Inspiron 13 5000

2-in-1

Service Manual

Regulatory Model: P69G
Regulatory Type: P69G001

Notes, cautions, and warnings

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

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

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

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1

Before working inside your computer

NOTE: The images in this document may differ from your computer depending on the configuration you ordered.

Topics:

- Before you begin
- Safety instructions
- Recommended tools
- Screw list

Before you begin

1. Save and close all open files and exit all open applications.
2. Shut down your computer.

   The shut-down instruction varies depending on the operating system installed on your computer.

   - Windows 10: Click **Start** > **Power** > **Shut down**.
   - Windows 8.1: On the **Start** screen, Click the power icon > **Shut down**.
   - Windows 7: Click **Start** > **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 attached network devices and peripherals, such as keyboard, mouse, and monitor, from your computer.
5. Remove any media card and optical disc from your computer, if applicable.

Safety instructions

Use the following safety guidelines to protect your computer from potential damage and to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that you have read the safety information that shipped with your computer.

NOTE: 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 www.dell.com/regulatory_compliance.

NOTE: 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 electrical outlet.

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

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

CAUTION: You should only perform troubleshooting and repairs as authorized or directed by the Dell technical assistance team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. See the safety instructions that shipped with the product or at www.dell.com/regulatory_compliance.

CAUTION: Before touching anything inside your computer, ground yourself by using a wrist grounding strap or by periodically 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 ports and connectors are correctly oriented and aligned.

CAUTION: Press and eject any installed card from the media-card reader.

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

Recommended tools

The procedures in this document may require the following tools:

- Philips screwdriver #1
- Flat-head screwdriver
- Plastic scribe

Screw list

The following table provides the list of screws that are used for securing different components to the computer.

Table 1. Screw list

Component	Secured to	Screw type	Quantity	Screw image
Base cover	Palm-rest assembly	M2.5x6	9	
Battery	Palm-rest assembly	M2x3.	4	
Hard-drive assembly	Palm-rest assembly	M2x3.5	2	
Hard-drive bracket	Hard drive	M3x3	4	
Wireless card bracket	Palm-rest assembly	M2x3.5	1	
Fan	Palm-rest assembly	M2x3.5	2	
Power and volume-buttons board	Palm-rest assembly	M2x3.5	1	
Touch-pad bracket	Palm-rest assembly	M2x2	4	
Touchpad	Palm-rest assembly	M2x2.5	4	
I/O board	Palm-rest assembly	M2x3.5	2	
Display assembly	Palm-rest assembly	M2.5x2.5	4	
Power adapter port	Palm-rest assembly	M2x3.5	1	
System board	Palm-rest assembly	M2x2 Big Head	3	

Component	Secured to	Screw type	Quantity	Screw image
Sensor board	Display panel	M2.5x2.5	1	

2

After working inside your computer

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

1. Replace all screws and ensure that no stray screws remain inside your computer.
2. Connect any external devices, peripherals, or cables you removed before working on your computer.
3. Replace any media cards, discs, or any other parts that you removed before working on your computer.
4. Connect your computer and all attached devices to their electrical outlets.
5. Turn on your computer.

3

Removing the base cover

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure

Procedure

1. Close the display and turn the computer over.
2. Remove the nine screws (M2.5x6) that secure the base cover to the palm-rest assembly.

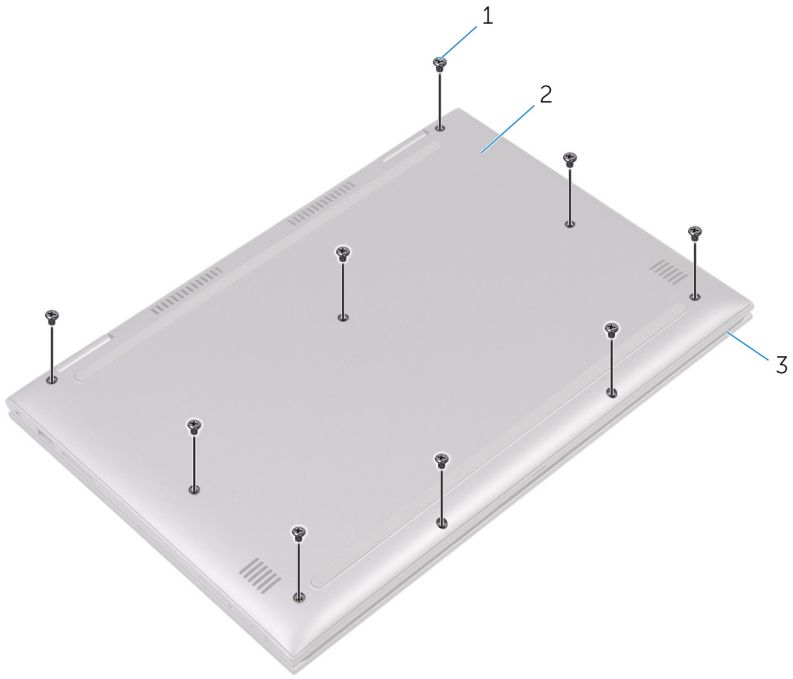

Figure 1. Base cover

a. screws (6)
b. base cover
c. palm-rest assembly

3. Using a plastic scribe, release the tabs that secure the base cover to the palm-rest assembly and remove the base cover off the palm-rest assembly.

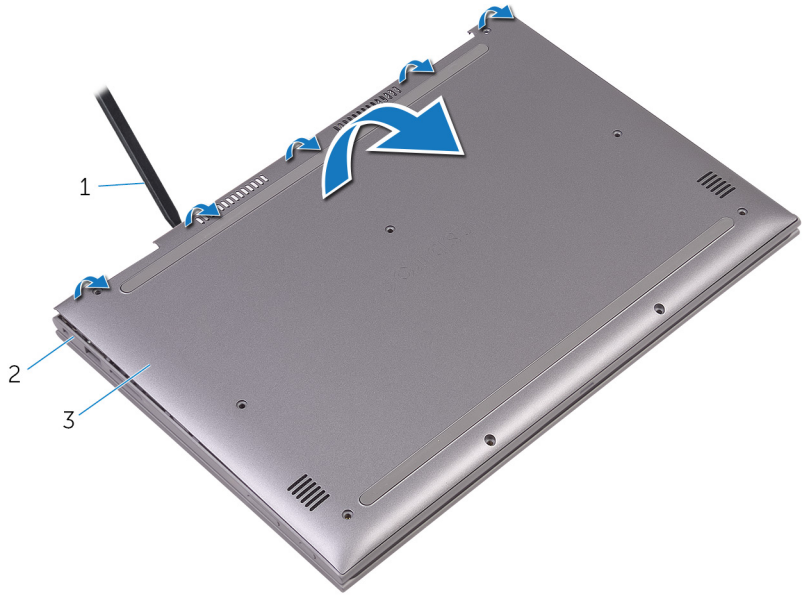

Figure 2. Base cover

a. plastic scribe
b. palm-rest assembly
c. base cover

4

Replacing the base cover

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure

Procedure

1. Align the base cover with the palm-rest assembly and snap it into place.
2. Replace the nine screws (M2.5x6) that secure the base cover to the palm-rest assembly.

5

Removing the battery

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

Remove the base cover.

Procedure

1. Disconnect the battery cable from the system board.
2. Remove the four screws (M2x3.0) that secure the battery to the palm-rest assembly.
3. Lift the battery off the palm-rest assembly.

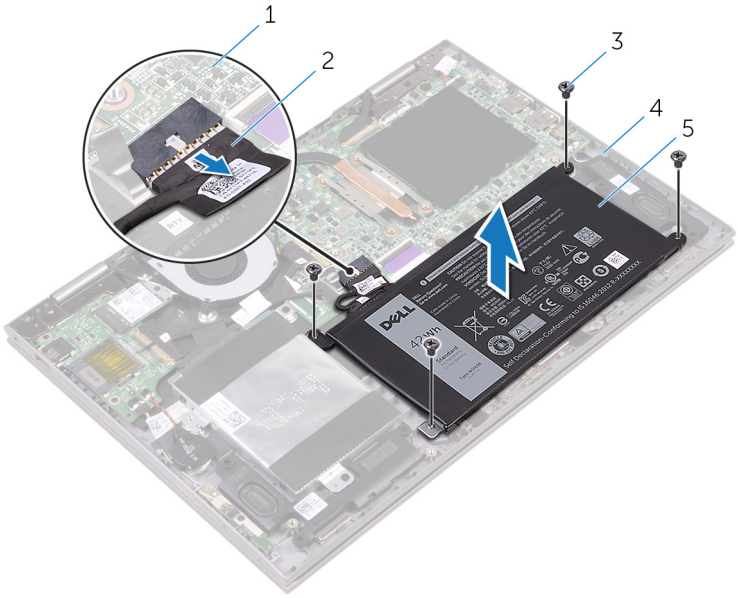

Figure 3. Battery

1. system board
2. battery cable
3. screws (4)
4. palm-rest assembly
5. battery

4. Press and hold the power button for five seconds to ground the system board.

6

Replacing the battery

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

1. Align the screw holes on the battery with the screw holes on the palm-rest assembly.
2. Replace the four screws (M2x3.0) that secure the battery to the palm-rest assembly.
3. Connect the battery cable to the system board.

Post-requisites

Replace the base cover.

7

Removing the memory modules

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.

Procedure

1. Lift the Mylar to access the memory module.

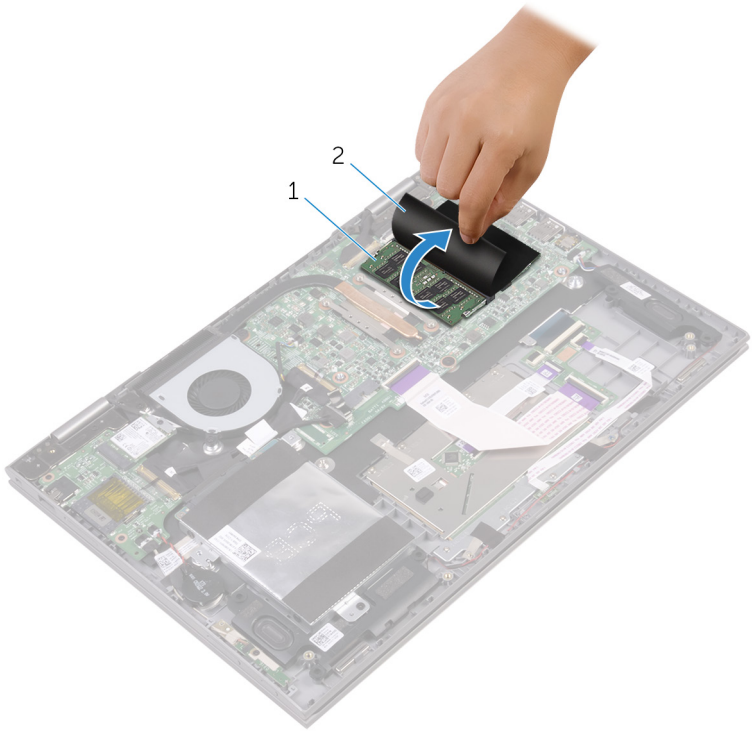

Figure 4. Memory module

a. memory module
b. Mylar

2. Use your fingertips to carefully spread apart the securing-clips on each end of the memory-module slot until the memory module pops up.
3. Remove the memory module from the memory-module slot.

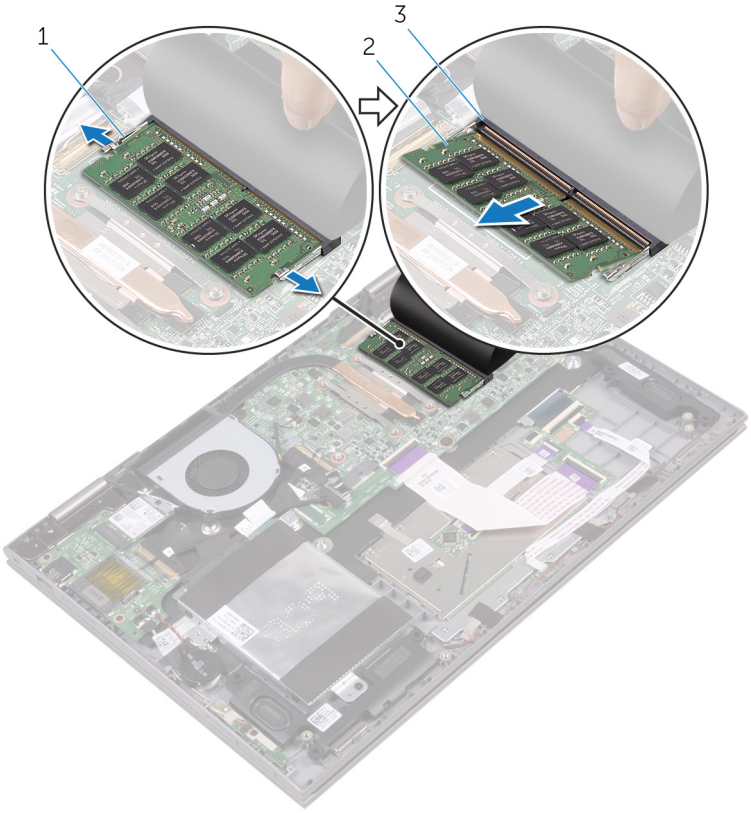

Figure 5. Memory module

a. securing clips (2)
b. memory module
c. memory-module slot

8

Replacing the memory modules

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

1. Lift the Mylar to access the memory-module slot.
2. Align the notch on the memory module with the tab on the memory-module slot.
3. Slide the memory module firmly into the slot at an angle and press the memory module down until it clicks into place.

