

Alienware Steam Machine R2

Service Manual

Computer Model: Alienware Steam
Machine R2
Regulatory Model: D07U
Regulatory Type: D07U002/D07U003



Notes, cautions, and warnings



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



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.

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

- Windows 10: Click **Start** →  **Power** → **Shut down**.
- Console Mode: On the **Home** screen, click **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 cables such as telephone cables, network cables and so on, from your computer.

5 Disconnect all attached devices and peripherals, such as keyboard, mouse, monitor, and so on, from your computer.

6 Remove any media card and optical disc from your computer, if applicable.











NOTE: Remove the USB dongle from the bottom USB-port.

7 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:

- Philips screwdriver
- Flat-head screwdriver
- Plastic scribe

After working inside your computer



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

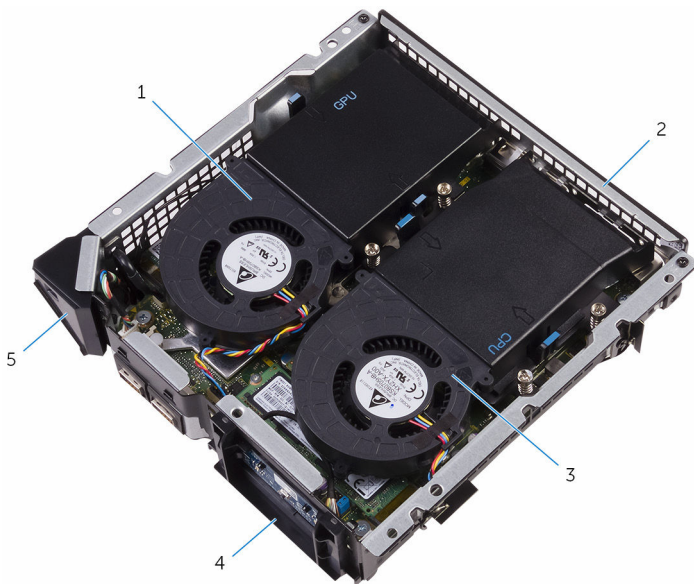
- 1** Replace all screws and ensure that no stray screws remain inside your computer.
- 2** Connect any external devices, peripherals, or cables you removed before working on your computer.
- 3** Replace any media cards, discs, or any other parts that you removed before working on your computer.
- 4** 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 video-card fan

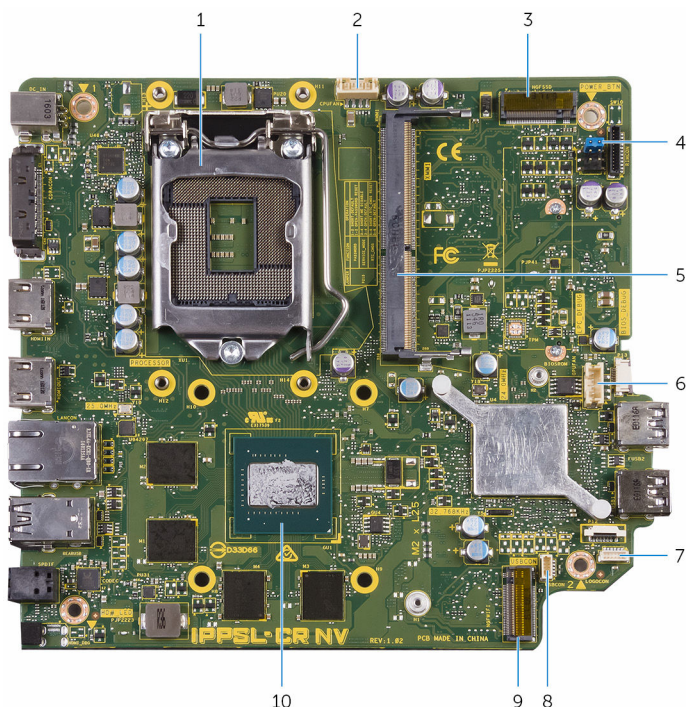
2 back panel

3 processor fan

4 power-button module

5 front-panel light module

System-board components



- | | | | |
|---|---|----|---|
| 1 | processor socket (PROCESSOR) | 2 | processor-fan cable connector (CPUFAN) |
| 3 | M.2 Solid-state drive slot (NGFSSD) | 4 | jumper plug (P215) |
| 5 | memory-module slot (XMM1) | 6 | video-card fan cable connector (GPUFAN) |
| 7 | front-panel light board cable connector (LOGOCON) | 8 | USB-port cable connector (USBCON) |
| 9 | wireless-card slot | 10 | video card |

Removing the base cover

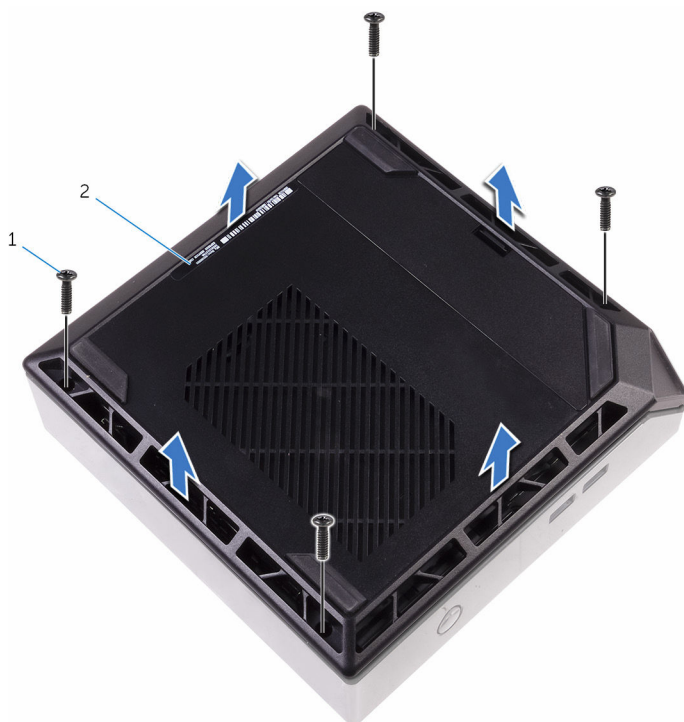


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Procedure

- 1 Turn the computer over.
- 2 Remove the screws that secure the base cover to the top cover.

- 3** Lift the base cover off the top cover.



1 screws (4)

2 base cover

Replacing the base cover



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Procedure

- 1 Align the screw holes on the base cover with the screw holes on the top cover and snap the base cover over the top cover.
- 2 Replace the screws that secure the base cover to the top 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.

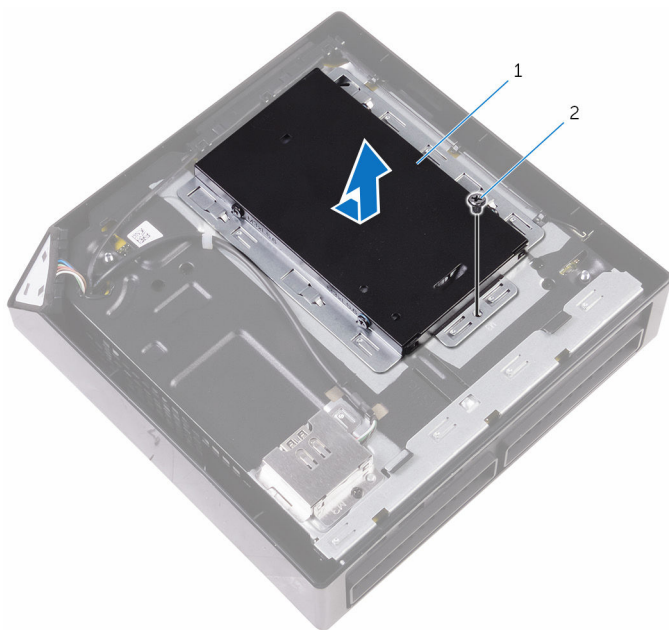
Prerequisites

Remove the [base cover](#).

Procedure

- 1 Remove the screw that secures the hard-drive assembly to the chassis.
- 2 Slide the hard-drive assembly towards the back of the computer to disconnect the hard drive from the system board.

- 3** Lift the hard-drive assembly off the chassis.

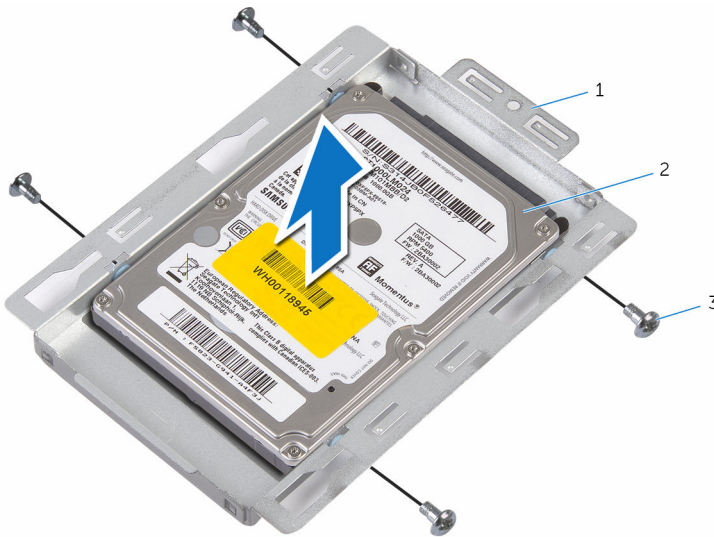


1 hard-drive assembly

2 screw

- 4** Remove the screws that secure the hard-drive bracket to the hard drive.

- 5 Lift the hard drive off the hard-drive bracket.



1 hard-drive bracket

2 hard drive

3 screws (4)

Replacing the hard drive



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

Procedure

- 1 Align the screw holes on the hard drive with the screw holes on the hard-drive bracket.
- 2 Replace the screws that secure the hard-drive bracket to the hard drive.
- 3 Align the slots on the hard-drive assembly with the tabs on the chassis.
- 4 Slide the hard-drive assembly towards the front of the computer to connect the hard drive to the system board.
- 5 Replace the screw that secures the hard-drive assembly to the chassis.

Post-requisites

Replace the [base cover](#).

