

Inspiron 24 5000

Service Manual

Computer Model: Inspiron 24-5488
Regulatory Model: W12C
Regulatory Type: W12C007



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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Before working inside your computer



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

Before you begin

- 1 Save and close all open files and exit all open applications.
- 2 Shut down your computer. Click **Start** →  **Power** → **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.
- 6 After the computer is unplugged, press and hold the power button for 5 seconds to ground the system board.

Safety instructions

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









WARNING: 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.



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



-  **CAUTION:** To avoid damaging the computer, ensure that the work surface is flat and clean.
-  **CAUTION:** To avoid damaging the components and cards, handle them by their edges, and avoid touching pins and contacts.
-  **CAUTION:** 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 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.













Recommended tools

The procedures in this document may require the following tools:



- Phillips screwdriver
- Plastic scribe

Screw list

Table 1. Screw list

Component	Secured to	Screw type	Quantity	Screw image
Stand	Back cover	M4x6	4	
Optical-drive assembly	Middle-frame base	M3x5	1	
Optical-drive bracket	Optical drive	M2x2.5	1	
Hard-drive assembly	Middle-frame base	M3x5	1	
Hard-drive bracket	Hard drive	M3x3.5	3	
Wireless-card bracket	Wireless card	M2x2.5	1	
Heat sink	Middle-frame base	M3x5	1	
Fan	Middle-frame base	M3x5	2	
VESA-mount bracket	Middle-frame base	M3x5	4	
System board	Middle-frame base	M3x5	5	
Speaker cover	Middle-frame base	M3x3	4	
Middle-frame base	Display assembly	M3x5	16	



Component	Secured to	Screw type	Quantity	Screw image
Middle-frame base	Display panel	M3x3	4	
Rubber feet	Display assembly	M3x5	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.

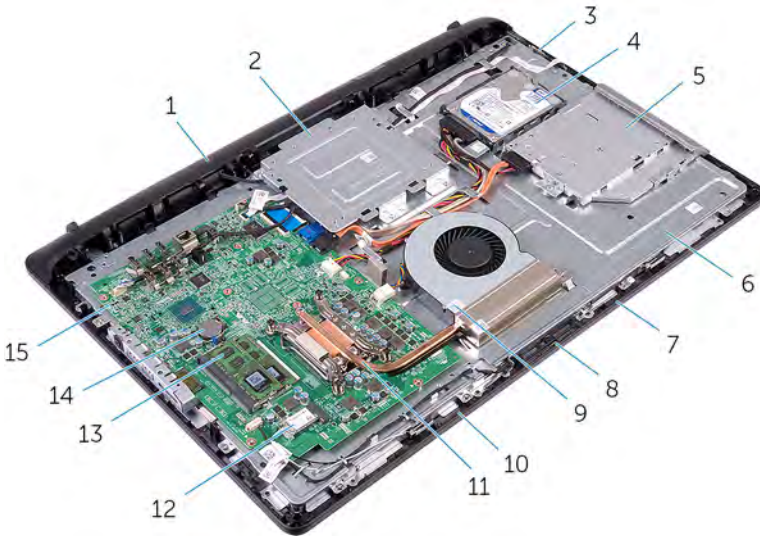


Technical overview



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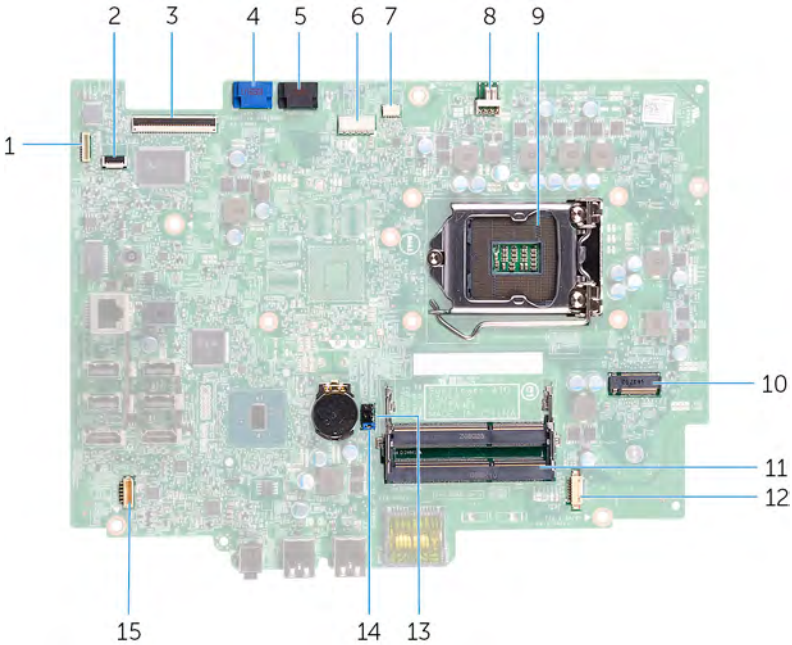
Inside view of your computer



- | | | | |
|---|---|---|---------------------|
| 1 | speaker cover | 2 | VESA-mount bracket |
| 3 | control-buttons board | 4 | hard-drive assembly |
| 5 | optical-drive assembly | 6 | middle-frame base |
| 7 | right microphone (touch-screen models only) | 8 | camera |

- 9 fan
- 11 heat sink
- 13 memory modules
- 15 system board
- 10 left microphone (touch-screen models only)
- 12 wireless card
- 14 coin-cell battery

System-board components



- 1 display-backlight cable connector
- 2 control-buttons board cable connector
- 3 display-cable connector
- 4 hard-drive data cable connector
- 5 optical-drive data cable connector
- 6 hard-drive and optical-drive power cable connector
- 7 touch-screen board cable connector
- 8 fan-cable connector
- 10 left microphone (touch-screen models only)
- 11 heat sink
- 12 wireless card
- 13 memory modules
- 14 coin-cell battery
- 15 system board



- | | | | |
|----|-------------------------|----|---------------------------------------|
| 9 | processor socket | 10 | wireless-card slot |
| 11 | memory-module slots (2) | 12 | camera and microphone-cable connector |
| 13 | CMOS jumper | 14 | password jumper |
| 15 | speaker-cable connector | | |

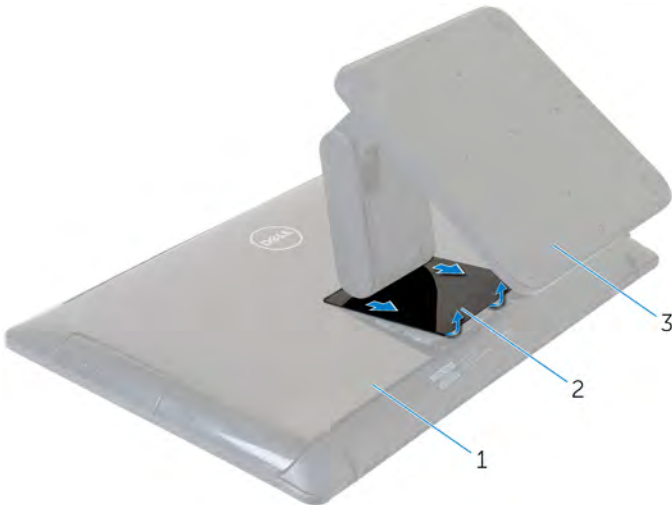


Removing the stand

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Procedure

- 1 Using a plastic scribe, pry the stand cover off the back cover.
- 2 Slide and remove the stand cover from the back cover.

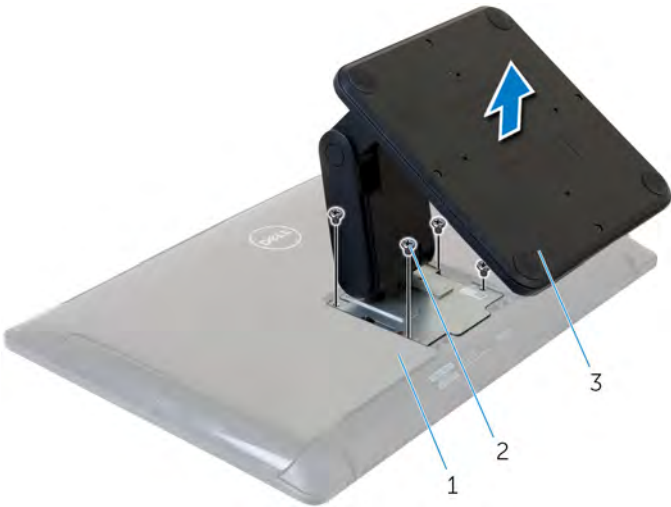


- | | | | |
|---|------------|---|-------------|
| 1 | back cover | 2 | stand cover |
| 3 | stand | | |

- 3 Remove the four screws (M4x6) that secure the stand to the back cover.



