

XPS 27

Service Manual

Computer Model: XPS 7760
Regulatory Model: W13C
Regulatory Type: W13C001



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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2016 - 11

Rev. A00

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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.

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



CAUTION: Place the computer on a flat, soft, and clean surface to avoid scratches on the display.

- 7 Place the computer face down.

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
Back-light cable	System board	M3X4	1	
Camera	Middle frame	M2X3	2	
Chassis fan	System board	M2X3	4	
Converter board	Middle frame	M3X4	3	
Display Built-in Self Test button	Middle frame	M2X3	2	
Hard-drive cage	Middle frame	M3X4	4	
Hard-drive interposer	Hard-drive cage	M2X3	4	
I/O panel	Middle frame	M3X4	4	
I/O board	I/O-board panel	M3X4	1	
Inner frame (touch screen)	Middle frame	M3X4	14	
Inner frame (non-touch screen)	Middle frame	M3X4	20	
Memory fan	Middle frame	M3X4	4	

Component	Secured to	Screw type	Quantity	Screw image
Media-card reader shield	Middle frame	M2X3	2	
Middle frame	Display	M2X4	7	
Middle frame	Display	M2X3	6	
Power-supply unit	Middle frame	M3X4	5	
Power-button board shield	Middle frame	M2X3	2	
Processor heat-sink	Middle frame	M3X4	1	
Stand	Middle frame	M4X6	6	
System-board shield	System board	M3X4	3	
System board	Middle frame	M3X4	12	
Speakers	Middle frame	M3X4	8	
USB dongle port	I/O panel	M3X4	3	
Wireless card shield	System board	M2X2.5	2	
Wireless card bracket	System board	M2X2.5	1	



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 (touch screen)

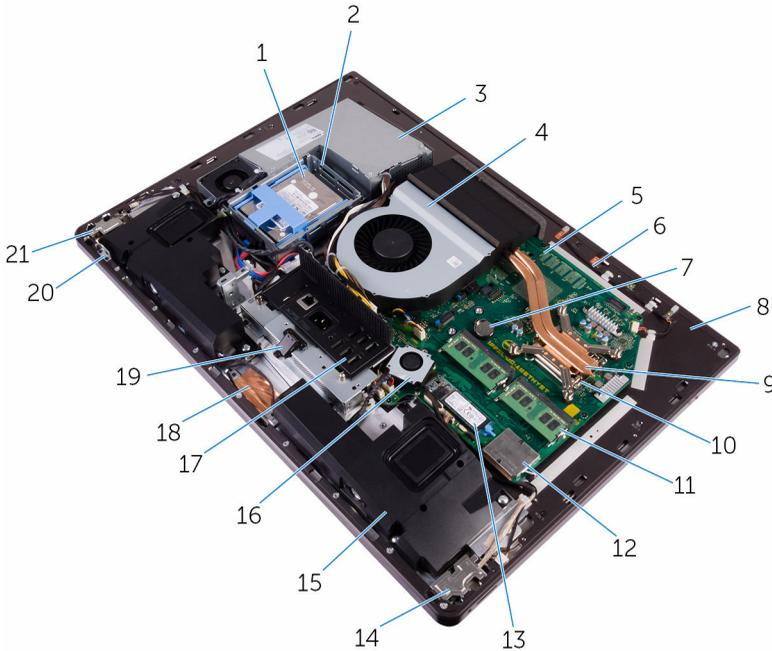


Figure 1. : Inside view of your computer

- | | | | |
|---|---------------------|---|-----------------|
| 1 | 2.5-inch hard drive | 2 | hard-drive cage |
| 3 | power-supply unit | 4 | chassis fan |



- | | | | |
|----|-------------------------|----|---|
| 5 | system board | 6 | microphone module |
| 7 | coin-cell battery | 8 | middle frame |
| 9 | processor heat-sink | 10 | processor |
| 11 | memory module | 12 | wireless-card shield |
| 13 | solid-state drive (M.2) | 14 | I/O board |
| 15 | speakers (2) | 16 | memory fan |
| 17 | I/O panel | 18 | camera |
| 19 | USB dongle-port | 20 | display built-in self test button board |
| 21 | power-button board | | |



Inside view of your computer (non-touch screen)

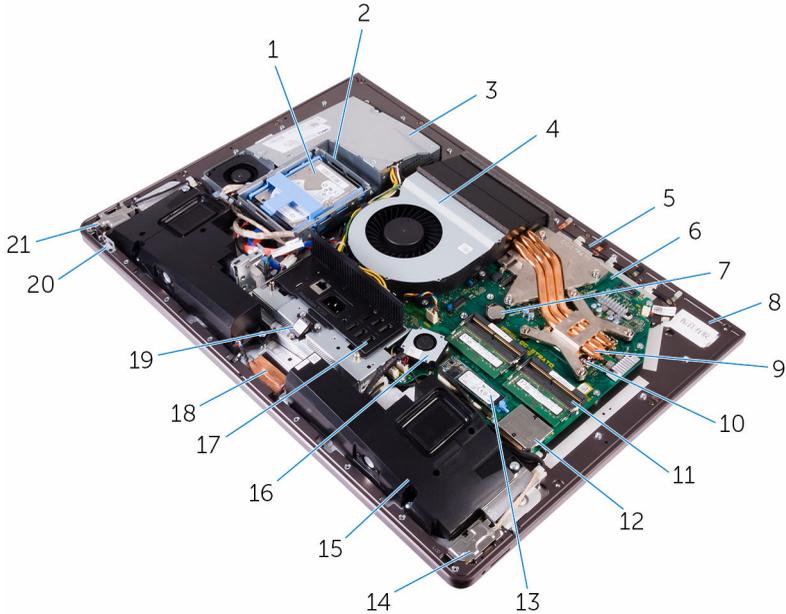


Figure 2. : Inside view of your computer (non-touch screen)

- | | | | |
|----|-------------------------|----|---|
| 1 | 2.5-inch hard drive | 2 | hard-drive cage |
| 3 | power-supply unit | 4 | chassis fan |
| 5 | microphone module | 6 | system board |
| 7 | coin-cell battery | 8 | middle frame |
| 9 | processor heat-sink | 10 | processor |
| 11 | memory module | 12 | wireless-card shield |
| 13 | solid-state drive (M.2) | 14 | I/O board |
| 15 | speakers (2) | 16 | memory fan |
| 17 | I/O panel | 18 | camera |
| 19 | USB dongle-port | 20 | display built-in self test button board |



System Board Components

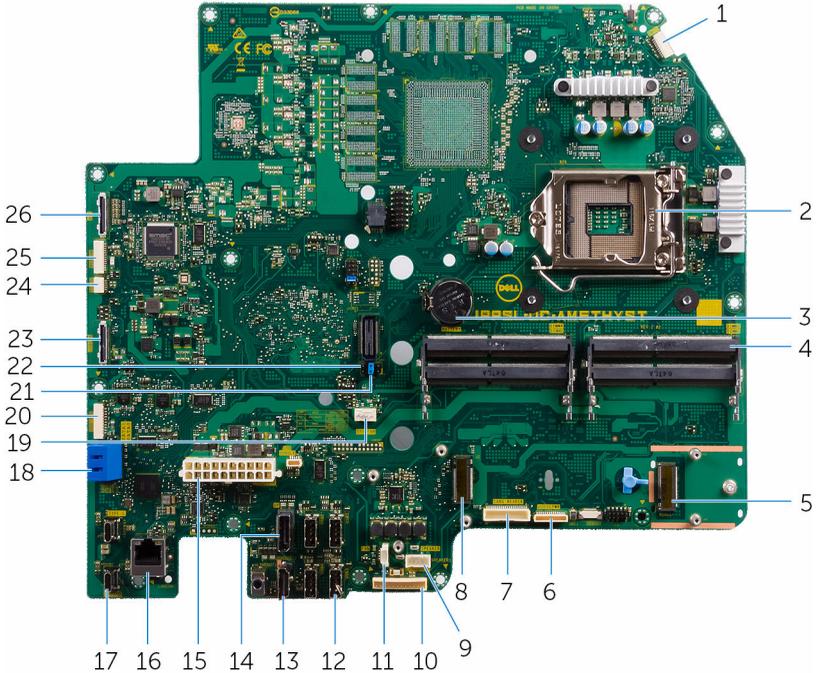


Figure 3 : System board components

- | | | | |
|----|-----------------------------------|----|---------------------------------|
| 1 | microphone cable connector | 2 | processor socket |
| 3 | coin-cell battery connector | 4 | memory module slot |
| 5 | wireless-card slot | 6 | audio-cable connector |
| 7 | media-card connector | 8 | SSD-card connector (M.2) |
| 9 | speaker cable connector | 10 | converter-board cable connector |
| 11 | memory-fan cable connector | 12 | USB 3.0 ports (4) |
| 13 | HDMI port | 14 | display port |
| 15 | power-supply unit cable connector | 16 | network port |



17	Thunderbolt 3 (USB Type-C) ports (2)	18	SATA-card slot
19	chassis-fan cable connector	20	SATA power connector
21	password clear jumper	22	CMOS clear jumper
23	side USB connector	24	touch cable connector
25	camera connector	26	display connector



Removing the USB dongle-bay cover

 **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

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

- 1 Place the computer face down.
- 2 Press and pull the USB dongle-bay cover.



Replacing the USB dongle-bay cover



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Procedure

Align the tabs on the USB dongle-bay cover into the slots on the back cover and snap the USB dongle-bay cover into place.



Removing the back cover



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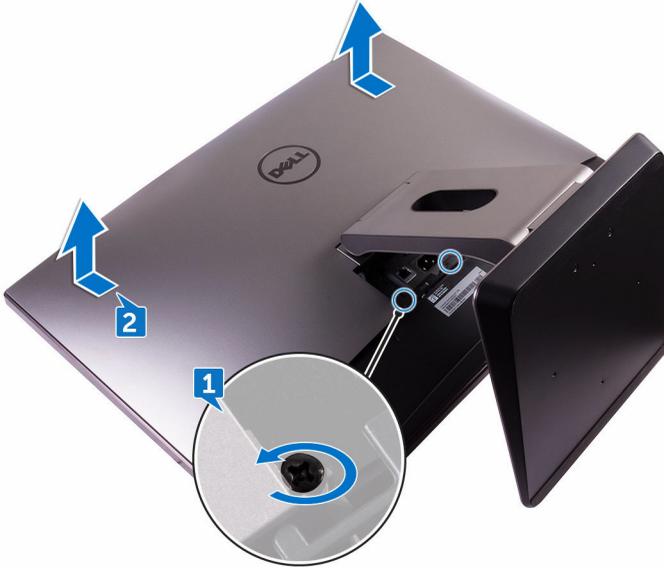
Prerequisites

Remove the [USB dongle-bay cover](#).

Procedure (touch screen)

- 1 Loosen the captive screws that secure the back cover to the inner frame.

- Slide the back cover towards the top of the computer and lift the back cover off the inner frame.



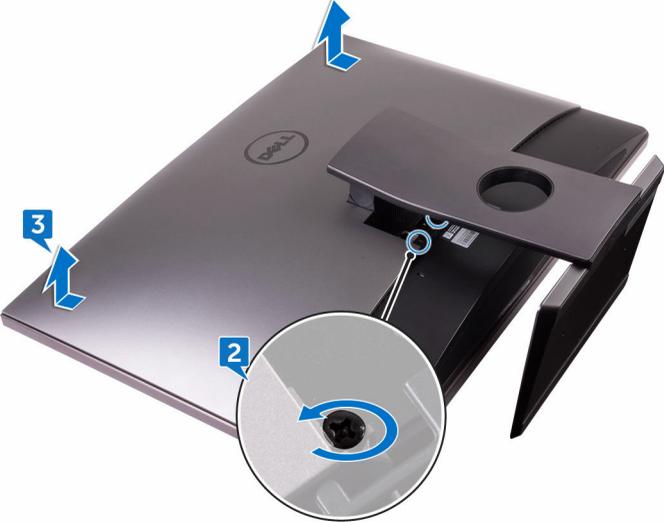
Procedure (non-touch screen)

- 1 Push the stand down.