Removing the top cover



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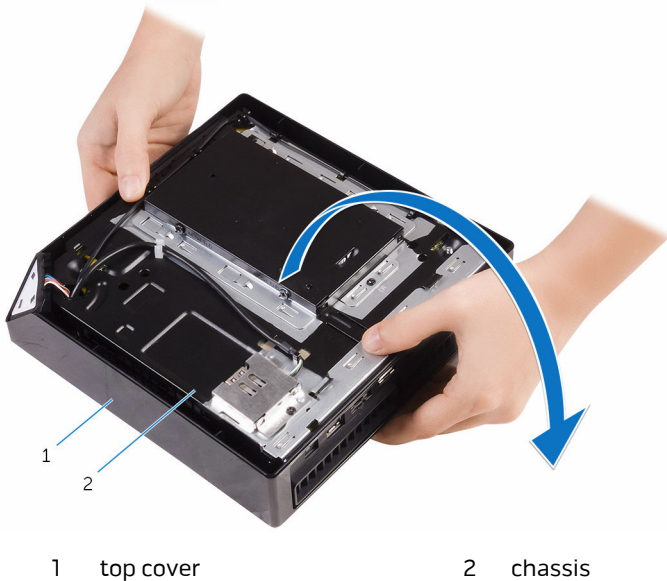
Prerequisites

Remove the [base cover](#).

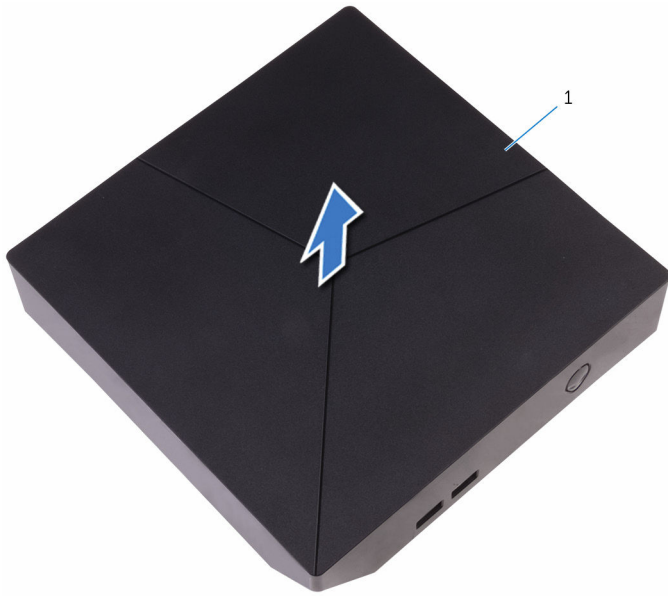
Procedure

⚠ CAUTION: The chassis is not secured to the top cover. To avoid damaging the computer, ensure to hold the chassis and top cover together before turning it over.

- 1 Hold the chassis along with the top cover and then turn the computer over.



- 2** Lift the top cover off the chassis.



1 top cover

Replacing the top cover



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Procedure

- 1 Align the slots on the top cover with the ports on the chassis and place the top cover on the chassis.
- 2 Hold the chassis along with the top cover and then turn the computer over.

Post-requisites

Replace the [base cover](#).

Removing the bottom USB-port



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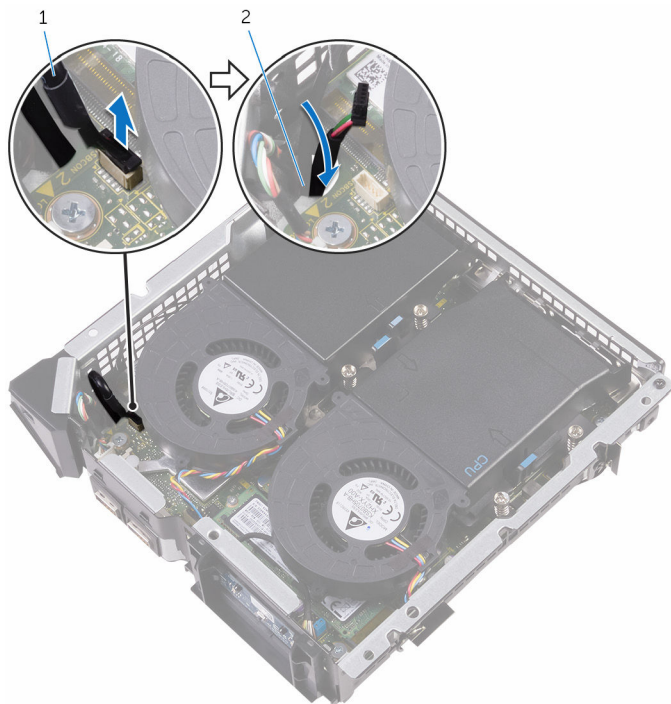
Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [top cover](#).

Procedure

- 1 Disconnect the USB-port cable from the system board (USBCON).

- 2** Push down the USB-port cable through the cable-routing hole on the chassis.

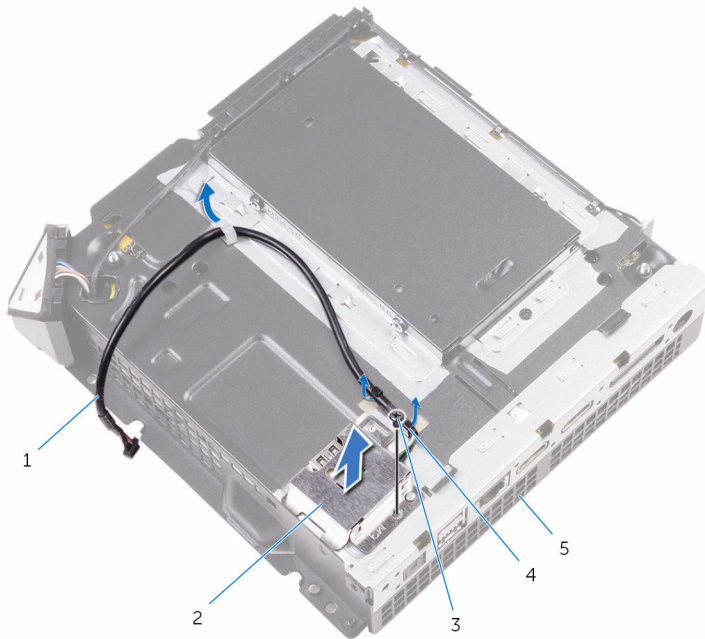


1 USB-port cable

2 cable-routing hole

- 3** Turn the computer over.
- 4** Remove the USB-port cable from the routing guides on the chassis.
- 5** Remove the screw that secures the USB-port bracket to the chassis.
- 6** Lift the USB-port bracket at an angle to release the tabs on the USB-port bracket from the slots on the chassis.

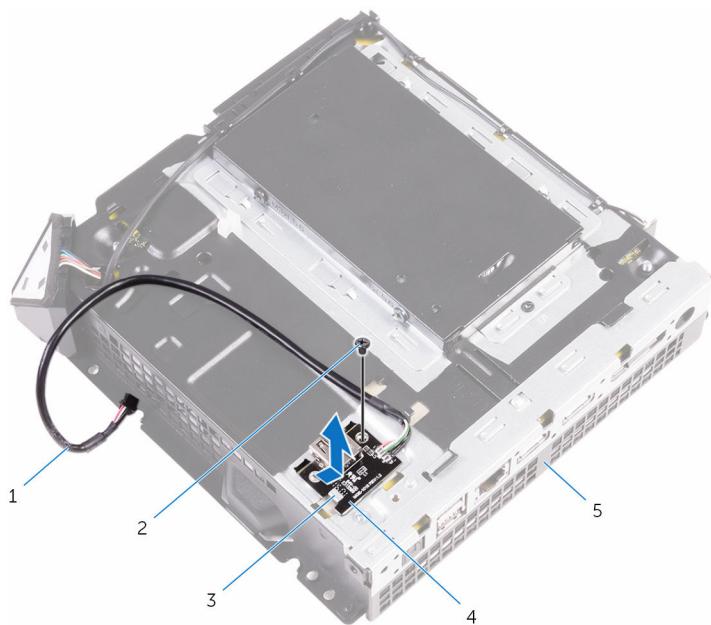
- 7** Lift the USB-port bracket off the chassis.



- | | | | |
|---|----------------|---|------------------|
| 1 | USB-port cable | 2 | USB-port bracket |
| 3 | screw | 4 | routing guides |
| 5 | chassis | | |

- 8** Remove the screw that secures the USB port to the chassis.

- 9 Slide and remove the USB port, along with the cable, from under the tab on the chassis.



1 USB-port cable

2 screw

3 tab

4 USB port

5 chassis

Replacing the bottom USB-port



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Procedure

- 1 Slide the USB port under the tab on the chassis.
- 2 Replace the screw that secures the USB port to the chassis.
- 3 Align and slide the tabs on USB-port bracket in the slots on the chassis.
- 4 Replace the screw that secures the USB-port bracket to the chassis
- 5 Route the USB-port cable through the routing guides on the chassis and slide the cable through the cable-routing hole on the chassis.
- 6 Turn the computer over.
- 7 Connect the USB-port cable to the system board.

Post-requisites

- 1 Replace the [top cover](#).
- 2 Replace the [base cover](#).

Removing the power-button board



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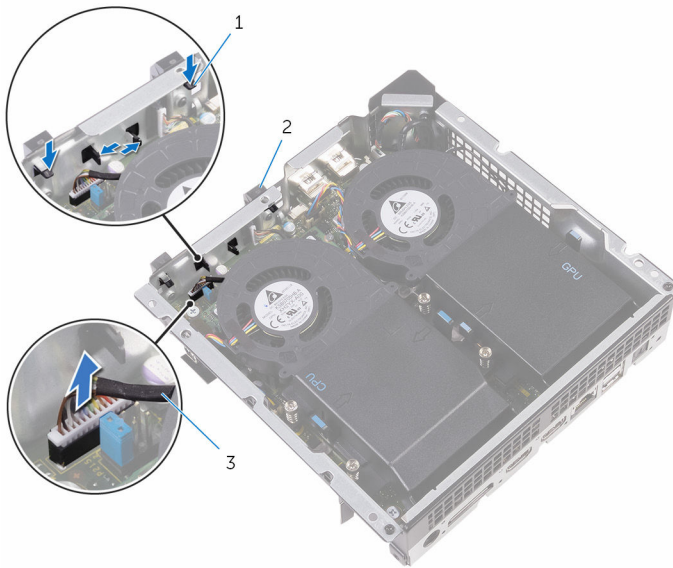
Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [top cover](#).

Procedure

- 1 Disconnect the power-button board cable from the system board (RIMCON).

- 2** Press the tabs on the power-button module to release the module from the front panel.