4 Lift the stand off the back cover.



1 back cover

2 M4x6 screws (4)

3 stand

Replacing the stand



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Procedure

- 1 Align the screw holes on the stand bracket with the screw holes on the back cover.
- 2 Replace the four screws (M4x6) that secure the stand bracket to the back cover.
- 3 Slide and replace the stand cover on the stand bracket.



Removing the back cover



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Prerequisites

Remove the [stand](#).

Procedure



CAUTION: Do not remove the back cover unless you need to install internal accessories for your computer.

- 1 Using your fingertips, pry the back cover from the display assembly.

- 2 Lift the back cover off the computer.



1 back cover

2 display assembly



Replacing the back cover



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Procedure

Align the tabs on the back cover with the slots on the display assembly and snap the back cover into place.

Post-requisites

Replace the [stand](#).

Removing the optical drive



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Prerequisites

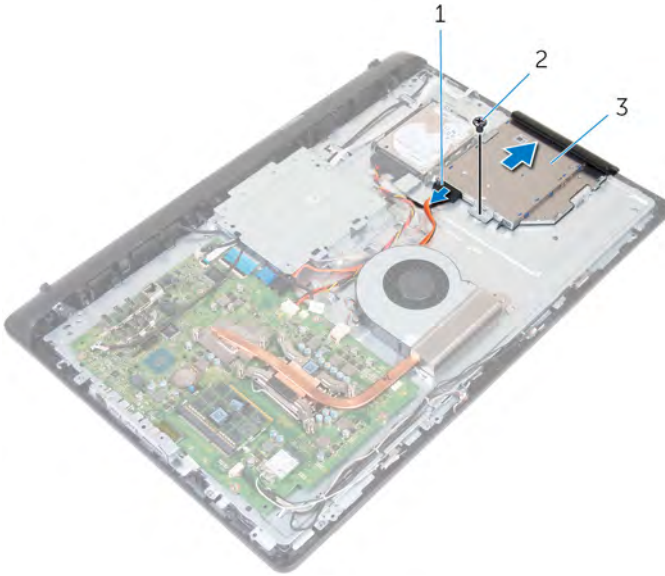
- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).

Procedure

- 1 Disconnect the optical-drive cable from the optical drive.
- 2 Remove the screw (M3x5) that secures the optical-drive assembly to the middle-frame base.



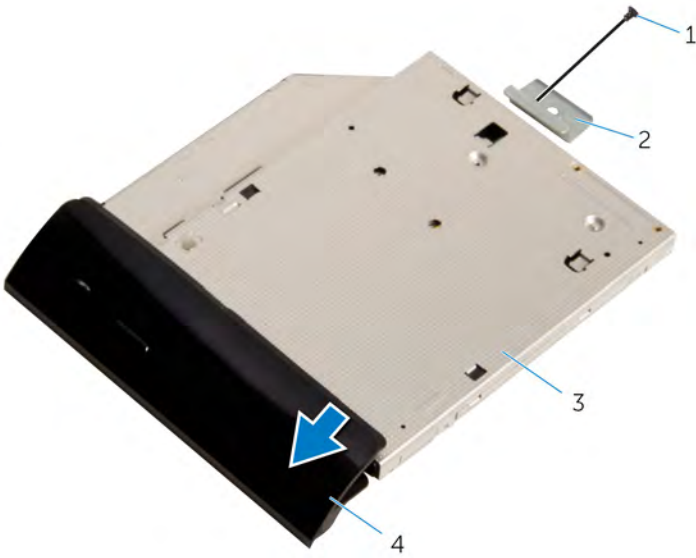
- 3 Slide the optical-drive assembly out of the optical-drive bay.



- | | | | |
|---|------------------------|---|------------|
| 1 | optical-drive cable | 2 | M3x5 screw |
| 3 | optical-drive assembly | | |

- 4 Carefully pull the optical-drive bezel and remove it from the optical drive.
- 5 Remove the screw (M2x2.5) that secures the optical-drive bracket to the optical drive.

6 Remove the optical-drive bracket from the optical drive.



1 M2x2.5 screw
3 optical drive

2 optical-drive bracket
4 optical-drive bezel



Replacing the optical drive



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Procedure

- 1 Align the screw hole on the optical-drive bracket with the screw hole on the optical drive.
- 2 Replace the screw (M2x2.5) that secures the optical-drive bracket to the optical drive.
- 3 Align the tabs on the optical-drive bezel with the slots on the optical-drive assembly and snap it into place.
- 4 Slide the optical-drive assembly into the optical-drive bay and align the screw hole on the optical-drive bracket with the screw hole on the middle-frame base.
- 5 Replace the screw (M3x5) that secures the optical-drive assembly to the middle-frame base.
- 6 Connect the optical-drive cable to the optical-drive assembly.

Post-requisites

- 1 Replace the [back cover](#).
- 2 Replace the [stand](#).

Removing the hard drive

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 **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.

Prerequisites

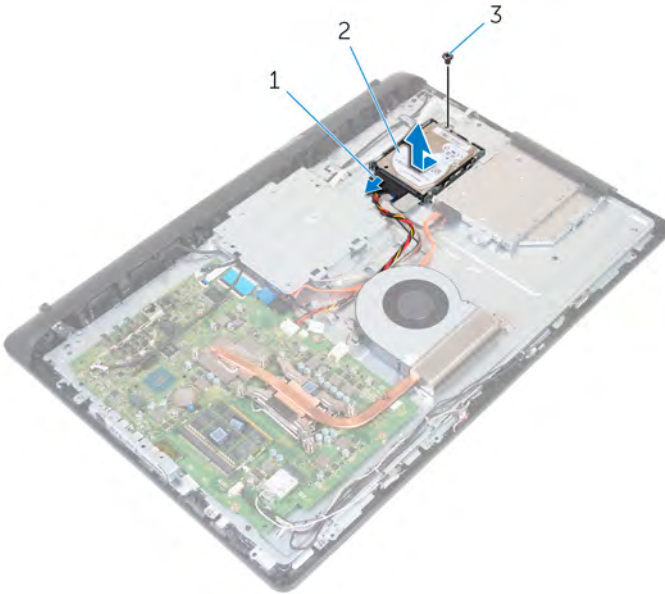
- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).

Procedure

- 1 Disconnect the hard-drive cable from the hard drive.
- 2 Remove the screw (M3x5) that secures the hard-drive assembly to the middle-frame base.



- 3 Slide and lift the hard-drive assembly off the middle-frame base.



- 1 hard-drive cable
- 3 M3x5 screw

- 2 hard-drive assembly

- 4 Remove the three screws (M3x3.5) that secure the hard-drive bracket to the hard drive.


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



- 1 M3x3.5 screws (3)
- 2 hard drive
- 3 hard-drive bracket



Replacing the hard drive

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

Procedure

- 1 Place the hard drive into the hard-drive bracket and align the screw holes on the hard drive with the screw holes on the hard-drive bracket.
- 2 Replace the three screws (M3x3.5) that secure the hard-drive bracket to the hard drive.
- 3 Slide the hard-drive assembly into the hard-drive bay and align the screw hole on the hard-drive bracket with the screw hole on the middle-frame base.
- 4 Replace the screw (M3x5) that secures the hard-drive assembly to the middle-frame base.
- 5 Connect the hard-drive cable to the hard drive.

Post-requisites

- 1 Replace the [back cover](#).
- 2 Replace the [stand](#).

Removing the memory modules



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Prerequisites

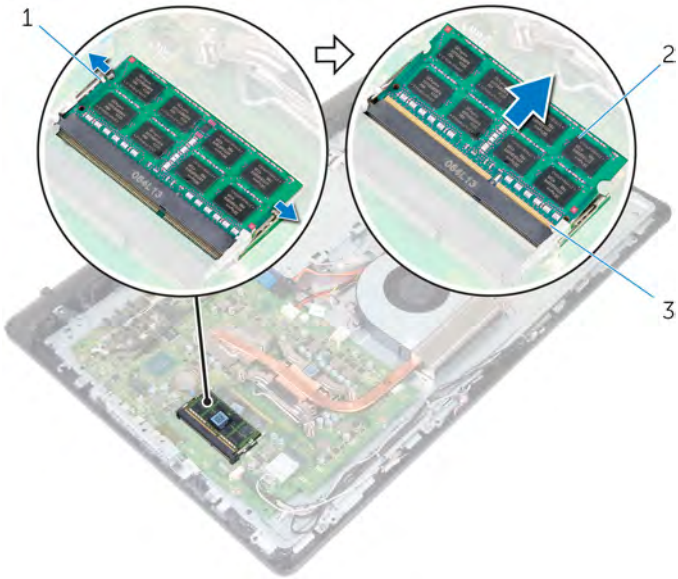
- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).

Procedure

- 1 Using your fingertips, carefully spread apart the securing clips at each end of the memory-module slot until the memory module pops up.