- 2 Loosen the captive screws that secure the back cover to the inner frame.

- 3** Slide the back cover towards the top of the computer and lift the back cover off the inner frame.



Replacing the back cover



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Procedure

- 1 Align the tabs on the back cover with the slots on the inner frame.
- 2 Slide the back cover towards the bottom of the computer and snap the back cover in place.
- 3 Tighten the captive screws that secure the back cover to the inner frame.

Post-requisites

Replace the [USB dongle-bay cover](#).

Removing the memory modules



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Prerequisites

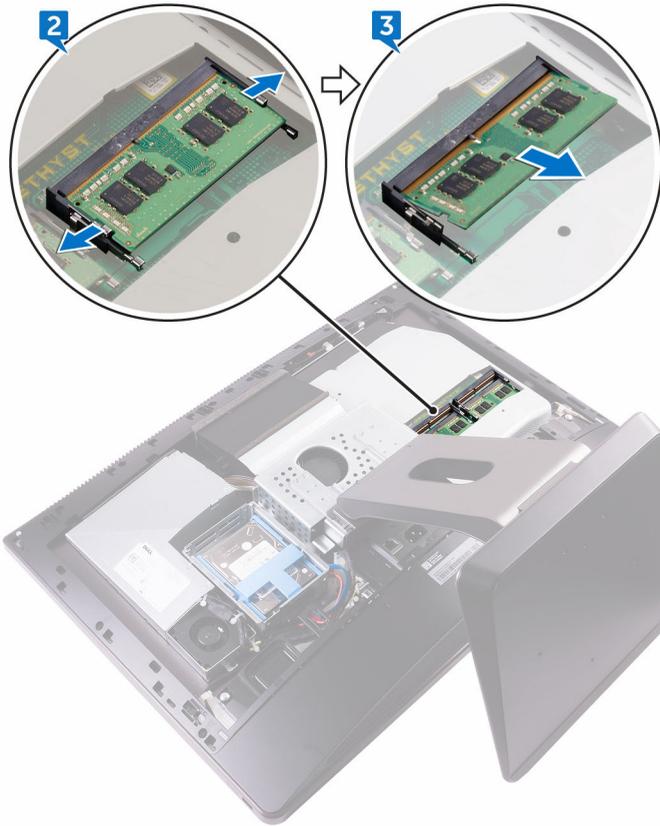
- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).

Procedure

- 1 Using the tabs pry open the memory-module shield.



- 2 Using your fingertips, spread apart the securing clips at each end of the memory-module slot until the memory module pops up.
- 3 Slide and remove the memory module from the 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.
- 2 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.

- 3 Slide the tabs on the memory-module shield into the slots on the system-board shield and snap it into place.

Post-requisites

- 1 Replace the [back cover](#).
- 2 Replace the [USB dongle-bay cover](#).



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 [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).

Procedure

- 1 Press down on the straps on the hard-drive assembly.

-
- 2** Using the straps on the hard-drive assembly, gently push and lift the hard-drive assembly out of the hard-drive cage.

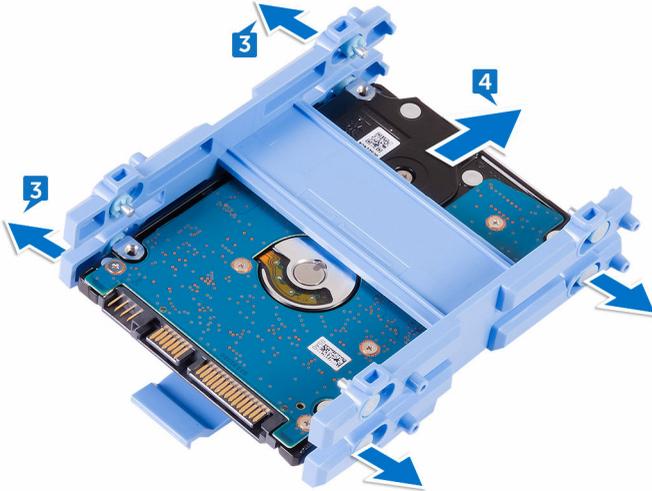


-
-
- 3** Pry the hard-drive bracket to release the tabs on the bracket from the slots on the hard drive.



- Slide the hard drive off the hard-drive bracket.

 **NOTE:** Note the orientation of the hard drive so that you can replace it correctly.



Replacing the hard drive

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

Procedure

 **NOTE:** The hard drive installed on the top slot is the primary hard drive. In case, there is only one hard drive, install it on the top slot.

- 1 Place the hard drive into the hard-drive bracket and align the tabs on the bracket with the slots on the hard drive.
- 2 Snap the hard-drive bracket into the hard drive.
- 3 With the straps facing up, align the hard-drive assembly with the slots on the hard-drive cage.
- 4 Using the straps pull the hard-drive assembly towards the back of the computer till it snaps into the hard-drive interposer.

Post-requisites

- 1 Replace the [back cover](#).
- 2 Replace the [USB dongle-bay cover](#).



Removing the system-board shield



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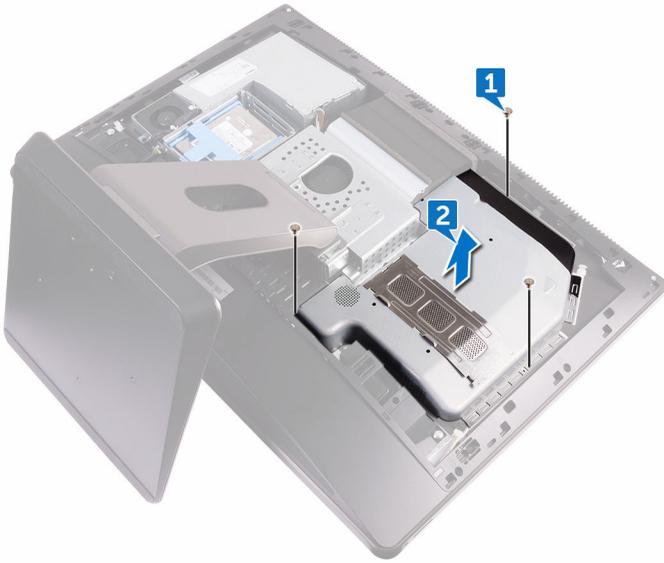
Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).

Procedure

- 1 Remove the three screws (M3X4) that secure the system-board shield to the middle frame.

- 2 Lift the system-board shield off the middle frame.



Replacing the system-board shield



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Procedure

- 1 Align the screw holes on the system-board shield with the screw holes on the middle frame.
- 2 Replace the three screws (M3X4) that secure the system-board shield to the middle frame.

Post-requisites

- 1 Replace the [back cover](#).
- 2 Replace the [USB dongle-bay cover](#).

Removing the memory fan



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Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [system-board shield](#).

Procedure

- 1 Remove the four screws (M2X3) that secure the memory fan to the middle frame.
- 2 Gently lift the memory fan from the system board.



- 3 Disconnect the memory fan cable from the system board.



Replacing the memory fan



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Procedure

- 1 Connect the memory fan cable to the system board.
- 2 Align the screw holes on the memory fan with the screw holes on the system board.
- 3 Replace the four screws (M2X3) that secure the memory fan to the system board.

Post-requisites

- 1 Replace the [system-board shield](#).
- 2 Replace the [back cover](#).
- 3 Replace the [USB dongle-bay cover](#).



Removing the processor heat-sink



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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 [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [system-board shield](#).

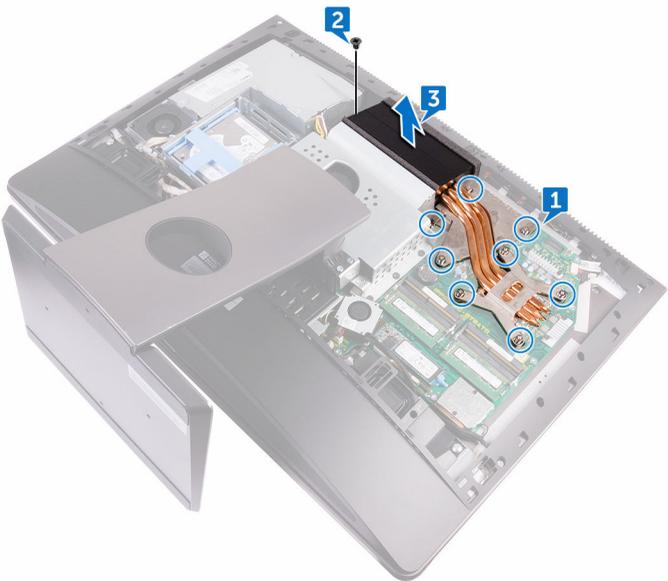
Procedure



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

- 1 In sequential order (indicated on the heat sink), loosen the captive screws that secure the processor heat-sink to the system board.
- 2 Remove the screw (M3X4) that secures the processor heat-sink fan to the middle frame

3 Lift the processor heat-sink off the system board.



Replacing the processor heat-sink



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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.

Procedure

- 1 Align the captive screws on the processor heat-sink with the screw holes on the system board.
- 2 In sequential order (indicated on the processor heat-sink), tighten the captive screws that secure the processor heat-sink to the system board.
- 3 Replace the screw (M3X4) that secures the processor heat-sink fan to the middle frame.

Post-requisites

- 1 Replace the [system-board shield](#).
- 2 Replace the [back cover](#).
- 3 Replace the [USB dongle-bay cover](#).

Removing the processor



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Prerequisites

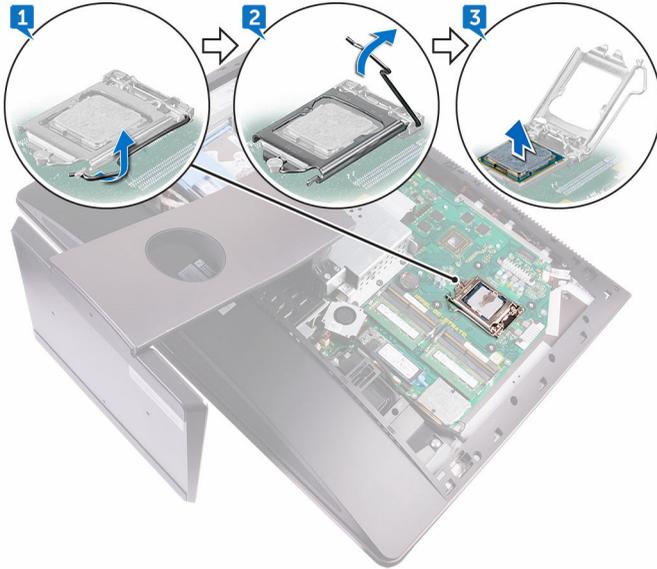
- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [system-board shield](#).
- 4 Remove the [processor heat-sink](#).

Procedure

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



3 Gently lift the processor and remove it from the processor socket.



Replacing the processor

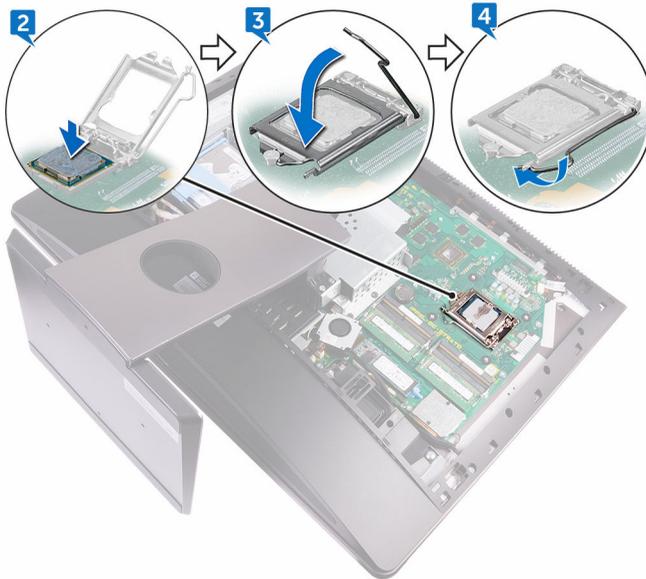
-  **WARNING:** Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best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

- 1 Ensure that the release lever on the processor socket is fully extended in the open position.
 -  **CAUTION:** The pin-1 corner of the processor has a triangle that aligns with the triangle on the pin-1 corner on the processor socket. When the processor is properly seated, all four corners are aligned at the same height. If one or more corners of the processor are higher than the others, the processor is not seated properly.
- 2 Align the notches on the processor with the tabs on the processor socket and place the processor in the processor socket.
 -  **CAUTION:** Ensure that the processor-cover notch is positioned underneath the alignment post.
- 3 When the processor is fully seated in the socket, close the processor cover.