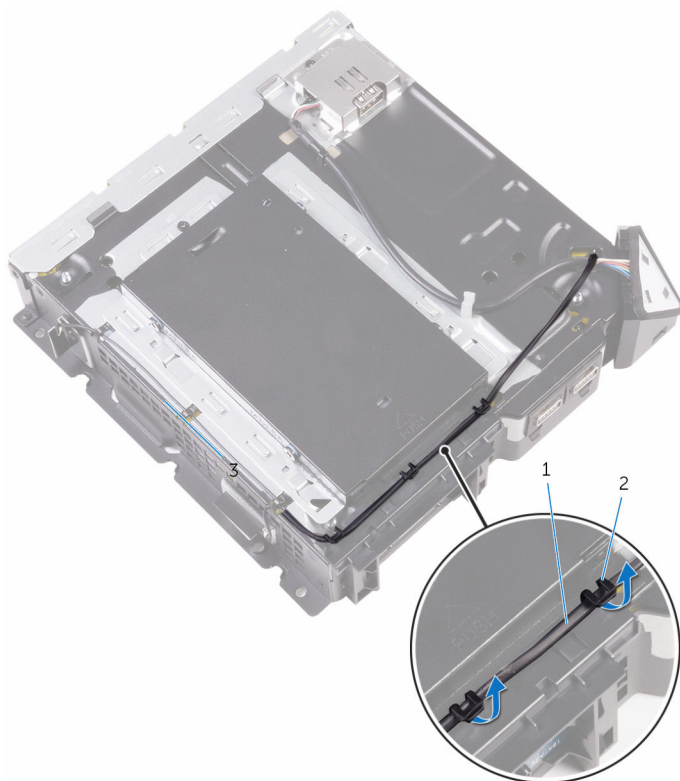


1 tabs (4)

2 power-button module

3 power-button board cable

- 3** Turn the chassis over and remove the antenna cable from the routing guides on the power-button module.

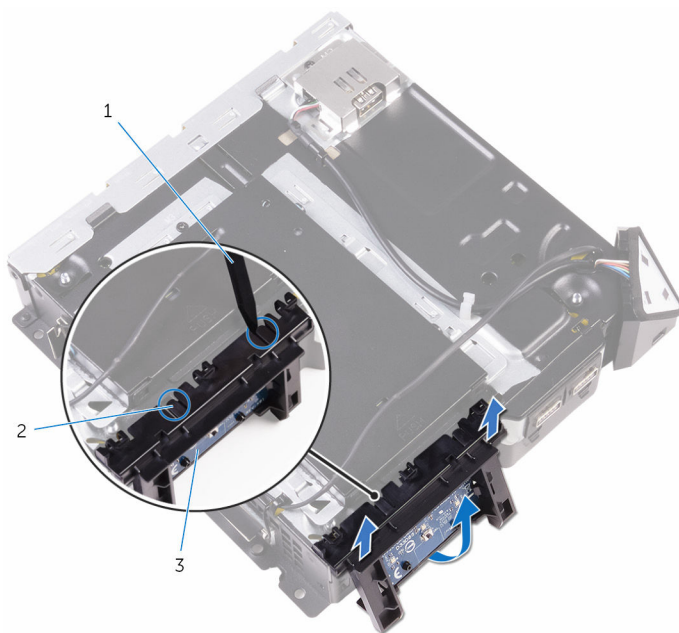


1 power-button board cable

2 routing guides

- 4** Use a plastic scribe to release the tabs at the bottom of the power-button module from the slots on the chassis.

- 5** Remove the power-button module along with its cable through the slot on the front panel.

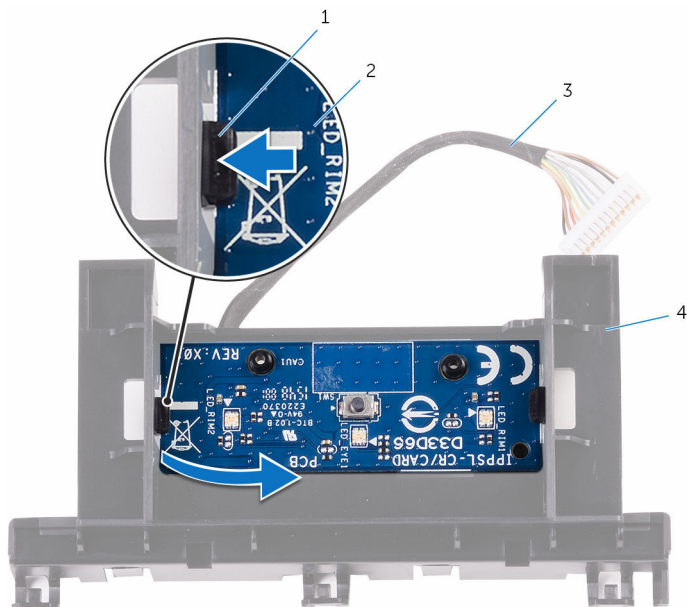


1 plastic scribe

2 tabs (2)

3 power-button board

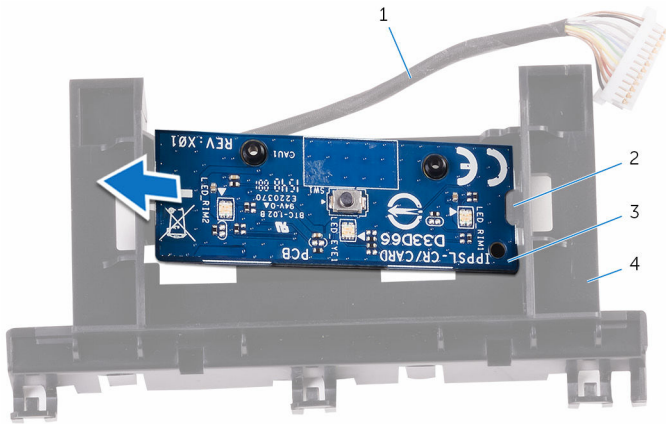
- 6** Push the tab that secures the power-button board to the power-button board bracket.



- | | | | |
|---|--------------------------|---|----------------------------|
| 1 | tab | 2 | power-button board |
| 3 | power-button board cable | 4 | power-button board bracket |

- 7** Lift and slide the power-button board to release it from the power-button board bracket.

- 8** Remove the power-button board along with its cable off the power-button board bracket.



- | | | | |
|---|--------------------------|---|----------------------------|
| 1 | power-button board cable | 2 | tab |
| 3 | power-button board | 4 | power-button board bracket |

Replacing the power-button board



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Procedure

- 1 Use the alignment posts on power-button board bracket to align the power-button board into the slot on the power-button board bracket.
- 2 Snap the power-button board in place on the power-button board bracket.
- 3 Route the power-button board cable through the cable-routing hole on the chassis.
- 4 Align and snap the power-button module into the slot on the front panel.
- 5 Connect the power-button board cable to the system board (RIMCON).
- 6 Turn the chassis over.
- 7 Route the antenna cable through the routing guides on the power-button board module.

Post-requisites

- 1 Replace the [top cover](#).
- 2 Replace the [base cover](#).

Removing the processor fan



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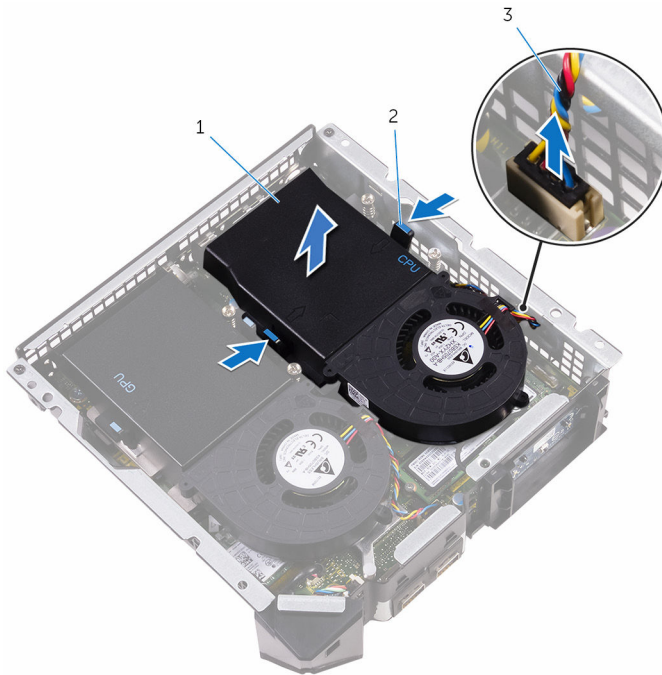
Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [top cover](#).

Procedure

- 1 Press the tabs and lift the processor fan off the system board.

- 2** Disconnect the processor-fan cable from the system board (CPUFAN).



- | | | | |
|---|---------------------|---|----------|
| 1 | processor fan | 2 | tabs (2) |
| 3 | processor-fan cable | | |

Replacing the processor fan



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Procedure

- 1 Connect the processor-fan cable to the system board (CPUFAN).
- 2 Align and snap the processor fan over the processor heat sink.

Post-requisites

- 1 Replace the [top cover](#).
- 2 Replace the [base 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 [base cover](#).
- 2 Remove the [top cover](#).
- 3 Remove the [processor fan](#).

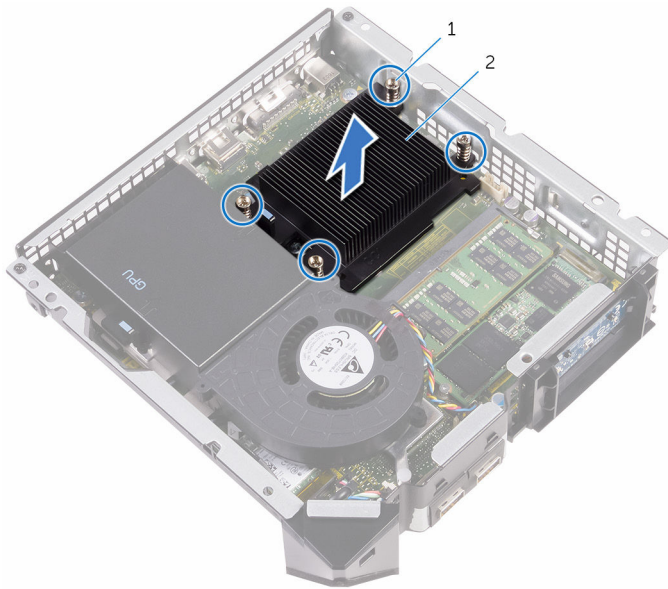
Procedure



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 grease provided in the kit to make sure that thermal conductivity is achieved.

- 1 Loosen the captive screws that secure the processor heat sink to the system board.

- 2** Lift the processor heat sink off system board.