2 Slide and remove the memory module from the memory-module slot.



1 securing clips (2)

2 memory module

3 memory-module slot

Replacing the memory modules



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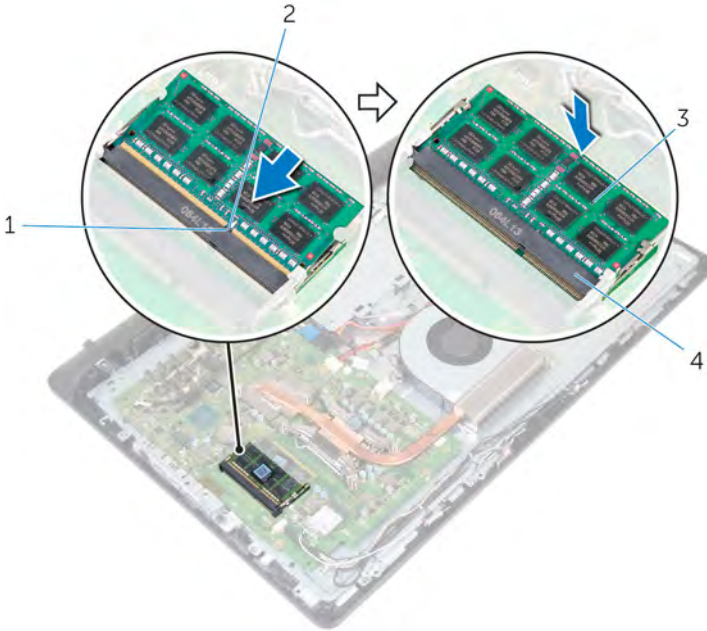
Procedure

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



- 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.**



1 tab

3 memory module

2 notch

4 memory-module slot

Post-requisites

- Replace the [back cover](#).
- Replace the [stand](#).

Removing the wireless card



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Prerequisites

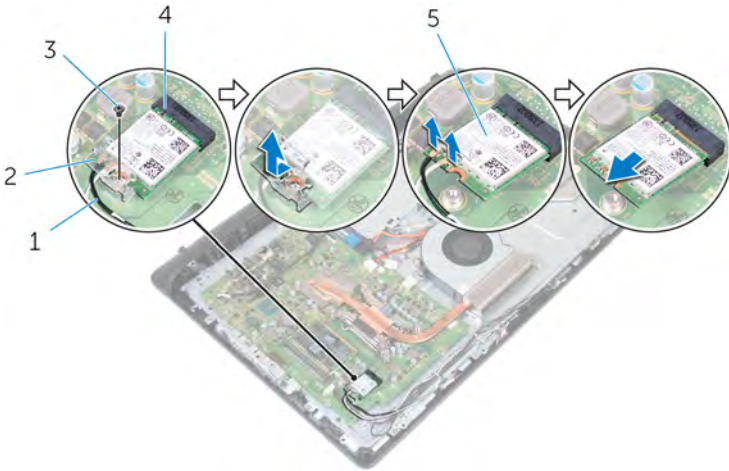
- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).

Procedure

- 1 Remove the screw (M2x2.5) that secures the wireless-card bracket and the wireless card to the system board.
- 2 Slide the wireless-card bracket off the wireless card.
- 3 Disconnect the antenna cables from the wireless card.



- 4 Slide the wireless card out of the wireless-card slot.



1 antenna cables (2)

3 M2x2.5 screw

5 wireless card

2 wireless-card bracket

4 wireless-card slot

Replacing the wireless card



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Procedure

- 1 Align the notch on the wireless card with the tab on the wireless-card slot and slide the wireless card into the wireless-card slot.
- 2 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.

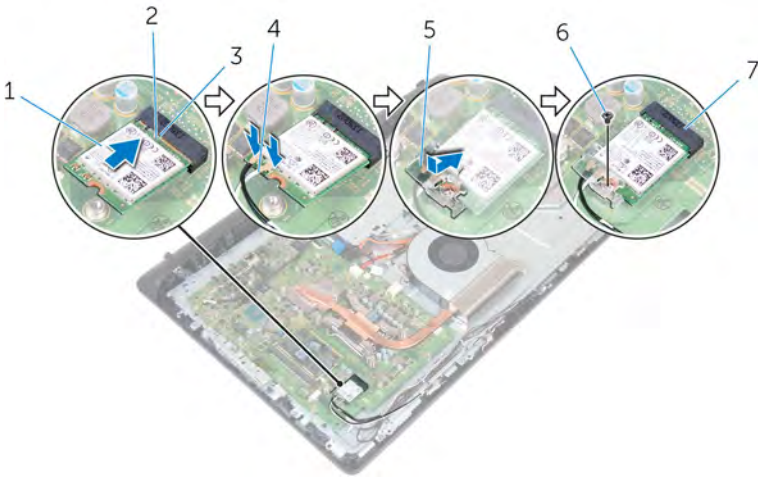
Table 2. Antenna-cable color scheme

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

- 3 Slide the wireless-card bracket over the wireless card.
- 4 Align the screw hole on the wireless-card bracket with the screw hole on the wireless card.



- 5** Replace the screw (M2x2.5) that secures the wireless-card bracket and the wireless card to the system board.




- | | | | |
|---|-----------------------|---|----------------|
| 1 | wireless card | 2 | notch |
| 3 | tab | 4 | antenna cables |
| 5 | wireless-card bracket | 6 | M2x2.5 screw |
| 7 | wireless-card slot | | |


Post-requisites

- 1 Replace the [back cover](#).
- 2 Replace the [stand](#).

Removing the heat sink

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 **WARNING:** 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.

Prerequisites

- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).

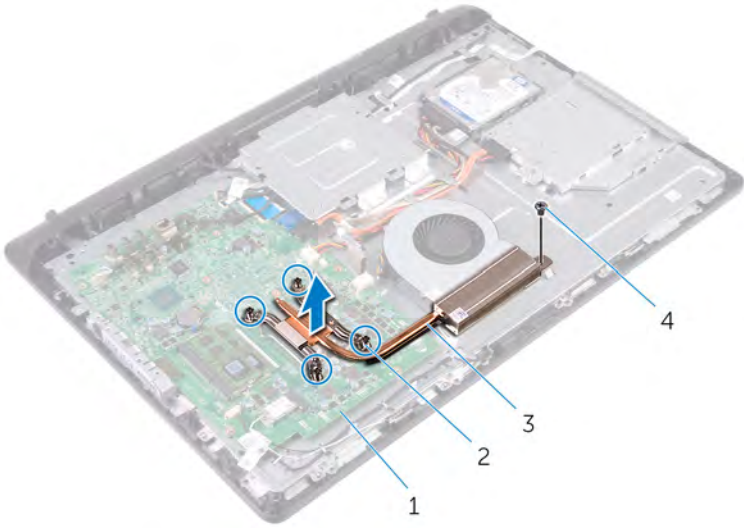
Procedure

 **NOTE:** Depending on the configuration you ordered, the number of screws and the appearance of the heat-sink assembly may differ.

- 1 In sequential order (as indicated on the heat sink), loosen the captive screws that secure the heat sink to the system board.
- 2 Remove the screw (M3x5) that secures the heat sink to the middle-frame base.



3 Lift the heat sink off the system board.




1 system board

2 captive screws (4)


3 heat sink

4 M3x5 screw

Replacing the heat sink

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

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

Procedure

- 1 Align the captive screws on the heat sink with the screw holes on the system board.
- 2 In sequential order (as indicated on the heat sink), tighten the captive screws that secure the heat sink to the system board.
- 3 Replace the screw (M3x5) that secures the heat sink to the middle-frame base.

Post-requisites

- 1 Replace the [back cover](#).
- 2 Replace the [stand](#).



Removing the fan



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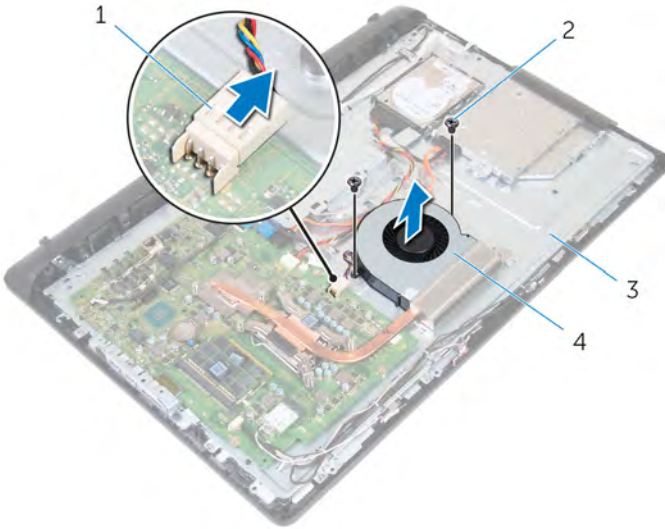
Prerequisites

- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).

Procedure

- 1 Disconnect the fan cable from the system board.
- 2 Remove the two screws (M3x5) that secure the fan to the middle-frame base.

