Alienware Aurora R11
Service Manual

Regulatory Model: D23M
Regulatory Type: D23M002
April 2021
Rev. A03

ALIENWARE

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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Working inside your computer

Safety instructions

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

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

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

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

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

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

CAUTION: Before touching anything inside your computer, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.

CAUTION: When you disconnect a cable, pull on its connector or on its pull tab, not on the cable itself. Some cables have connectors with locking tabs or thumb-screws that you must disengage before disconnecting the cable. When disconnecting cables, keep them evenly aligned to avoid bending any connector pins. When connecting cables, ensure that the ports and connectors are correctly oriented and aligned.

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

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

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

Steps

1. Save and close all open files and exit all open applications.
2. Shut down your computer. Click **Start** > **Power** > **Shut down**.

   NOTE: If you are using a different operating system, see the documentation of your operating system for shut-down instructions.
3. Disconnect your computer and all attached devices from their electrical outlets.
4. Disconnect all attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.
5. Remove any media card and optical disc from your computer, if applicable.
6. After the computer is unplugged, press and hold the power button for 5 seconds to ground the system board.

Electrostatic discharge—ESD protection

ESD is a major concern when you handle electronic components, especially sensitive components such as expansion cards, processors, memory DIMMs, and system boards. Very slight charges can damage circuits in ways that may not be obvious, such as intermittent problems or a shortened product life span. As the industry pushes for lower power requirements and increased density, ESD protection is an increasing concern.

Due to the increased density of semiconductors used in recent Dell products, the sensitivity to static damage is now higher than in previous Dell products. For this reason, some previously approved methods of handling parts are no longer applicable.

Two recognized types of ESD damage are catastrophic and intermittent failures.

- **Catastrophic** – Catastrophic failures represent approximately 20 percent of ESD-related failures. The damage causes an immediate and complete loss of device functionality. An example of catastrophic failure is a memory DIMM that has received a static shock and immediately generates a "No POST/No Video" symptom with a beep code emitted for missing or nonfunctional memory.
- **Intermittent** – Intermittent failures represent approximately 80 percent of ESD-related failures. The high rate of intermittent failures means that most of the time when damage occurs, it is not immediately recognizable. The DIMM receives a static shock, but the tracing is merely weakened and does not immediately produce outward symptoms related to the damage. The weakened trace may take weeks or months to melt, and in the meantime may cause degradation of memory integrity, intermittent memory errors, etc.

The more difficult type of damage to recognize and troubleshoot is the intermittent (also called latent or "walking wounded") failure.

Perform the following steps to prevent ESD damage:

- Use a wired ESD wrist strap that is properly grounded. The use of wireless anti-static straps is no longer allowed; they do not provide adequate protection. Touching the chassis before handling parts does not ensure adequate ESD protection on parts with increased sensitivity to ESD damage.
- Handle all static-sensitive components in a static-safe area. If possible, use anti-static floor pads and workbench pads.
- When unpacking a static-sensitive component from its shipping carton, do not remove the component from the anti-static packing material until you are ready to install the component. Before unwrapping the anti-static packaging, ensure that you discharge static electricity from your body.
- Before transporting a static-sensitive component, place it in an anti-static container or packaging.

ESD field service kit

The unmonitored Field Service kit is the most commonly used service kit. Each Field Service kit includes three main components: anti-static mat, wrist strap, and bonding wire.