   NOTE: If you do not hear the click, remove the memory module and reinstall it.

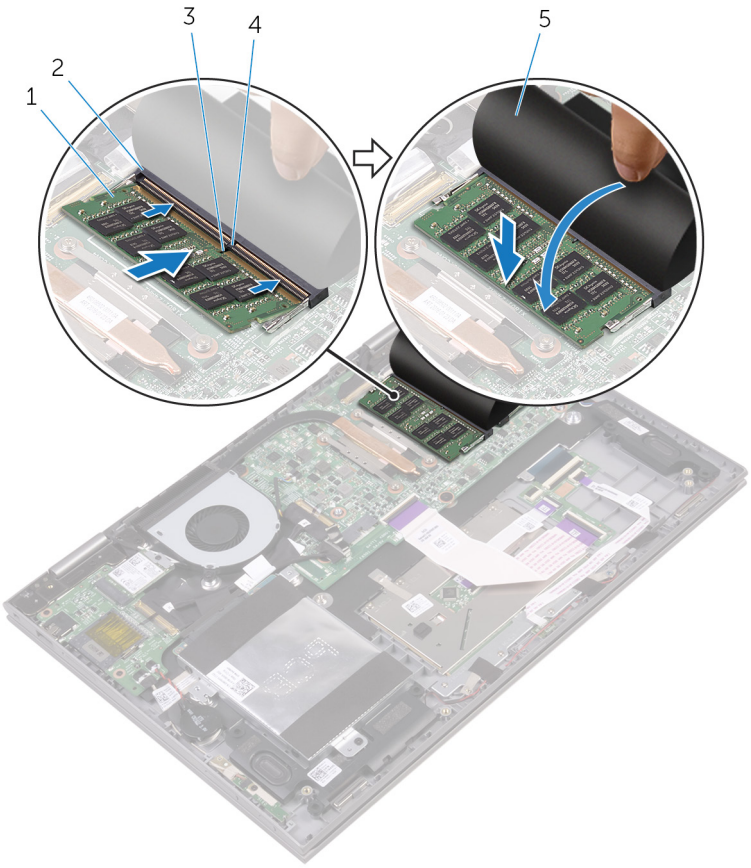

Figure 6. Memory module

1. memory module
2. memory-module slot
3. notch
4. tab
5. Mylar

Post-requisites

1. Replace the battery.
2. Replace the base cover.

9

Removing the hard drive

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

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

CAUTION: To avoid data loss, do not remove the hard drive while the computer is in sleep or on state.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.

Procedure

1. Peel off the tape that secures the hard-drive cable to the palm-rest assembly.
2. Using the pull tab, disconnect the hard-drive cable from the system board.
3. Remove the two screws (M2x3.5) that secure the hard-drive assembly to the palm-rest assembly.
4. Lift the hard-drive assembly, along with its cable, off the palm-rest assembly.

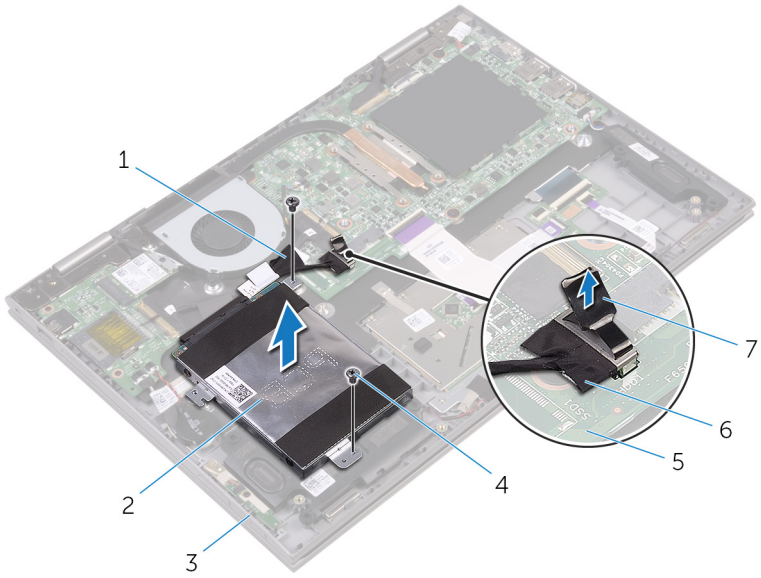

Figure 7. Hard drive

1. tape
2. hard-drive assembly
3. palm-rest assembly
4. screws (2)
5. system board
6. hard-drive cable

7. pull tab

5. Disconnect the interposer from the hard-drive assembly.

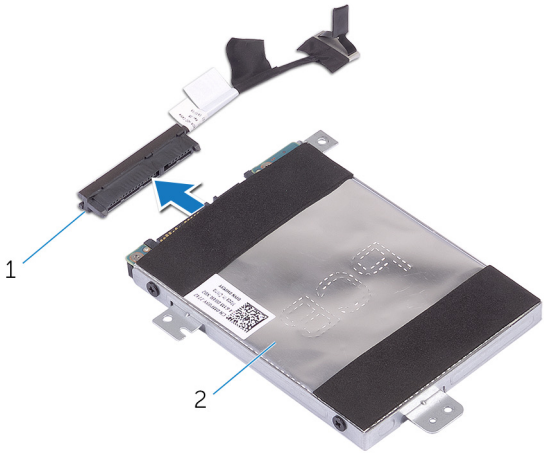

Figure 8. Hard drive

a. interposer
b. hard-drive assembly

6. Remove the four screws (M3x3) that secure the hard-drive bracket to the hard drive.
7. Lift the hard-drive bracket off the hard drive.

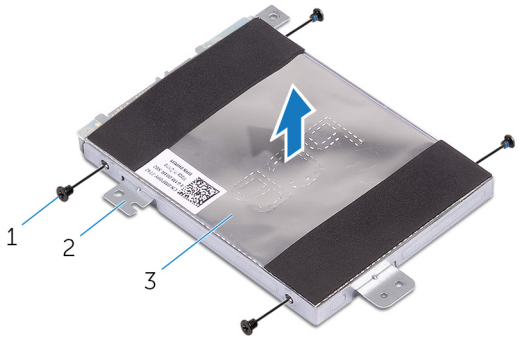

Figure 9. Hard drive

a. screws (4)
b. hard-drive bracket
c. hard drive

10

Replacing the hard drive

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

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

Topics:

- Procedure
- Post-requisites

Procedure

1. Align the screw holes on the hard-drive bracket with the screw holes on the hard drive.
2. Replace the four screws (M3x3) that secure the hard-drive bracket to the hard drive.
3. Connect the interposer to the hard-drive assembly.
4. Align the screw holes on the hard-drive assembly with the screw holes on the palm-rest assembly.
5. Replace the two screws (M2x3.5) that secure the hard-drive assembly to the palm-rest assembly.
6. Connect the hard-drive cable to the system board.
7. Adhere the tape that secures the hard-drive cable to the palm-rest assembly.

Post-requisites

1. Replace the battery.
2. Replace the base cover.

11

Removing the coin-cell battery

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

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

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.

Procedure

1. Disconnect the coin-cell battery cable from the I/O board.
2. Peel the coin-cell battery off the palm-rest assembly.

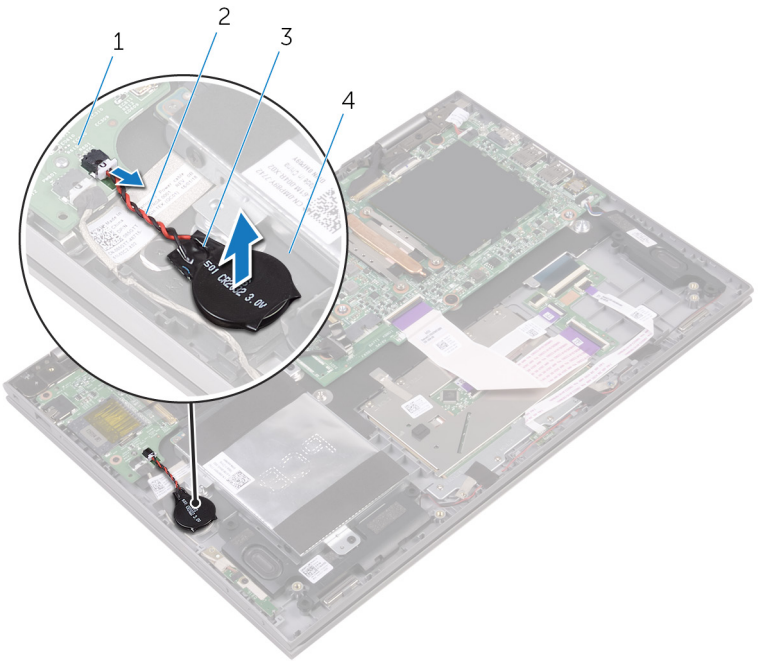

Figure 10. Coin-cell battery

1. I/O board
2. coin-cell battery cable
3. coin-cell battery
4. palm-rest assembly

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Replacing the coin-cell battery

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

1. Adhere the coin-cell battery to the palm-rest assembly.
2. Connect the coin-cell battery cable to the I/O board.

Post-requisites

1. Replace the battery.
2. Replace the base cover.

13

Removing the wireless card

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.

Procedure

1. Remove the screw (M2x3.5) that secures the wireless-card bracket to the wireless card.
2. Disconnect the antenna cables from the wireless card.
3. Slide and remove the wireless card from the wireless-card slot.

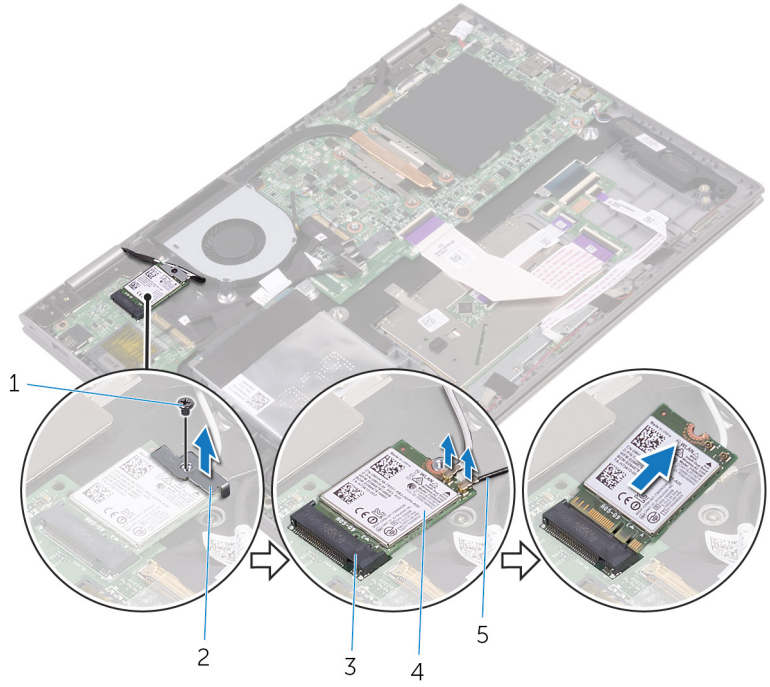


Figure 11. Wireless card

1. screw (M2x3.5)
2. wireless-card bracket
3. wireless-card slot
4. wireless card
5. antenna cables (2)

14

Replacing the wireless card

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

CAUTION: To avoid damage to the wireless card, do not place any cables under it.

1. Align the notch on the wireless card with the tab on the wireless-card slot.
2. Insert the wireless card at an angle into the wireless-card slot.
3. Connect the antenna cables to the wireless card.

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

Table 2. Wireless card

Connectors on the wireless card	Antenna-cable color
Main (white triangle)	White
Auxiliary (black triangle)	Black

4. Align the screw hole on the wireless card bracket with the screw hole on the wireless card.
5. Replace the screw (M2x3.5) that secures the wireless card bracket to the wireless card.

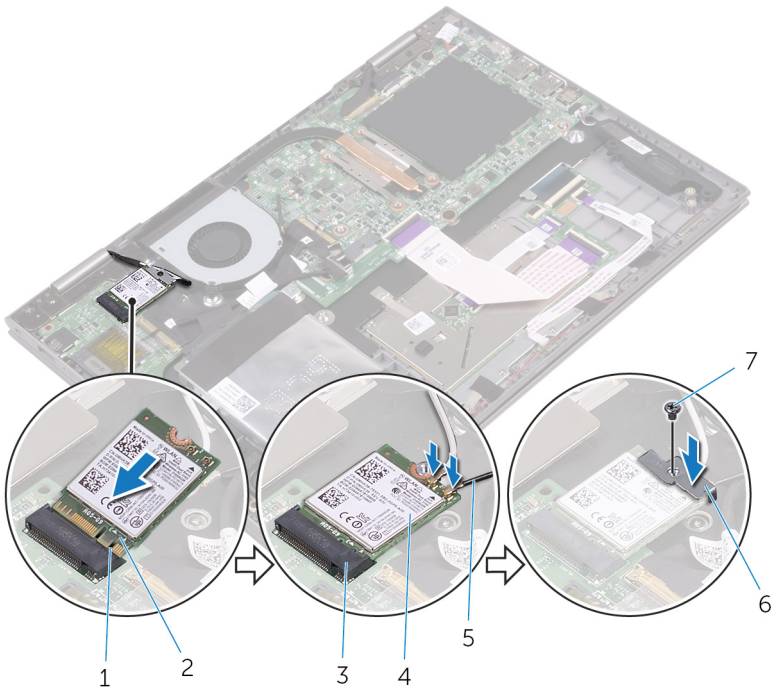


Figure 12. Wireless card

1. tab
2. notch
3. wireless-card slot
4. wireless card
5. antenna cables (2)
6. wireless card bracket
7. screw (M2x3.5)

Post-requisites

1. Replace the battery.
2. Replace the base cover.

15

Removing the keyboard daughter-board

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.