3 Lift the fan off the middle-frame base.



1 fan cable

2 M3x5 screws (2)

3 middle-frame base

4 fan



Replacing the fan



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Procedure


- 1 Align the screw holes on the fan with the screw holes on the middle-frame base.
- 2 Replace the two screws (M3x5) that secure the fan to the middle-frame base.
- 3 Connect the fan cable to the system board.

Post-requisites

- 1 Replace the [back cover](#).
- 2 Replace the [stand](#).

Removing the coin-cell battery

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 **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.

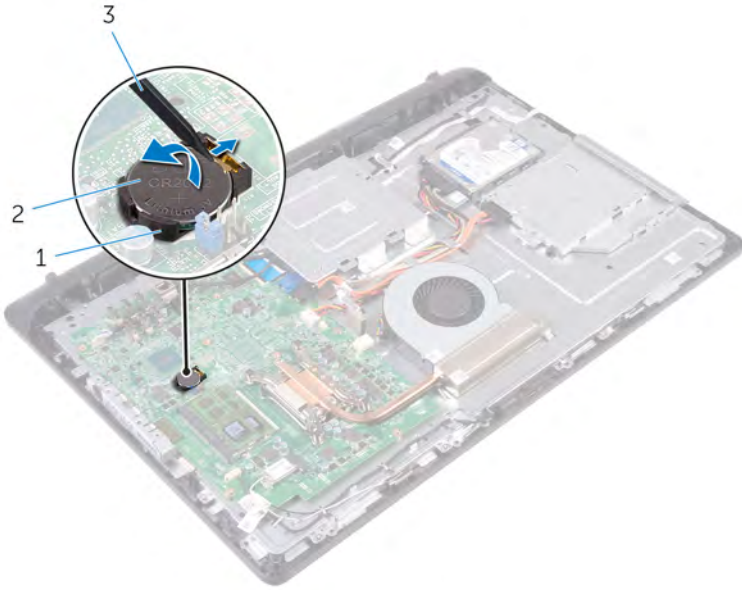
Prerequisites

- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).

Procedure

Using a plastic scribe, gently push the tabs on the coin-cell battery and lift the coin-cell battery off its slot on the system board.





- 1 battery socket
- 3 plastic scribe

- 2 coin-cell battery

Replacing the coin-cell battery



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Procedure

With the positive-side facing up, slide the coin-cell battery into the battery socket and snap the battery in place.

Post-requisites

- 1 Replace the [back cover](#).
- 2 Replace the [stand](#).



Removing the processor



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Prerequisites

- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).
- 3 Remove the [heat sink](#).

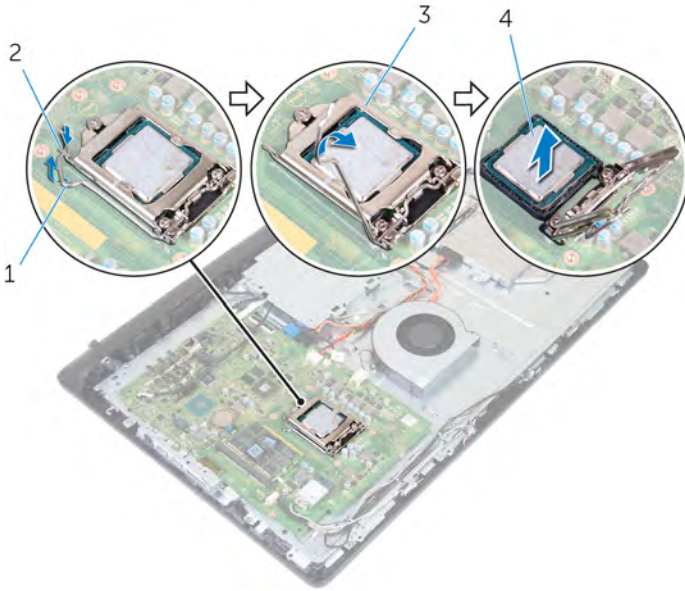
Procedure



NOTE: To avoid damaging the processor, handle the processor only by the edges.

- 1 Press the release lever down and then pull it outward to release it from the securing tab.
- 2 Extend the release lever completely to open the processor cover.

3 Gently lift the processor off the processor socket.



1 release lever


2 tab


3 processor cover

4 processor




Replacing the processor

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 **CAUTION:** If either the processor or the heat sink is replaced, use the thermal grease provided in the kit to ensure that thermal conductivity is achieved.

 **NOTE:** A new processor ships with a thermal pad in the package. In some cases, the processor may ship with the thermal pad attached to it.

Procedure

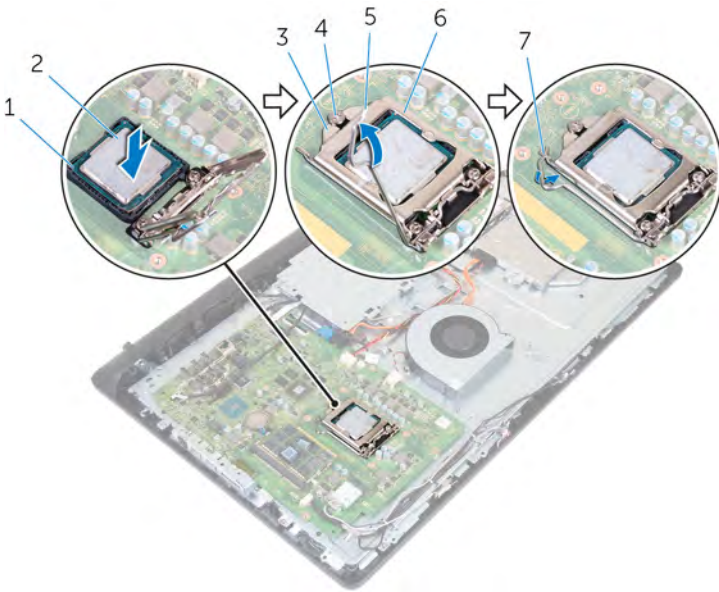
 **NOTE:** The original thermal grease can be reused, if the original processor and heat sink are reinstalled together. If either the processor or the heat sink is replaced, use the thermal pad provided in the kit to ensure that thermal conductivity is achieved.

 **CAUTION:** You must position the processor correctly in the processor socket to avoid permanent damage to the processor.

- 1 Ensure that the processor cover is fully open.
- 2 Align the pin-1 corner on the processor with the pin-1 corner on the processor socket and place the processor in the processor socket.
- 3 Align the notches on the processor with the tabs on the processor socket.
- 4 After the processor is fully seated in the socket, close the processor cover while keeping the release lever fully extended.

 **CAUTION:** Ensure that the processor-cover notch is positioned underneath the alignment post.

- 5 Pivot the release lever down and place it under the tab on the processor cover.



- | | | | |
|---|-----------------------|---|-----------------|
| 1 | pin-1 corner | 2 | processor |
| 3 | processor-cover notch | 4 | alignment post |
| 5 | release lever | 6 | processor cover |
| 7 | tab | | |

Post-requisites

- 1 Replace the [heat sink](#).
- 2 Replace the [back cover](#).
- 3 Replace the [stand](#).



Removing the microphone



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Prerequisites

- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).

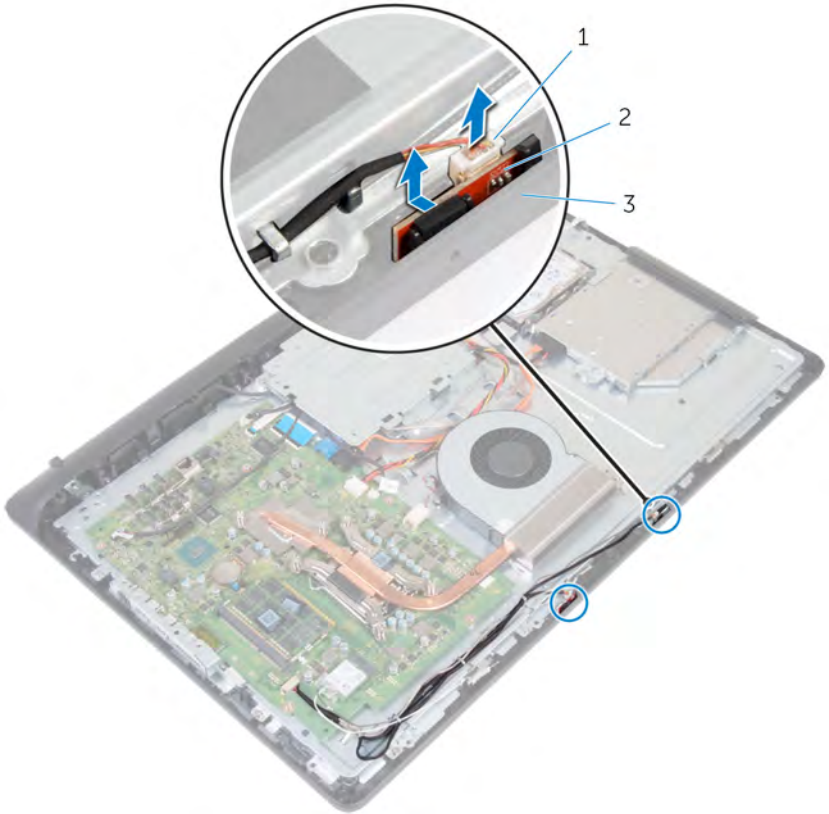
Procedure



NOTE: The left and right microphones cannot be swapped. Note the location so that you can replace them correctly.

