The original thermal grease can be reused, if the original system board and heat sink are reinstalled together. If either the system board or the heat sink is replaced, use the thermal pad provided in the kit to ensure that thermal conductivity is achieved.

- 1 Clean the thermal grease from the bottom of the heat sink and reapply it.
- 2 Align the screws on the heat sink with the screw holes on the system board.
- 3 In sequential order (indicated on the heat sink), tighten the captive screws that secure the heat sink to the system board.

Postrequisites

- 1 Replace the battery. See "Replacing the Battery" on page 15.
- 2 Connect the power-light board cable to the system board. See "Replacing the Power-Light Board" on page 13.
- 3 Replace the base cover. See "Replacing the Base Cover" on page 11.

Removing the Fan

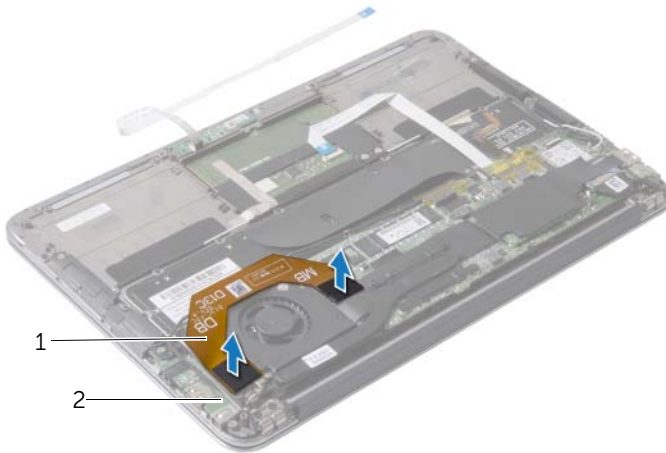
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Prerequisites

- 1 Remove the base cover. See "Removing the Base Cover" on page 10.
- 2 Disconnect the power-light board cable from the system board. See "Removing the Power-Light Board" on page 12.
- 3 Remove the battery. See "Removing the Battery" on page 14.

Procedure

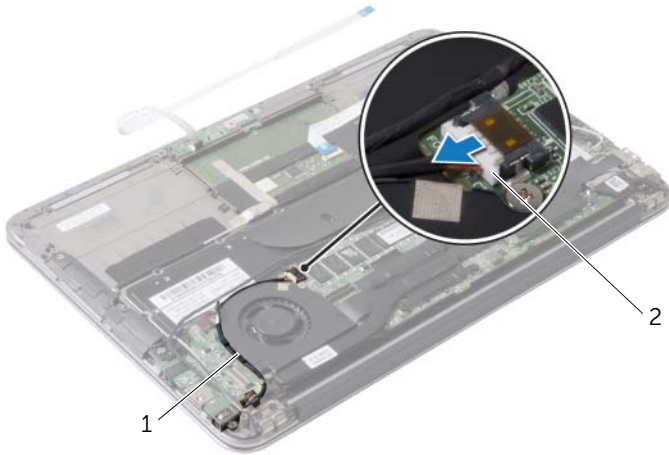
- 1 Disconnect the I/O cable from the I/O board and the system board.



1 I/O cable

2 I/O board

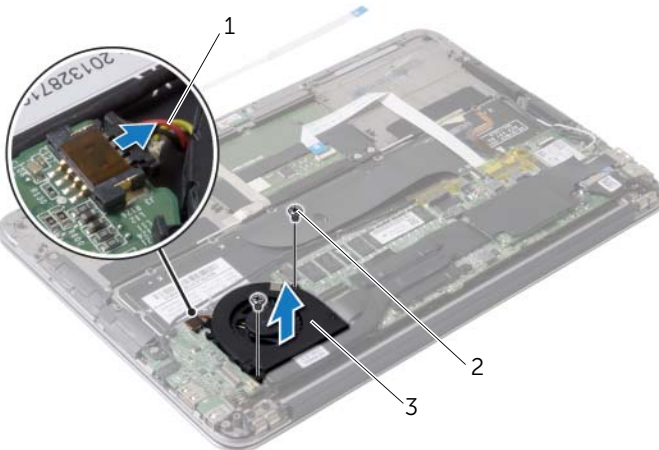
- 2 Disconnect the power-adaptor port cable from the system board.
- 3 Release the power-adaptor port cable from the routing guides on the fan.



1 routing guides

2 power-adaptor port cable

- 4 Disconnect the fan cable from the I/O board connector.
- 5 Remove the screws that secure the fan to the palm-rest assembly.
- 6 Lift the fan off the palm-rest assembly.



1 fan cable

2 screws (2)

3 fan

Replacing the Fan



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Procedure

- 1 Align the screw holes on the fan with the screw holes on the palm-rest assembly.
- 2 Replace the screws that secure the fan to the palm-rest assembly.
- 3 Connect the fan cable to the I/O board connector.
- 4 Route the power-adaptor port cable through the routing guides on the fan.
- 5 Connect the power-adaptor port cable to the system board.
- 6 Connect the I/O cable to the I/O board and the system board.