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



Post-requisites

- 1 Replace the [processor heat-sink](#).
- 2 Replace the [system-board shield](#).
- 3 Replace the [back cover](#).
- 4 Replace the [USB dongle-bay cover](#).

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 [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [system-board shield](#).



Procedure

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



Replacing the coin-cell battery



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Procedure

With the positive-side facing up, insert the coin-cell battery into the battery socket and press down the battery into place.

Post-requisites

- 1 Replace the [system-board shield](#).
- 2 Replace the [back cover](#).
- 3 Replace the [USB dongle-bay cover](#).



Removing the solid-state drive

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

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

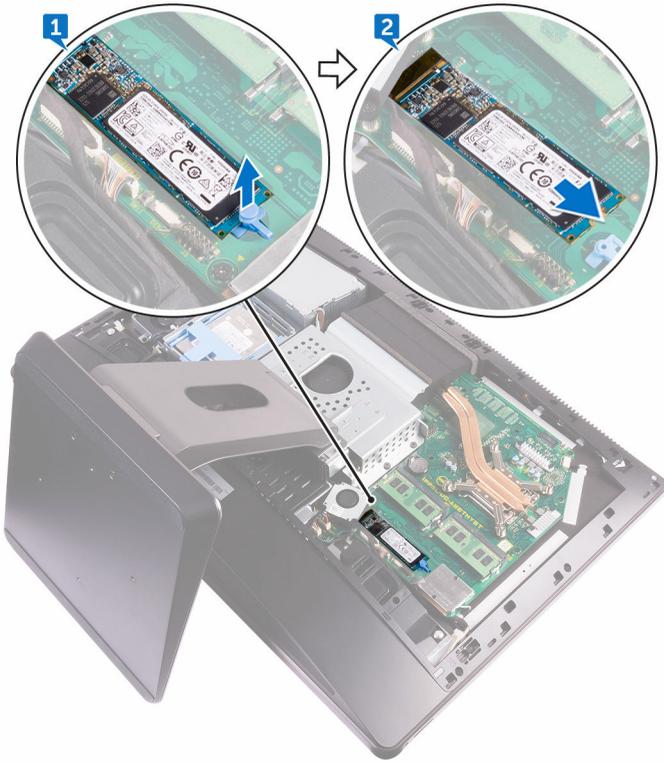
Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [system-board shield](#).

Procedure

- 1 Open the securing clip that secures the solid-state drive to the system board.

- 2 Slide and remove the solid-state drive from the solid-state drive slot.



Replacing the solid-state drive



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

Procedure

- 1 Align the notch on the solid-state drive with the tab on the solid-state drive slot.
- 2 Slide the solid-state drive into the solid-state drive slot.
- 3 Secure the solid-state drive to the system board using the securing clip.

Post-requisites

- 1 Replace the [system-board shield](#).
- 2 Replace the [back cover](#).
- 3 Replace the [USB dongle-bay cover](#).

Removing the wireless card



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Prerequisites

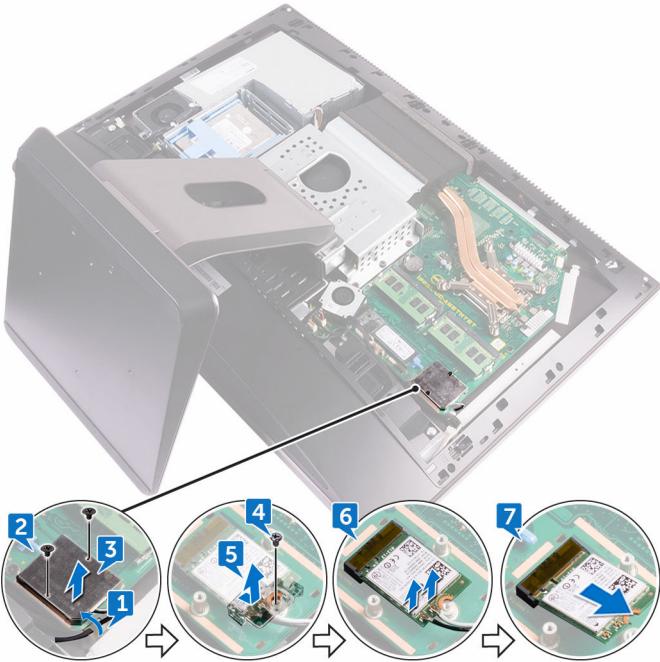
- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [system-board shield](#).

Procedure

- 1 Remove the antenna cables from the securing clip.
- 2 Remove the two screws (M2X2.5) that secure the wireless-card shield to the system board.
- 3 Lift the wireless-card shield off the system board.
- 4 Remove the screw (M2X2.5) that secures the wireless-card bracket and the wireless card to the system board.
- 5 Lift the wireless-card bracket off the wireless card.
- 6 Disconnect the antenna cables from the wireless card.



7 Slide and remove the wireless card out of the wireless-card slot.



Replacing the wireless card



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Procedure



CAUTION: To avoid damaging 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 and slide the wireless card into the wireless-card slot.
- 2 Route the antenna cable through the routing guide.
- 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. : Wirelesscard colour scheme

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

- 4 Press down the other end of the wireless card and align the screw hole on the wireless-card bracket and wireless card with the screw hole on the system board.
- 5 Replace the screw (M2X2.5) that secures the wireless-card bracket and the wireless card to the system board.
- 6 Align the screw holes on the wireless-card shield with the screw holes on the system board.
- 7 Replace the two screws (M2X2.5) that secures the wireless-card shield to system board.



- 8 Route the antenna cables through the securing clip.



Post-requisites

- 1 Replace the [system-board shield](#).
- 2 Replace the [back cover](#).
- 3 Replace the [USB dongle-bay cover](#).

Removing the stand



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Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).

Procedure

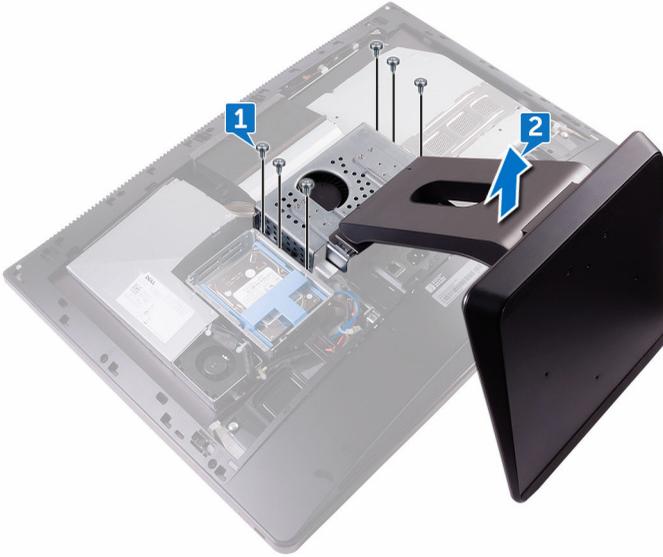


NOTE: The process for removing and replacing the stand will be same for articulating stand and pedestal stand.

- 1 Remove the six screws (M4X6) that secure the stand to the middle frame.



2 Lift the stand off the computer.



Replacing the stand



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Procedure

- 1 Align the screw holes on the stand with the screw holes on the middle frame.
- 2 Replace the six screws (M4X6) that secure the stand to the middle frame.

Post-requisites

- 1 Replace the [back cover](#).
- 2 Replace the [USB dongle-bay cover](#).



Removing the chassis fan



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Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [stand](#).
- 4 Remove the [system-board shield](#).

Procedure

- 1 Remove the power-supply unit cable from the routing guides on the chassis fan.

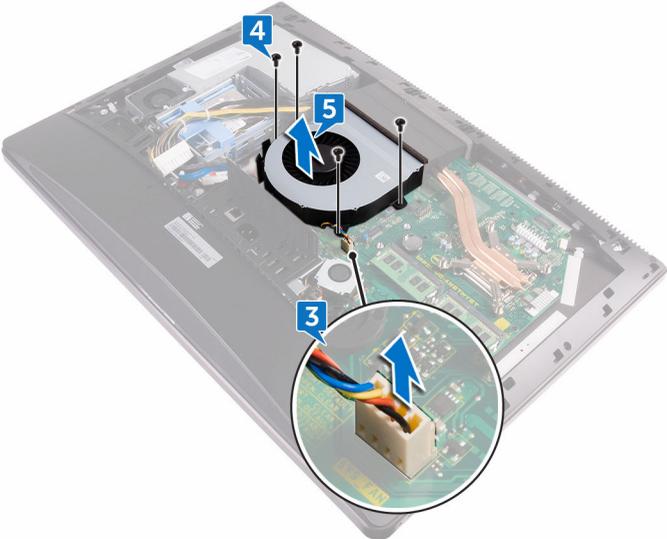
- 2 Disconnect the power-supply unit cable from its connector on the system board.



- 3 Disconnect the chassis fan cable from the system board.
- 4 Remove the four screws (M3X4) that secure the chassis fan to the middle frame.



5 Lift the chassis fan along with its cable off the middle frame.



Replacing the chassis fan



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Procedure

- 1 Align the screw holes on the chassis fan with the screw holes on the middle frame.
- 2 Replace the screws (M3X4) that secure the chassis fan to the middle frame.
- 3 Connect the chassis fan cable to the system board.
- 4 Connect the power-supply unit cable to its connector on the system board.
- 5 Route the power-supply unit cable through the routing guides on the chassis fan.

Post-requisites

- 1 Replace the [system-board shield](#).
- 2 Replace the [stand](#).
- 3 Replace the [back cover](#).
- 4 Replace the [USB dongle-bay cover](#).



Removing the power-supply unit



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Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [stand](#).

Procedure

- 1 Remove the power-supply unit cable from the routing guides on the chassis fan.
- 2 Disconnect the power-supply unit cable from its connector on the system board.
- 3 Press the securing clip to release the power-supply indicator cable from its connector.
- 4 Press the securing clip to release the power-supply fan cable from its connector.

- 5** Open the securing clips and release the cables.



- 6** Remove the five screws (M3X4) that secure the power-supply unit to the middle cover.

- 7 Lift the power-supply unit with the cable off the middle cover.



Replacing the power-supply unit



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Procedure

- 1 Align the screw holes on the power-supply unit with the screw holes on the middle cover.
- 2 Replace the five screws (M3X4) that secure the power-supply unit to the middle cover.
- 3 Route the cables through the guide and close the clip to secure the cables.
- 4 Connect the power-supply indicator cable and power-supply fan cable to their respective connectors.
- 5 Route the power-supply unit cable through the routing guides on chassis fan.
- 6 Connect the power-supply unit cable to its connector on the system board.

Post-requisites

- 1 Replace the [stand](#).
- 2 Replace the [back cover](#).
- 3 Replace the [USB dongle-bay cover](#).



Removing the inner frame



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Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [stand](#).

Procedure

- 1 Remove the screws (M3X4) that secure the inner frame to the middle frame.

NOTE: Touch screen has 14 screws and non-touch screen has 20 screws that secure the inner frame to the middle frame.



2 Gently pry the inner frame from the sides and lift it off the middle frame.



Replacing the inner frame



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Procedure

- 1 Align the screw holes on the inner frame with the screw holes on the middle frame.
- 2 Replace the screws (M3X4) that secure the inner frame to the middle frame.



NOTE: Touch screen has 14 screws and non-touch screen has 20 screws that secure the inner frame to the middle frame.