- 1 Push the microphone inward and slide it out of the slot on the display bezel.

2 Disconnect the microphone cable from the microphone board.



1 microphone cable

2 microphones (2)

3 display bezel



Replacing the microphone



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Procedure



NOTE: The left and right microphones cannot be swapped. Note the location so that you can replace them correctly.

- 1 Connect the microphone cable to the microphone board.
- 2 Slide the microphone board into the slot on the display bezel.
- 3 Route the microphone cable through the routing guides on the middle-frame base.

Post-requisites

- 1 Replace the [back cover](#).
- 2 Replace the [stand](#).

Removing the camera



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Prerequisites

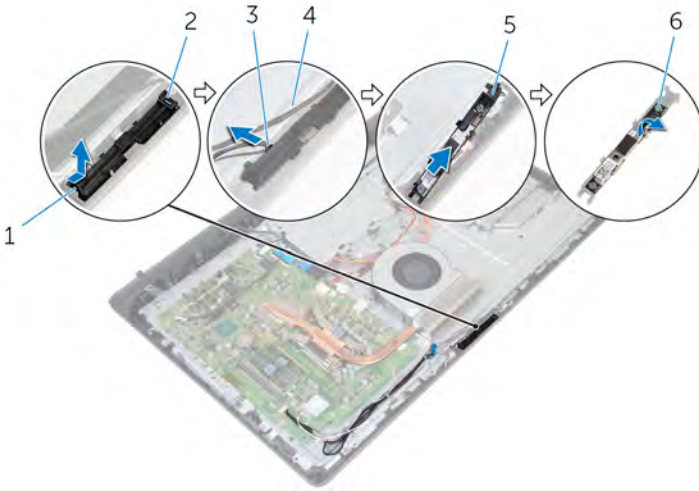
- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).

Procedure

- 1 Note the antenna, microphone, and camera-cable routing and remove the cables from the routing guides on the display bezel and middle-frame base.
- 2 Using your fingertips, press the securing clip, and lift the camera assembly.
- 3 Disconnect the camera cable from the camera.
- 4 Disconnect the camera assembly from the tab on the display bezel.



5 Peel off the camera from the camera frame.



1 securing clip

3 camera cable

5 camera frame

2 tab

4 display bezel

6 camera

Replacing the camera



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Procedure

- 1 Adhere the camera to the camera frame.
- 2 Connect the camera cable to the camera.
- 3 Connect the camera assembly to the tabs on the display bezel.
- 4 Press the camera assembly into the slot on the display bezel till the securing clip locks in place.
- 5 Route the antenna, microphone, and camera cables through the routing guides on the middle-frame base and display bezel.

Post-requisites

- 1 Replace the [back cover](#).
- 2 Replace the [stand](#).



Removing the VESA-mount bracket



WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). 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.

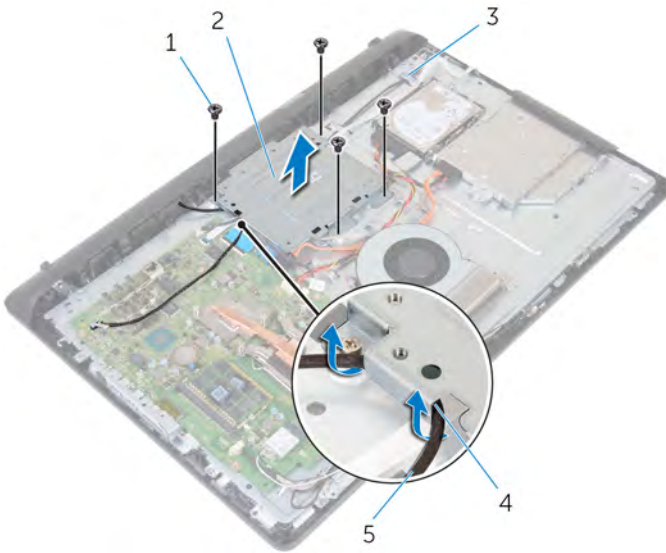
Prerequisites

- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).

Procedure

- 1 Note the speaker cable routing on the VESA-mount bracket and remove it from the routing guides.
- 2 Remove the four screws (M3x5) that secure the VESA-mount bracket to the middle-frame base.

3 Lift the VESA-mount bracket off the middle-frame base.



1 M3x5 screws (4)

2 VESA-mount bracket

3 middle-frame base

4 routing guides

5 speaker cable



Replacing the VESA-mount bracket



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Procedure

- 1 Align the screw holes on the VESA-mount bracket with the screw holes on the middle-frame base.
- 2 Replace the four screws (M3x5) that secure the VESA-mount bracket to the middle-frame base.
- 3 Route the speaker cable through the routing guides on the VESA-mount bracket.

Post-requisites

- 1 Replace the [back cover](#).
- 2 Replace the [stand](#).

Removing the speaker cover



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Prerequisites

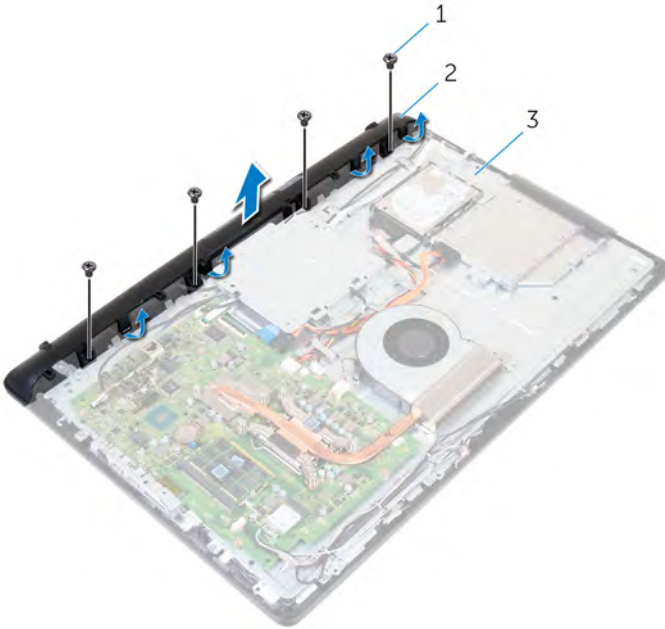
- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).

Procedure

- 1 Remove the four screws (M3x3) that secure the speaker cover to the middle-frame base.
- 2 Using your fingertips, pry the speaker cover from the middle-frame base.



- 3** Lift the speaker cover off the display assembly.



1 M3x3 screws (4)

2 speaker cover

3 middle-frame base

Replacing the speaker cover



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Procedure

- 1 Align the screw holes on the speaker cover with the screw holes on the middle-frame base and snap the speaker cover into place.
- 2 Replace the four screws (M3x3) that secure the speaker cover to the middle-frame base.

Post-requisites

- 1 Replace the [back cover](#).
- 2 Replace the [stand](#).



Removing the speakers



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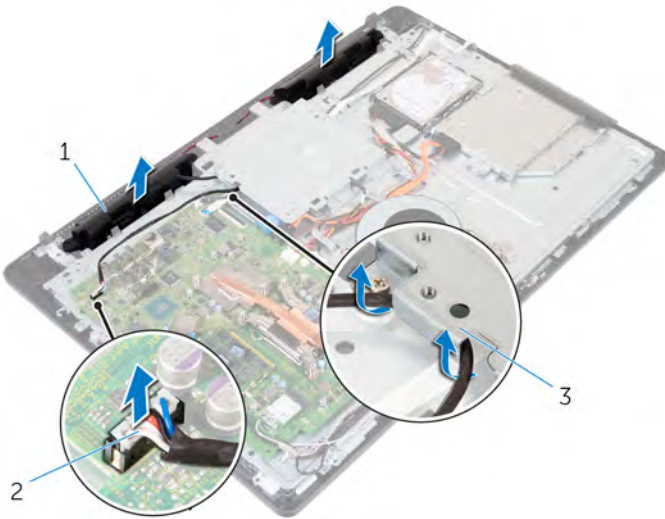
Prerequisites

- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).
- 3 Remove the [speaker cover](#).

Procedure

- 1 Disconnect the speaker cable from the system board.
- 2 Remove the speaker cable from the routing on the VESA-mount bracket.
- 3 Note the speaker-cable routing on the display bezel and remove the cable from the routing guides.