Postrequisites

- 1 Replace the battery. See "Replacing the Battery" on page 15.
- 2 Connect the power-light board cable to the system board. See "Replacing the Power-Light Board" on page 13.
- 3 Replace the base cover. See "Replacing the Base Cover" on page 11.

Removing the Power-Adapter Port

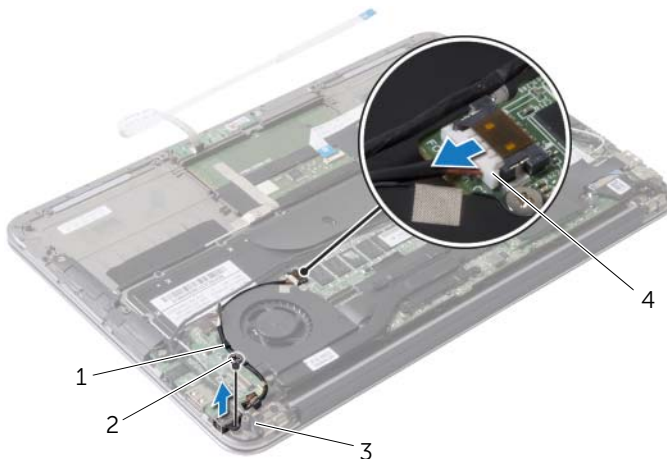
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Prerequisites

- 1 Remove the base cover. See "Removing the Base Cover" on page 10.
- 2 Disconnect the power-light board cable from the system board. See "Removing the Power-Light Board" on page 12.
- 3 Remove the battery. See "Removing the Battery" on page 14.

Procedure

- 1 Remove the wireless-card cables and the touchscreen cable from the routing guide on the display hinge.
- 2 Disconnect the power-adapter port cable from the system board.
- 3 Release the power-adapter port cable from the routing guides on the fan.
- 4 Remove the screw that secures the power-adapter port to the palm-rest assembly.
- 5 Gently lift the power adapter port and ease the power-adapter port cable from under the wireless-card cables.



1	routing guides on fan	2	screw
3	routing guide on display hinge	4	power-adapter port cable

Replacing the Power-Adapter Port



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Procedure

- 1 Align the screw hole on the power-adapter port with the screw hole on the palm-rest assembly.
- 2 Replace the screw that secures the power-adapter port to the palm-rest assembly.
- 3 Slide the power-adapter port under the wireless-card cables and route the power-adapter port cable through the routing guides on the fan.
- 4 Connect the power-adapter port cable to the system board.
- 5 Route the wireless-card cables and the touchscreen cable through the routing guide on the display hinge.

Postrequisites

- 1 Replace the battery. See "Replacing the Battery" on page 15.
- 2 Connect the power-light board cable to the system board. See "Replacing the Power-Light Board" on page 13.
- 3 Replace the base cover. See "Replacing the Base Cover" on page 11.

Removing the I/O Board

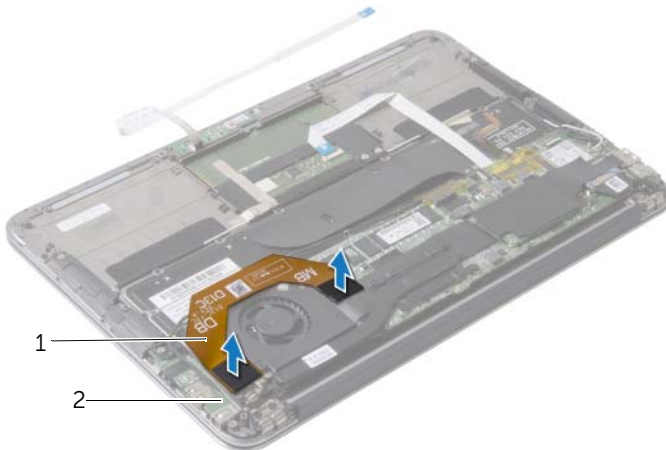
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Prerequisites

- 1 Remove the base cover. See "Removing the Base Cover" on page 10.
- 2 Disconnect the power-light board cable from the system board. See "Removing the Power-Light Board" on page 12.
- 3 Remove the battery. See "Removing the Battery" on page 14.
- 4 Remove the speakers. See "Removing the Speakers" on page 16.
- 5 Remove the power-adaptor port. See "Removing the Power-Adapter Port" on page 29.
- 6 Remove the fan. See "Removing the Fan" on page 26.