Procedure

1. Open the latches and disconnect the keyboard cable, keyboard daughter-board cable, touch-pad cable, and status-light board-cable from the keyboard daughter-board.
2. Using a plastic scribe, pry the keyboard daughter-board off the palm-rest assembly.

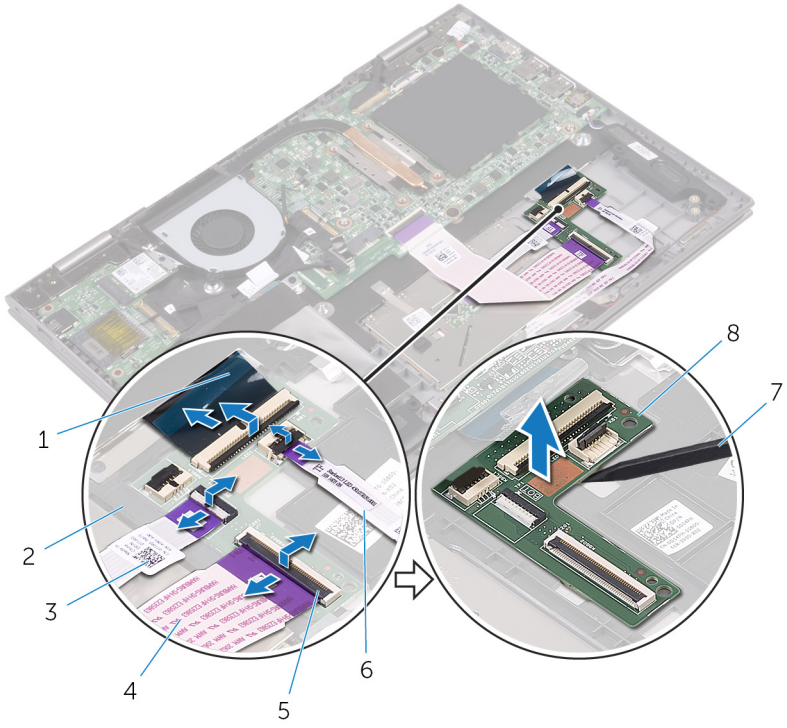


Figure 13. Keyboard daughter-board

1. keyboard cable
2. palm-rest assembly
3. touch-pad cable
4. keyboard daughter-board cable
5. latch
6. status-light board-cable
7. plastic scribe
8. keyboard daughter-board

16

Replacing the keyboard daughter-board

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

1. Adhere the keyboard daughter board on the palm-rest assembly.
2. Connect the keyboard cable, keyboard daughter-board cable, touch-pad cable, and status-light board-cable and close the latches to secure the cables.

Post-requisites

1. Replace the battery.
2. Replace the base cover.

17

Removing the speakers

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.

Procedure

1. Disconnect the speaker cable from the system board.
2. Peel off the pieces of tape that secure the speaker cable to the palm-rest assembly.
3. Remove the speaker cable from the routing guides on the palm-rest assembly.
4. Note the position of the rubber grommets before lifting the speaker.
5. Remove the speakers from the alignment posts and lift the speakers off the palm-rest assembly.

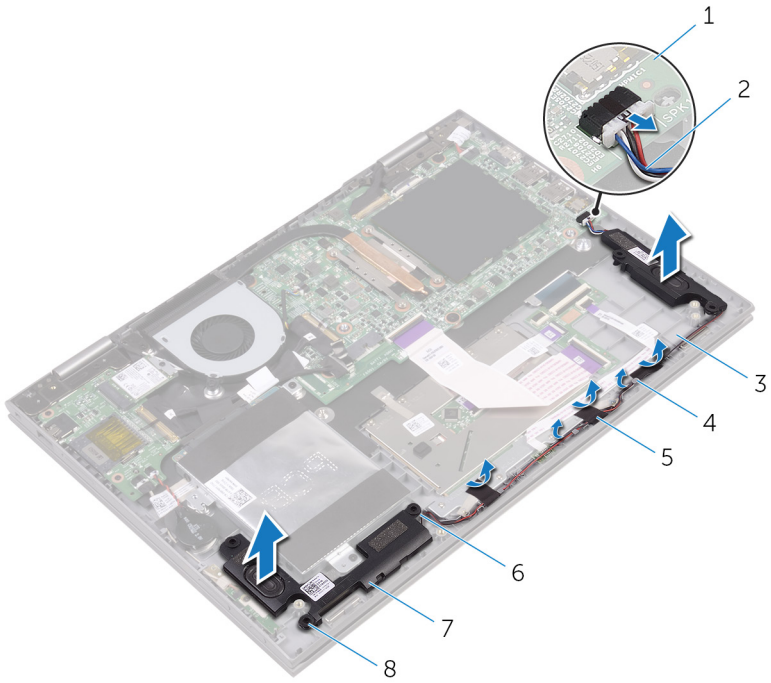


Figure 14. Speakers

1. system board
2. speaker cable
3. palm-rest assembly
4. routing guides
5. tape (3)
6. alignment posts

7. speakers (2)
8. rubber grommets (5)

18

Replacing the speakers

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

NOTE: The rubber grommets may get pushed out while replacing the speaker. Ensure that the rubber grommets are in their position after placing the speaker on the palm-rest assembly.

1. Using the alignment posts, align and place the speakers on the palm-rest assembly.
2. Replace the rubber grommets if they are pushed up while replacing the speaker.
3. Route the speaker cable through the routing guides on the palm-rest assembly.
4. Adhere the pieces of tape that secure the speaker cable to the palm-rest assembly.
5. Connect the speaker cable to the system board.

Post-requisites

1. Replace the battery.
2. Replace the base cover.

19

Removing the fan

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.

Procedure

1. Remove the two screws (M2x3.5) that secure the fan to the palm-rest assembly.
2. Disconnect the fan cable from the system board.
3. Lift the fan off the palm-rest assembly.

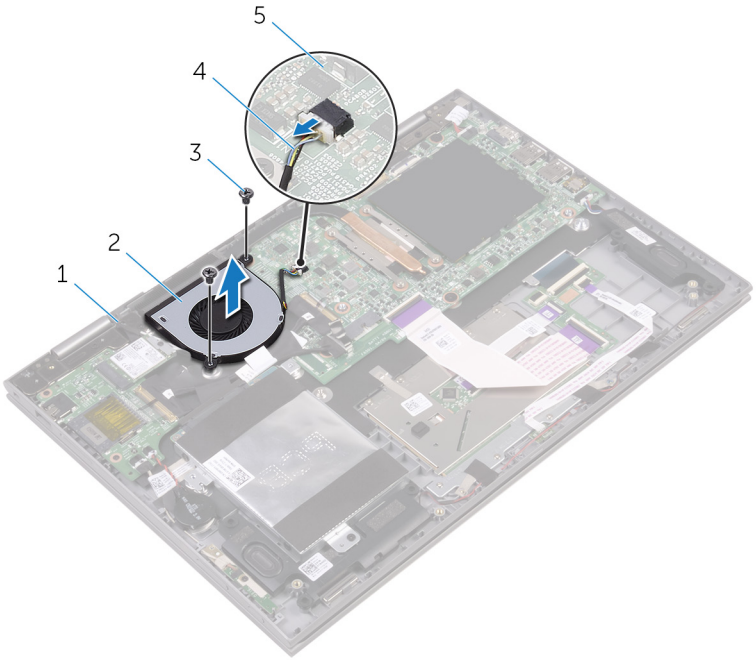


Figure 15. Fan

1. palm-rest assembly
2. fan
3. screws (2)
4. fan cable
5. system board

20

Replacing the fan

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

1. Align the screw holes on the fan with the screw holes on the palm-rest assembly.
2. Replace the two screws (M2x3.5) that secure the fan to the palm-rest assembly.
3. Connect the fan cable to the system board.

Post-requisites

1. Replace the battery.
2. Replace the base cover.

21

Removing the heat sink

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

NOTE: The heat sink may become hot during normal operation. Allow sufficient time for the heat sink to cool before you touch it.

CAUTION: For maximum cooling of the processor, do not touch the heat transfer areas on the heat sink. The oils in your skin can reduce the heat transfer capability of the thermal grease.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.

Procedure

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

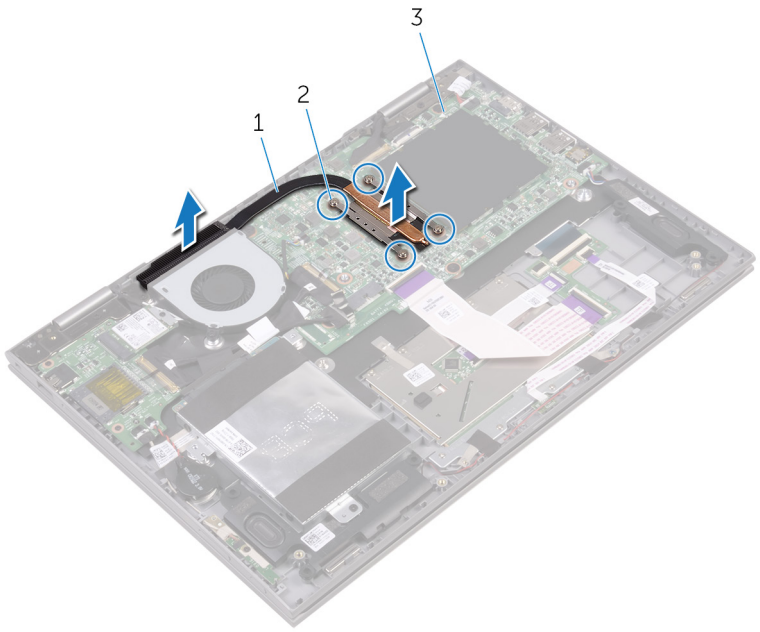


Figure 16. Heat sink

a. heat sink
b. captive screws
c. system board

22

Replacing the heat sink

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

CAUTION: Incorrect alignment of the heat sink can damage the system board and processor.

NOTE: If either the system board or the heat sink is replaced, use the thermal pad/paste provided in the kit to ensure that thermal conductivity is achieved.

Topics:

- Procedure
- Post-requisites

Procedure

1. Place the heat sink on the system board.
2. Align the screw holes on the heat sink with the screw holes on the system board.
3. In sequential order (indicated on the heat sink), tighten the four captive screws that secure the heat sink to the system board.

Post-requisites

1. Replace the battery.
2. Replace the base cover.

23

Removing the power and volume-buttons board

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.
3. Remove the hard drive.

Procedure

1. Peel off the tape that secures the power and volume-buttons board-cable to the palm-rest assembly.
2. Disconnect the power and volume-buttons board-cable from the I/O board.
3. Remove the power and volume-buttons board-cable from the routing guides on the palm-rest assembly.
4. Remove the screw (M2x3.5) that secures the power and volume-buttons board to the palm-rest assembly.
5. Lift the power and volume-buttons board off the palm-rest assembly.

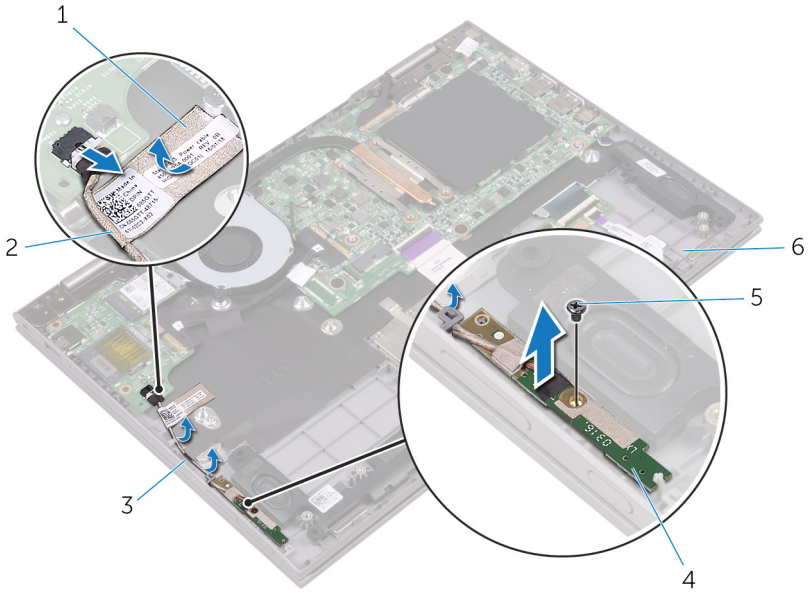


Figure 17. Power and volume-buttons board

1. tape
2. power and volume-buttons board-cable
3. routing guides (2)
4. power and volume-buttons board

5. screw (M2x3.5)
6. palm-rest assembly

24

Replacing the power and volume-buttons board

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

1. Align the screw hole on the power and volume-buttons board with the screw hole on the palm-rest assembly.
2. Replace the screw (M2x3.5) that secures the power and volume-buttons board to the palm-rest assembly.
3. Route the power and volume-buttons board-cable through the routing guides on the palm-rest assembly.
4. Connect the power and volume-buttons board-cable to the I/O board.
5. Adhere the tape that secure the power and volume-buttons board-cable to the palm-rest assembly.