- 4 Lift the speakers, along with the speaker cable, off the display assembly.



1 speakers (2)

2 speaker cable

3 VESA-mount bracket



Replacing the speakers



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Procedure

- 1 Using the alignment posts, place the speakers on the display assembly.
- 2 Route the speaker cable through the routing guides on the display bezel.
- 3 Route the speaker cable through the VESA-mount bracket.
- 4 Connect the speaker cable to the system board.

Post-requisites

- 1 Replace the [speaker cover](#).
- 2 Replace the [back cover](#).
- 3 Replace the [stand](#).

Removing the control-buttons board



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Prerequisites

- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).

Procedure

- 1 Move the securing clip away from the control-buttons board and lift the control-buttons board out of the slot on the display bezel.



- 2** Open the latch and disconnect the control-buttons board cable from the control-buttons board.



- 1 securing clips (2)
3 latch

- 2 control-buttons board
4 control-buttons board cable

Replacing the control-buttons board



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Procedure

- 1 Align the buttons on the control-buttons board with the buttons on the display bezel.
- 2 Slide the control-buttons board cable into the connector on the control-buttons board and close the latch to secure the cable.
- 3 Slide the control-buttons board into the slot on the display bezel till the securing clips lock in place.
- 4 Route the control-buttons board cable through the routing guides and adhere the control-buttons board cable to the middle-frame base.

Post-requisites

- 1 Replace the [back cover](#).
- 2 Replace the [stand](#).



Removing the system board



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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.



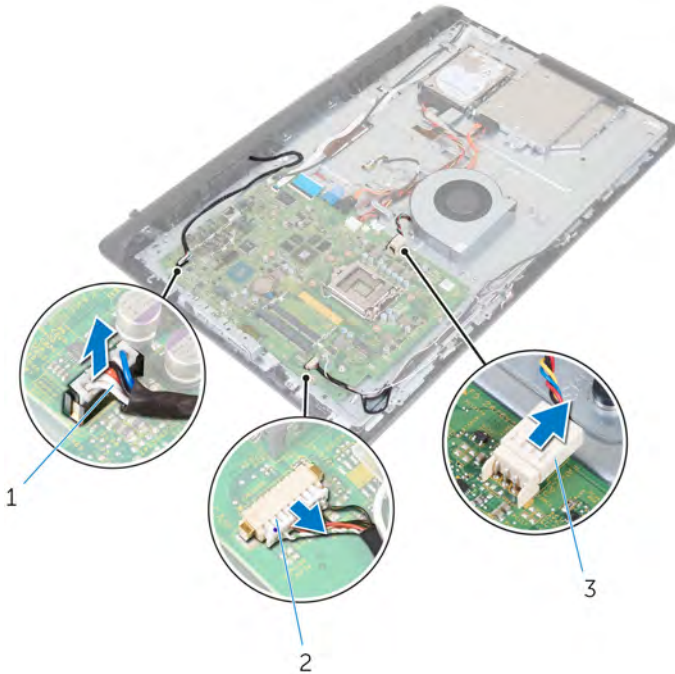
NOTE: Before disconnecting the cables from the system board, note the location of the connectors so that you can reconnect the cables correctly after you replace the system board.

Prerequisites

- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).
- 3 Remove the [wireless card](#).
- 4 Remove the [memory modules](#).
- 5 Remove the [heat sink](#).
- 6 Remove the [processor](#).
- 7 Remove the [VESA-mount bracket](#).

Procedure

- 1 Disconnect the speaker, camera and microphone, and fan cables from the system board.



1 speaker cable

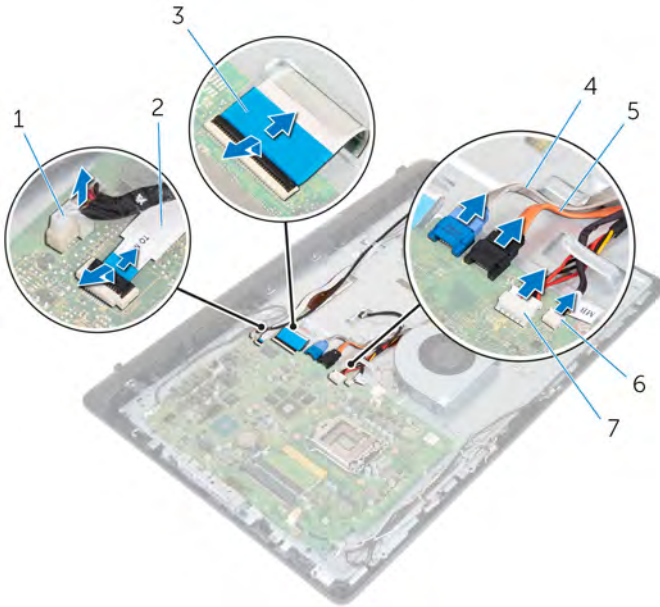
2 camera and microphone cable

3 fan cable

- 2 Disconnect the display-backlight, optical-drive data, hard-drive data, hard-drive and optical-drive power, and touch-screen board cables from the system board.



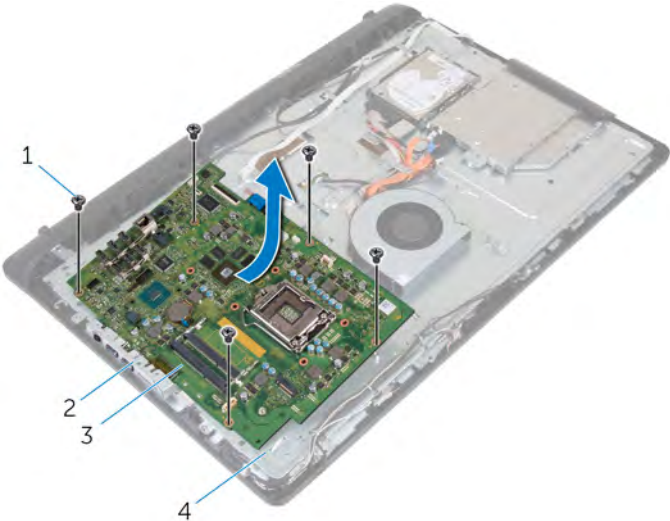
- 3** Open the latches and disconnect the control-buttons board cable and display cable from the system board.



- | | | | |
|---|--------------------------|---|--|
| 1 | display-backlight cable | 2 | control-buttons board cable |
| 3 | display cable | 4 | hard-drive data cable |
| 5 | optical-drive data cable | 6 | hard-drive and optical-drive power cable |
| 7 | touch-screen board cable | | |

- 4** Remove the five screws (M3x5) that secure the system board to the middle-frame base.
- 5** Starting from the inner edge, carefully lift the system board and release the ports from the slots on the middle-frame base.

6 Lift the system board off the middle-frame base.



1 M3x5 screws (5)


2 slots

3 system board


4 middle-frame base



Replacing the system board

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 **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.

Procedure

 **CAUTION:** Make sure that no cables are placed under the system board.

- 1 Slide the ports on the system board into the slots on the middle-frame base and place the system board on the middle-frame base.
- 2 Align the screw holes on the system board with the screw holes on the middle-frame base.
- 3 Replace the five screws (M3x5) that secure the system board to the middle-frame base.
- 4 Connect the display-backlight cable to the system board.
- 5 Slide the control-buttons board and display cables into their connectors on the system board and close the latches to secure the cables.
- 6 Connect the speaker, touch-screen board, hard-drive, optical-drive, hard-drive and optical-drive power, fan, and microphone and camera cables to the system board.

Post-requisites

- 1 Replace the [VESA-mount bracket](#).

- 2 Replace the [processor](#).
- 3 Replace the [heat sink](#).
- 4 Replace the [memory modules](#).
- 5 Replace the [wireless card](#).
- 6 Replace the [back cover](#).
- 7 Replace the [stand](#).



Removing the middle-frame base



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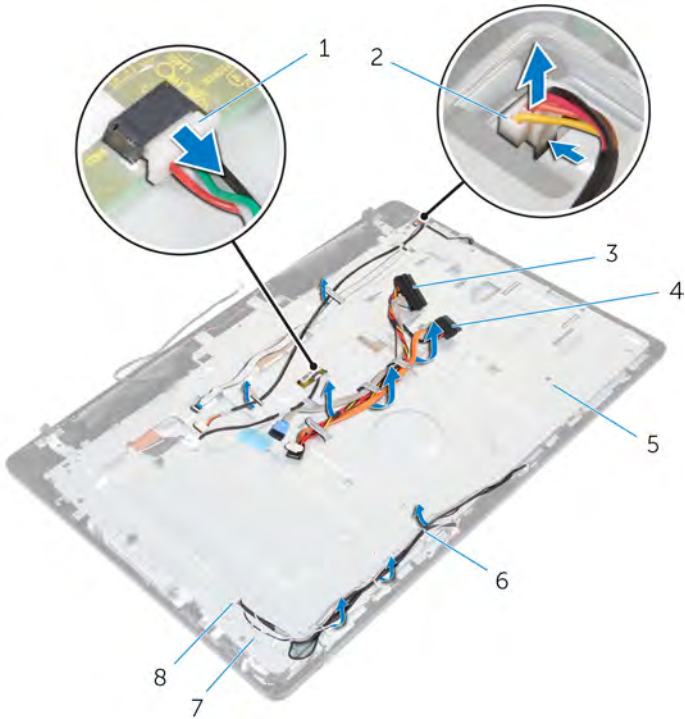
Prerequisites

- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).
- 3 Remove the [optical drive](#).
- 4 Remove the [hard drive](#).
- 5 Remove the [wireless card](#).
- 6 Remove the [heat sink](#).
- 7 Remove the [fan](#).
- 8 Remove the [system board](#).
- 9 Remove the [VESA-mount bracket](#).
- 10 Remove the [speaker cover](#).