Procedure

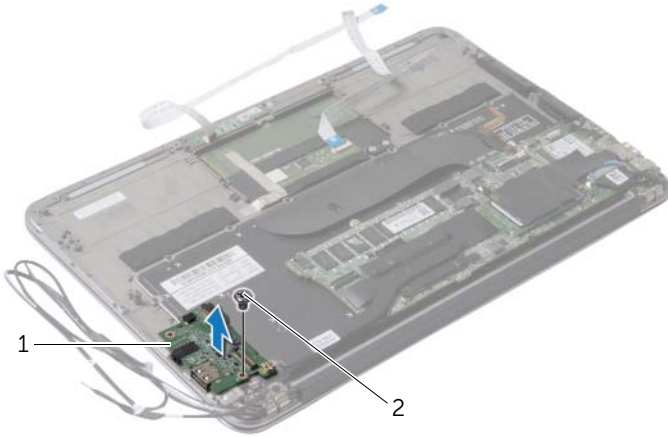
- 1 Disconnect the I/O cable from the I/O board and the system board.



1 I/O cable

2 I/O board

- 2 Remove the screw that secures the I/O board to the palm-rest assembly.
- 3 Lift the I/O board off the palm-rest assembly.



1 I/O board

2 screw

Replacing the I/O Board



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For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

- 1 Align the screw hole on the I/O board with the screw hole on the palm-rest assembly.
- 2 Replace the screw that secures the I/O board to the palm-rest assembly.

Postrequisites

- 1 Replace the fan. See "Replacing the Fan" on page 28.
- 2 Replace the power-adaptor port. See "Replacing the Power-Adapter Port" on page 30.
- 3 Replace the speakers See "Replacing the Speakers" on page 18.
- 4 Replace the battery. See "Replacing the Battery" on page 15.
- 5 Connect the power-light board cable to the system board. See "Replacing the Power-Light Board" on page 13.
- 6 Replace the base cover. See "Replacing the Base Cover" on page 11.

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 Working Inside Your Computer" on page 7. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 9.

For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

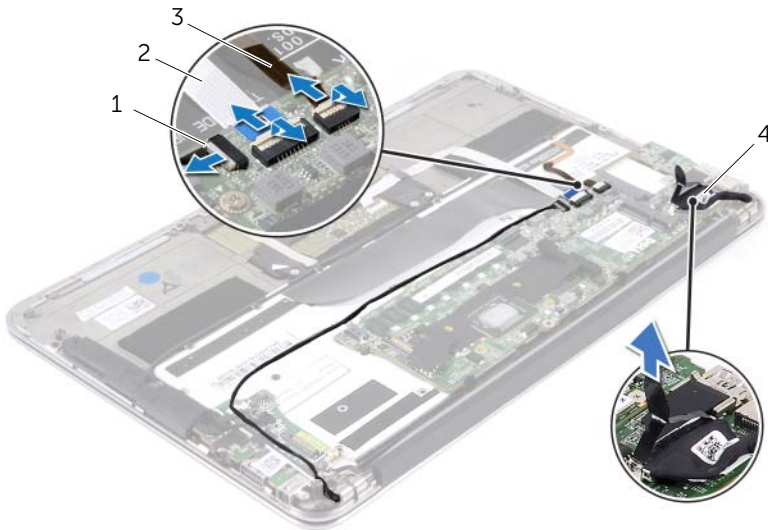
- 1 Remove the base cover. See "Removing the Base Cover" on page 10.
- 2 Disconnect the power-light board cable from the system board. See "Removing the Power-Light Board" on page 12.
- 3 Remove the battery. See "Removing the Battery" on page 14.
- 4 Remove the right speaker. See "Removing the Speakers" on page 16.
- 5 Remove the wireless card. See "Removing the Wireless Card" on page 19.
- 6 Remove the solid-state drive. See "Removing the Solid-State Drive" on page 21.
- 7 Remove the heat sink. See "Removing the Heat Sink" on page 24.
- 8 Remove the fan. See "Removing the Fan" on page 26.

Procedure

NOTE: Replacing the system board removes any changes you made to the BIOS using System Setup. Enter the Service Tag of your computer in the BIOS and make the desired changes again after you replace the system board. For more information, see "Entering the Service Tag in BIOS" on page 37.

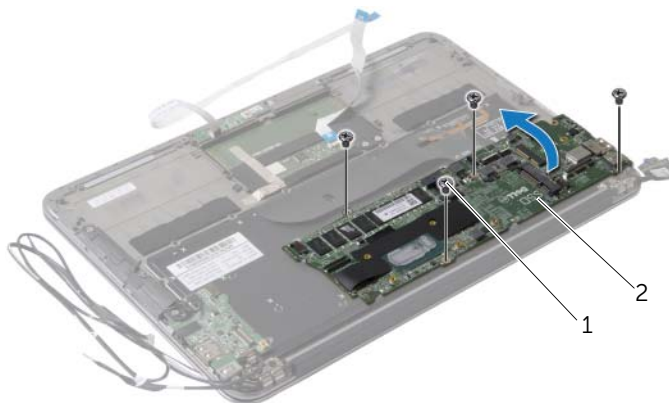
NOTE: Before disconnecting the cables from the system board, note the location of the connectors so that you can reconnect the cables correctly after you replace the system board.