1 captive screws (4)

2 processor heat sink

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



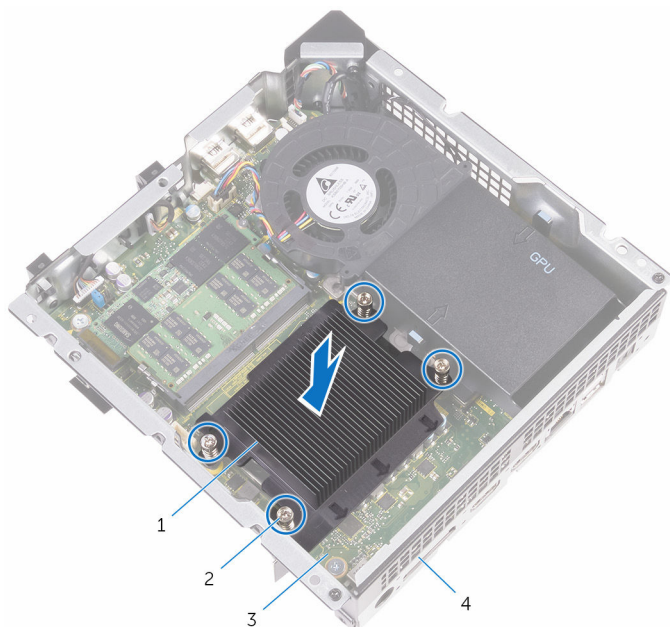
CAUTION: Incorrect alignment of the heat sink may damage the system board and processor.



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 grease provided in the kit to make sure that thermal conductivity is achieved.

- 1 Place the processor heat sink over the processor with the arrows facing the back panel.

- 2 Align the captive screws on the processor heat sink with the screw holes on the system board.



- | | | | |
|---|---------------------|---|----------------|
| 1 | processor heat sink | 2 | captive screws |
| 3 | system board | 4 | back panel |

- 3 Tighten the captive screws that secure the processor heat sink to the system board.

Post-requisites

- 1 Replace the [processor fan](#).
- 2 Replace the [top cover](#).
- 3 Replace the [base cover](#).

Removing the video-card fan



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Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [top cover](#).

Procedure

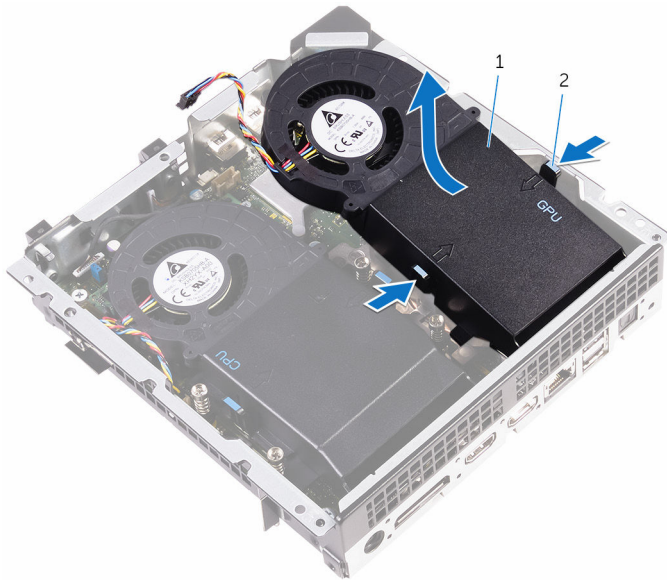
- 1 Disconnect the video-card fan cable from the system board (GPUFAN).



1 video-card fan cable

2 video-card fan

- 2** Press the tabs and lift the video-card fan off the system board.



1 video-card fan

2 tabs (2)

Replacing the video-card fan



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Procedure

- 1 Align and snap the video-card fan over the video-card heat sink.
- 2 Connect the video-card fan cable to the system board (GPUFAN).

Post-requisites

- 1 Replace the [top cover](#).
- 2 Replace the [base cover](#).

Removing the memory modules



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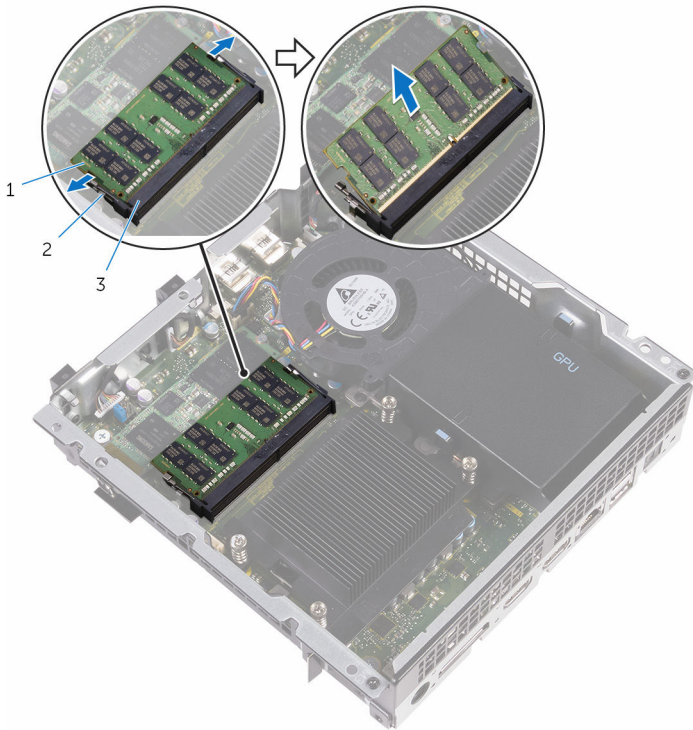
Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [top cover](#).
- 3 Remove the [processor fan](#).

Procedure

- 1 Using your fingertips, pry apart the securing clips on 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 memory module

2 securing clips (2)

3 memory-module slot

Replacing the memory modules




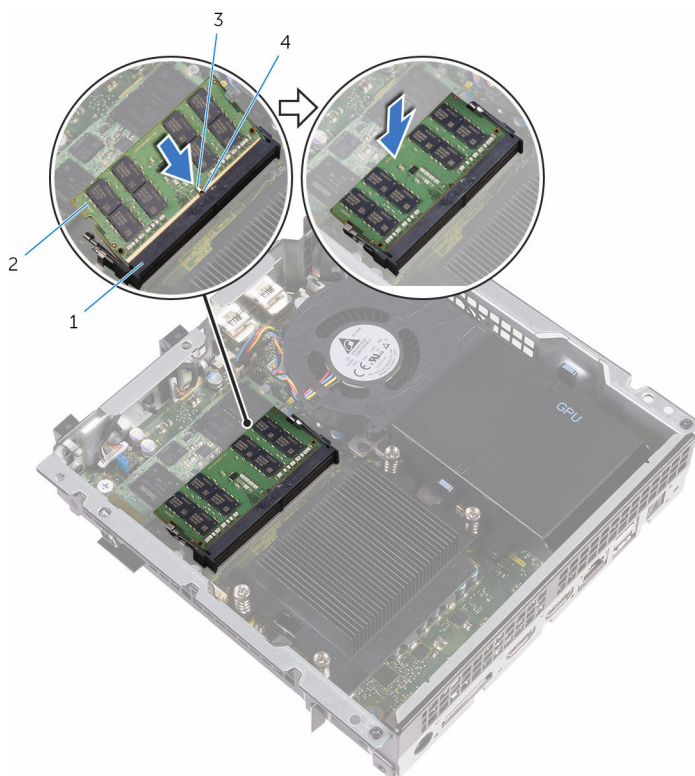
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices,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

Procedure

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

- 2 Slide the memory module into the memory-module slot 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 memory-module slot

2 memory module

3 notch

4 tab

Post-requisites

- 1 Replace the [processor fan](#).
- 2 Replace the [top cover](#).
- 3 Replace the [base 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.

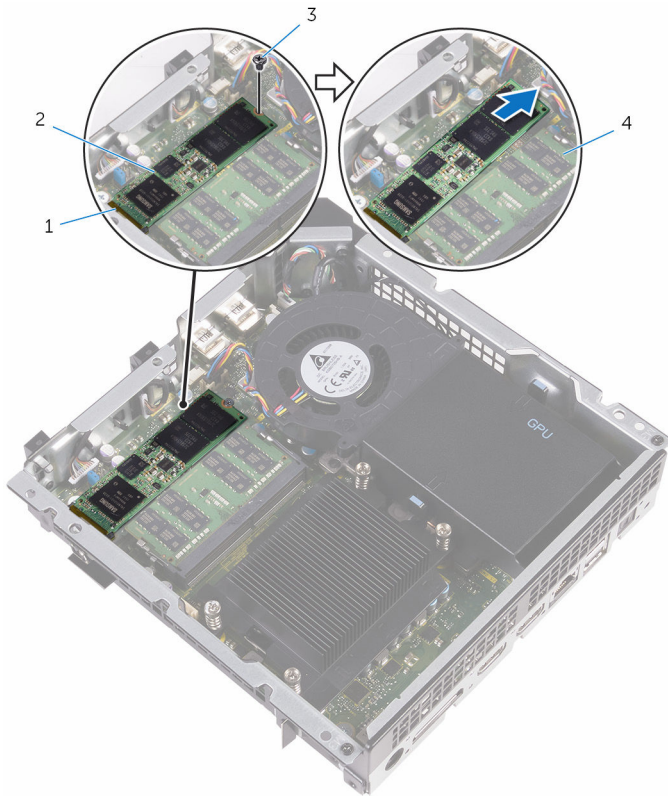
Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [top cover](#).
- 3 Remove the [processor fan](#).

Procedure

- 1 Remove the screw that secures the M.2 SSD card to the system board.

- 2** Slide and remove the M.2 SSD card from the M.2 SSD card slot.



1 M.2 SSD card slot

2 M.2 SSD card

3 screw

4 system board

Replacing the solid-state drive



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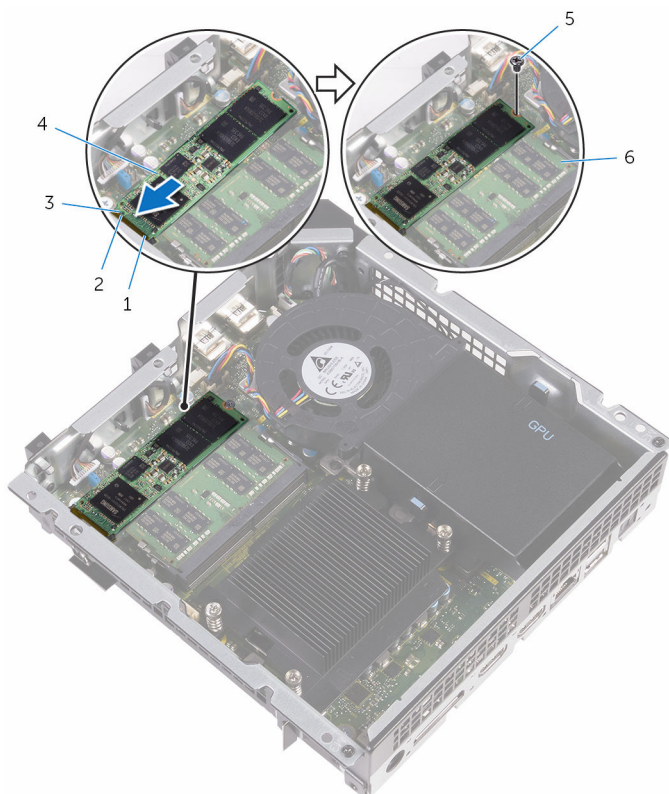


CAUTION: Solid-state drives are fragile. Exercise care when handling the solid-state drive.