Post-requisites

- 1 Replace the [stand](#).
- 2 Replace the [back cover](#).
- 3 Replace the [USB dongle-bay cover](#).



Removing the display built-in self test button board



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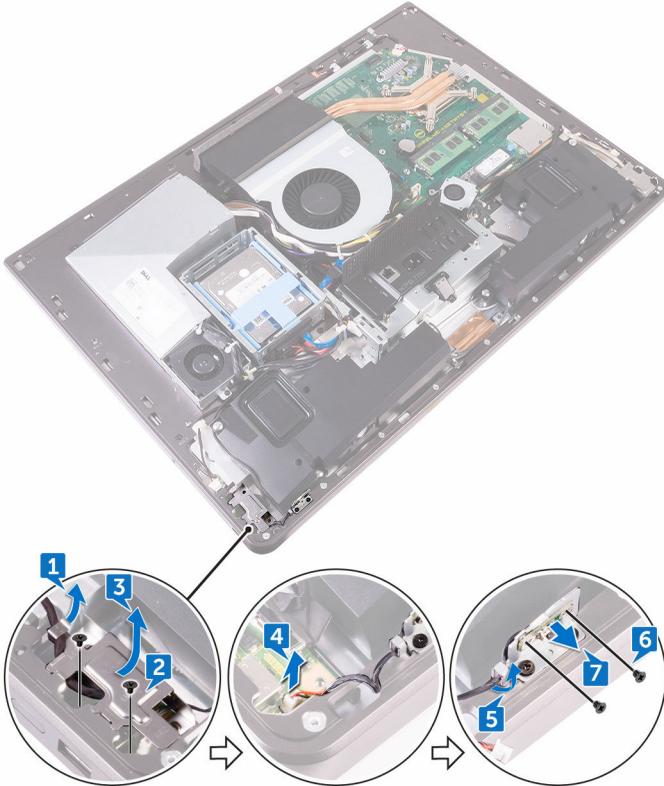
Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [stand](#).
- 4 Remove the [inner frame](#).

Procedure

- 1 Remove the power-button cable from the routing guide on the power-button board shield.
- 2 Remove the two screws (M2X3) that secure the power-button board shield to the middle frame.
- 3 Lift the power-button board shield off the middle frame.
- 4 Disconnect the Display Built-in Self Test button cable from the power-button board.
- 5 Remove the Display Built-in Self Test button cable from the routing guide on the middle frame.
- 6 Remove the two screws (M2X3) that secure the Display Built-in Self Test button board to the middle frame.

7 Lift the Display Built-in Self Test button board off the middle frame.



Replacing the display built-in self test button board



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Procedure

- 1 Place the Display Built-in Self Test button board on the middle frame.
- 2 Align the screw holes on the Display Built-in Self Test button board with the screw holes on the middle frame.
- 3 Replace the two screws (M2X3) that secure the Display Built-in Self Test button board to the middle frame.
- 4 Route the Display Built-in Self Test button cable through the routing guides.
- 5 Connect the Display Built-in Self Test button cable to the power-button board.
- 6 Place the power-button board shield on the middle frame.
- 7 Align the screw holes on the power-button board shield with the screw holes on the middle frame.
- 8 Replace the two screws (M2X3) that secure the power-button board shield to the middle frame.
- 9 Route the power-button cable through the routing guides on the power-button board shield..

Post-requisites

- 1 Replace the [inner frame](#).
- 2 Replace the [stand](#).
- 3 Replace the [back cover](#).
- 4 Replace the [USB dongle-bay cover](#).

Removing the microphones



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Prerequisites

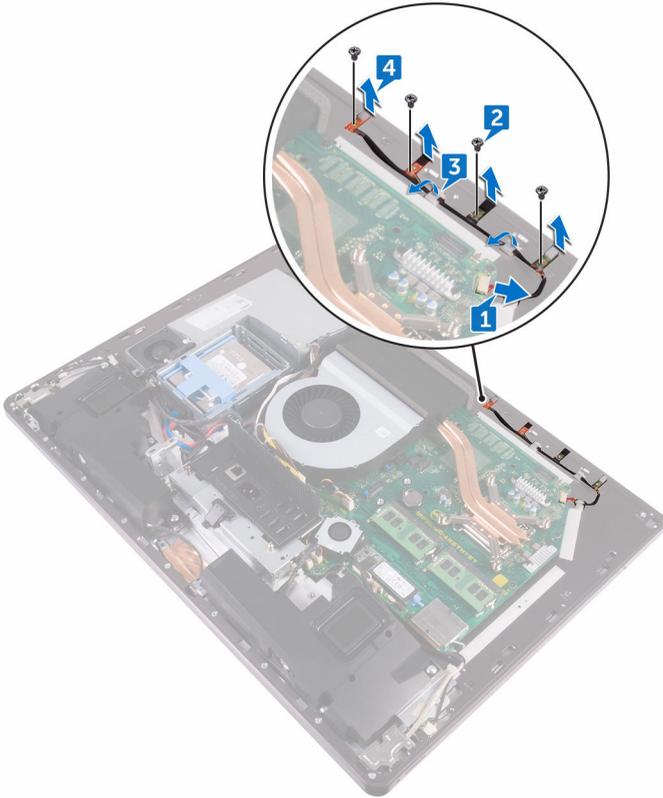
- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [system-board shield](#).
- 4 Remove the [stand](#).
- 5 Remove the [inner frame](#).

Procedure

- 1 Disconnect the microphone cable from the system board and release it from the routing guides on the middle frame.
- 2 Remove the four screws (M2X2.2) that secure the microphone module to the middle frame.
- 3 Release it from the routing guides on the middle frame.



- Using a plastic scribe, carefully pry and lift the microphone modules (4) with the cable off the slots on the middle frame.



Replacing the microphones



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Procedure

- 1 Align the microphone modules (4) with their slots on the middle frame.
- 2 Route the cable through the routing guides on middle frame.
- 3 Replace the four screws (M2X2.2) that secures the microphone module to the middle frame.
- 4 Connect the microphone cable to the system board.

Post-requisites

- 1 Replace the [inner frame](#).
- 2 Replace the [stand](#).
- 3 Replace the [system-board shield](#).
- 4 Replace the [back cover](#).
- 5 Replace the [USB dongle-bay cover](#).



Removing the I/O panel



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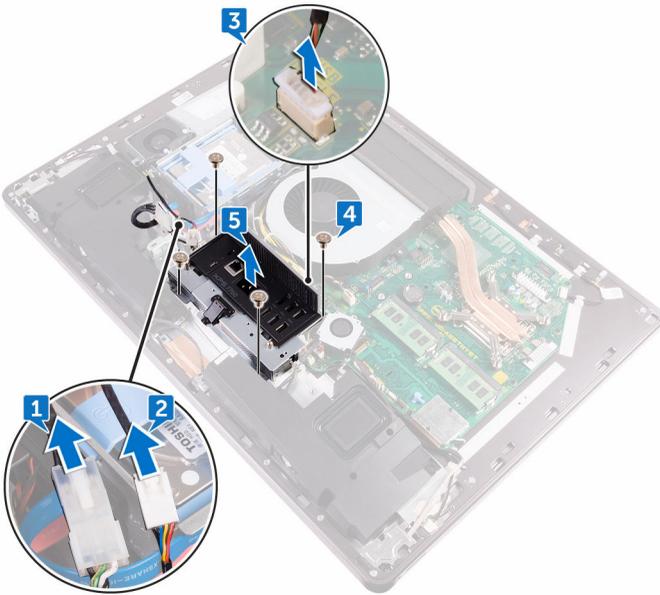
Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [stand](#).
- 4 Remove the [system-board shield](#).
- 5 Remove the [inner frame](#).

Procedure

- 1 Press the securing clip to release the power button cable from its connector.
- 2 Press the securing clip to release the diagnostic button and light cable from its connector.
- 3 Disconnect the USB dongle cable from the system board.
- 4 Remove the four screws (M3X4) that secure the I/O panel to the middle frame and system board.

- 5 Lift the I/O panel off the middle frame.



- 6 Remove [USB-dongle port](#).
- 7 Remove the [Diagnostic light button board](#).

Replacing the I/O panel



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Procedure

- 1 Replace the [Diagnostic light button board](#).
- 2 Replace [USB-dongle port](#).
- 3 Connect the USB-dongle cable to the system board.
- 4 Align the screw holes on the I/O-board panel with the screw holes on the middle frame.
- 5 Replace the four screws (M3X4) that secure the I/O panel to the middle frame and system board.
- 6 Connect the diagnostic button and light cable.
- 7 Connect the power-button cable.

Post-requisites

- 1 Replace the [inner frame](#).
- 2 Replace the [system-board shield](#).
- 3 Replace the [stand](#).
- 4 Replace the [back cover](#).
- 5 Replace the [USB dongle-bay cover](#).

Removing the USB-dongle port



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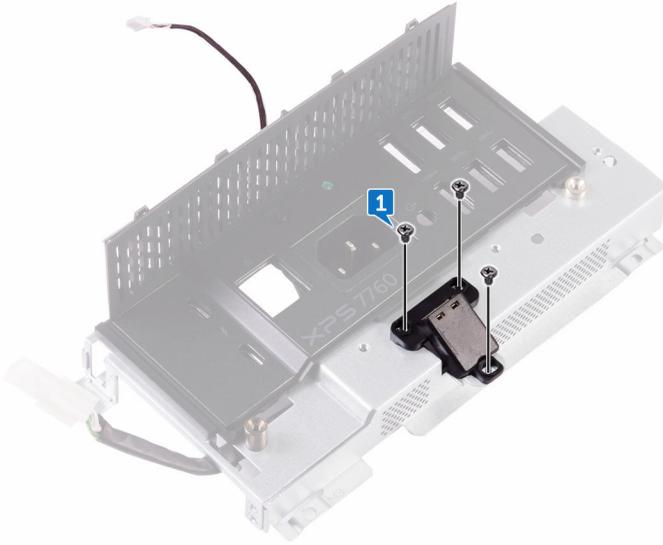
Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [stand](#).
- 4 Remove the [inner frame](#).
- 5 Remove the [system-board shield](#).
- 6 Remove the [I/O panel](#).



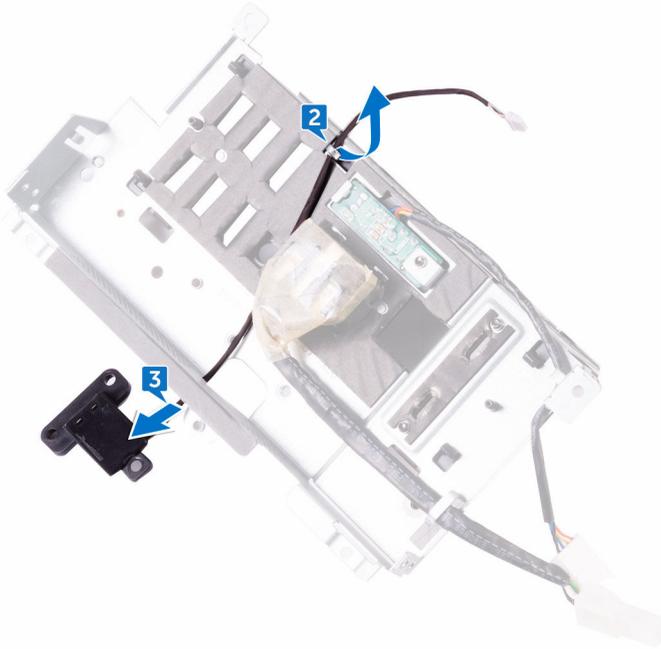
Procedure

- 1 Remove the three screws (M3X4) that secure the USB dongle port to the I/O panel.



- 2 Remove the USB dongle port cable from the routing guide on I/O panel.

- 3 Remove the USB dongle port from the I/O panel.



Replacing the USB-dongle port



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Procedure

- 1 Route the USB dongle port cable into the slot on I/O panel .
- 2 Route the USB dongle port cable through the routing guide on I/O panel .
- 3 Align the screw holes on the USB dongle port to the screw holes on the I/O panel.
- 4 Replace the three screws (M3X4) that secure the USB dongle port to the I/O panel.