- 1 Disconnect the display cable from the system board.
- 2 Disconnect the touchscreen cable from the system board.
- 3 Lift the connector latch and using the pull-tab, disconnect the touchpad cable and keyboard-backlight cable from the connectors on the system board.



1	keyboard-backlight cable	2	touchpad cable
3	touchscreen cable	4	display cable

- 4 Remove the screws that secure the system board to the palm-rest assembly.
- 5 Turn the system board over and place it over the palm-rest assembly.



1 screws (4)

2 system board

- 6 Lift the connector latch and disconnect the keyboard cable from the system board.



1 keyboard cable

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 Working Inside Your Computer" on page 7. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 9.

For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

- 1 Slide the keyboard cable into the keyboard-cable connector on the system board and press down on the connector latch to secure the cable.
- 2 Align the screw holes on the system board with the screw holes on the palm-rest assembly.
- 3 Replace the screws that secure the system board to the palm-rest assembly.
- 4 Connect the touchscreen cable to the system board.
- 5 Connect the display cable to the system board.
- 6 Slide the touchpad-cable and keyboard-backlight cable into the connectors on the system board and press down on the latch to secure the cables.


Postrequisites

- 1 Replace the fan. See "Replacing the Fan" on page 28.
- 2 Replace the heat sink. See "Replacing the Heat Sink" on page 25.
- 3 Replace the solid-state drive. See "Replacing the Solid-State Drive" on page 23.
- 4 Replace the wireless card. See "Replacing the Wireless Card" on page 20.
- 5 Replace the right speaker. See "Replacing the Speakers" on page 18.
- 6 Replace the battery. See "Replacing the Battery" on page 15.
- 7 Connect the power-light board cable to the system board. See "Replacing the Power-Light Board" on page 13.
- 8 Replace the base cover. See "Replacing the Base Cover" on page 11.


Entering the Service Tag in 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 Coin-Cell Battery

 **WARNING:** Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before Working Inside Your Computer" on page 7. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 9.

For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

 **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.

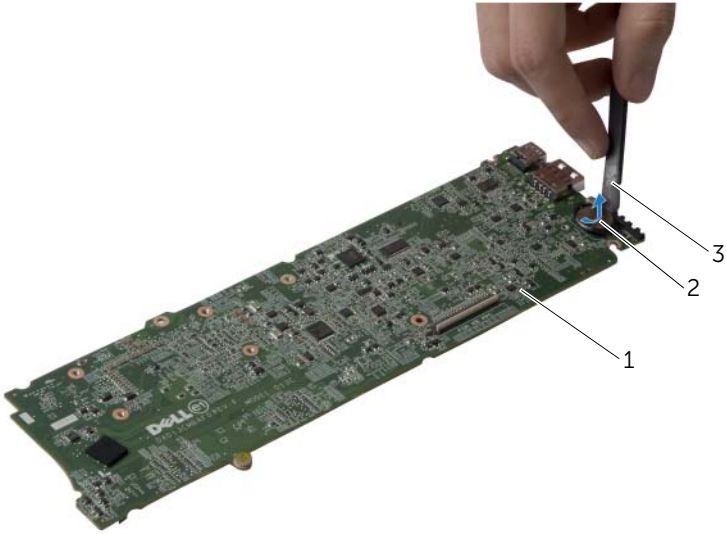
 **CAUTION:** Removing the coin-cell battery resets the BIOS settings to default. It is recommended that you note the BIOS settings before removing the coin-cell battery.

Prerequisites

- 1 Remove the base cover. See "Removing the Base Cover" on page 10.
- 2 Disconnect the power-light board cable from the system board. See "Removing the Power-Light Board" on page 12.
- 3 Remove the battery. See "Removing the Battery" on page 14.
- 4 Remove the wireless card. See "Removing the Wireless Card" on page 19.
- 5 Remove the solid-state drive. See "Removing the Solid-State Drive" on page 21.
- 6 Remove the heat sink. See "Removing the Heat Sink" on page 24.
- 7 Remove the fan. See "Removing the Fan" on page 26.
- 8 Remove the system board. See "Removing the System Board" on page 34.

Procedure

Using a plastic scribe, gently pry out the coin-cell battery out of the battery socket on the system board.



1 system board

2 coin-cell battery

3 plastic scribe

Replacing 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 Working Inside Your Computer" on page 7. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 9.

For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

With the positive-side facing up, snap the coin-cell battery into the battery socket on the system board.