Components of an ESD field service kit

The components of an ESD field service kit are:

- **Anti-Static Mat** – The anti-static mat is dissipative and parts can be placed on it during service procedures. When using an anti-static mat, your wrist strap should be snug and the bonding wire should be connected to the mat and to any bare metal on the system being worked on. Once deployed properly, service parts can be removed from the ESD bag and placed directly on the mat. ESD-sensitive items are safe in your hand, on the ESD mat, in the system, or inside a bag.
- **Wrist Strap and Bonding Wire** – The wrist strap and bonding wire can be either directly connected between your wrist and bare metal on the hardware if the ESD mat is not required, or connected to the anti-static mat to protect hardware that is temporarily placed on the mat. The physical connection of the wrist strap and bonding wire between your skin, the ESD mat, and the hardware is known as bonding. Use only Field Service kits with a wrist strap, mat, and bonding wire. Never use wireless wrist straps. Always be aware that the internal wires of a wrist strap are prone to damage from normal wear and tear, and must be checked regularly with a wrist strap tester in order to avoid accidental ESD hardware damage. It is recommended to test the wrist strap and bonding wire at least once per week.
- **ESD Wrist Strap Tester** – The wires inside of an ESD strap are prone to damage over time. When using an unmonitored kit, it is a best practice to regularly test the strap prior to each service call, and at a minimum, test once per week. A wrist strap tester is the best method for doing this test. If you do not have your own wrist strap tester, check with your regional office to find out if they have one. To perform the test, plug the wrist-strap's bonding-wire into the tester while it is strapped to your wrist and push the button to test. A green LED is lit if the test is successful; a red LED is lit and an alarm sounds if the test fails.
- **Insulator Elements** – It is critical to keep ESD sensitive devices, such as plastic heat sink casings, away from internal parts that are insulators and often highly charged.

- **Working Environment** – Before deploying the ESD Field Service kit, assess the situation at the customer location. For example, deploying the kit for a server environment is different than for a desktop or portable environment. Servers are typically installed in a rack within a data center; desktops or portables are typically placed on office desks or cubicles. Always look for a large open flat work area that is free of clutter and large enough to deploy the ESD kit with additional space to accommodate the type of system that is being repaired. The workspace should also be free of insulators that can cause an ESD event. On the work area, insulators such as Styrofoam and other plastics should always be moved at least 12 inches or 30 centimeters away from sensitive parts before physically handling any hardware components
- **ESD Packaging** – All ESD-sensitive devices must be shipped and received in static-safe packaging. Metal, static-shielded bags are preferred. However, you should always return the damaged part using the same ESD bag and packaging that the new part arrived in. The ESD bag should be folded over and taped shut and all the same foam packing material should be used in the original box that the new part arrived in. ESD-sensitive devices should be removed from packaging only at an ESD-protected work surface, and parts should never be placed on top of the ESD bag because only the inside of the bag is shielded. Always place parts in your hand, on the ESD mat, in the system, or inside an anti-static bag.
- **Transporting Sensitive Components** – When transporting ESD sensitive components such as replacement parts or parts to be returned to Dell, it is critical to place these parts in anti-static bags for safe transport.

ESD protection summary

It is recommended that all field service technicians use the traditional wired ESD grounding wrist strap and protective anti-static mat at all times when servicing Dell products. In addition, it is critical that technicians keep sensitive parts separate from all insulator parts while performing service and that they use anti-static bags for transporting sensitive components.

Transporting sensitive components

When transporting ESD sensitive components such as replacement parts or parts to be returned to Dell, it is critical to place these parts in anti-static bags for safe transport.

Lifting equipment

Adhere to the following guidelines when lifting heavy weight equipment:

CAUTION: Do not lift greater than 50 pounds. Always obtain additional resources or use a mechanical lifting device.

1. Get a firm balanced footing. Keep your feet apart for a stable base, and point your toes out.
2. Tighten stomach muscles. Abdominal muscles support your spine when you lift, offsetting the force of the load.
3. Lift with your legs, not your back.
4. Keep the load close. The closer it is to your spine, the less force it exerts on your back.
5. Keep your back upright, whether lifting or setting down the load. Do not add the weight of your body to the load. Avoid twisting your body and back.
6. Follow the same techniques in reverse to set the load down.