Post-requisites

- 1 Replace the [I/O panel](#).
- 2 Replace the [system-board shield](#).
- 3 Replace the [inner frame](#).
- 4 Replace the [stand](#).
- 5 Replace the [back cover](#).
- 6 Replace the [USB dongle-bay cover](#).

Removing the diagnostic light and button board



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Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [stand](#).
- 4 Remove the [system-board shield](#).
- 5 Remove the [inner frame](#).
- 6 Remove the [I/O panel](#).



Procedure

- 1 Spread apart the securing tabs to release the I/O-panel bracket from the I/O panel.

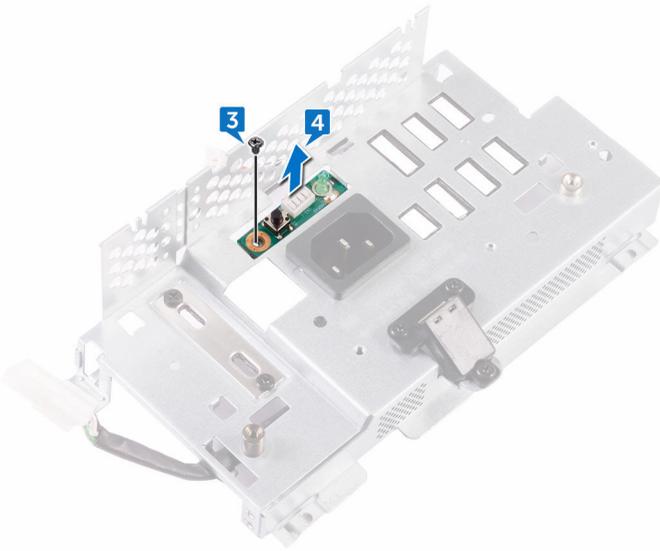


- 2 Lift the I/O-panel bracket off the I/O panel.



- 3 Remove the screw that secures the power diagnostic button and light board to the I/O-panel bracket.

- 4 Lift the power diagnostic button and light board off the I/O-panel bracket.



Replacing the diagnostic light and button board



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Procedure

- 1 Align the screw holes on power diagnostic button and light board to the screw holes on the I/O-panel bracket.
- 2 Replace the screw that secure the power diagnostic button and light board to the I/O-panel bracket.
- 3 Align the tabs on the I/O-panel bracket with the slots on the I/O panel and snap the I/O-panel bracket in place.

Post-requisites

- 1 Replace the [I/O panel](#).
- 2 Replace the [inner frame](#).
- 3 Replace the [system-board shield](#).
- 4 Replace the [stand](#).
- 5 Replace the [back cover](#).
- 6 Replace the [USB dongle-bay cover](#).



Removing the hard-drive cage



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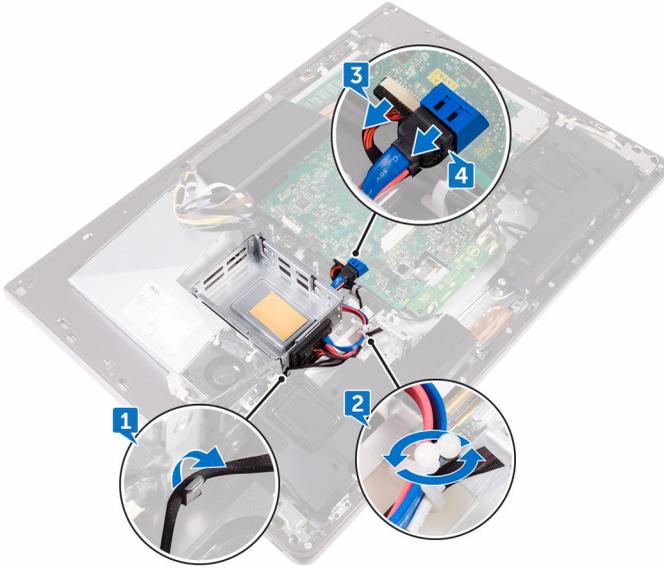
Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [stand](#).
- 4 Remove the [hard drive](#).
- 5 Remove the [system-board shield](#).
- 6 Remove the [I/O panel](#).

Procedure

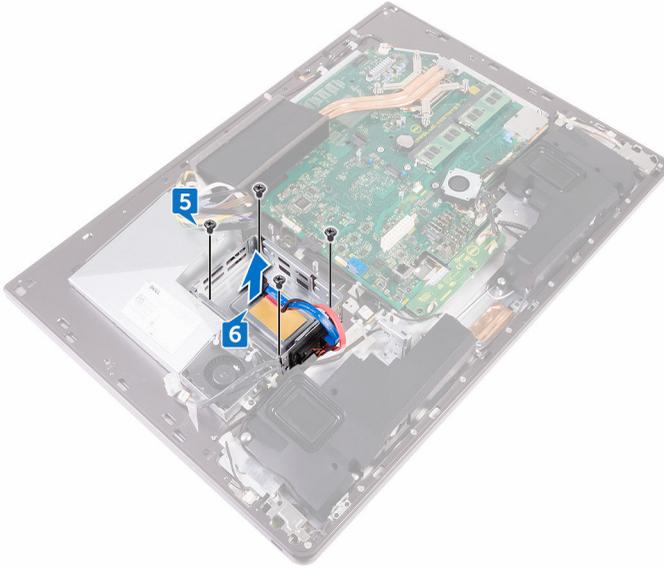
- 1 Remove the cable from the routing guide on hard-drive cage.
- 2 Open the securing clips and release the hard drive cables.
- 3 Disconnect the hard-drive power cable from the system board.

- 4 Disconnect the hard-drive data cables from the system board.

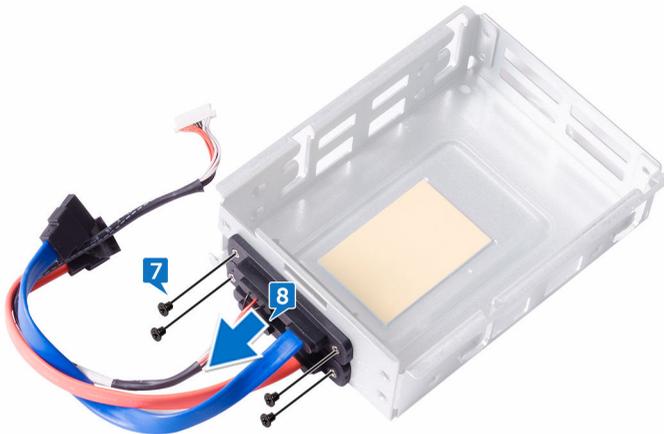


- 5 Remove the four screws (M3X4) that connects the hard-drive cage to the middle frame.

- 6 Lift the hard-drive cage off the middle frame.



- 7 Remove the four screws (M2X3) that connects the interposer to the hard-drive cage.
- 8 Disconnect the interposer from the hard-drive cage.



Replacing the hard-drive cage



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Procedure

- 1 Align the screw holes on the interposer with the screw holes on the hard-drive cage.
- 2 Replace the four screws (M2X3) that connects the interposer to the hard-drive cage.
- 3 Align the screw holes on the hard-drive cage to the screw holes on the middle frame.
- 4 Replace the four screws (M3X4) that secure the hard-drive cage to the middle frame.
- 5 Connect the hard-drive data cables and the hard-drive power cable to the system board.



NOTE: Connect the blue-colored cable at the top and red-colored cable to the bottom of the hard-drive cage.

- 6 Route the cables through the guide and close the clip to secure the cables.

Post-requisites

- 1 Replace the [I/O panel](#).
- 2 Replace the [system-board shield](#).
- 3 Replace the [stand](#).
- 4 Replace the [hard drive](#).
- 5 Replace the [back cover](#).
- 6 Replace the [USB dongle-bay cover](#).



Removing the converter board



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

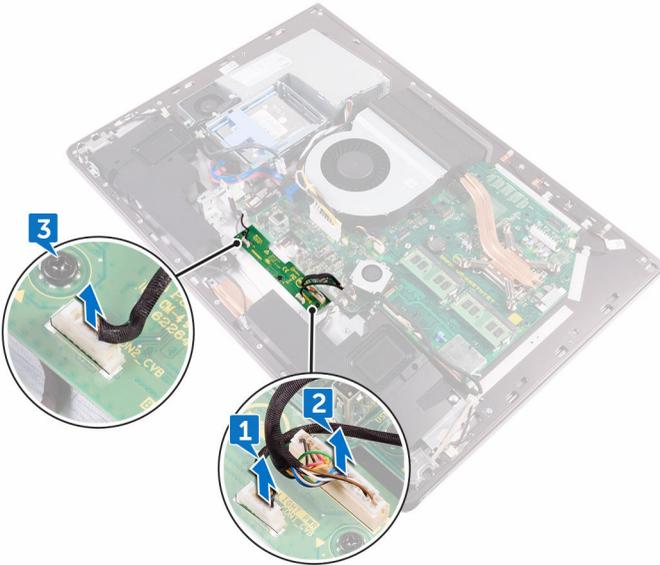
Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [stand](#).
- 4 Remove the [system-board shield](#).
- 5 Remove the [inner frame](#).
- 6 Remove the [I/O panel](#).

Procedure

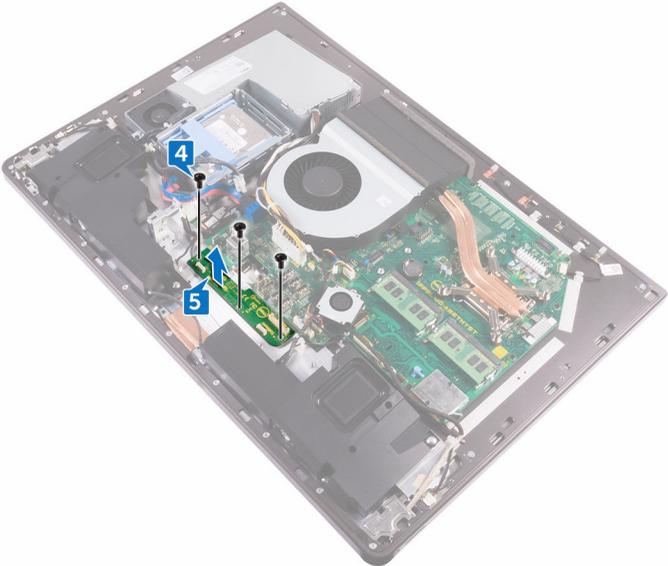
- 1 Disconnect the right backlight power cable from the converter board.
- 2 Disconnect the converter-board cable from the converter board.

- 3 Disconnect the left backlight power cable from the converter board.



- 4 Remove the three screws (M3X4) that secure the converter board to the middle frame.

5 Lift the converter board off the middle frame.



Replacing the converter board



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Procedure

- 1 Align the screw holes on the converter board with the screw holes on the middle frame.
- 2 Replace the three screws (M3X4) that secure the converter board to the middle frame.
- 3 Connect the converter-board cable to the converter board.
- 4 Connect the backlight power cables to the converter board.

Post-requisites

- 1 Replace the [I/O panel](#).
- 2 Replace the [inner frame](#).
- 3 Replace the [system-board shield](#).
- 4 Replace the [stand](#).
- 5 Replace the [back cover](#).
- 6 Replace the [USB dongle-bay cover](#).



Removing the speakers



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.

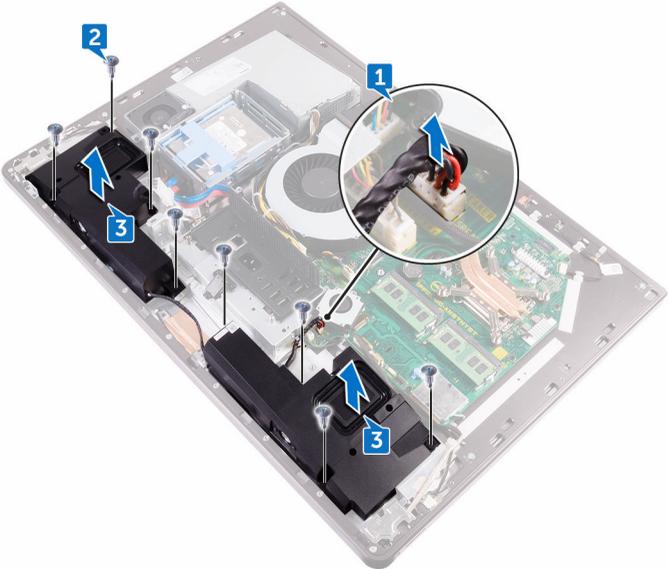
Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [system-board shield](#).
- 4 Remove the [stand](#).
- 5 Remove the [inner frame](#).