Postrequisites

- 1 Replace the system board. See "Replacing the System Board" on page 37.
- 2 Replace the fan. See "Replacing the Fan" on page 28.
- 3 Replace the heat sink. See "Replacing the Heat Sink" on page 25.
- 4 Replace the solid-state drive. See "Replacing the Solid-State Drive" on page 23.
- 5 Replace the wireless card. See "Replacing the Wireless Card" on page 20.
- 6 Replace the battery. See "Replacing the Battery" on page 15.
- 7 Connect the power-light board cable to the system board. See "Replacing the Power-Light Board" on page 13.
- 8 Replace the base cover. See "Replacing the Base Cover" on page 11.

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 Working Inside Your Computer" on page 7. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 9. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

- 1 Remove the base cover. See "Removing the Base Cover" on page 10.
- 2 Disconnect the power-light board cable from the system board. See "Removing the Power-Light Board" on page 12.
- 3 Remove the battery. See "Removing the Battery" on page 14.

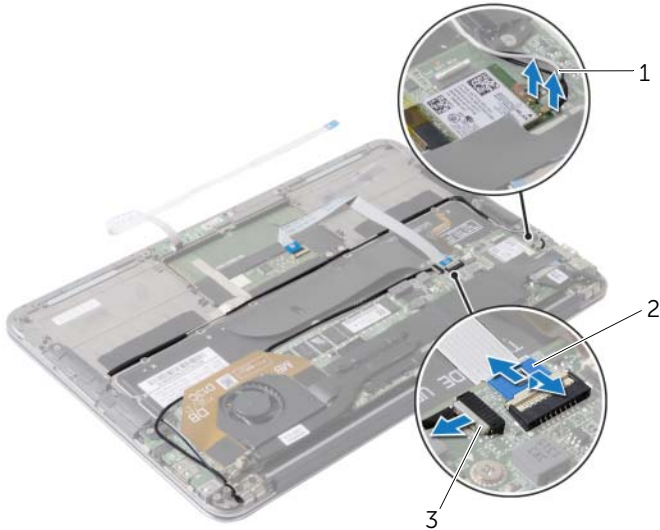
Procedure

- 1 Disconnect the display cable from the system board.



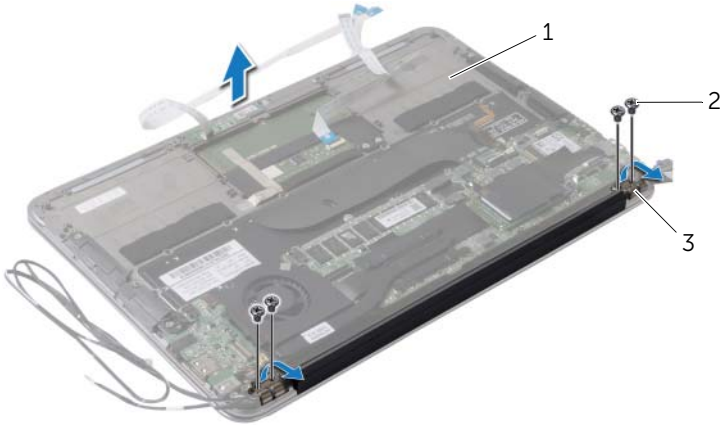
1 display cable

- 2 Disconnect the wireless-card cables from the connectors on the wireless card.
- 3 Disconnect the touchscreen cable from the system board.
- 4 Lift the connector latch and using the pull-tab, disconnect the touchpad cable from the system board.
- 5 Release the wireless-card cables from the routing guides.



1	wireless-card cables (2)	2	touchpad cable
3	touchscreen cable		

- 6 Remove the screws that secure the display assembly to the palm-rest assembly.
- 7 Gently lift the palm-rest assembly to a 90-degree angle and then release the palm-rest assembly off the display assembly.



1 palm-rest assembly

2 screws (4)

3 display hinges (2)

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 Working Inside Your Computer" on page 7. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 9.

For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

- 1 Slide and place the palm-rest assembly over the display assembly.
- 2 Press down on the display hinges and align the screw holes on the display hinges with the screw holes on the palm-rest assembly.
- 3 Replace the screws that secure the display assembly to the palm-rest assembly.
- 4 Route the wireless-card cables through the routing guides.
- 5 Slide the touchpad cable into the touchpad-cable connector on the system board and press down on the connector latch to secure the keyboard cable.
- 6 Connect the wireless-card cables to the connectors on the wireless card.
The following table provides the wireless-card cable color scheme for the wireless card supported by your computer.

Connectors on the Wireless Card	Wireless-Card Cable Color Scheme
WLAN + Bluetooth (2 cables)	
Main WLAN + Bluetooth (white triangle)	white
Auxiliary WLAN + Bluetooth (black triangle)	black

Postrequisites

- 1 Replace the battery. See "Replacing the Battery" on page 15.
- 2 Connect the power-light board cable to the system board. See "Replacing the Power-Light Board" on page 13.
- 3 Replace the base cover. See "Replacing the Base Cover" on page 11.