Procedure

- 1 Note the routing of the antenna, camera and microphone, touch-screen board, optical drive and hard drive cables, and remove the cables from the routing guides on the middle-frame base.
- 2 Disconnect the touch-screen board and display-backlight cables from the display panel.

3 Peel the control-buttons board cable from the middle-frame base.



1 touch-screen board cable

2 display-backlight cable

3 hard-drive cable

4 optical-drive data cable

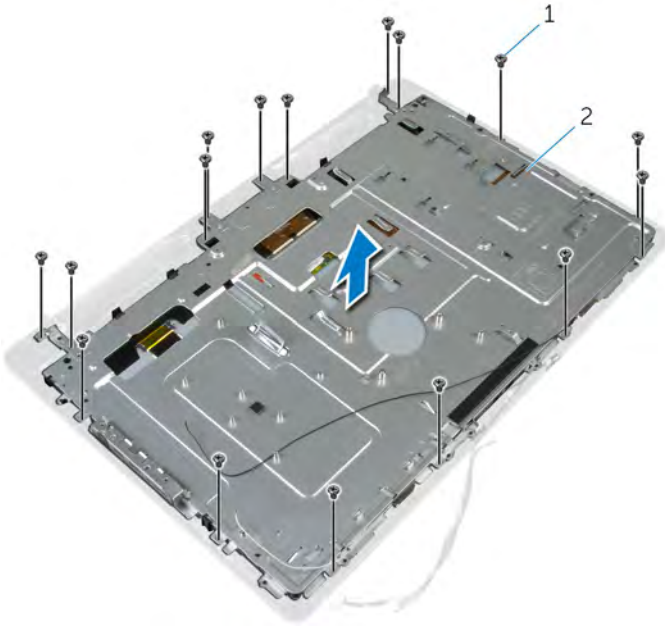
5 middle-frame base

6 routing guides

7 antenna cables (2)

8 camera and microphone cable

- 4 Remove the 16 screws (M3x5) that secure the middle-frame base to the display assembly.



1 M3x5 screws (16)

2 middle-frame base

- 5 Remove the four screws (M3x3) that secure the middle-frame base to the display panel.

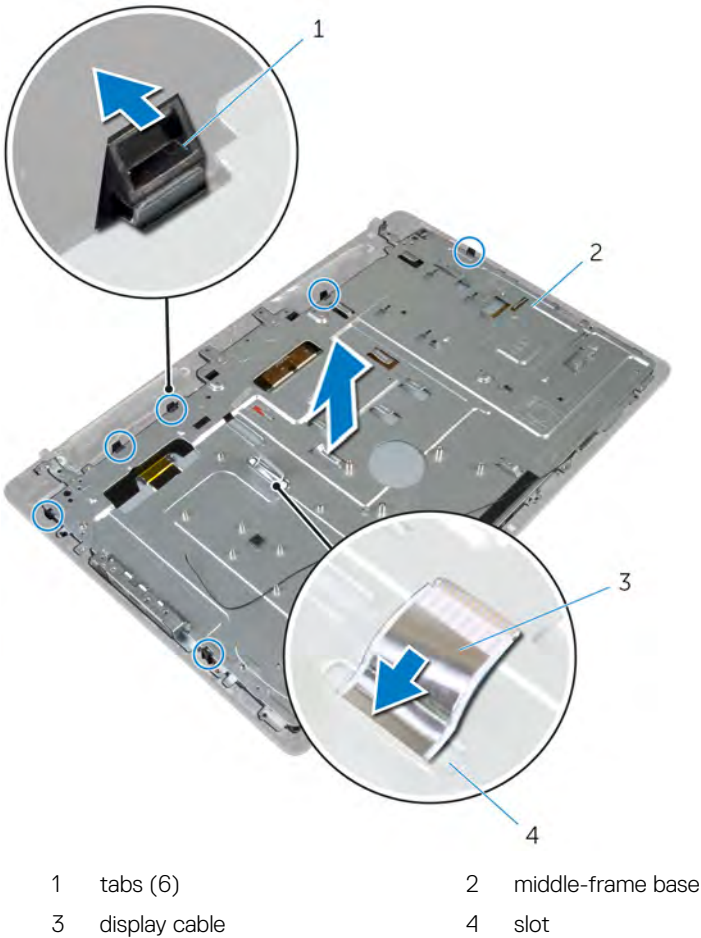


- 1 M3x3 screws (4)
- 2 middle-frame base
- 3 display assembly

- 6 Release the middle-frame base from the tabs on the display assembly.
- 7 Slide the display cable through the slot on the display assembly.



8 Lift the middle-frame base off the display assembly.



Replacing the middle-frame base



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Procedure



CAUTION: Ensure that no cables are placed under the middle-frame base.

- 1 Align the slots on the middle-frame base with the tabs on the display assembly.
- 2 Replace the four screws (M3x3) that secure the middle-frame base to the display panel.
- 3 Slide the display cable through the slot on the middle-frame base.
- 4 Place the middle-frame base on the display assembly and press down till the tabs lock in place.
- 5 Replace the 16 screws (M3x5) that secure the middle-frame base to the display assembly.
- 6 Route the antenna , camera and microphone, touch-screen board, optical drive and hard drive cables through the routing guides on the middle-frame base.
- 7 Adhere the control-buttons board cable to the middle-frame base.
- 8 Connect the touch-screen board and display-backlight cable to the display panel.

Post-requisites

- 1 Replace the [speaker cover](#).
- 2 Replace the [VESA-mount bracket](#).
- 3 Replace the [system board](#).
- 4 Replace the [fan](#).
- 5 Replace the [heat sink](#).
- 6 Replace the [wireless card](#).



- 7 Replace the [hard drive](#).
- 8 Replace the [optical drive](#).
- 9 Replace the [back cover](#).
- 10 Replace the [stand](#).



Removing the rubber feet



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Prerequisites

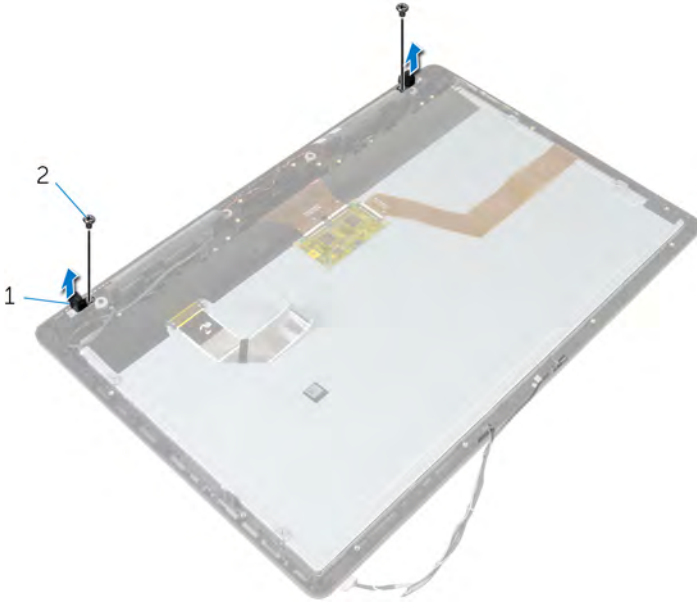
- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).
- 3 Remove the [optical drive](#).
- 4 Remove the [hard drive](#).
- 5 Remove the [wireless card](#).
- 6 Remove the [heat sink](#).
- 7 Remove the [fan](#).
- 8 Remove the [system board](#).
- 9 Remove the [VESA-mount bracket](#).
- 10 Remove the [speaker cover](#).
- 11 Remove the [middle-frame base](#).

Procedure

- 1 Remove the two screws (M3x5) that secure the rubber foot to the display assembly.



2 Lift the rubber foot off the display bezel.



1 rubber feet (2)

2 M3x5 screws (2)

Replacing the rubber feet



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Procedure

- 1 Align the screw holes on the rubber foot with the screw holes on the display bezel.
- 2 Replace the two screws (M3x5) that secure the rubber foot to the display assembly.