Procedure

- 1 Disconnect the speaker cable from the system board and release it from the routing guides on middle frame.
- 2 Remove the eight screws (M3x4) that secure the speakers to the middle frame.

3 Lift the speakers along with the cable off the middle frame.



Replacing the speakers



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

- 1 Align the screw holes on the speakers with the screw holes on the middle frame.
- 2 Replace the eight screws (M3x4) that secure the speakers to the middle frame.
- 3 Route the cable through the routing guides on middle frame and connect the speaker cable to the system board.

Post-requisites

- 1 Replace the [inner frame](#).
- 2 Replace the [stand](#).
- 3 Replace the [system-board shield](#).
- 4 Replace the [back cover](#).
- 5 Replace the [USB dongle-bay cover](#).

Removing the power-button board



WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). 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 [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [stand](#).
- 4 Remove the [inner frame](#).

Procedure

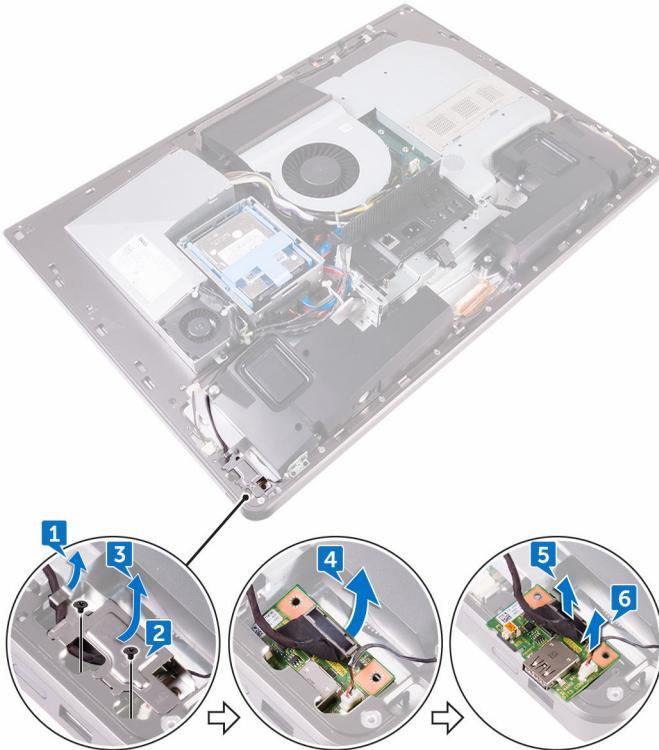


NOTE: Note the routing of the cable as you remove it so that you can reroute it correctly after you replace the power-button board.

- 1 Remove the two screws (M2X3) that secures the power-button board shield to middle frame.
- 2 Remove the power-button cable from the routing guide on the power-button board shield.
- 3 Lift the power-button board shield off the middle frame.
- 4 Lift the power-button board off the slot on the middle frame.
- 5 Disconnect the power-button board cable from the power-button board.



- 6 Disconnect the Display Built-in Self Test button cable from the power-button board.



Replacing the power-button board



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

- 1 Connect the power-button board cable and Display Built-in Self Test button cable to the power-button board.
- 2 Align the power-button board to the slot on the middle frame and place the power-button board on the middle frame.
- 3 Align the screw holes on power-button board shield to the screw holes on middle frame.
- 4 Replace the two screws (M2X3) that secures the power-button board shield to middle frame.
- 5 Route the power-button cable through the routing guides on the power-button board shield.

Post-requisites

- 1 Replace the [inner frame](#).
- 2 Replace the [stand](#).
- 3 Replace the [back cover](#).
- 4 Replace the [USB dongle-bay cover](#).



Removing the media-card reader



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.

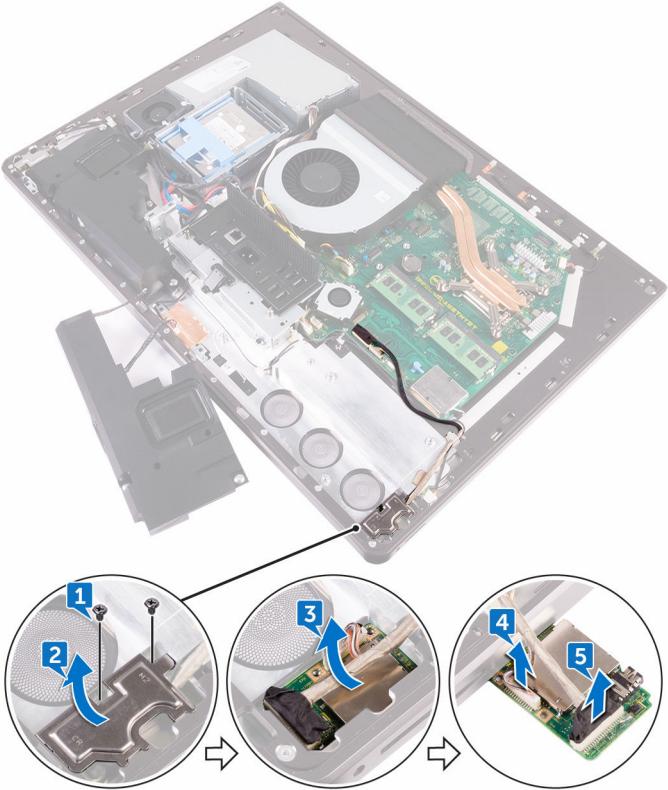
Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [stand](#).
- 4 Remove the [inner frame](#).
- 5 Remove the [speakers](#).

Procedure

- 1 Remove two screws (M2X3) that secure the media-card reader shield to the middle frame.
- 2 Lift the media-card reader shield off the middle frame.
- 3 Lift the media-card off from the slot on the middle frame.
- 4 Disconnect the media-card reader cable from the media-card.

5 Disconnect the audio cable from the media-card.



Replacing the media-card reader



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Procedure

- 1 Connect the audio cable to the media card.
- 2 Connect the media-card reader cable to the media-card.
- 3 Align the media-card reader to the slot on the middle frame.
- 4 Align the screw hole on the media-card reader shield to the screw hole on the middle frame.
- 5 Replace the two screws (M2X3) that secure the media-card reader shield to the middle frame.

Post-requisites

- 1 Replace the [speakers](#).
- 2 Replace the [inner frame](#).
- 3 Replace the [stand](#).
- 4 Replace the [back cover](#).
- 5 Replace the [USB dongle-bay cover](#).

Removing the camera



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Prerequisites

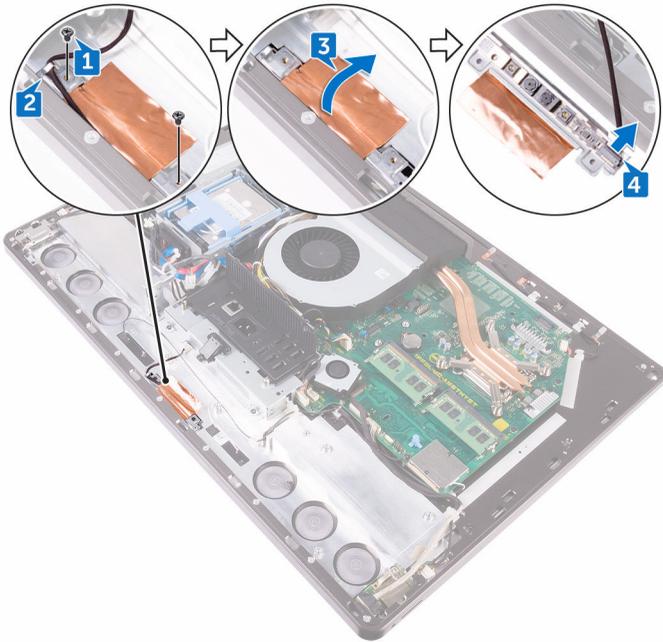
- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [stand](#).
- 4 Remove the [inner frame](#).
- 5 Remove the [speakers](#).

Procedure

- 1 Remove the two screws (M2X3) that secure the camera assembly to the middle frame.
- 2 Remove the camera cable from the routing guide on the middle frame.
- 3 Lift the metal foil and turn the camera assembly over.



- 4 Disconnect the camera cable from the camera assembly.



Replacing the camera



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Procedure

- 1 Connect the camera cable to the camera assembly.
- 2 Turn the camera assembly and route the camera cable through the routing guide on the middle frame.
- 3 Align the screw holes on the camera assembly with the screw holes on the middle frame.
- 4 Replace the two screws (M2X3) that secure camera assembly to the middle frame.

Post-requisites

- 1 Replace the [speakers](#).
- 2 Replace the [inner frame](#).
- 3 Replace the [stand](#).
- 4 Replace the [back cover](#).
- 5 Replace the [USB dongle-bay cover](#).



Removing the system board



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

Prerequisites

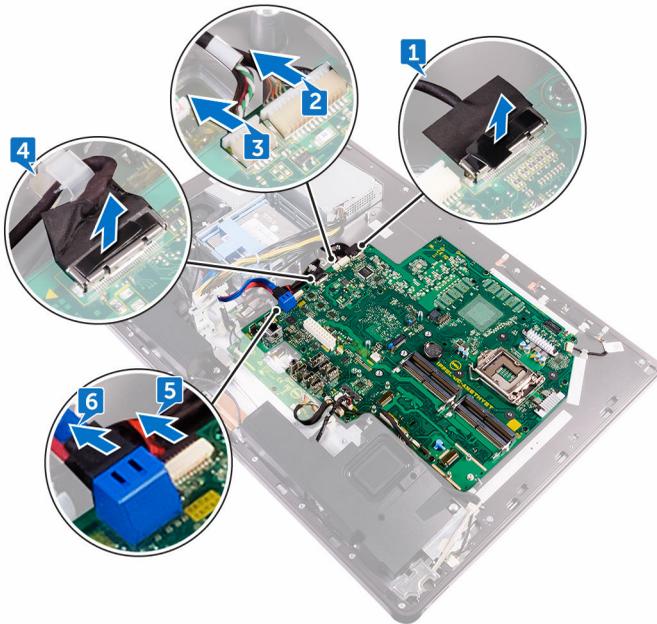
- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [memory modules](#).
- 4 Remove the [stand](#).
- 5 Remove the [chassis fan](#).
- 6 Remove the [inner frame](#).
- 7 Remove the [system-board shield](#).
- 8 Remove the [I/O panel](#).
- 9 Remove the [processor heat-sink](#).
- 10 Remove the [processor](#).
- 11 Remove the [coin-cell battery](#).
- 12 Remove the [memory fan](#).
- 13 Remove the [wireless card](#).

- 14 Remove the [solid-state drive](#).