After working inside your computer

About this task

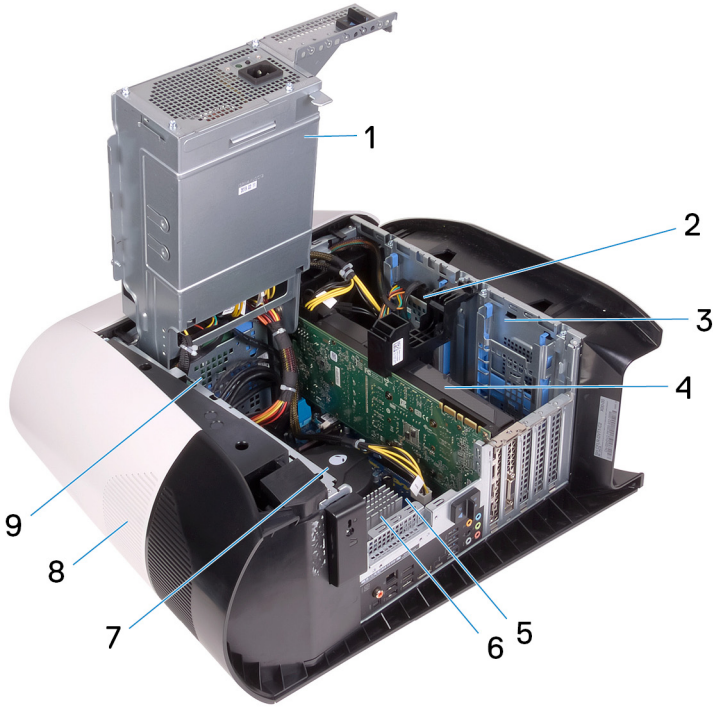
CAUTION: Leaving stray or loose screws inside your computer may severely damage your computer.

Steps

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.

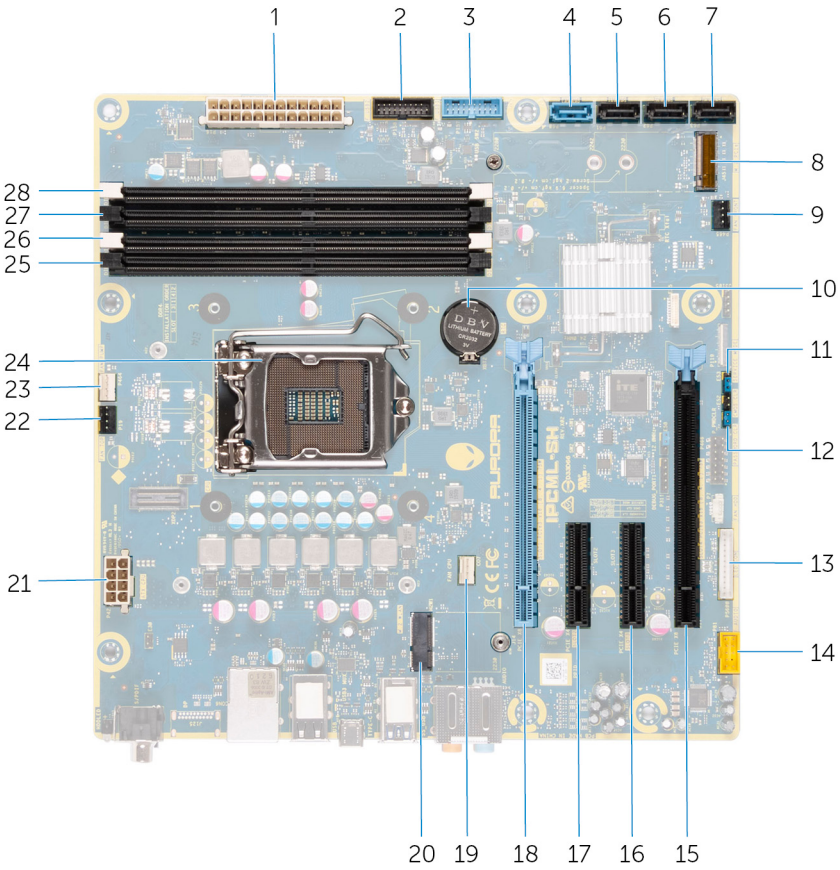
Removing and installing components

Inside view of your computer



1. power-supply unit
2. 2.5-inch hard drive
3. 2.5-inch hard-drive cage
4. graphics card
5. system board
6. VR heat sink
7. processor fan and liquid cooling assembly
8. top cover
9. 3.5-inch hard-drive cage