Procedure

- 1 Align the notch on the M.2 SSD card with the tab on the M.2 SSD card slot.
- 2 Slide the M.2 SSD card into the M.2 SSD card slot.

- 3** Replace the screw that secures the M.2 SSD card to the system board.



1 M.2 SSD card slot

3 notch

5 screw

2 tab

4 M.2 SSD card

6 system board

Post-requisites

- 1** Replace the [processor fan](#).
- 2** Replace the [top cover](#).
- 3** Replace the [base cover](#).

Removing the processor



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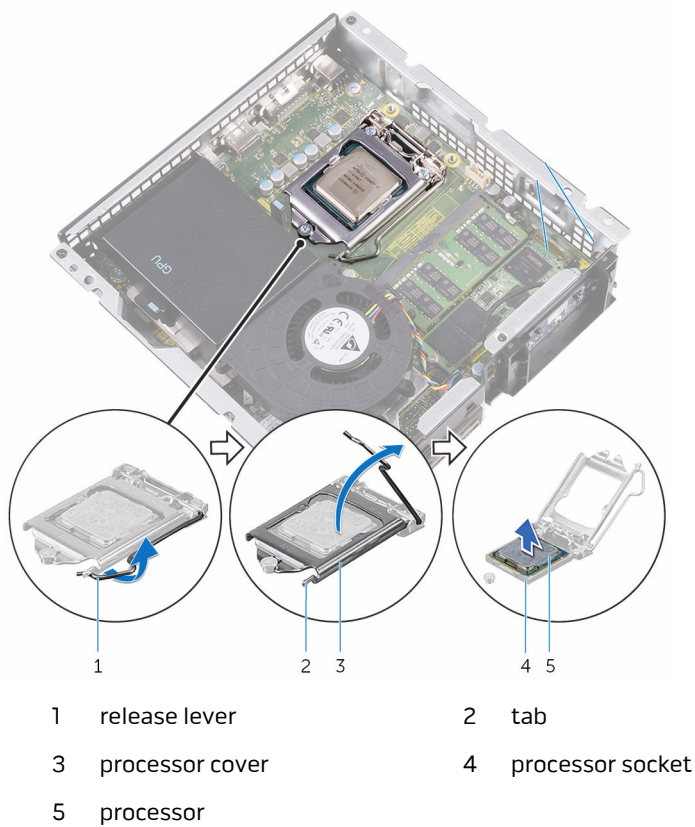
Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [top cover](#).
- 3 Remove the [processor fan](#).
- 4 Remove the [processor heat sink](#).


Procedure

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

- 3** Lift the processor off the processor socket.




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.

Procedure

- 1 Make sure that the release lever on the processor socket is fully extended and the processor cover is fully open.

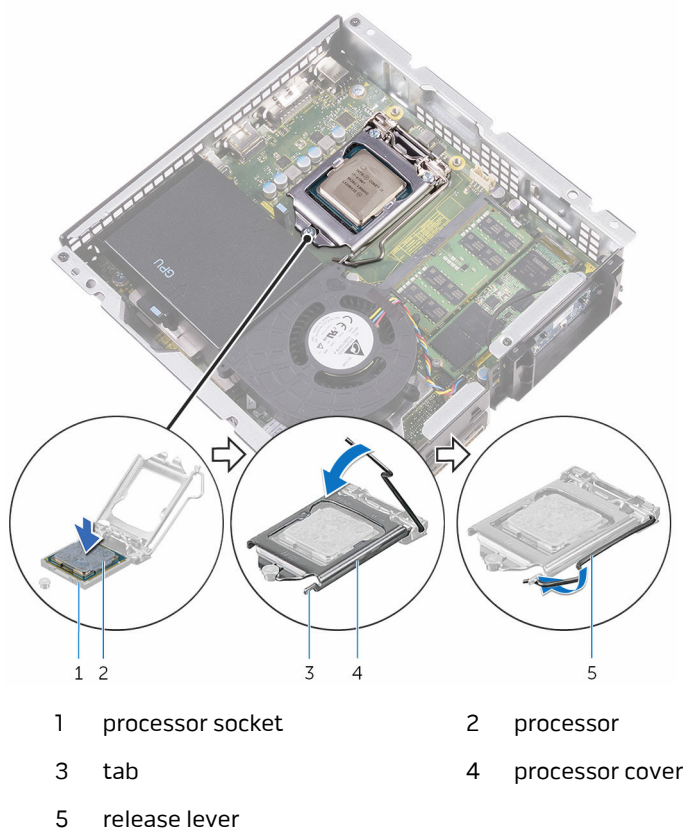
 **CAUTION:** Position the processor correctly in the processor socket to avoid permanent damage to the processor.

- 2 Align the pin-1 corner on the processor with the pin-1 corner on the processor socket, and then place the processor in the processor socket.

 **CAUTION:** Make sure 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 [processor fan](#).
- 3 Replace the [top cover](#).
- 4 Replace the [base cover](#).

Removing the front-panel light board



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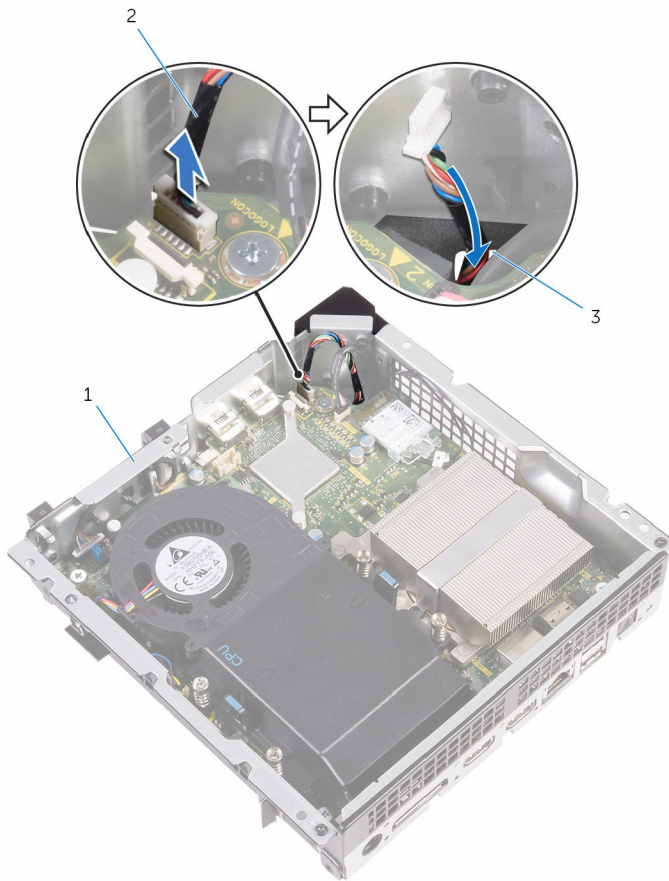
Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [top cover](#).
- 3 Remove the [video-card fan](#).

Procedure

- 1 Disconnect the front-panel light board cable from the system board (LOGOCON).

- 2** Slide the front-panel light board cable through the routing-hole on the chassis.

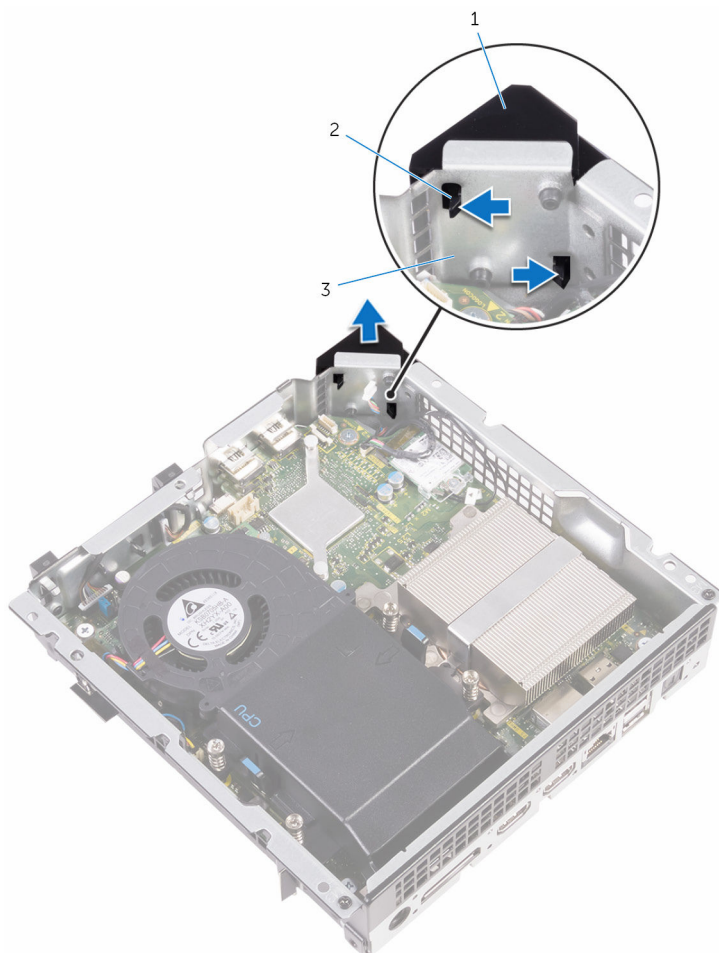


1 chassis

2 front-panel light board
cable

3 routing hole

- 3** Press the front-panel light module tabs to release the module from the front panel.



1 front-panel light module

2 tabs

3 front panel

- 4** Lift the front-panel light module, along with its cable, off the front panel.

Replacing the front-panel light board



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Procedure

- 1 Align the tabs on the front-panel light module with the slots on the front panel, and snap the front-panel light module onto the front panel.
- 2 Route the front-panel light board cable through the cable-routing hole on the chassis.
- 3 Connect the front-panel light board cable to the system board (LOGOCON).