Procedure

 **NOTE:** To avoid any potential damage to the cables, ensure to release them from the routing guides.

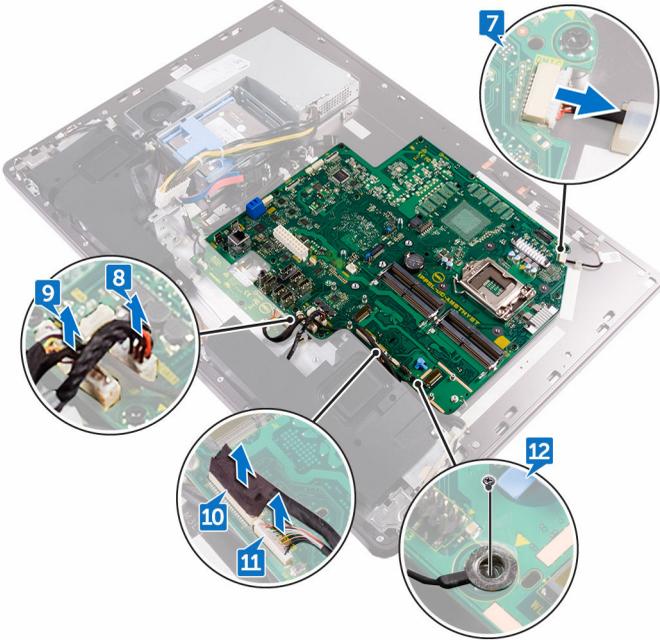
- 1 Using the pull tab, disconnect the display cable from the system board.
- 2 Disconnect the camera cable from the system board.
- 3 Disconnect the touch cable (applicable only for systems with the touch screen option) from the system board.
- 4 Using the pull tab, disconnect the media-card reader cable from the system board.
- 5 Disconnect the hard-drive power cable from the system board.
- 6 Disconnect the hard-drive data cables from the system board.



- 7 Disconnect the microphone cable from the system board.
- 8 Disconnect the speaker cable from the system board.
- 9 Disconnect the converter-board cable from the system board.

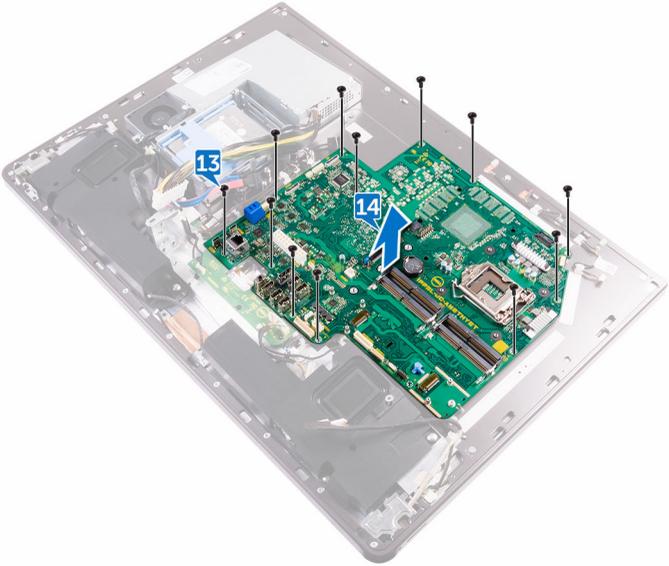


- 10 Using the pull tab, disconnect the media-card reader cable from the system board.
- 11 Disconnect the audio cable from the system board.
- 12 Remove the screw (M3X4) that secures the media-card reader cable and audio cable to the system board.



- 13 Remove the 12 screws (M3X4) that secure the system board to the middle frame.

14 Lift the system board off the middle frame.



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

- 1 Align the screw holes on the system board with the screw holes on the middle frame.
- 2 Replace the 12 screws (M3X4) that secure the system board to the middle frame.
- 3 Replace the screw (M3X4) that secures the back-light cable to the system board.
- 4 Connect the audio cable, media-card reader cable and converter-board cable to their respective connectors on the system board.
- 5 Connect the microphone cable, power-supply unit cable and hard-drive cable to their respective connectors on the system board.
- 6 Connect the touch-pad cable (applicable only for systems with the touch screen option) to its connector on the system board.
- 7 Connect the media-card reader cable, webcam cable and display cable to their respective connectors on the system board.

Post-requisites

- 1 Replace the [solid-state drive](#).

- 2 Replace the [wireless card](#).
- 3 Replace the [memory fan](#).
- 4 Replace the [coin-cell battery](#).
- 5 Replace the [processor](#).
- 6 Replace the [processor heat-sink](#).
- 7 Replace the [I/O panel](#).
- 8 Replace the [system-board shield](#).
- 9 Replace the [inner frame](#).
- 10 Replace the [chassis fan](#).
- 11 Replace the [stand](#).
- 12 Replace the [memory modules](#).
- 13 Replace the [back cover](#).
- 14 Replace the [USB dongle-bay cover](#).



Removing the display assembly



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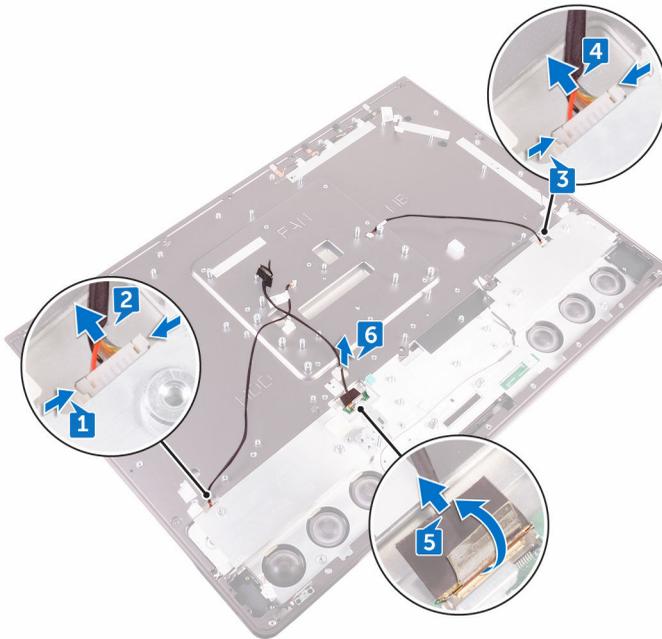
Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [memory modules](#).
- 4 Remove the [hard drive](#).
- 5 Remove the [stand](#).
- 6 Remove the [system-board shield](#).
- 7 Remove the [chassis fan](#).
- 8 Remove the [wireless card](#).
- 9 Remove the [power-supply unit](#).
- 10 Remove the [memory fan](#).
- 11 Remove the [inner frame](#).
- 12 Remove the [microphones](#).
- 13 Remove the [I/O panel](#).
- 14 Remove the [processor heat-sink](#).
- 15 Remove the [processor](#).
- 16 Remove the [hard-drive cage](#).
- 17 Remove the [coin-cell battery](#).
- 18 Remove the [solid-state drive](#).
- 19 Remove the [converter board](#).
- 20 Remove the [speakers](#).
- 21 Remove the [power-button board](#).
- 22 Remove the [media-card reader](#).

- 23 Remove the [camera](#).
- 24 Remove the [system board](#).
- 25 Remove the [Display built-in self test button board](#).

Procedure

- 1 Press the tabs on the cable to release it from the connector.
- 2 Disconnect the cable from its slot on the middle frame.
- 3 Press the tabs on the backlight cable.
- 4 Disconnect the backlight cable from its slot on the middle frame.
- 5 Open the latch and disconnect the display cable from its slot on the middle frame.
- 6 Lift the display cable off the middle frame.



Replacing the display assembly



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Procedure

- 1 Open the latch and connect the display cable to its slot on the middle frame.
- 2 Connect the backlight cable to its slot on the middle frame.
- 3 Connect the converter-board cable to its slot on the middle frame.

Post-requisites

- 1 Replace the [display built-in self test button board](#).
- 2 Replace the [system board](#).
- 3 Replace the [camera](#).
- 4 Replace the [media-card reader](#).
- 5 Replace the [power-button board](#).
- 6 Replace the [speakers](#).
- 7 Replace the [converter board](#).
- 8 Replace the [solid-state drive](#).
- 9 Replace the [coin-cell battery](#).
- 10 Replace the [hard-drive cage](#).
- 11 Replace the [processor](#).
- 12 Replace the [processor heat-sink](#).
- 13 Replace the [I/O panel](#).
- 14 Replace the [microphones](#).
- 15 Replace the [inner frame](#).
- 16 Replace the [memory fan](#).

- 17 Replace the [power-supply unit](#).
- 18 Replace the [wireless card](#).
- 19 Replace the [chassis fan](#).
- 20 Replace the [system-board shield](#).
- 21 Replace the [stand](#).
- 22 Replace the [hard drive](#).
- 23 Replace the [memory modules](#).
- 24 Replace the [back cover](#).
- 25 Replace the [USB dongle-bay cover](#).



Removing the middle frame



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Prerequisites

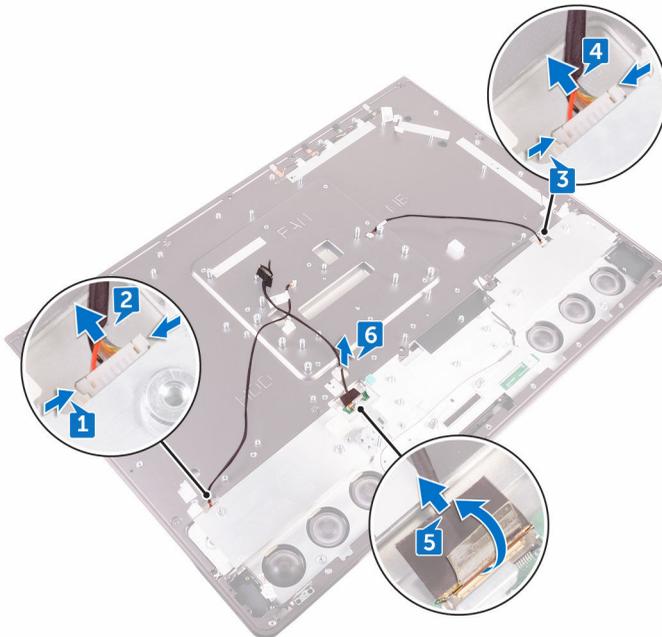
- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [memory modules](#).
- 4 Remove the [hard drive](#).
- 5 Remove the [stand](#).
- 6 Remove the [system-board shield](#).
- 7 Remove the [chassis fan](#).
- 8 Remove the [wireless card](#).
- 9 Remove the [power-supply unit](#).
- 10 Remove the [memory fan](#).
- 11 Remove the [inner frame](#).
- 12 Remove the [microphones](#).
- 13 Remove the [I/O panel](#).
- 14 Remove the [processor heat-sink](#).
- 15 Remove the [processor](#).
- 16 Remove the [hard-drive cage](#).
- 17 Remove the [coin-cell battery](#).
- 18 Remove the [solid-state drive](#).
- 19 Remove the [converter board](#).
- 20 Remove the [speakers](#).
- 21 Remove the [power-button board](#).
- 22 Remove the [media-card reader](#).

- 23 Remove the [camera](#).
- 24 Remove the [system board](#).
- 25 Remove the [Display built-in self test button board](#).

Procedure

 **NOTE: The following steps are applicable only for non-touch systems.**

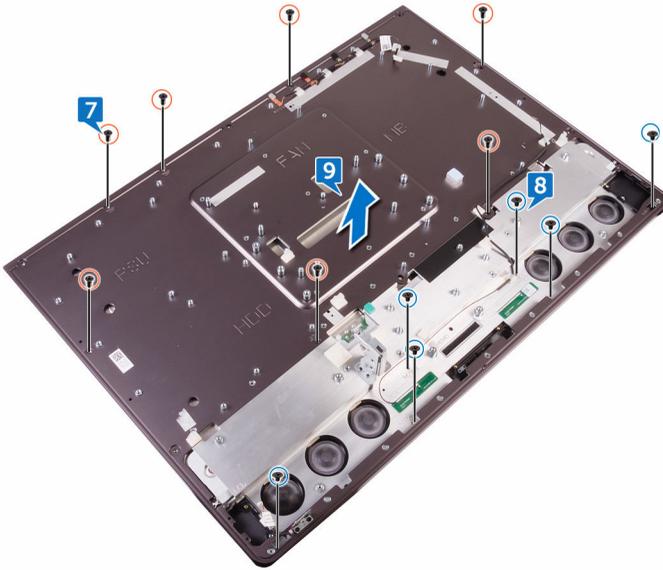
- 1 Press the tabs on the cable to release it from the connector.
- 2 Disconnect the cable from its slot on the middle frame.
- 3 Press the tabs on the backlight cable.
- 4 Disconnect the backlight cable from its slot on the middle frame.
- 5 Open the latch and disconnect the display cable from its slot on the middle frame.
- 6 Lift the display cable off the middle frame.