Post-requisites

1. Replace the hard drive.
2. Replace the battery.
3. Replace the base cover.

25

Removing the status-light board

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.

Procedure

1. Peel the tape that secures the speaker cable to the palm-rest assembly.
2. Remove the speaker cable from the routing guides on the palm-rest assembly.
3. Lift the speaker cable off the status-light board.

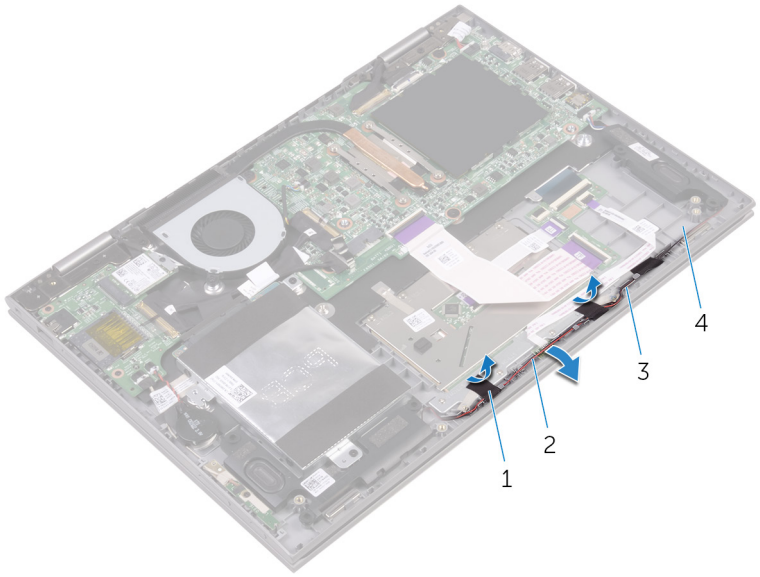
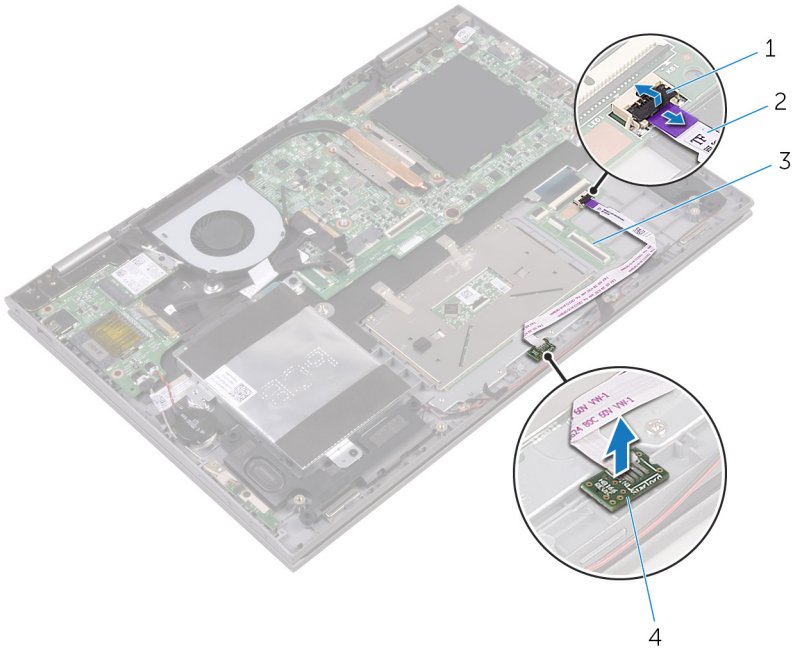


Figure 18. Status-light board

1. tape (2)
2. speaker cable
3. routing guides
4. palm-rest assembly

4. Open the latch and disconnect the status-light board-cable from the keyboard daughter-board.
5. Lift the status-light board off the palm-rest assembly.



1. latch
2. status-light board-cable
3. keyboard daughter-board
4. status-light board

26

Replacing the status-light board

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

1. Align and place the status-light board in the slot on the palm-rest assembly.
2. Slide the status-light board-cable into the connector on the keyboard daughter-board and close the latch to secure the cable.
3. Adhere the tape that secures the speaker cable to the palm-rest assembly.

Post-requisites

1. Replace the battery.
2. Replace the base cover.

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Removing the touchpad

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.
3. Remove the status-light board.

Procedure

1. Open the latches and disconnect the keyboard daughter-board cable from the keyboard daughter-board and the system board.
2. Open the latches and disconnect the touchpad cable from the touch pad and the keyboard daughter-board.

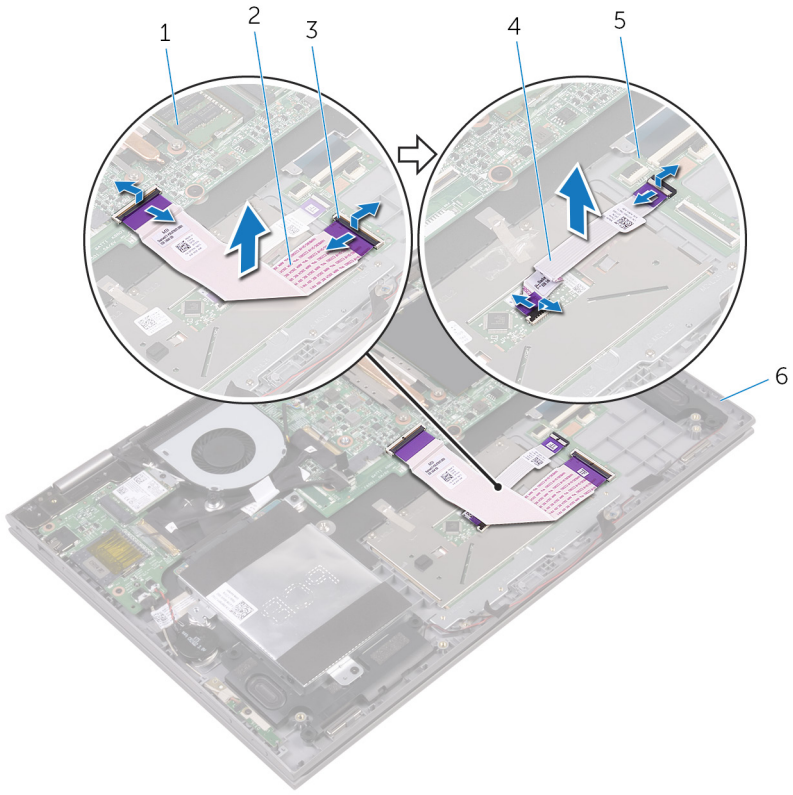

Figure 19. Touchpad

1. system board
2. keyboard daughter-board cable

3. latch
4. touchpad cable
5. keyboard daughter-board
6. palm-rest assembly

3. Peel off the pieces of tape that secure the touchpad to the palm-rest assembly.
4. Remove the four screws (M2x2) that secure the touchpad bracket to the palm-rest assembly.
5. Lift the touchpad bracket off the palm-rest assembly.

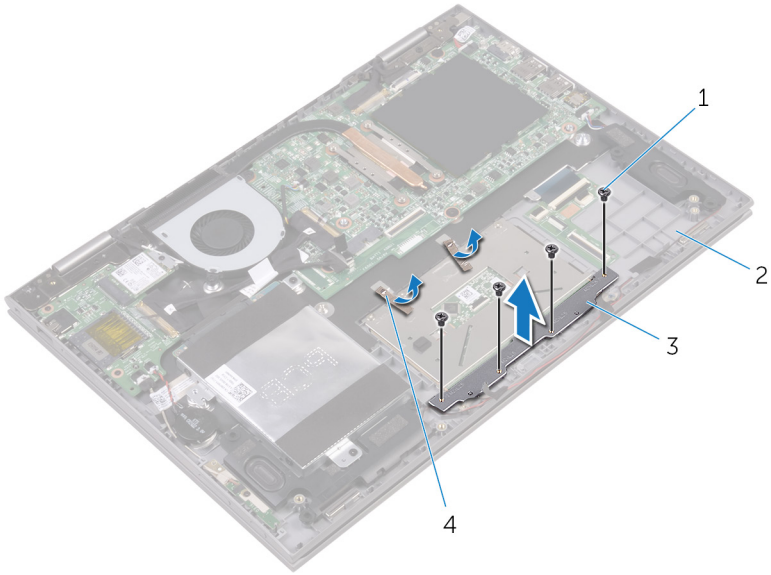

Figure 20. Touchpad

1. screws (M2x2)
2. palm-rest assembly
3. touchpad bracket
4. tape (2)

6. Remove the four screws (M2x2.5) that secure the touchpad to the palm-rest assembly.
7. Lift the touchpad off the palm-rest assembly.

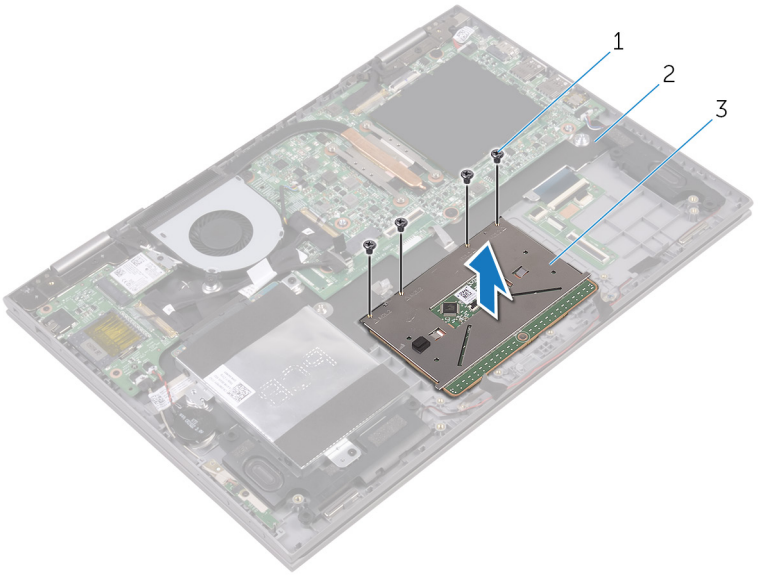

Figure 21. Touchpad

a. screws (4)
b. palm-rest assembly
c. touchpad

28

Replacing the touchpad

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

1. Place the touchpad on the palm-rest assembly.
2. Align the screw holes on the touchpad with the screw holes on the palm-rest assembly.
3. Replace the four screws (M2x2.5) that secure the touchpad to the palm-rest assembly.
4. Align the screw holes on the touch-pad bracket with the screw holes on the palm-rest assembly.
5. Replace the four screws (M2x2) that secure the touch-pad bracket to the palm-rest assembly.
6. Adhere the tapes that secure the touchpad to the palm-rest assembly.
7. Slide both ends of the touch-pad cable into their respective connectors on the touchpad and keyboard daughter-board and close the latches to secure the cable.
8. Slide the keyboard daughter-board cable into their respective connectors on the system board and keyboard daughter-board and close the latches to secure the cable.

Post-requisites

1. Replace the status-light board.
2. Replace the battery.
3. Replace the base cover.

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Removing the I/O board

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.
3. Remove the wireless card.

Procedure

1. Peel off the tape that secures the I/O-board cable to the I/O board.
2. Disconnect the I/O-board cable from the I/O board.
3. Peel off the tape that secures the power and volume-buttons board-cable to the palm-rest assembly.
4. Disconnect the power and volume-buttons board-cable from the I/O board.
5. Disconnect the coin-cell battery-cable from the I/O board.
6. Remove the two screws (M2x3.5) that secure the I/O board to the palm-rest assembly.
7. Lift the I/O board off the palm-rest assembly.