Post-requisites

- 1 Replace the [video-card fan](#).
- 2 Replace the [top cover](#).
- 3 Replace the [base cover](#).

Removing the wireless card



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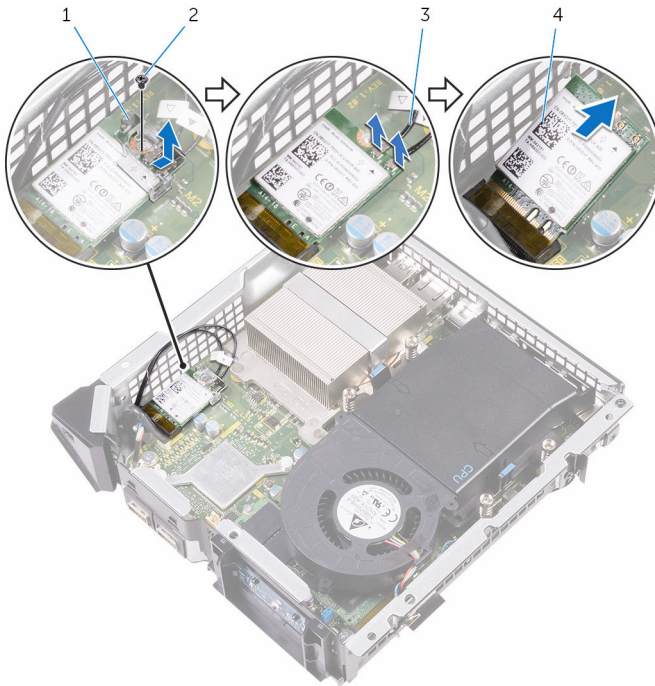
Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [top cover](#).
- 3 Remove the [video-card fan](#).

Procedure

- 1 Remove the screw that secures the wireless card to the system board.
- 2 Lift the bracket off the wireless card.
- 3 Disconnect the antenna cables from the wireless card.

- 4** Slide and remove the wireless card out of the wireless-card slot.



1 bracket

2 screw

3 antenna cables (2)

4 wireless card

Replacing the wireless card



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Procedure



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

- 1 Align the notch on the wireless card with the tab on the wireless-card slot.
- 2 Connect the antenna cables to the wireless card.

A label at the tip of the antenna cables indicates color scheme for the wireless card supported by your computer.

| Connectors on the wireless card | Antenna-cable sticker color |
|---------------------------------|-----------------------------|
| Auxiliary (1) | Black |
| Main (2) | White |

- 3 Slide the wireless card at an angle into the wireless-card slot.
- 4 Press the other end of the wireless card down and replace the bracket on the wireless card.
- 5 Replace the screw that secures the wireless card to the system board.

Post-requisites

- 1 Replace the [video-card fan](#).
- 2 Replace the [top cover](#).
- 3 Replace the [base cover](#).

Removing the antenna modules



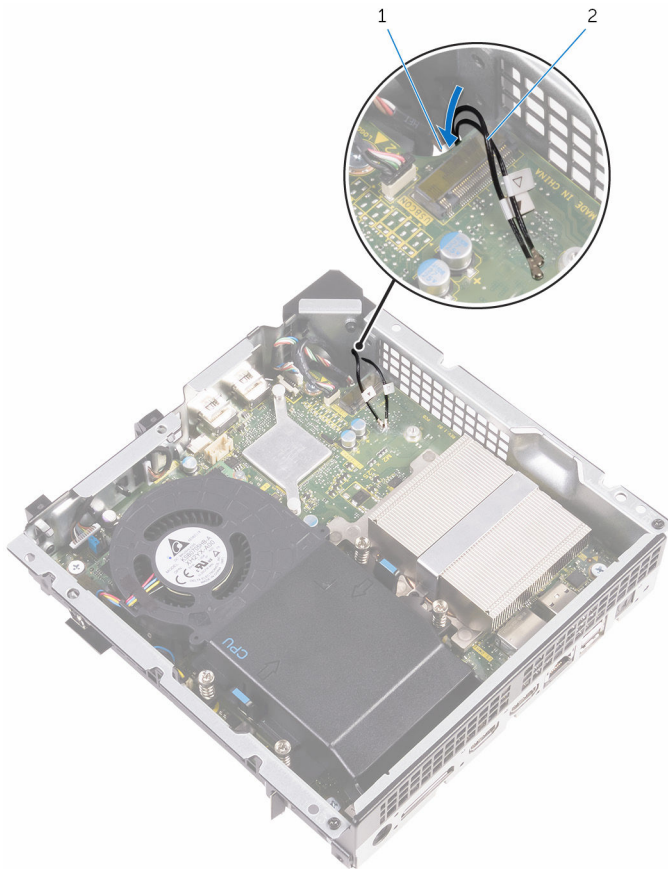
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices,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

Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [top cover](#).
- 3 Remove the [video-card fan](#).
- 4 Remove the [wireless card](#).

Procedure

- 1 Slide the antenna cables through the cable-routing hole on the chassis.

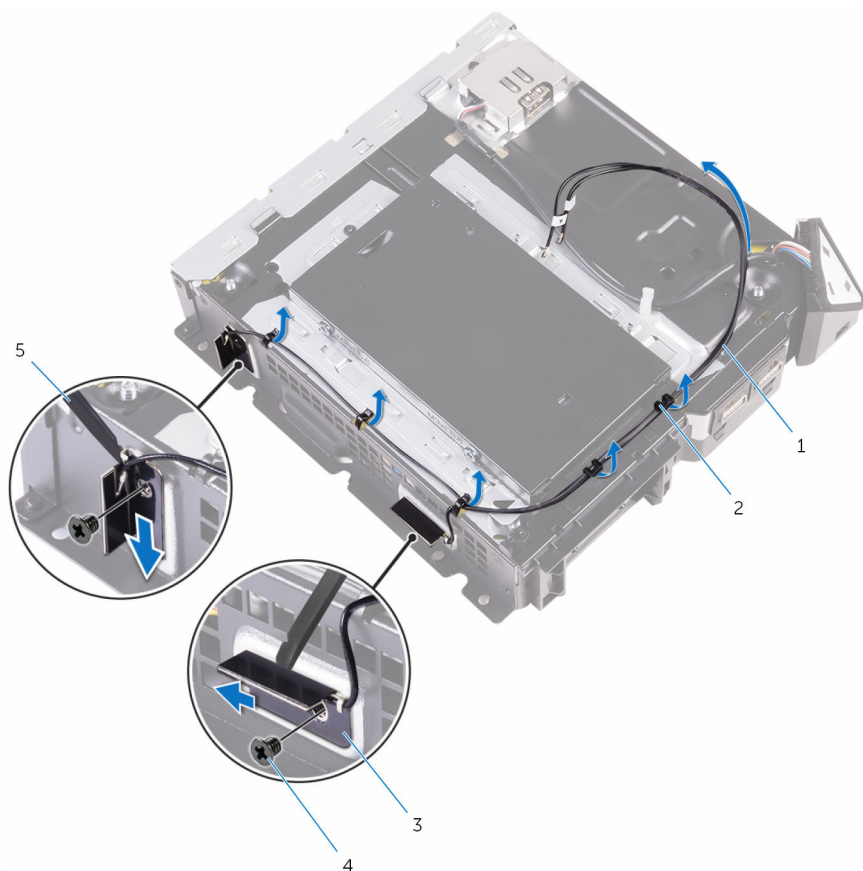


1 routing hole

2 antenna cables (2)

- 2 Turn the computer over.
- 3 Remove the antenna cable from the routing guides on the power-button module and chassis.
- 4 Remove the screws that secure the antenna modules to the chassis.

- 5** Using a plastic scribe, pry and slide the antenna modules, and release the tabs on the antenna modules from the slots on the chassis.



- | | | | |
|---|---------------------|---|----------------|
| 1 | antenna cable | 2 | routing guides |
| 3 | antenna modules (2) | 4 | screws (2) |
| 5 | plastic scribe | | |

- 6** Lift the antenna modules, along with the cable, off the chassis.

Replacing the antenna modules



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Procedure

- 1 Align and slide the tabs on the antenna modules in the slots on the chassis.
- 2 Align the screw holes on the antenna modules with the screws hole on the chassis.
- 3 Replace the screws that secure the antenna modules to the chassis.
- 4 Route the antenna cable through the routing guides on the chassis and power-button module.
- 5 Route the antenna cable through the cable-routing hole on the chassis.

Post-requisites

- 1 Replace the [wireless card](#).
- 2 Replace the [video-card fan](#).
- 3 Replace the [top cover](#).
- 4 Replace the [base cover](#).

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 [base cover](#).
- 2 Remove the [top cover](#).
- 3 Remove the [hard drive](#).
- 4 Remove the [processor fan](#).
- 5 Remove the [processor heat sink](#).
- 6 Remove the [processor](#).
- 7 Remove the [video-card fan](#).
- 8 Remove the [memory modules](#).
- 9 Remove the [wireless card](#).

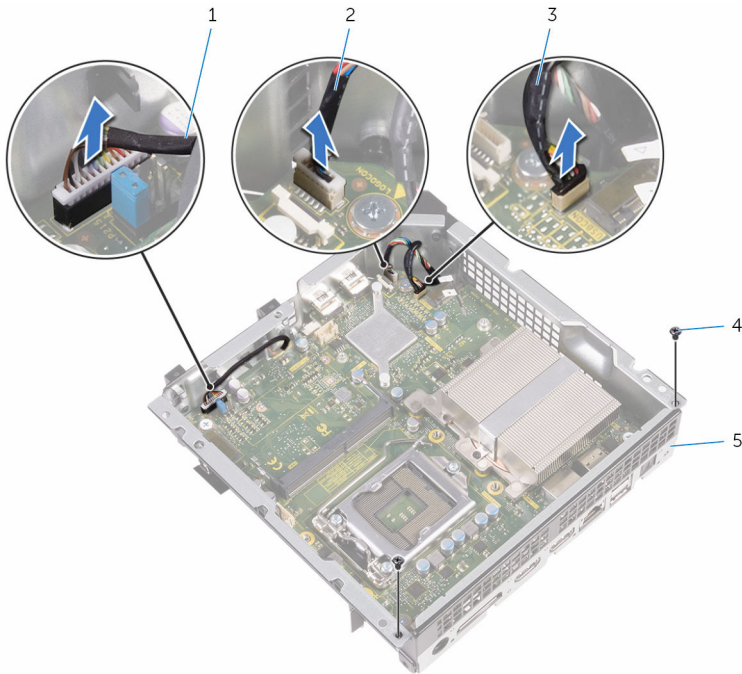
Procedure

 **NOTE:** The system board shipped in your computer may differ from the system board shown in the images below.

- 1 Disconnect the USB-port cable, front-panel light board cable, and power-button board cable from the system board.