Removing the Keyboard



WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before Working Inside Your Computer" on page 7. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 9.

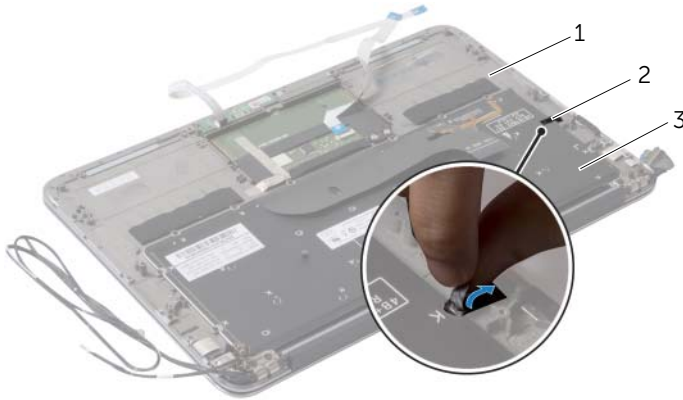
For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

- 1 Remove the base cover. See "Removing the Base Cover" on page 10.
- 2 Disconnect the power-light board cable from the system board. See "Removing the Power-Light Board" on page 12.
- 3 Remove the battery. See "Removing the Battery" on page 14.
- 4 Remove the speakers. See "Removing the Speakers" on page 16.
- 5 Remove the wireless card. See "Removing the Wireless Card" on page 19.
- 6 Remove the solid-state drive. See "Removing the Solid-State Drive" on page 21.
- 7 Remove the heat sink. See "Removing the Heat Sink" on page 24.
- 8 Remove the power-adaptor port. See "Removing the Power-Adapter Port" on page 29.
- 9 Remove the fan. See "Removing the Fan" on page 26.
- 10 Remove the I/O board. See "Removing the I/O Board" on page 31.
- 11 Remove the system board. See "Removing the System Board" on page 34.

Procedure

- 1 Remove the tape adhered over the keyboard.

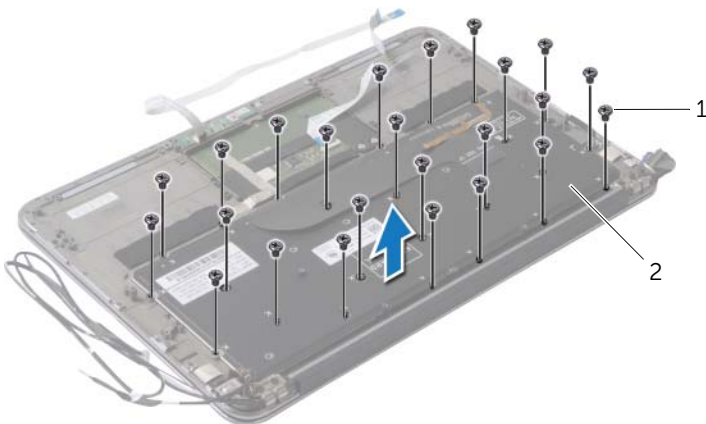


1 palm-rest assembly

2 tape

3 keyboard

- 2 Remove the screws that secure the keyboard to the palm-rest assembly.
- 3 Lift the keyboard off the palm-rest assembly.



1 screws (24)

2 keyboard

Replacing the Keyboard



WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before Working Inside Your Computer" on page 7. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 9.

For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

- 1 Align the screw holes on the keyboard with the screw holes on the palm-rest assembly.
- 2 Replace the screws that secure the keyboard to the palm-rest assembly.
- 3 Adhere the tape over the keyboard.

Postrequisites

- 1 Replace the system board. See "Replacing the System Board" on page 37.
- 2 Replace the I/O board. See "Replacing the I/O Board" on page 33.
- 3 Replace the fan. See "Replacing the Fan" on page 28.
- 4 Replace the power-adaptor port. See "Replacing the Power-Adapter Port" on page 30.
- 5 Replace the heat sink. See "Replacing the Heat Sink" on page 25.
- 6 Replace the solid-state drive. See "Replacing the Solid-State Drive" on page 23.
- 7 Replace the wireless card. See "Replacing the Wireless Card" on page 20.
- 8 Replace the speakers. See "Replacing the Speakers" on page 18.
- 9 Replace the battery. See "Replacing the Battery" on page 15.
- 10 Connect the power-light board cable to the system board. See "Replacing the Power-Light Board" on page 13.
- 11 Replace the base cover. See "Replacing the Base Cover" on page 11.

Removing the Palm-Rest Assembly



WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before Working Inside Your Computer" on page 7. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 9.