Post-requisites

- 1 Replace the [middle-frame base](#).
- 2 Replace the [speaker cover](#).
- 3 Replace the [VESA-mount bracket](#).
- 4 Replace the [system board](#).
- 5 Replace the [fan](#).
- 6 Replace the [heat sink](#).
- 7 Replace the [wireless card](#).
- 8 Replace the [hard drive](#).
- 9 Replace the [optical drive](#).
- 10 Replace the [back cover](#).
- 11 Replace the [stand](#).



Removing the display assembly



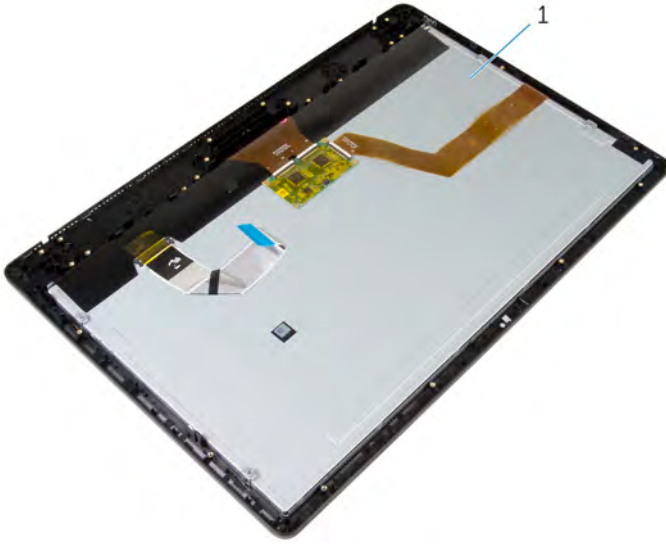
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices,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

Prerequisites

- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).
- 3 Remove the [optical drive](#).
- 4 Remove the [hard drive](#).
- 5 Remove the [wireless card](#).
- 6 Remove the [heat sink](#).
- 7 Remove the [fan](#).
- 8 Remove the [microphone](#).
- 9 Follow the procedure from step 1 to step 4 in "[Removing the camera](#)".
- 10 Remove the [system board](#).
- 11 Remove the [VESA-mount bracket](#).
- 12 Remove the [speaker cover](#).
- 13 Remove the [speakers](#).
- 14 Remove the [control-buttons board](#).
- 15 Remove the [middle-frame base](#).
- 16 Remove the [rubber feet](#).

Procedure

After performing the steps in the prerequisites, we are left with the display assembly.



1 display assembly

Replacing the display assembly



WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). 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.

Procedure

Place the display assembly on a flat surface.

Post-requisites

- 1 Replace the [rubber feet](#).
- 2 Replace the [middle-frame base](#).
- 3 Replace the [control-buttons board](#).
- 4 Replace the [speakers](#).
- 5 Replace the [speaker cover](#).
- 6 Replace the [VESA-mount bracket](#).
- 7 Replace the [system board](#).
- 8 Follow the procedure from step 2 to step 5 in "[Replacing the camera](#)".
- 9 Replace the [microphone](#).
- 10 Replace the [fan](#).
- 11 Replace the [heat sink](#).
- 12 Replace the [wireless card](#).
- 13 Replace the [hard drive](#).
- 14 Replace the [optical drive](#).
- 15 Replace the [back cover](#).
- 16 Replace the [stand](#).

Clearing forgotten passwords



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Procedure

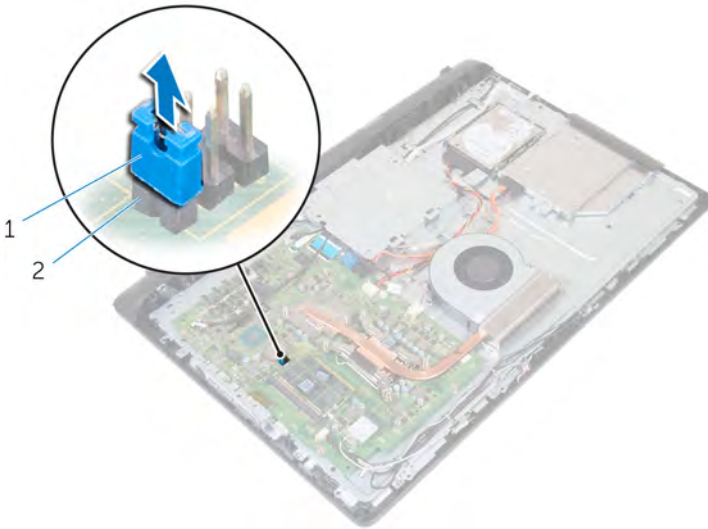
- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).
- 3 Locate the password jumper on the system board.



NOTE: For more information about the jumper location, see “[System-board components](#)”.



- 4 Remove the jumper plug from the password jumper.

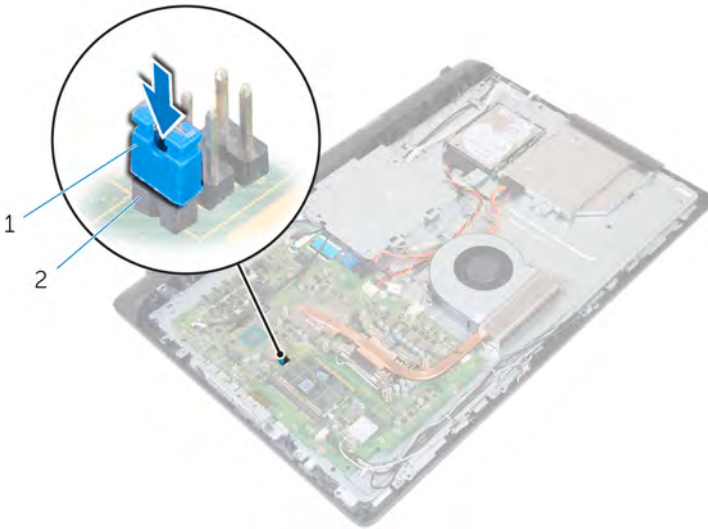


1 jumper plug

2 password jumper

- 5 Replace the [back cover](#).
- 6 Replace the [stand](#).
- 7 Turn on the computer and wait till the operating system is fully loaded.
- 8 Turn off the computer.
- 9 Remove the [stand](#).
- 10 Remove the [back cover](#).

11 Replace the jumper plug on the password jumper.



1 jumper plug

2 password jumper

12 Replace the [back cover](#).

13 Replace the [stand](#).



Clearing CMOS settings



WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). 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.

Prerequisites

- 1 Remove the [stand](#).
- 2 Remove the [back cover](#).

Procedure

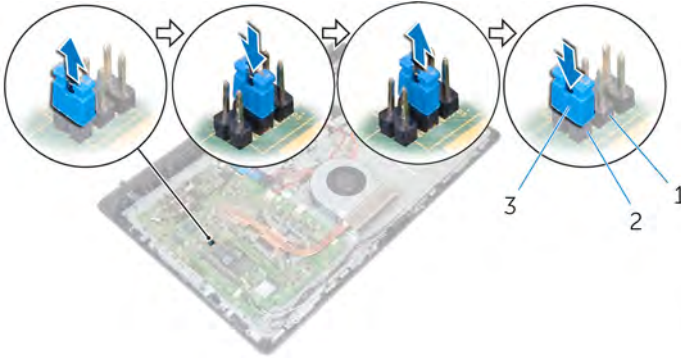
- 1 Locate the CMOS jumper on the system board.



NOTE: For more information on the location of the jumpers, see [“System-board components”](#).

- 2 Remove the jumper plug from the password jumper and place it on the CMOS jumper.

- 3 Remove the jumper plug from the CMOS jumper and replace it on the password jumper.



- 1 CMOS jumper
- 3 jumper plug

- 2 password jumper

Post-requisites

- 1 Replace the [back cover](#).
- 2 Replace the [stand](#).

Flashing the BIOS

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

- 1 Turn on 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.

Diagnostics

Power status light: Indicates the power status.

Solid Amber – The computer is unable to boot to the operating system. This indicates that the power supply or another device in the computer is failing.

Blinking Amber – The computer is unable to boot to the operating system. This indicates that the power supply is normal but another device in the computer is failing or not installed properly.

 **NOTE: See the light patterns to determine the device that is failing.**

Off – Computer is in hibernation or turned off.

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

For example, the power status light blinks amber two times followed by a pause, and then blinks white three times followed by a pause. This 3,3 pattern continues until the computer is turned off indicating the Recovery image is not found.

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

Table 3. Diagnostics

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



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.



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 4. Self-help resources

Information about Dell products and services

www.dell.com

Dell Help & Support app



Get started app



Accessing help

In Windows search, type **Help** and **Support**, and press Enter.

Online help for operating system

www.dell.com/support/windows

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.