For information on the location of connectors, see "[System-board components](#)".

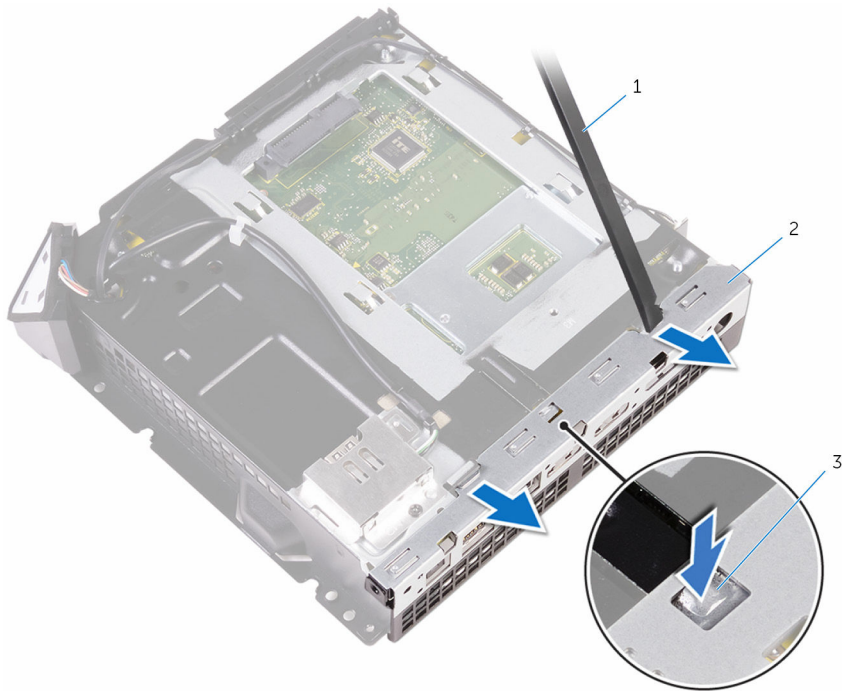
- 2 Remove the screws that secure the back panel to the chassis.



- | | | | |
|---|--------------------------|---|-------------------------------|
| 1 | power-button board cable | 2 | front-panel light board cable |
| 3 | USB-port cable | 4 | screws (2) |
| 5 | back panel | | |

- 3 Turn the chassis over.

- 4** Push the tab at the bottom of the back panel and use a plastic scribe to remove the back panel from the chassis.



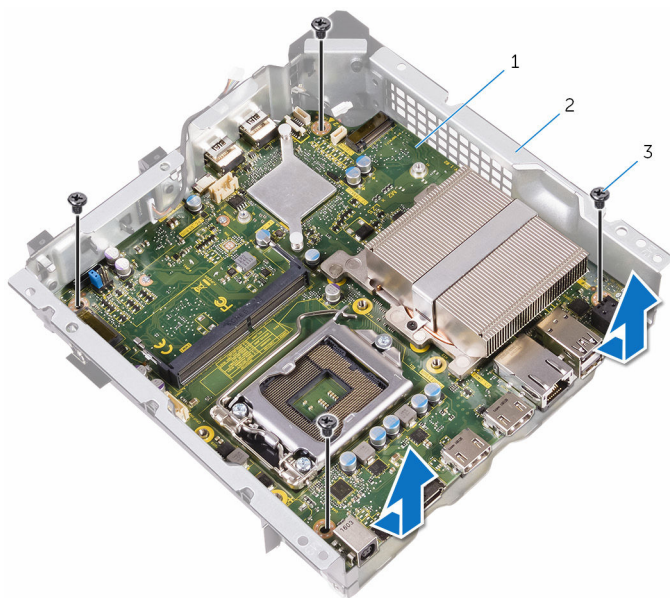
1 plastic scribe

2 back panel

3 tab

- 5** Remove the screws that secure the system board to the chassis.

- 6** Lift the system board at an angle and remove it from the chassis.



1 system board

2 screws (4)

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



NOTE: Make sure that no cables are under the system board.

- 1 Slide the system board into the slot on the chassis and align the screw holes on the system board with the screw holes on the chassis.
- 2 Replace the screws that secure the system board to the chassis.
- 3 Align and snap the back panel onto the chassis.
- 4 Align the screw holes on the back panel with the screw holes on the chassis and replace the screws that secure the back panel to the chassis.
- 5 Connect the USB-port cable, front-panel light board cable, and power-button board cable to the system board.

For more information on the location of connectors, see ["System-board components"](#).

Post-requisites

- 1 Replace the [wireless card](#).
- 2 Replace the [memory modules](#).
- 3 Replace the [video-card fan](#).
- 4 Replace the [processor](#).

- 5** Replace the [processor heat sink](#).
- 6** Replace the [processor fan](#).
- 7** Replace the [hard drive](#).
- 8** Replace the [top cover](#).
- 9** Replace the [base 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.

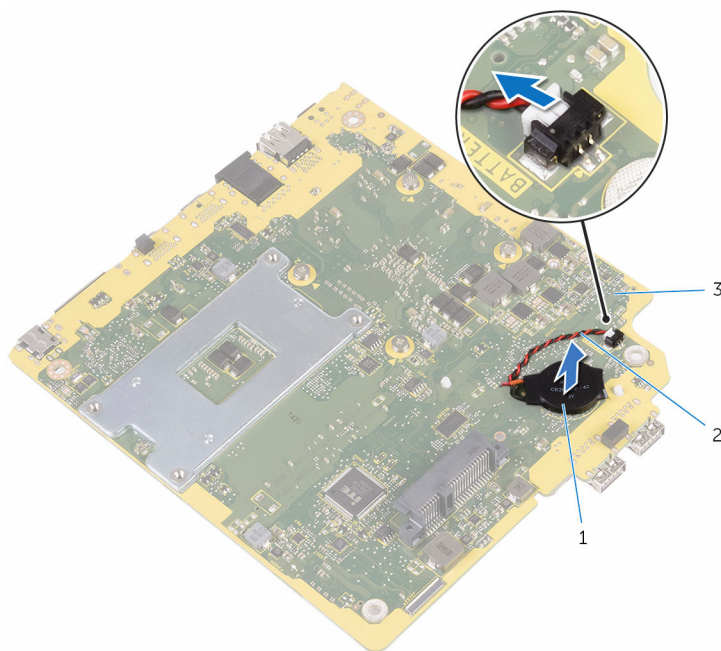
Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [top cover](#).
- 3 Remove the [hard drive](#).
- 4 Remove the [processor fan](#).
- 5 Remove the [video-card fan](#).
- 6 Remove the [wireless card](#).
- 7 Remove the [system board](#).

Procedure

- 1 Turn the system board over.
- 2 Disconnect the coin-cell battery cable from the system board.

- 3** Peel off the coin-cell battery from the system board.



1 coin-cell battery

2 coin-cell battery cable

3 system board

Replacing the coin-cell battery



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Procedure

- 1 Adhere the coin-cell battery to the system board.
- 2 Connect the coin-cell battery cable to the system board.


Post-requisites

- 1 Replace the [system board](#).
- 2 Replace the [wireless card](#).
- 3 Replace the [video-card fan](#).
- 4 Replace the [processor fan](#).
- 5 Replace the [hard drive](#).
- 6 Replace the [top cover](#).
- 7 Replace the [base cover](#).

BIOS setup program

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 System Setup

 **NOTE:** You must connect a keyboard and mouse to access and configure system setup.

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

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

System setup options

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

Main

| | |
|-------------------|---|
| BIOS Revision | Displays the BIOS version number. |
| BIOS Build Date | Displays the BIOS release date. |
| System Name | Displays the system name. |
| System Time | Displays the current time in hh:mm:ss format. |
| System Date | Displays the current date in mm/dd/yyyy format. |
| Service Tag | Displays the service tag of your computer. |
| Service Tag Input | Allows you to enter the service tag of your computer. |
| Asset Tag | Displays the asset tag of your computer. |

Processor Information

| | |
|----------------------|--|
| Processor Type | Displays the processor type. |
| Processor ID | Displays the processor identification code. |
| Processor Core Count | Displays the number of cores in the processor. |
| Processor L1 Cache | Displays the processor L1 cache size. |
| Processor L2 Cache | Displays the processor L2 cache size. |
| Processor L3 Cache | Displays the processor L3 cache size. |

Memory Information

| | |
|----------------------|--|
| Memory Installed | Displays the total computer memory. |
| Memory Available | Displays the amount of memory available on the computer. |
| Memory Running Speed | Displays the memory speed. |
| Memory Technology | Displays the type of memory technology used. |


SATA Information

Main

| | |
|-------------|---|
| SATA 1 | Displays the device connected to SATA Port1. |
| Device Type | Displays the type of the connected device. |
| Device ID | Displays the identification code of the device. |
| Device Size | Displays the size of the device. |

Advanced

Processor Configuration

| | |
|------------------------------------|--|
| Intel Hyper-Threading Technology | Allows you to enable or disable the HyperThreading in the processor. |
| Intel(R) SpeedStep Technology | Allows you to enable or disable Intel (R) SpeedStep Technology.  NOTE: If enabled, the processor clock speed and core voltage are adjusted dynamically based on the processor load. |
| Intel(R) Virtualization Technology | Allows you to enable or disable Intel Virtualization Technology feature for the processor. |
| CPU XD Support | Allows you to enable the Execute Disable mode of the processor. |
| Limit CPUID Value | Allows you to limit the maximum value the processor standard CPUID function supports. |
| Multi Core Support | Allows you to enable or disable multi-core processor. |
| Intel(R) Turbo Boost Technology | Allows you to enable or disable Intel Turbo Boost Technology mode for the processor. |

USB Configuration

| | |
|-----------------|--|
| Front USB Ports | Allows you to enable or disable the front USB ports. |
|-----------------|--|

Advanced

| | |
|----------------|---|
| Rear USB Ports | Allows you to enable or disable the rear USB ports. |
|----------------|---|

Onboard Device Configuration

| | |
|--------------------------|---|
| Onboard Audio Controller | Allows you to enable or disable the onboard audio controller. |
| SATA Mode | Displays the SATA mode on your computer. |
| Onboard LAN Controller | Allows you to enable or disable the onboard LAN controller. |
| Onboard LAN Boot ROM | Allows you to boot your computer from a network. |