For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

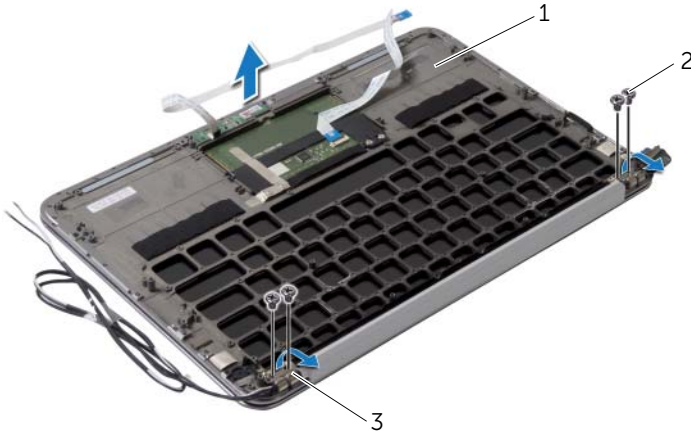
Prerequisites

- 1 Remove the base cover. See "Removing the Base Cover" on page 10.
- 2 Remove the power-light board. See "Removing the Power-Light Board" on page 12.
- 3 Remove the battery. See "Removing the Battery" on page 14.
- 4 Remove the speakers. See "Removing the Speakers" on page 16.
- 5 Remove the wireless card. See "Removing the Wireless Card" on page 19.
- 6 Remove the solid-state drive. See "Removing the Solid-State Drive" on page 21.
- 7 Remove the heat sink. See "Removing the Heat Sink" on page 24.
- 8 Remove the power-adaptor port. See "Removing the Power-Adapter Port" on page 29.
- 9 Remove the fan. See "Removing the Fan" on page 26.
- 10 Remove the system board. See "Removing the System Board" on page 34.
- 11 Remove the I/O board. See "Removing the I/O Board" on page 31.
- 12 Remove the keyboard. See "Removing the Keyboard" on page 45.

Procedure

- 1 Remove the screws that secure the display assembly to the palm-rest assembly.
- 2 Gently lift the palm-rest assembly to a 90-degree angle and then release the palm-rest assembly from the display assembly.

 **CAUTION: Carefully separate the palm-rest assembly from the display assembly to avoid damage to the display assembly.**



1 palm-rest assembly

2 screws (4)

3 display hinges (2)

Replacing the Palm-Rest Assembly



WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before Working Inside Your Computer" on page 7. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 9.

For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

- 1 Slide and place the palm-rest assembly over the display assembly.
- 2 Press down on the display hinges and ensure the screw holes in the display hinges align with the screw holes on the palm-rest assembly.
- 3 Replace the screws that secure the palm-rest assembly to the display assembly.

Postrequisites

- 1 Replace the keyboard. See "Replacing the Keyboard" on page 47.
- 2 Replace the system board. See "Replacing the System Board" on page 37.
- 3 Replace I/O board. See "Replacing the I/O Board" on page 33.
- 4 Replace the fan. See "Replacing the Fan" on page 28.
- 5 Replace the power-adaptor port. See "Replacing the Power-Adapter Port" on page 30.
- 6 Replace the heat sink. See "Replacing the Heat Sink" on page 25.
- 7 Replace the solid-state drive. See "Replacing the Solid-State Drive" on page 23.
- 8 Replace the wireless card. See "Replacing the Wireless Card" on page 20.
- 9 Replace the speakers. See "Replacing the Speakers" on page 18.
- 10 Replace the battery. See "Replacing the Battery" on page 15.
- 11 Replace the power-light board. See "Replacing the Power-Light Board" on page 13.
- 12 Replace the base cover. See "Replacing the Base Cover" on page 11.

System Setup

Overview

You may need to flash (update) the BIOS when an update is available or when you replace the system board. To flash the BIOS:

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



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 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 Microsoft Windows desktop. Then, turn off your computer and try again.

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.

<p>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.</p> <p>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.</p>	<p>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.</p> <p>Press the up- and down-arrow keys to highlight an option. Press <Enter> to make that selection active and return to the Setup Item.</p> <p>NOTE: Not all settings listed in the Setup Item are changeable.</p>
<p>Key Functions — This field appears below the Help Screen and lists keys and their functions within the active system setup field.</p>	

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

System Time (hh:mm:ss)	Displays the current time.
System Date (mm:dd:yy)	Displays current date.
BIOS Version	Displays the BIOS version number.
Product Name	Displays the product name.
Service Tag	Displays the service tag of your computer.
Asset Tag	Displays the asset tag of the computer.
CPU Type	Displays the processor type.
CPU Speed	Displays the processor speed.
CPU ID	Displays the processor identification code.

Main (Continued)

CPU Cache	
L1 Cache	Displays the processor L1 cache size.
L2 Cache	Displays the processor L2 cache size.
L3 Cache	Displays the processor L3 cache size.
Integrated Graphics	Displays the integrated graphics.
Discrete Graphics 1	Displays the first discrete graphics installed on your computer.
Discrete Graphics 2	Displays the second 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.
System Memory	Displays the system memory.
Extended Memory	Displays the extended memory.
Memory Speed	Displays the memory speed.
Keyboard Type	Displays the keyboard type.