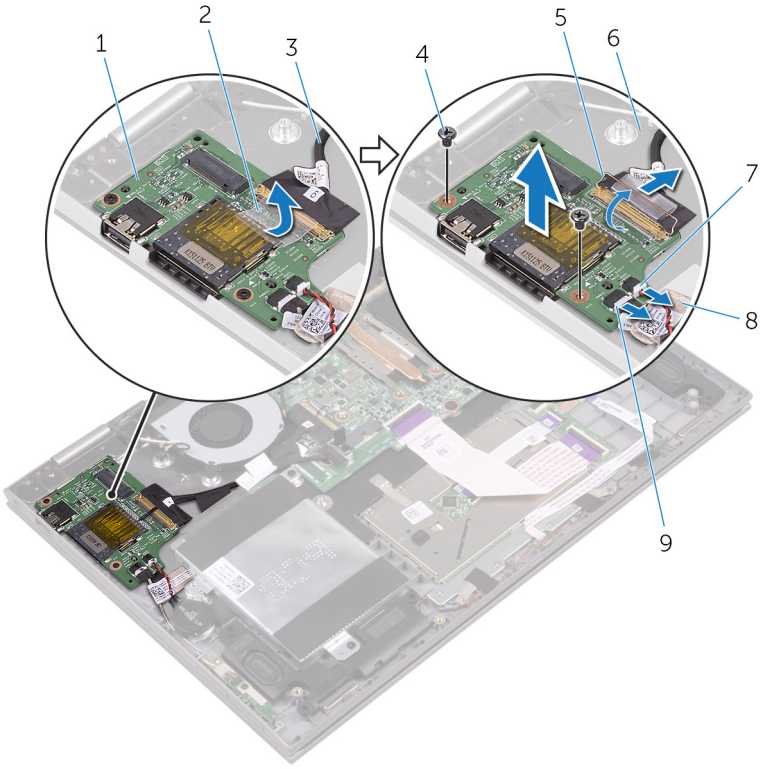

Figure 22. I/O-board

1. I/O board
2. tape
3. I/O-board cable
4. screws (2)
5. latch
6. palm-rest assembly
7. coin-cell battery-cable
8. tape
9. power and volume-buttons board-cable

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Replacing the I/O board

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

1. Place the I/O board on the palm-rest assembly.
2. Align the screw hole on the I/O board with the screw hole on the palm-rest assembly.
3. Replace the two screws (M2x3.5) that secure the I/O board to the palm-rest assembly.
4. Connect the power and volume-buttons board-cable and coin-cell battery-cable to the I/O board.
5. Connect the I/O-board cable to the I/O board.
6. Adhere the tape that secures the power and volume-buttons board-cable to the palm-rest assembly.
7. Adhere the tape that secures the I/O-board cable to the I/O board.

Post-requisites

1. Replace the wireless card.
2. Replace the battery.
3. Replace the base cover.

31

Removing the display assembly

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.
3. Remove the wireless card.

Procedure

1. Peel the tape that secures the display cable and touch-screen board-cable to the system board.
2. Open the latches to disconnect the display cable and the touch-screen board-cable from the system board.

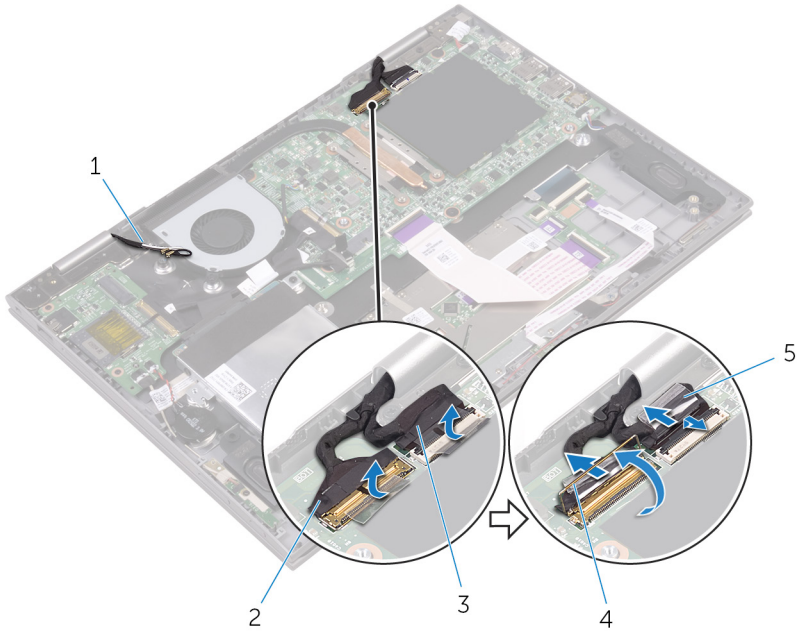

Figure 23. Display assembly

1. antenna cables (2)
2. display cable
3. touch-screen board-cable
4. latch
5. tape (2)

3. Turn the computer over and open the display as far as possible.

CAUTION: Place the computer on a soft and clean surface to avoid scratching the display.

4. Place the computer face down on a flat surface.

5. Remove the four screws (M2.5x2.5) that secure the display assembly to the palm-rest assembly.

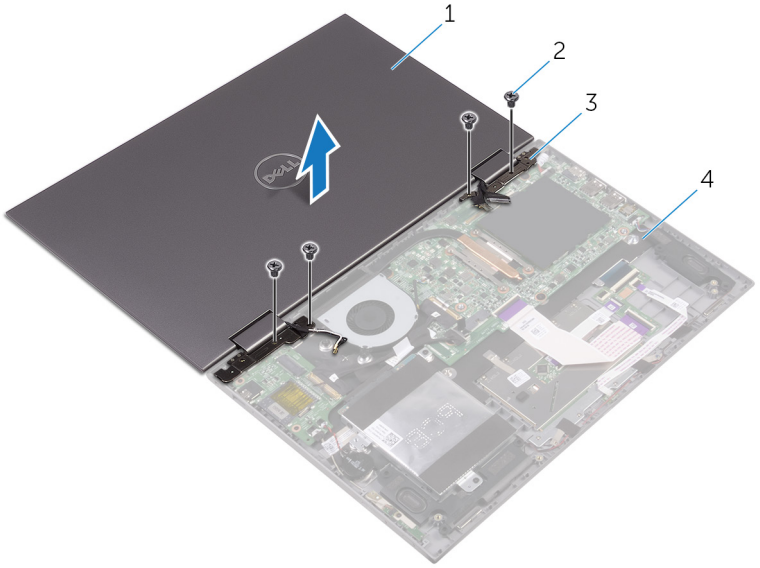

Figure 24. Display assembly

1. display assembly
2. screws (4)
3. display hinges (2)
4. palm-rest assembly

6. Lift the display assembly off the palm-rest assembly.

Figure 25. Display assembly

a. display assembly

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Replacing the display assembly

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

CAUTION: Place the computer on a soft and clean surface to avoid scratching the display.

1. Place the display assembly face down on the palm-rest assembly.
2. Align the screw holes on the display hinges with the screw holes on the palm-rest assembly.
3. Replace the four screws (M2.5x2.5) that secure the display assembly to the palm-rest assembly.
4. Close the display and turn the computer over.
5. Slide the display cable and the touch-screen board-cable into their respective connectors on the system board and close the latches to secure the cables.
6. Adhere the pieces of tape that secure the display cable and the touch-screen board-cable to their respective connectors on the system board.

Post-requisites

1. Replace the wireless card.
2. Replace the battery.
3. Replace the base cover.

33

Removing the power-adapter port

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.
3. Remove the wireless card.
4. Remove the display assembly.

Procedure

1. Disconnect the power-adapter port-cable from the system board.
2. Remove the screw (M2x3.5) that secures the power-adapter port to the palm-rest assembly.
3. Lift the power-adapter port off the palm-rest assembly.

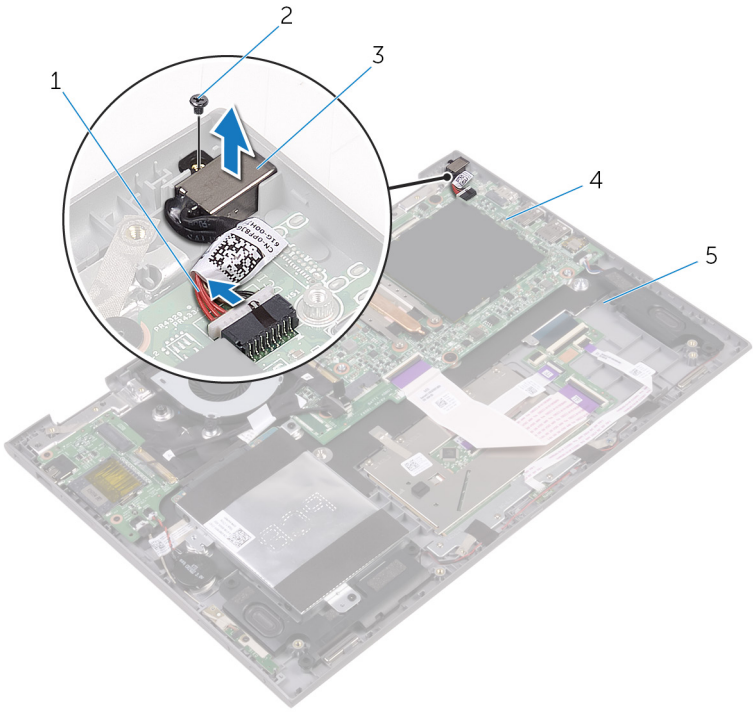

Figure 26. Power-adapter port

1. power-adapter port-cable
2. screw (M2x3.5)
3. power adapter port
4. system board

5. palm-rest assembly

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Replacing the power-adapter port

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

1. Place the power-adapter port into the slot on the palm-rest assembly.
2. Align the screw hole on the power-adapter port with the screw hole on the palm-rest assembly.
3. Replace the screw (M2x3.5) that secures the power-adapter port to the palm-rest assembly.
4. Connect the power-adapter port-cable to the system board.

Post-requisites

1. Replace the display assembly.
2. Replace the wireless card.
3. Replace the battery.
4. Replace the base cover.

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Removing the system board

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.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 setup program after you replace the system board.

NOTE: Replacing the system board removes any changes you have made to the BIOS using the BIOS setup program. You must make the appropriate changes again after you replace the system board.

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.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.
3. Remove the memory modules.
4. Remove the fan.
5. Remove the heat sink.

Procedure

1. Peel the tape that secures the display cable and touch-screen board-cable to the system board.
2. Peel the tape that secures the I/O-board cable to the system board.

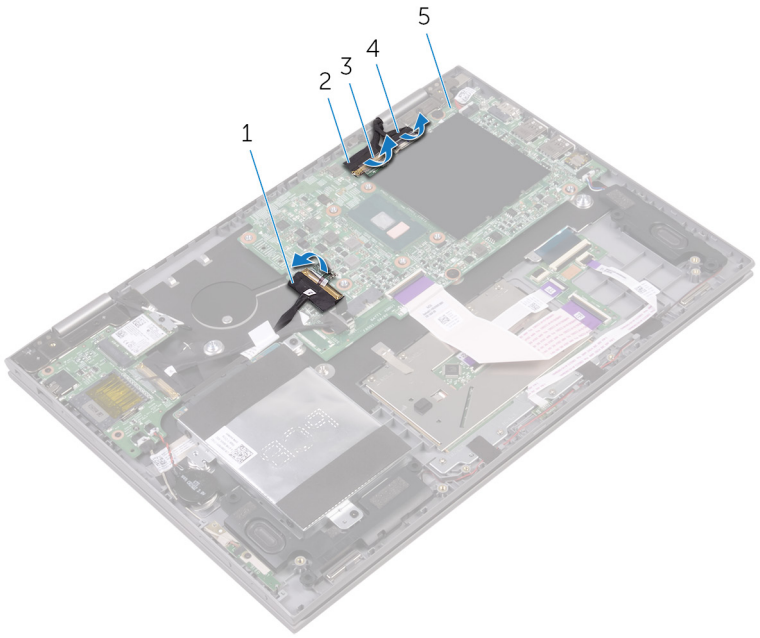

Figure 27. System board

1. I/O-board cable
2. display cable
3. tape (3)
4. touch-screen cable
5. system board

3. Open the latches to disconnect the display cable and the touch-screen board-cable from the system board.
4. Open the latch to disconnect the I/O-board cable from the system board.
5. Disconnect the power-adapter cable and the speaker cable from the system board.
6. Open the latch and disconnect the keyboard daughter-board cable from the system board.
7. Disconnect the hard-drive cable from the system board.

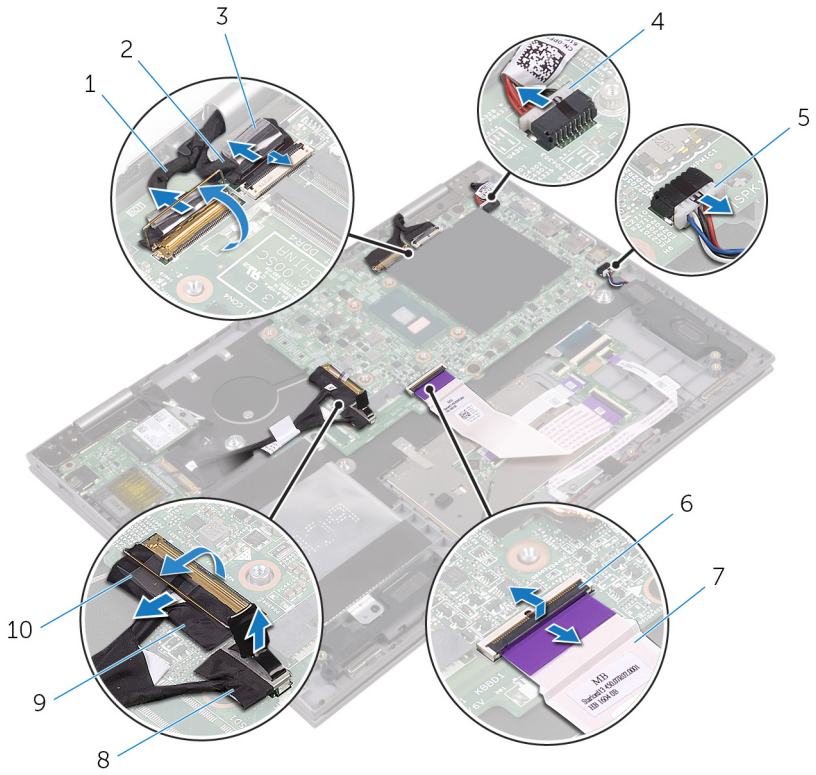

Figure 28. System board

1. display cable
2. touch-screen cable
3. tape
4. power adapter port-cable
5. speaker cable
6. latch
7. keyboard daughter-board cable
8. hard-drive cable
9. I/O-board cable
10. tape

8. Remove the three screws (M2x2 Big Head) that secure the system board to the palm-rest assembly.
9. Lift the system board off the palm-rest assembly.