Boot

| | |
|-------------------|---|
| Numlock Key | Allows you to set the status of the Num Lock key during boot to On or Off. |
| Secure Boot | Allows you to enable or disable the secure boot control. |
| Load Legacy OPROM | Allows you to enable or disable the Legacy Option ROM. |
| Keyboard Errors | Allows you to enable or disable the display of keyboard-related errors during boot. |
| USB Boot Support | Allows you to enable or disable booting from USB mass storage devices such as external hard drive, optical drive, USB drive, and so on. |

Boot Mode

| | |
|----------------|---|
| Boot Option #1 | Displays the first boot device. Default: UEFI: Windows Boot Manager. |
| Boot Option #2 | Displays the second boot device. Default: USB Storage Device. |
| Boot Option #3 | Displays the third boot device. Default: Internal ODD Devices. |



Boot

| | |
|-------------------|---|
| Boot Option #4 | Displays the fourth boot device. Default: USB Floppy Device. |
| Boot Option #5 | Displays the fifth boot device. Default: Onboard NIC Device. |
| Hard Disk Drivers | Displays the boot sequence of the hard drive. |

Power

| | |
|---------------------------|---|
| Wake Up by Integrated LAN | Allow the computer to be powered on by special LAN signals. |
| Deep Sleep Control | Allows you to define the controls when Deep Sleep is enabled. |
| AC Recovery | Sets what action the computer takes when power is restored. |
| Auto Power On | Allows you to enable or disable the computer from turning on automatically. |
| Auto Power On Mode | Allows you to set the computer to turn on automatically every day or on a preselected date. This option can be configured only if the Auto Power On mode is set to Enabled Everyday or Selected Day . |
| Auto Power On Date | Allows you to set the date on which the computer must turn on automatically. This option can be configured only if the Auto Power On mode is set to Enabled 1 to 31. |
| Auto Power On Time | Allows you to set the time at which the computer must turn on automatically. This option can be configured only if the Auto Power On mode is set to Enabled hh:mm:ss. |

Security

| | |
|-------------------------|--|
| Supervisor Password | Displays whether the supervisor password is set. |
| User Password | Displays whether the user password is set. |
| Set Supervisor Password | <p>Allows you to set, change, or delete the supervisor password. The supervisor password controls access to the system setup utility.</p> <p> NOTE: Deleting the supervisor password deletes the user password. Set the supervisor password before setting the user password.</p> |
| User Access Level | <p>Allows you to restrict or provide access to the system setup utility.</p> <ul style="list-style-type: none">▪ No Access: Restricts users from editing system setup options▪ View Only: Allows users to only view system setup options▪ Limited: Allows users to edit limited system setup options▪ Full Access: Allows users to edit all system setup options except the supervisor password |
| Set User Password | Allows you to set, change, or delete the user password. |
| Password Check | <p>Allows you to enable password verification either when you attempt to enter system setup or each time the computer boots.</p> <p> NOTE: Password Check option is visible only when the user password is set.</p> |

Exit

| | |
|---------------------------|--|
| Save Changes and Reset | Allows you to exit system setup and save your changes. |
| Discard Changes and Reset | Allows you to exit system setup and load previous values for all system setup options. |
| Load Defaults | Allows you to load default values for all system setup options. |

Boot sequence

This feature allows you to change the sequence of devices that your computer attempts to boot from. If the computer cannot boot from the device you select, it attempts to boot from the next bootable device. You can use this feature to change the:

- Current Boot Sequence — change the boot sequence for the current boot, for example, to boot from the optical drive to run Dell Diagnostics from the Drivers and Utilities disc or to reinstall your operating system using an external media. The previous boot sequence is restored at the next boot.
- Future Boot Sequence — change the boot sequence for all future boots, for example, to boot from the primary hard drive.

Changing boot sequence for the current boot

- 1 If you are booting from a USB device, connect the USB device to a USB port.
- 2 Turn on (or restart) your computer.
- 3 When **F2 Setup, F12 Boot Options** appear in the lower-right corner of the screen, press F12.



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

The **Boot Options** appears, listing all available boot devices.

- 4 On the **Boot Options**, select the device you want to boot from and press Enter.

For example, if you are booting to a USB hard drive, highlight **USB Hard Disk** and press Enter.

Boot Options

Following are the devices that your computer can boot from:

Hard Drive — The computer attempts to boot from the primary hard drive. If no operating system is on the drive, the computer generates an error message.

USB Storage Device — Insert the memory device into a USB connector and restart the computer. When **F12 Boot Options** appear in the lower-right corner of the screen, press F12. The BIOS detects the device and adds the USB flash option to the boot menu.



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

Network — The computer attempts to boot from the network. If no operating system is found on the network, the computer generates an error message.

Changing boot sequence for future boots

- 1 Enter system setup.
See "[Entering System Setup](#)".
- 2 Use the arrow keys to highlight the **Boot** menu option and press Enter to access the menu.



NOTE: Note your current boot sequence in case you want to restore it.

- 3 Navigate to **Set Boot Priority** to configure the boot priority.
- 4 Use the arrow keys to highlight the boot priority and press Enter to display the different devices.
- 5 Select the device and press Enter to set the boot priority.

Clearing Forgotten Passwords



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Prerequisites

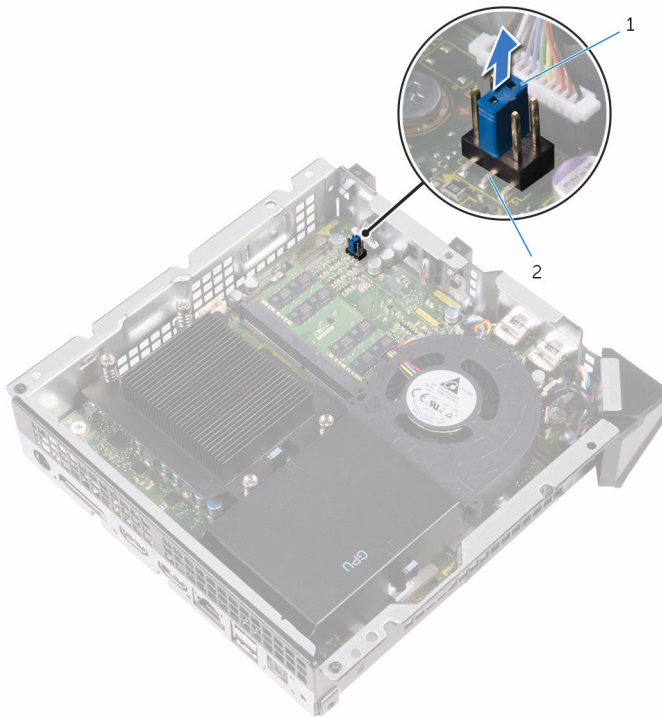
- 1 Remove the [base cover](#).
- 2 Remove the [top cover](#).
- 3 Remove the [processor fan](#).

Procedure

- 1 Locate the password jumper (pin number three and four) on the system board.

For information on the location of the CMOS jumper, see "[System-board components](#)".

- 2 Remove the jumper plug.



1 jumper plug

2 password jumper (Pin number three and four)

- 3 Replace the [processor fan](#).
- 4 Replace the [top cover](#).
- 5 Replace the [base cover](#).
- 6 Turn on your computer and wait till the operating system is completely loaded.
- 7 Shut down your computer.

- 8 Remove the [base cover](#).
- 9 Remove the [top cover](#).
- 10 Remove the [processor fan](#).
- 11 Replace the jumper plug on the password jumper (pin number three and four).

Post-requisites

- 1 Replace the [processor fan](#).
- 2 Replace the [top cover](#).
- 3 Replace the [base cover](#).

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.

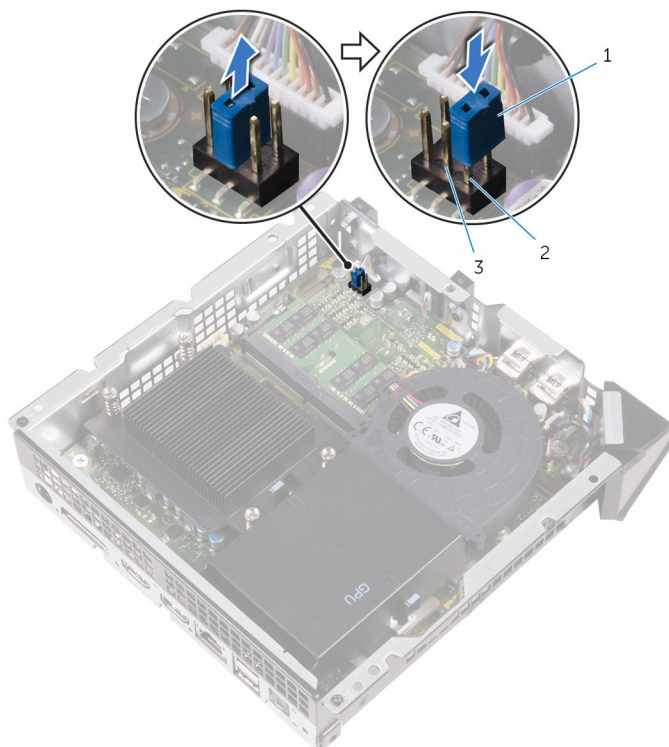
Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [top cover](#).
- 3 Remove the [processor fan](#).
- 4 Remove the [video-card fan](#).

Procedure

- 1 Locate the CMOS jumper (pin number five and six) on the system board. For information on the location of the CMOS jumper, see "[System-board components](#)".

- 2** Remove the jumper plug from the password jumper (pin number three and four) and place it on the CMOS jumper (pin number five and six).



1 jumper plug

2 CMOS jumper (pin number five and six)

3 password jumper (pin number three and four)

3 Replace the [video-card fan](#).

4 Replace the [processor fan](#).

5 Replace the [top cover](#).

6 Replace the [base cover](#).

7 Turn on your computer.

A message is displayed to confirm that the CMOS settings are reset and default BIOS setup has been loaded.

8 Press F1 to continue and wait till the operating system is completely loaded.

- 9** Shut down your computer.
- 10** Remove the [base cover](#).
- 11** Remove the [top cover](#).
- 12** Remove the [processor fan](#).
- 13** Remove the [video-card fan](#).
- 14** Remove the jumper plug from the CMOS jumper and replace it on the password jumper (pin number three and four).

Post-requisites

- 1** Replace the [video-card fan](#).
- 2** Replace the [processor fan](#).
- 3** Replace the [top cover](#).
- 4** Replace the [base cover](#).

Flashing the BIOS



NOTE: It is recommended that you connect a keyboard and mouse to flash the BIOS.

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

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

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



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

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