Advanced

Intel (R) Speedstep (TM)	If enabled, the processor clock speed and core voltage are adjusted dynamically based on the processor load.
Virtualization	If enabled, a Virtual Machine Monitor (VMM) will be able to access your computer.
USB Emulation	If enabled, defines how the BIOS controls USB devices.
USB Powershare	If enabled, external devices can be charged even when the computer is turned off.

Advanced (Continued)

USB Wake Support	If enabled, USB devices can be configured to wake the computer from Standby.
SATA Operation	If enabled, configures the operating mode of the integrated SATA controller.
Adapter Warnings	If enabled, the BIOS will display a warning message when the power adapter used is not compatible.
Function Key Behavior	If enabled, you can use the multimedia keys directly without using the function key combination.
Battery Health	Displays the battery health of your computer.
Intel (R) Smart Connect Technology	If enabled, allows your computer to check for updates even when in Sleep state.
Intel (R) Rapid Start Technology	If enabled, you can improve battery life by automatically putting your computer into a low power state during sleep after a user-specified amount of time.
Miscellaneous Devices	
External USB Ports	Allows you to enable or disable external USB ports.
eSATA Ports	Allows you to enable or disable eSATA Ports
USB Debug	Allows you to enable or disable the USB 3.0 port for Windows debugging.

Wireless

Bluetooth	Allows you to enable or disable the internal Bluetooth device.
Wireless Network	Allows you to enable or disable the internal wireless device.
WWAN	Allows you to enable or disable the WWAN.
DMC	Allows you to enable or disable the internal DMC device.

Security

Set Service Tag	Allows you to enter the service tag of your computer.
Admin Password is:	Displays the admin account password.
System Password is:	Displays the system password.
HDD Password State	Displays the HDD password state.
Set Admin Password	Allows you to set the admin password.
Set System Password	Allows you to set the system password.
Set HDD Password	Allows you to set the HDD password.
Password Change:	Displays whether you have access to change passwords.
Computrace:	Allows you to track your computer, if it is lost or stolen.

Boot

Boot Priority Order	
Legacy Boot:	
Hard Drive	Allows you to boot the system from the primary hard drive.
USB Storage Device	Allows you to boot the system from a USB storage device.
Removable Drive	Allows you to boot the system using a removable (external) drive.
CD/DVD/CD-RW Drive	Allows you to boot the system from the optical drive.
Network	Allows you to boot the system from the network.
UEFI Boot:	
Windows Boot Manager	Allows you to boot from the operating system.
Network Boot	Allows you to boot the system from the network.
USB	Allows you to boot the system from the USB.

Boot (Continued)

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
Boot List Option	Allows you to set the boot sequence order- UEFI or Legacy.

Exit

Exit Saving Changes	Allows you to save the changes made and exit the BIOS.
Exit discarding Changes	Allows you to discard the changes made and exit the BIOS.
Load Setup Defaults	Allows you to load the default BIOS settings.
Discard Changes	Discards the changes made to the BIOS.
Save Changes	Saves the changes made to the BIOS.

Boot Sequence

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

Boot Options

- Removable Drive — The computer attempts to boot from the removable 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 — Insert the memory device into a USB port and restart the computer. When **F12 Boot Options** appears in the lower-right corner of the screen, press <F12>. The BIOS detects the device and adds the USB flash option to the boot menu.



NOTE: To boot to a USB device, the device must be bootable. To ensure that your device is bootable, check the device documentation.

- 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.

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 **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 Priority Order menu appears, listing all available boot devices.

- 4 On the Boot Priority Order 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 Sequence for Future Boots

- 1 Enter system setup. See "Entering System Setup" on page 51.
- 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 move through the list of devices.
- 4 Press plus (+) or minus (-) to change the boot priority of the device.

Flashing the BIOS

You may need to flash (update) the BIOS when an update is available or when you replace the system board. To flash the BIOS:

- 1 Turn on the computer.
- 2 Go to **dell.com/support**.
- 3 If you have your computer's Service Tag, type your computer's Service Tag and click **Submit**.

If you do not have your computer's Service Tag, click **Detect Service Tag** to allow automatic detection of the Service Tag.



NOTE: If the Service Tag cannot be detected automatically, select your product under the product categories.

- 4 Click **Drivers & Downloads**.
- 5 In the **Operating System** drop-down, select the operating system installed on your computer.
- 6 Click **BIOS**.
- 7 Click **Download File** to download the latest version of the BIOS for your computer.
- 8 Save the file and once the download is complete, navigate to the folder where you saved the BIOS update file.
- 9 Double-click the BIOS update file icon and follow the instructions on the screen.

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