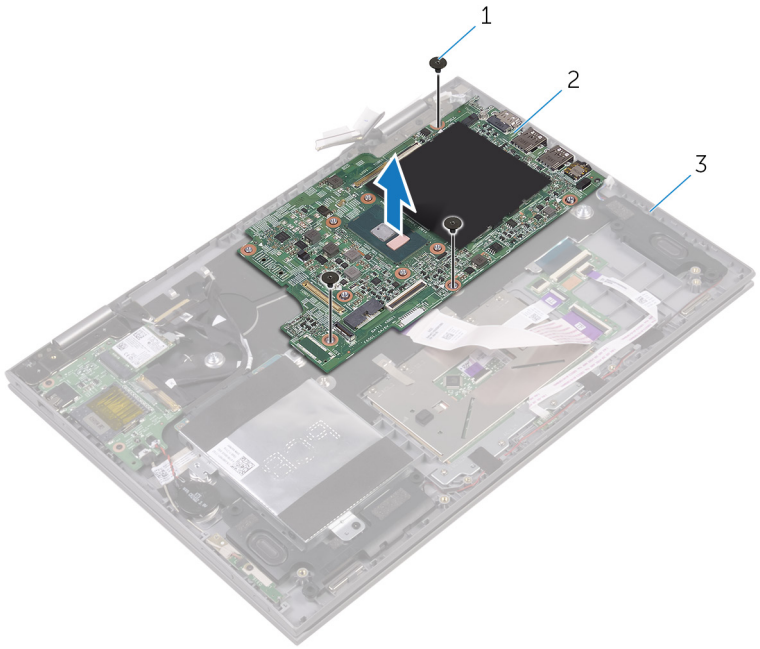

Figure 29. System board

a. screws (3)

b. system board
c. palm-rest assembly

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Replacing the system board

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.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 setup program after you replace the system board.

NOTE: Replacing the system board removes any changes you have made to the BIOS using the BIOS setup program. You must make the appropriate changes again after you replace the system board.

Topics:

- Procedure
- Post-requisites
- Entering the Service Tag in the BIOS setup program

Procedure

1. Align the screw holes on the system board with the screw holes on the palm-rest assembly.
2. Replace the three screws (M2x2 Big Head) that secures the system board to the palm-rest assembly.
3. Slide the I/O-board cable into the system-board connector close the latch to secure the cable.
4. Adhere the tape that secures the I/O-board cable to the system board.
5. Connect the power-adapter port-cable and the speaker cable to the system board.
6. Slide the keyboard daughter-board cable into the connector on the system board and close the latch to secure the cable.
7. Connect the hard-drive cable to the system board.
8. Slide the display cable and the touch-screen board-cable into their respective connectors and close the latches to secure the cables.
9. Adhere the tape that secures the display cable and touch-screen board-cable to the system board.

Post-requisites

1. Replace the heat sink.
2. Replace the fan.
3. Replace the memory modules.
4. Replace the battery.
5. Replace the base cover.

Entering the Service Tag in the BIOS setup program

1. Turn on or restart your computer.
2. Press F2 when the Dell logo is displayed to enter the BIOS setup program.
3. Navigate to the **Main** tab and enter the Service Tag in the **Service Tag Input** field.

NOTE: Service tag is the alphanumeric identifier located at the back side of your computer.

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Removing the display panel

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.
3. Remove the display assembly.

Procedure

1. Remove the display cable from the routing guides inside the hinge covers.
2. Using a plastic scribe, pry the display-panel assembly off the display back-cover and antenna assembly.

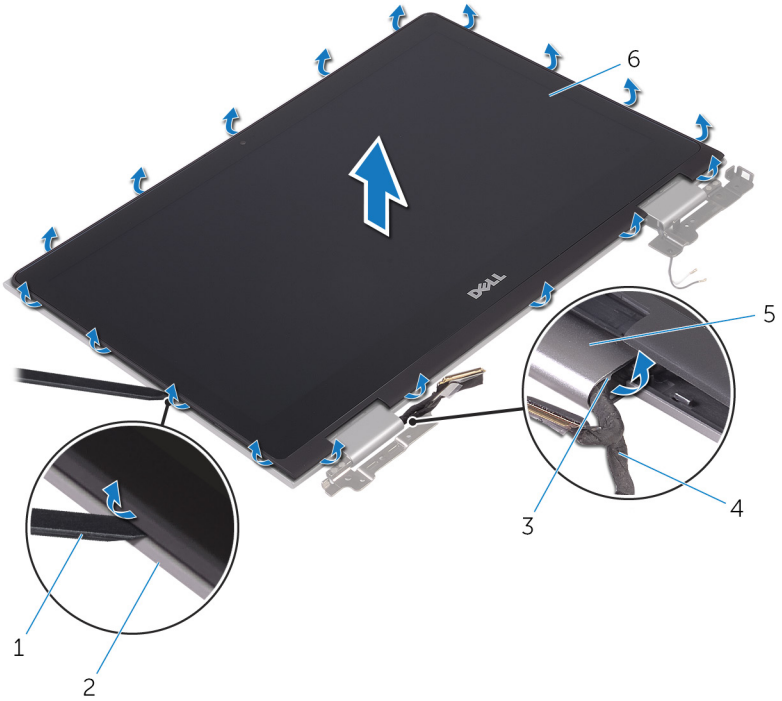

Figure 30. Display panel

1. plastic scribe
2. display back-cover
3. routing guides
4. display cable
5. hinge covers
6. display panel

3. Turn over the display-panel assembly.

4. Remove the camera.
5. Remove the sensor board.
   After performing the above steps, we are left with the display panel.

Figure 31. Display panel

a. display panel

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Replacing the display panel

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

1. Place the display panel on a flat surface.
2. Replace the sensor board.
3. Replace the camera.
4. Turn over the display-panel assembly.
5. Route the display cable through the routing guides inside the hinge covers.
6. Align the display-panel assembly with the display back-cover and antenna assembly and gently snap the display-panel assembly into place.

Post-requisites

1. Replace the display assembly.
2. Replace the battery.
3. Replace the base cover.

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Removing the palm-rest and keyboard assembly

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.
3. Remove the memory modules.
4. Remove the coin-cell battery.
5. Remove the hard drive.
6. Remove the wireless card.
7. Remove the keyboard daughter-board.
8. Remove the touchpad.
9. Remove the fan.
10. Remove the heat sink.
11. Remove the I/O board.
12. Remove the power and volume-buttons board.
13. Remove the status-light board.
14. Remove the speakers.
15. Remove the display assembly.
16. Remove the power-adapter port.
17. Remove the system board.

Procedure

After performing the steps in prerequisites we are left with the palm-rest and keyboard assembly.

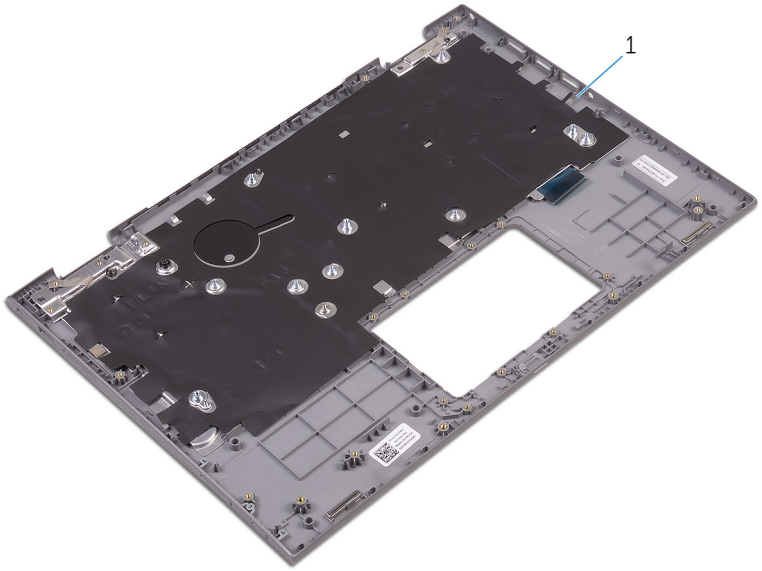

Figure 32. Palm rest

1. palm rest

40

Replacing the palm-rest and keyboard assembly

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

Place the palm-rest and keyboard assembly on a flat surface with the keyboard facing down.

Post-requisites

1. Replace the system board.
2. Replace the power-adapter port.
3. Replace the display assembly.
4. Replace the speakers.
5. Replace the status-light board.
6. Replace the power and volume-buttons board.
7. Replace the I/O board.
8. Replace the heat sink.
9. Replace the fan.
10. Replace the touchpad.
11. Replace the keyboard daughter-board.
12. Replace the wireless card.
13. Replace the hard drive.
14. Replace the coin-cell battery.
15. Replace the memory modules.
16. Replace the battery.
17. Replace the base cover.

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Removing the display back-cover and antenna assembly

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.
3. Remove the display assembly.
4. Follow the procedure from step 1 to 2 in "Removing the display panel".

Procedure

After performing the steps in prerequisites we are left with the display back-cover and antenna assembly.

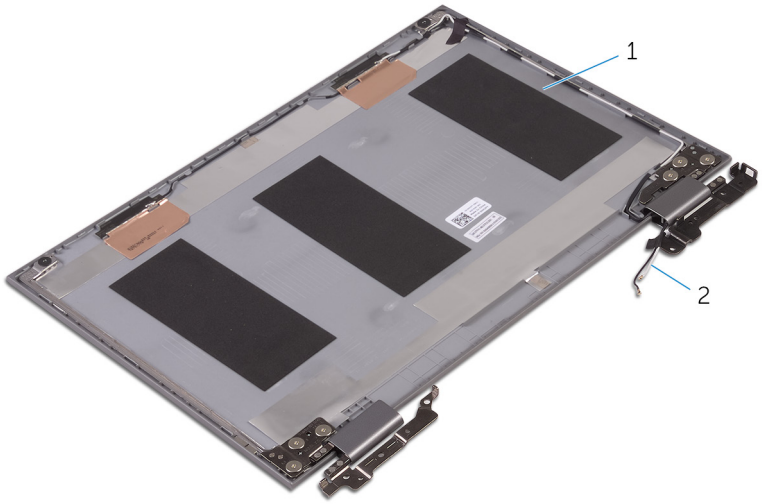

Figure 33. Display back-cover and antenna assembly

1. display back-cover and antenna assembly
2. antenna cables

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Replacing the display back-cover and antenna assembly

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

Place the display back-cover and antenna assembly on a flat surface.

Post-requisites

1. Replace the display panel.
2. Replace the display assembly.
3. Replace the battery.
4. Replace the base cover.

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Removing the camera

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.
3. Remove the display assembly.
4. Follow the procedure from step 1 to step 3 in "Removing the display panel".

Procedure

CAUTION: Place the display-panel assembly on a soft and clean surface to avoid scratching the display.

1. Using a plastic scribe, pry the camera module off the display panel.
2. Turn the camera over and peel off the tape to disconnect the camera cable from the camera module.

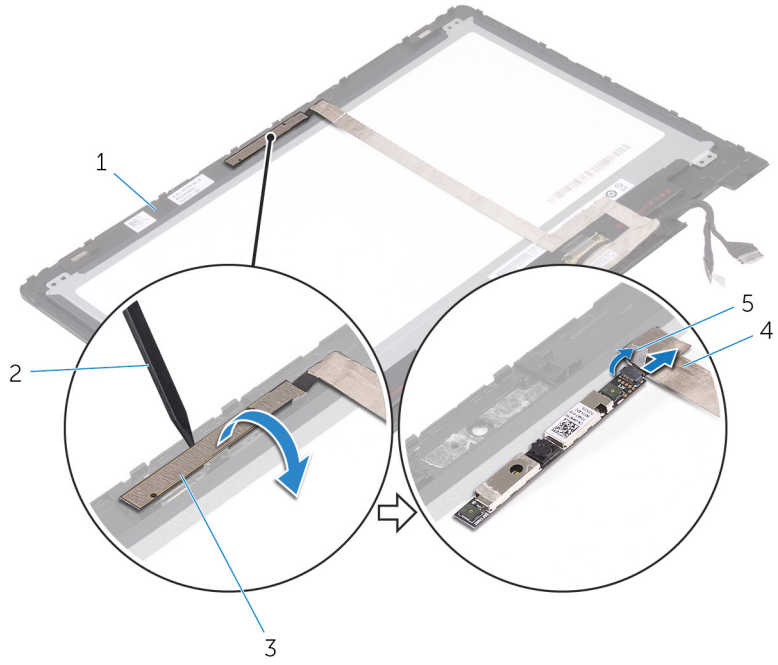

Figure 34. Camera

1. display panel
2. plastic scribe
3. camera module
4. camera cable

5. tape

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Replacing the camera

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

1. Connect the camera cable to the camera module.
2. Adhere the tape that secures the camera cable to the camera module.
3. Using the alignment post place the camera module on the display panel and snap it into place.