- 7 Remove the 7 screws (M3X4) that secures the middle frame to display.



- 8 Remove the 6 screws (M2X3) that secures the middle frame to the speaker bezel.
- 9 Lift the middle frame off the display.



Replacing the middle frame



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



NOTE: The following steps are applicable only for non-touch systems.

- 1 Align the screw holes on the middle frame with the screw holes on the display.
- 2 Replace the 7 screws (M3X4) that secures the middle frame to display.
- 3 Align the screw holes on the middle frame with the screw holes on the speaker bezel.
- 4 Replace the 6 screws (M2X3) that secures the middle frame to speaker bezel.
- 5 Open the latch and connect the display cable to its slot on the middle frame.
- 6 Connect the backlight cable to its slot on the middle frame.
- 7 Connect the converter-board cable to its slot on the middle frame.

Post-requisites

- 1 Replace the [display built-in self test button board](#).
- 2 Replace the [system board](#).
- 3 Replace the [camera](#).
- 4 Replace the [media-card reader](#).
- 5 Replace the [power-button board](#).
- 6 Replace the [speakers](#).
- 7 Replace the [converter board](#).
- 8 Replace the [solid-state drive](#).
- 9 Replace the [coin-cell battery](#).



- 10 Replace the [hard-drive cage](#).
- 11 Replace the [processor](#).
- 12 Replace the [processor heat-sink](#).
- 13 Replace the [I/O panel](#).
- 14 Replace the [microphones](#).
- 15 Replace the [inner frame](#).
- 16 Replace the [memory fan](#).
- 17 Replace the [power-supply unit](#).
- 18 Replace the [wireless card](#).
- 19 Replace the [chassis fan](#).
- 20 Replace the [system-board shield](#).
- 21 Replace the [stand](#).
- 22 Replace the [hard drive](#).
- 23 Replace the [memory modules](#).
- 24 Replace the [back cover](#).
- 25 Replace the [USB dangle-bay cover](#).



Removing the speaker bezel



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 [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [memory modules](#).
- 4 Remove the [hard drive](#).
- 5 Remove the [stand](#).
- 6 Remove the [system-board shield](#).
- 7 Remove the [chassis fan](#).
- 8 Remove the [wireless card](#).
- 9 Remove the [power-supply unit](#).
- 10 Remove the [memory fan](#).
- 11 Remove the [inner frame](#).
- 12 Remove the [microphones](#).
- 13 Remove the [I/O panel](#).
- 14 Remove the [processor heat-sink](#).
- 15 Remove the [processor](#).
- 16 Remove the [hard-drive cage](#).
- 17 Remove the [coin-cell battery](#).
- 18 Remove the [solid-state drive](#).
- 19 Remove the [converter board](#).
- 20 Remove the [speakers](#).
- 21 Remove the [power-button board](#).
- 22 Remove the [media-card reader](#).



- 23 Remove the [camera](#).
- 24 Remove the [system board](#).
- 25 Remove the [Display built-in self test button board](#).
- 26 Remove the [middle frame](#).

Procedure



NOTE: The following steps are applicable only for non-touch systems.

- 1 Lift the display panel.
- 2 Pull the speaker bezel away from the display panel.



Replacing the speaker bezel



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



NOTE: The following procedure is applicable only for non-touch systems.

Place the speaker bezel on the display panel.

Post-requisites

- 1 Replace the [middle frame](#).
- 2 Replace the [display built-in self test button board](#).
- 3 Replace the [system board](#).
- 4 Replace the [camera](#).
- 5 Replace the [media-card reader](#).
- 6 Replace the [power-button board](#).
- 7 Replace the [speakers](#).
- 8 Replace the [converter board](#).
- 9 Replace the [solid-state drive](#).
- 10 Replace the [coin-cell battery](#).
- 11 Replace the [hard-drive cage](#).
- 12 Replace the [processor](#).
- 13 Replace the [processor heat-sink](#).
- 14 Replace the [I/O panel](#).
- 15 Replace the [microphones](#).
- 16 Replace the [inner frame](#).



- 17 Replace the [memory fan](#).
- 18 Replace the [power-supply unit](#).
- 19 Replace the [wireless card](#).
- 20 Replace the [chassis fan](#).
- 21 Replace the [system-board shield](#).
- 22 Replace the [stand](#).
- 23 Replace the [hard drive](#).
- 24 Replace the [memory modules](#).
- 25 Replace the [back cover](#).
- 26 Replace the [USB dongle-bay cover](#).



Removing the display panel



WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before 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 [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [memory modules](#).
- 4 Remove the [hard drive](#).
- 5 Remove the [stand](#).
- 6 Remove the [system-board shield](#).
- 7 Remove the [chassis fan](#).
- 8 Remove the [wireless card](#).
- 9 Remove the [power-supply unit](#).
- 10 Remove the [memory fan](#).
- 11 Remove the [inner frame](#).
- 12 Remove the [microphones](#).
- 13 Remove the [I/O panel](#).
- 14 Remove the [processor heat-sink](#).
- 15 Remove the [processor](#).
- 16 Remove the [hard-drive cage](#).
- 17 Remove the [coin-cell battery](#).
- 18 Remove the [solid-state drive](#).
- 19 Remove the [converter board](#).
- 20 Remove the [speakers](#).
- 21 Remove the [power-button board](#).
- 22 Remove the [media-card reader](#).



- 23 Remove the [camera](#).
- 24 Remove the [system board](#).
- 25 Remove the [Display built-in self test button board](#).
- 26 Remove the [middle frame](#).

Procedure



NOTE: The following procedure is applicable only for non-touch systems.

After performing all the prerequisites, we are left with the display panel.



Replacing the display panel



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



NOTE: The following steps are applicable only for non-touch systems.

- 1 Place the display panel on a clean and flat surface.

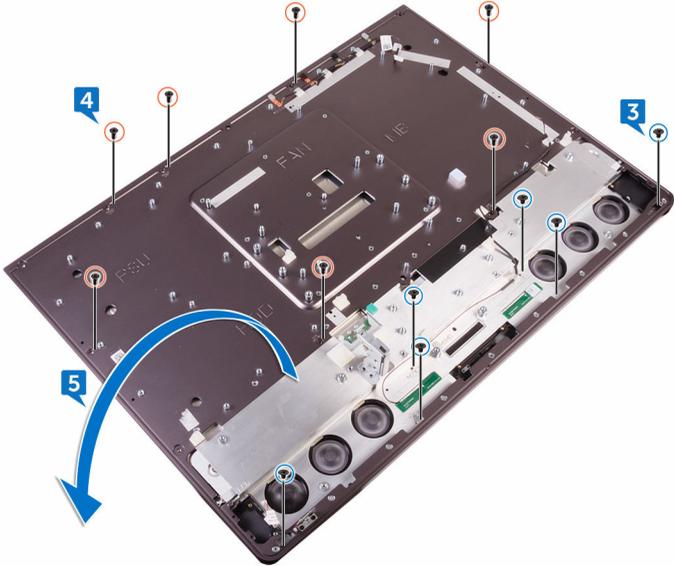


- 2 Place the middle frame on the display panel.



- 3 Replace the 6 screws (M2X3) that secures the middle frame to speaker bezel.
- 4 Replace the 7 screws (M2X4) that secures the middle frame to display.

5 Turn the display assembly over.



- 6 Peel off the Mylar (6) from the display panel.



 **NOTE:** The six Mylars are factory installed with the replacement display panel. Peeling off the Mylar can result in one of the two following acceptable scenarios:

- A portion of Mylar remains in the middle frame.
- The whole Mylar is peeled off from the display assembly.

Post-requisites

- 1 Replace the [middle frame](#).
- 2 Replace the [display built-in self test button board](#).
- 3 Replace the [system board](#).
- 4 Replace the [camera](#).
- 5 Replace the [media-card reader](#).
- 6 Replace the [power-button board](#).
- 7 Replace the [speakers](#).

- 8 Replace the [converter board](#).
- 9 Replace the [solid-state drive](#).
- 10 Replace the [coin-cell battery](#).
- 11 Replace the [hard-drive cage](#).
- 12 Replace the [processor](#).
- 13 Replace the [processor heat-sink](#).
- 14 Replace the [I/O panel](#).
- 15 Replace the [microphones](#).
- 16 Replace the [inner frame](#).
- 17 Replace the [memory fan](#).
- 18 Replace the [power-supply unit](#).
- 19 Replace the [wireless card](#).
- 20 Replace the [chassis fan](#).
- 21 Replace the [system-board shield](#).
- 22 Replace the [stand](#).
- 23 Replace the [hard drive](#).
- 24 Replace the [memory modules](#).
- 25 Replace the [back cover](#).
- 26 Replace the [USB dongle-bay cover](#).



BIOS setup program

BIOS Overview

 **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 BIOS setup program to:

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

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.

Clearing forgotten passwords



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Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [stand](#).
- 4 Remove the [system-board shield](#).

Procedure

- 1 Locate the password reset jumper on the system board.

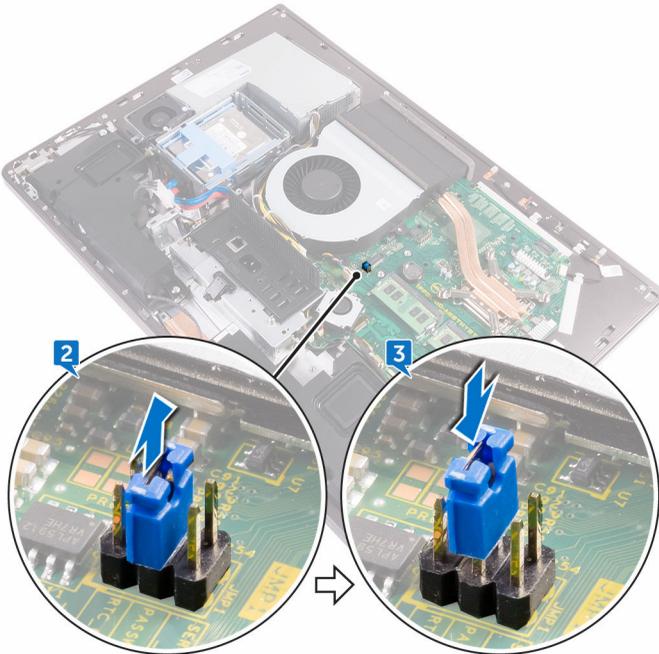


NOTE: For more information on the location of the jumper, see [“System board components”](#).

- 2 Remove the jumper plug from the password jumper-pins.



- 3 Wait for 5 seconds and then replace the jumper plug in its original location.



Post-requisites

- 1 Replace the [system-board shield](#).
- 2 Replace the [stand](#).
- 3 Replace the [back cover](#).
- 4 Replace the [USB dongle-bay cover](#).

Clearing CMOS Settings



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Prerequisites

- 1 Remove the [USB dongle-bay cover](#).
- 2 Remove the [back cover](#).
- 3 Remove the [stand](#).
- 4 Remove the [system-board shield](#).

Procedure

- 1 Locate the CMOS reset jumper on the system board.

 **NOTE:** For more information on the location of the CMOS reset jumper, see "[System board components](#)".

- 2 Remove the jumper plug from the password jumper-pins and connect it to the CMOS jumper-pins.
- 3 Wait for 5 seconds and replace the jumper plug to its original location.



Post-requisites

- 1 Replace the [system-board shield](#).
- 2 Replace the [stand](#).
- 3 Replace the [back cover](#).
- 4 Replace the [USB dongle-bay cover](#).



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.



System diagnostic lights

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 2,3 pattern continues until the computer is turned off indicating the Recovery image is not found.

The following table shows different light patterns and what they indicate:

Table 3. System diagnostic lights

Light pattern	Problem description
2,1	System board error
2,2	System board or power supply unit or power supply cable error
2,3	System board or memory or CPU error
2,4	Coin-cell battery error
2,5	BIOS failure
2,6	CPU failure
2,7	Memory or RAM failure
3,3	Memory error
3,5	Memory error
3,6	BIOS Recovery Image Not Found
3,7	BIOS 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.



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.