Post-requisites

1. Follow the procedure from step 4 to step 6 in "Replacing the display panel".
2. Replace the display assembly.
3. Replace the battery.
4. Replace the base cover.

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Removing the display cable

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.
3. Remove the display assembly.
4. Follow the procedure from step 1 to step 3 in "Removing the display panel".
5. Remove the camera.

Procedure

1. Peel off the tape and open the latch to disconnect the display cable from the display panel.
2. Peel off the sensor-board cable tape and disconnect the sensor-board cable.
3. Open the connector latch and disconnect the display cable.
4. Note the display cable routing and remove the display cable from the routing guides on the display panel.
5. Lift the display cable off the display panel.

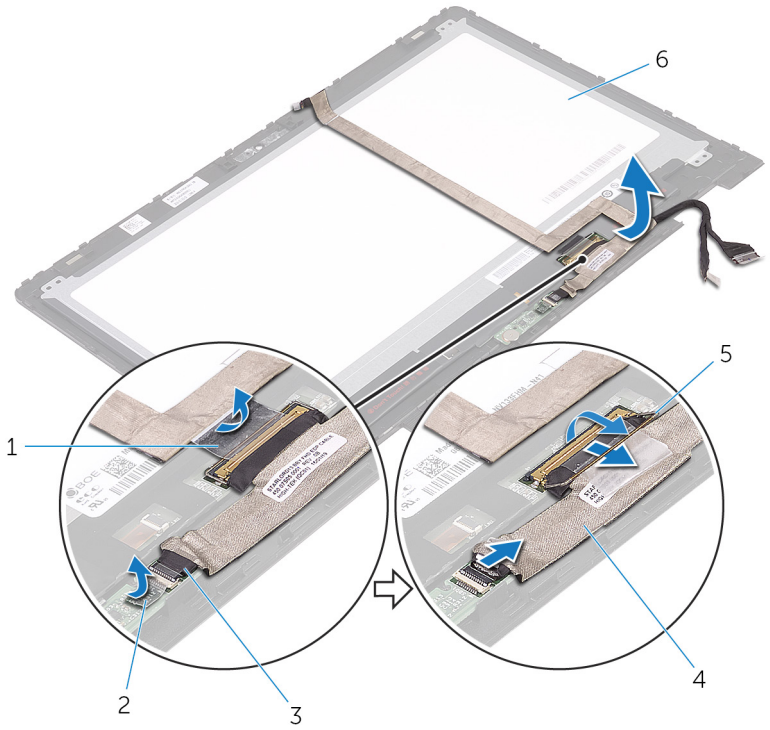

Figure 35. Display cable

1. tape
2. sensor-board cable tape
3. sensor-board cable
4. display cable
5. latch
6. display panel

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Replacing the display cable

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

1. Route the display cable through the routing guides on the display panel.
2. Slide the display cable into the connector and press down the latch to secure the cable.
3. Slide the sensor-board cable into the connector on the sensor board and press down the latch to secure the cable.
4. Adhere the sensor-board cable tape.
5. Adhere the tape that secures the display cable to the display panel.

Post-requisites

1. Follow the procedure from step 4 to step 6 in "Replacing the display panel".
2. Replace the display assembly.
3. Replace the camera.
4. Replace the battery.
5. Replace the base cover.

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Removing the sensor board

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Prerequisites
- Procedure

Prerequisites

1. Remove the base cover.
2. Remove the battery.
3. Remove the display assembly.
4. Follow the procedure from step 1 to step 3 in "Removing the display panel".

Procedure

CAUTION: Place the display-panel assembly on a soft and clean surface to avoid scratching the display.

1. Remove the screw (M2.5x2.5) that secures the sensor board to the display panel.
2. Peel off the tape and open the latch to disconnect the sensor-board cable from the sensor board.
3. Lift the sensor board off the display panel.

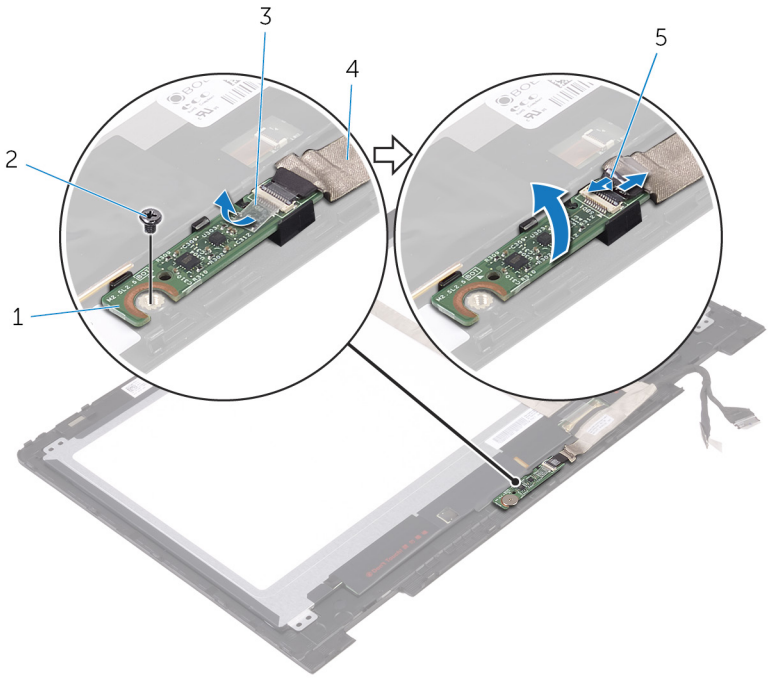

Figure 36. Sensor board

1. sensor board
2. screw

3. tape
4. sensor-board cable
5. latch

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Replacing the sensor board

NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Topics:

- Procedure
- Post-requisites

Procedure

1. Align the screw hole on the sensor board to the display panel and snap the sensor board in place.
2. Slide the sensor-board cable into the slot on sensor board and press down the latch to secure the cable.
3. Adhere the tape on the sensor-board connector to secure the cable.
4. Replace the screw (M2.5x2.5) that secures the sensor board to the display panel.

Post-requisites

1. Follow the procedure from step 4 to step 6 in "Replacing the display panel".
2. Replace the display assembly.
3. Replace the battery.
4. Replace the base cover.

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Downloading drivers

Downloading the audio driver

1. Turn on your computer.
2. Go to www.dell.com/support.
3. Click or tap **Product support**, enter the Service Tag of your computer and then click or tap **Submit**.

   NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.
4. Click or tap **Drivers & downloads** > **Find it myself**.
5. Scroll down the page and expand **Audio**.
6. Click or tap **Download** to download the audio driver for your computer.
7. After the download is complete, navigate to the folder where you saved the audio driver file.
8. Double-click or double-tap the audio driver file icon and follow the instructions on the screen to install the driver.

Downloading the graphics driver

1. Turn on your computer.
2. Go to www.dell.com/support.
3. Click or tap **Product Support**, enter the Service Tag of your computer and click or tap **Submit**.

   NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.
4. Click or tap **Drivers & downloads** > **Find it myself**.
5. Scroll down the page and expand **Video**.
6. Click or tap **Download** to download the graphics driver for your computer.
7. After the download is complete, navigate to the folder where you saved the graphics driver file.
8. Double-click or double-tap the graphics driver file icon and follow the instructions on the screen to install the driver.

Downloading the USB 3.0 driver

1. Turn on your computer.
2. Go to www.dell.com/support.
3. Click or tap **Product Support**, enter the Service Tag of your computer and click or tap **Submit**.

   NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.
4. Click or tap **Drivers & Downloads** > **Find it myself**.
5. Scroll down the page and expand **Chipset**.
6. Click or tap **Download** to download the USB 3.0 driver for your computer.
7. After the download is complete, navigate to the folder where you saved USB 3.0 driver file.
8. Double-click or double-tap the USB 3.0 driver file icon and follow the instructions on screen to install the driver.

Downloading the Wi-Fi driver

1. Turn on your computer.
2. Go to www.dell.com/support.
3. Click or tap **Product Support**, enter the Service Tag of your computer, and then click or tap **Submit**.

   NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.

4. Click or tap **Drivers & downloads** > **Find it myself**.
5. Scroll down the page and expand **Network**.
6. Click or tap **Download** to download the Wi-Fi driver for your computer.
7. After the download is complete, navigate to the folder where you saved the Wi-Fi driver file.
8. Double-click or double-tap the driver file icon and follow the on-screen instructions to install the driver.

Downloading the media-card reader driver

1. Turn on your computer.
2. Go to www.dell.com/support.
3. Click or tap **Product Support**, enter the Service Tag of your computer, and then click or tap **Submit**.

   NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.
4. Click or tap **Drivers & Downloads** > **Find it myself**.
5. Scroll down the page and expand **Chipset**.
6. Click or tap **Download** to download the media-card reader driver for your computer.
7. After the download is complete, navigate to the folder where you saved the media-card reader driver file.
8. Double-click or double-tap the card-reader driver file icon and follow the instructions on the screen to install the driver.

Downloading the chipset driver

1. Turn on your computer.
2. Go to www.dell.com/support.
3. Click or tap **Product Support**, enter the Service Tag of your computer, and then click or tap **Submit**.

   NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.
4. Click or tap **Drivers & downloads** > **Find it myself**.
5. Scroll down the page and expand **Chipset**.
6. Click or tap **Download** to download the appropriate chipset driver for your computer.
7. After the download is complete, navigate to the folder where you saved the chipset driver file.
8. Double-click or double-tap the chipset driver file icon and follow the instructions on the screen to install the driver.

Downloading the network driver

1. Turn on your computer.
2. Go to www.dell.com/support.
3. Click **Product support** enter the Service Tag of your computer and click **Submit**.

   NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.
4. Click **Drivers & downloads** > **Find it myself**.
5. Scroll down the page and expand **Network**.
6. Click **Download** to download the network driver for your computer.
7. Save the file, and after the download is complete, navigate to the folder where you saved the network driver file.
8. Double-click the network driver file icon and follow the instructions on screen.

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System setup

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

Topics:

- Boot Sequence
- Navigation keys
- System setup
- Entering BIOS setup program
- System setup options
- System and setup password

Boot Sequence

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

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

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

- Removable Drive (if available)
- STXXXX Drive

  NOTE: XXXX denotes the SATA drive number.
- Optical Drive (if available)
- SATA Hard Drive (if available)
- Diagnostics

  NOTE: Choosing Diagnostics, displays the ePSA diagnostics screen.

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

Navigation keys

NOTE: For most of the System Setup options, changes that you make are recorded but do not take effect until you restart the system.

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.
Enter	Selects a value in the selected field (if applicable) or follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
Tab	Moves to the next focus area.
Esc	Moves to the previous page until you view the main screen. Pressing Esc in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.

System setup

CAUTION: Unless you are an expert computer user, do not change the settings in the BIOS Setup program. Certain changes can make your computer work incorrectly.

NOTE: Before you change BIOS Setup program, it is recommended that you write down the BIOS Setup program screen information for future reference.

Use the BIOS Setup program for the following purposes:

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

Entering BIOS setup program

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 is 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 desktop. Then, turn off your computer and try again.

System setup options

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

Table 3. System setup options—System information menu

General-System Information	
System Information	
BIOS Version	Displays the BIOS version number.
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Displays the Asset Tag of the computer.
Ownership Tag	Displays the ownership tag of the computer.
Manufacture Date	Displays the manufacture date of the computer.
Ownership Date	Displays the ownership date of the computer.
Express Service Code	Displays the express service code of the computer.
Memory Information	
Memory Installed	Displays the total computer memory installed.
Memory Available	Displays the total computer memory available.
Memory Speed	Displays the memory speed.
Memory Channel Mode	Displays single or dual channel mode.
Memory Technology	Displays the technology used for the memory.
DIMM A Size	Displays the DIMM A memory size.
DIMM B Size	Displays the DIMM B memory size.
Processor Information	
Processor Type	Displays the processor type.
Core Count	Displays the number of cores on the processor.

General-System Information	
Processor ID	Displays the processor identification code.
Current Clock Speed	Displays the current processor clock speed.
Minimum Clock Speed	Displays the minimum processor clock speed.
Maximum Clock Speed	Displays the maximum processor clock speed.
Processor L2 Cache	Displays the processor L2 Cache size.
Processor L3 Cache	Displays the processor L3 Cache size.
HT Capable	Displays whether the processor is HyperThreading (HT) capable.
64-Bit Technology	Displays whether 64-bit technology is used.
Device Information	
SATA-0	Displays the SATA-0 device information of the computer.
SATA-2	Displays the SATA-2 device information of the computer.
M.2 PCIe SSD-0	Displays the M.2 PCIe SSD information of the computer.
Video Controller	Displays the video controller type of the computer.
dGPU Video Controller	Displays the discrete graphics information of the computer.
Video BIOS Version	Displays the video BIOS version of the computer.
Video Memory	Displays the video memory information of the computer.
Panel Type	Displays the Panel Type of the computer.
Native Resolution	Displays the native resolution of the computer.
Audio Controller	Displays the audio controller information of the computer.
Wi-Fi Device	Displays the wireless device information of the computer.
Bluetooth Device	Displays the bluetooth device information of the computer.
Battery Information	Displays the battery health information.
Boot Sequence	
Boot Sequence	Displays the boot sequence.
Boot List Option	Displays the available boot options.
Advanced Boot Options	
Enable Legacy Option ROMs	Enable or disable the Legacy Option ROMs.
Enable UEFI Network Stack	Enable or disable UEFI Network Stack.
UEFI Boot Path Security	Enable or disable the system to prompt the user to enter the Admin password when booting a UEFI boot path from the F12 boot menu.
Date/Time	Displays the current date in MM/DD/YY format and current time in HH:MM:SS AM/PM format.

Table 4. System setup options—System Configuration menu

System Configuration	
SATA Operation	Configure operating mode of the integrated SATA hard drive controller.
Drives	Enable or disable various drives on board.
SMART Reporting	Enable or disable SMART Reporting during system startup.
USB Configuration	
Enable Boot Support	Enable or disable booting from USB mass storage devices such as external hard drive, optical drive, and USB drive.

System Configuration	
Enable External USB Port	Enable or disable booting from USB mass storage devices connected to external USB port.
USB PowerShare	Enable or disable charging external devices through the USB PowerShare port.
Audio	Enable or disable the integrated audio controller.
Keyboard Illumination	Configure the operating mode of the keyboard illumination feature.
Keyboard Backlight with AC	Enable or disable the keyboard backlight.
Miscellaneous Devices	Enable or disable various onboard devices.
Enable Camera	Enable or disable the camera.
Enable Secure Digital (SD) Card	Enable or disable the SD card.

Table 5. System setup options—Video menu

Video	
LCD Brightness	Set the panel brightness independently for Battery and AC power.

Table 6. System setup options—Security menu

Security	
Strong Password	Enable or disable strong passwords.
Password Configuration	Control the minimum and maximum number of characters allowed for Admin and System passwords.
Password Bypass	Bypass the System (Boot) Password and the internal HDD password prompts during a system restart.
Password Change	Enable or disable changes to the System and Hard Disk passwords when an administrator password is set.
Non-Admin Setup Changes	Determines whether changes to the setup option are permitted when an administrator password is set.
UEFI Capsule Firmware Updates	Enable or disable BIOS updates through UEFI capsule update packages.
PTT Security	Enable or disable Platform Trust Technology (PTT) visibility to the operating system.
Computrace(R)	Enable or disable the BIOS module interface of the optional Computrace(R) Service from Absolute Software.
CPU XD Support	Enable or disable the Execute Disable mode of the Processor.
Admin Setup Lockout	Enable to prevent users from entering Setup when an Admin Password is set.

Table 7. System setup options—Secure Boot menu

Secure Boot	
Secure Boot Enable	Enable or disable the secure boot feature.
Expert Key Management	
Expert Key Management	Enable or disable Expert Key Management.
Custom Mode Key Management	Select the custom values for expert key management.

Table 8. System setup options—Intel Software Guard Extensions menu

Intel Software Guard Extensions	
Intel SGX Enable	Enable or disable Intel Software Guard Extensions.
Enclave Memory Size	Set the Intel Software Guard Extensions Enclave Reserve Memory Size.
Performance	
Multi Core Support	Enable multiple cores.

Intel Software Guard Extensions	
	Default: Enabled.
Intel SpeedStep	Enable or disable Intel Speedstep Technology. Default: Enabled. **NOTE: If enabled, the processor clock speed and core voltage are adjusted dynamically based on the processor load.**
C-States Control	Enable or disable additional processor sleep states. Default: Enabled.
Intel TurboBoost	Enable or disable Intel TurboBoost mode of the processor. Default: Enabled.
HyperThread control	Enable or disable HyperThreading in the processor. Default: Enabled.
Power Management	
AC Behavior	Enables the system to turn on automatically, when AC is inserted.
Enable Intel Speed Shift Technology	Enable or disable Intel Speed Shift Technology.
Auto on Time	Enable to set the computer to turn on automatically every day or on a preselected date and time. This option can be configured only if the Auto On Time is set to Everyday, Weekdays or Selected Days. Default: Disabled.
USB Wake Support	Enable the USB devices to wake the computer from Standby.
Advanced Battery Charge Configuration	Enable Advanced Battery Charge Configuration from the beginning of the day to a specified work period.
Primary Battery Charge Configuration	Set the primary battery charge settings with a preselected custom charge start and stop. Default: Adaptive.
POST Behavior	
Adapter Warnings	Enable adapter warnings. Default: Enabled.
Numlock Enable	Enable or disable Numlock. Default: Enable Numlock.
Fn Lock Options	Enable or disable the Fn lock mode.
Fastboot	Enable to set the speed of the boot process. Default: Thorough.
Extend BIOS POST Time	Configure additional pre-boot delay.
Pull Screen Logo	Enable or disable to display full screen logo.
Warnings and Errors	Select an action on encountering a warning or error.

Table 9. System setup options—Virtualization Support menu

Virtualization Support	
Virtualization	Specify whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization Technology.
VT for Direct I/O	Specify whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization Technology for Direct I/O.

Table 10. System setup options—Wireless menu

Wireless	
Wireless Switch	Determine which wireless devices can be controlled by the Wireless Switch.
Wireless Device Enable	Enable or disable internal wireless devices.

Table 11. System setup options—Maintenance menu

Maintenance	
Service Tag	Display the system's Service Tag.
Asset Tag	Create a system Asset Tag.
BIOS Downgrade	Control flashing of the system firmware to previous revisions.
Data Wipe	Enable to securely erase data from all internal storage devices.
BIOS Recovery	Enable the user to recover from certain corrupted BIOS conditions from a recovery file on the user primary hard drive or an external USB key.

Table 12. System setup options—System Logs menu

System Logs	
BIOS Events	Display BIOS events.
Thermal Events	Display Thermal events.
Power Events	Display Power events.

Table 13. System setup options—SupportAssist System Resolution menu

SupportAssist System Resolution	
Auto OS Recovery Threshold	Control the automatic boot flow for SupportAssist System Resolution Console and for Dell OS Recovery tool.
SupportAssist OS Recovery	Enable or disable the boot flow for SupportAssist OS Recovery tool in the even of certain system errors.

System and setup password

Table 14. System and setup password

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

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

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

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

NOTE: System and setup password feature is disabled.

Assigning a system setup password

You can assign a new **System or Admin Password** only when the status is in **Not Set**.

To enter the system setup, press F2 immediately after a power-on or reboot.

1. In the **System BIOS** or **System Setup** screen, select **Security** and press **Enter**.

The **Security** screen is displayed.

2. Select **System/Admin Password** and create a password in the **Enter the new password** field.
   Use the following guidelines to assign the system password:
   - A password can have up to 32 characters.
   - The password can contain the numbers 0 through 9.
   - Only lower case letters are valid, upper case letters are not allowed.
   - Only the following special characters are allowed: space, ("), (+), (,), (-), (.), (/), (;), ([), (\), (]), (`).
3. Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
4. Press Esc and a message prompts you to save the changes.
5. Press Y to save the changes.
   The computer reboots.

Deleting or changing an existing system setup password

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

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

1. In the **System BIOS** or **System Setup** screen, select **System Security** and press **Enter**.
   The **System Security** screen is displayed.
2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.
3. Select **System Password**, alter or delete the existing system password and press **Enter** or Tab.
4. Select **Setup Password**, alter or delete the existing setup password and press **Enter** or Tab.

   NOTE: If you change the System and/or Setup password, re enter the new password when prompted. If you delete the System and Setup password, confirm the deletion when prompted.
5. Press Esc and a message prompts you to save the changes.
6. Press Y to save the changes and exit from System Setup.
   The computer restarts.

Clearing CMOS settings

CAUTION: Clearing CMOS settings resets the BIOS settings on your computer.

1. Remove the base cover.
2. Remove the battery.
3. Disconnect the coin-cell battery.
4. Wait for one minute.
5. Connect the coin-cell battery.
6. Replace the battery.
7. Replace the base cover.

Clearing BIOS (System Setup) and System passwords

Contact Dell technical support to clear the forgotten passwords. For more information, see www.dell.com/contactdell.

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Troubleshooting

Flashing the BIOS

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

Follow these steps to flash the BIOS:

1. Turn on your computer.
2. Go to www.dell.com/support.
3. Click **Product support**, enter the Service Tag of your computer, and then click **Submit**.

   NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.
4. Click **Drivers & downloads** > **Find it myself**.
5. Select the operating system installed on your computer.
6. Scroll down the page and expand **BIOS**.
7. Click **Download** to download the latest version of the BIOS for your computer.
8. After 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.

Enhanced Pre-Boot System Assessment (ePSA) diagnostics

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

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

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

Running the ePSA Diagnostics

Invoke diagnostics boot by either of the methods that are suggested below:

1. Power on the computer.
2. As the computer boots, press the F12 key when the Dell logo is displayed.
3. In the boot menu screen, use Up/Down arrow key to select the **Diagnostics** option and then press **Enter**.

   NOTE: The Enhanced Pre-boot System Assessment window displays, listing all devices detected in the computer. The diagnostics starts running the tests on all the detected devices.
4. Press the arrow in the lower-right corner to go to the page listing.
   The detected items are listed and tested.
5. To run a diagnostic test on a specific device, press Esc and click **Yes** to stop the diagnostic test.
6. Select the device from the left pane and click **Run Tests**.
7. If there are any issues, error codes are displayed.

Note the error code and contact Dell.

System diagnostic lights

Power and battery-status light/hard-drive activity light: Indicates the battery-charge status or the hard-drive activity.

NOTE: Press Fn+H to toggle this light between power and battery-status light and hard-drive activity light.

Hard-drive activity light

Turns on when the computer reads from or writes to the hard drive.

Power and battery-status light

Indicates the power and battery-charge status.

Solid white – Power adapter is connected and the battery has more than 5 percent charge.

Amber – Computer is running on battery and the battery has less than 5 percent charge.

Off

- Power adapter is connected and the battery is fully charged.
- Computer is running on battery and the battery has more than 5 percent charge.
- Computer is in sleep state, hibernation, or turned off.

The power and battery-status light blinks amber along with beep codes indicating failures.

For example, the power and battery-status light blinks amber two times followed by a pause, and then blinks white three times followed by a pause. This 2,3 pattern continues until the computer is turned off indicating no memory or RAM is detected.

The following table shows different light patterns, what they indicate, and the suggested solutions.

Table 15. System diagnostic lights

Light pattern	Problem description
2,1	CPU failure
2,2	System board: BIOS and ROM failure
2,3	No memory or RAM detected
2,4	Memory or RAM failure
2,5	Invalid memory installed
2,6	System board or chipset error
2,7	LCD failure
3,1	CMOS battery failure
3,2	PCI or video card or chip failure
3,3	Recovery image not found
3,4	Recovery image found but invalid

The computer may emit a series of beeps during start-up if the errors or problems cannot be displayed. The repetitive beep codes help the user troubleshoot problems with the computer.

Camera status light: Indicates whether the camera is in use.

- Solid white – Camera is in use.
- Off – Camera is not in use.

Caps Lock status light: Indicates whether Caps Lock is enabled or disabled.

- Solid white – Caps Lock enabled.
- Off – Caps Lock disabled.

Flea power release

Flea power is the residual static electricity that remains on the computer even after it has been powered off and the battery has been removed. The following procedure list the steps to conduct a flea power release for the computer.

1. Shut down the computer.
2. Remove the base cover.
3. Follow step 1 in "Removing the battery".
4. Press and hold down the power button for 15 seconds to ground the system board.
5. Follow step 3 in "Replacing the battery".
6. Replace the base cover.
7. Turn on the computer.

WiFi power cycle

If your computer is unable to access the Internet due to WiFi connectivity issues, a WiFi power cycle procedure may be performed. The following procedure provides the instructions on how to conduct a WiFi power cycle:

NOTE: Some ISPs (Internet Service Providers) provide a modem/router combo device.

1. Turn off your computer.
2. Turn off the modem.
3. Turn off the wireless router.
4. Wait for 30 seconds.
5. Turn on the wireless router.
6. Turn on the modem.
7. Turn on your computer.

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Getting help and contacting Dell

Self-help resources

You can get information and help on Dell products and services using these self-help resources:

Table 16. Self-help resources.

Information about Dell products and services	www.dell.com
Windows 8.1 and Windows 10	Dell Help & Support app
Windows 10	Get started app
Windows 8.1	Help + Tips app
Accessing help in Windows 8, Windows 8.1, and Windows 10	In Windows search, type `Help and Support`, and press Enter.
Accessing help in Windows 7	Click **Start** > **Help and Support**.
Online help for operating system	www.dell.com/support/windows www.dell.com/support/linux
Troubleshooting information, user manuals, setup instructions, product specifications, technical help blogs, drivers, software updates, and so on.	www.dell.com/support
Learn about your operating system, setting up and using your computer, data backup, diagnostics, and so on.	See *Me and My Dell* at www.dell.com/support/manuals.

Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see www.dell.com/contactdell.

NOTE: Availability varies by country and product, and some services may not be available in your country.

NOTE: If you do not have an active internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.