System-board components



1. power-supply connector
2. front-panel USB cable 2 (F_USB2)
3. front-panel USB cable 1 (F_USB1)
4. SATA 6 Gbps drive connector (SATA1)
5. SATA 6 Gbps drive connector (SATA2)
6. SATA 6 Gbps drive connector (SATA3)
7. SATA 6 Gbps drive connector (SATA4)
8. solid-state drive slot (M.2 SSD)
9. front-chassis fan connector (FRONT_FAN)
10. coin-cell battery
11. CMOS reset jumper (CMOS_CLR)
12. Password reset jumper (PW_CLR)
13. LED controller connector (LED_CONTROLLER)
14. front audio connector (F_AUDIO)
15. PCI-Express x16 mechanical/x8 electrical slot (SLOT4)
16. PCI-Express x4 slot (SLOT3)
17. PCI-Express x4 slot (SLOT2)
18. PCI-Express x16 mechanical/x8 electrical slot PCIe Gen4 (SLOT1)
19. processor-cooling assembly CPU-fan connector (CPU_FAN)
20. wireless-card slot (M.2 WIFI)
21. processor power-connector (AIX_CPU)
22. top-chassis fan (TOP_FAN)
23. processor-cooling assembly pump-fan connector (PUMP_FAN)
24. processor socket (CPU1)
25. memory-module slot 3 (DDR4/XMM3)
26. memory-module slot 1 (DDR4/XMM1)
27. memory-module slot 2 (DDR4/XMM4)
28. memory-module slot 4 (DDR4/XMM2)

Recommended tools

The procedures in this document may require the following tools:

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

Screw list

NOTE: When removing screws from a component, it is recommended to note the screw type, the quantity of screws, and then place them in a screw storage box. This is to ensure that the correct number of screws and correct screw type is restored when the component is replaced.

NOTE: Some computers have magnetic surfaces. Ensure that the screws are not left attached to such surface when replacing a component.

NOTE: Screw color may vary with the configuration ordered.

Table 1. Screw list

Component	Secured to	Screw type	Quantity	Screw image
Side-panel release latch	Chassis	6-32x12-7L	1	
2.5-inch hard-drive cage	Chassis	#6-32	2	
3.5-inch hard-drive cage	Chassis	#6-32	2	
Power-supply unit bracket	Power-supply unit cage	#6-32	2	
Power-supply unit	Chassis	#6-32	4	
Right tron-light board	Chassis	#6-32	4	
Radiator and fan assembly	Radiator and fan cage	#6-32	4	
Antennas	Chassis	M3x4t	4	
Top bezel	Chassis	#6-32	4	
Solid-state drive	System board	M2x2.5	1	
Wireless card	System board	M2x2.5	1	
Cable-management panel	Chassis	#6-32	2	
Front-panel light-board	Front bezel	M2x4	4	
Power button module	Front bezel	M2x4	2	

Table 1. Screw list

Component	Secured to	Screw type	Quantity	Screw image
Front I/O-panel	Front bezel	M3x4	4	
System board	Chassis	#6-32	8	

Left-side cover

Removing the left-side cover

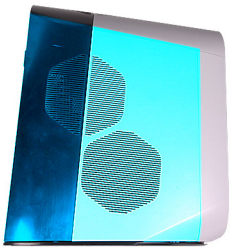
Prerequisites

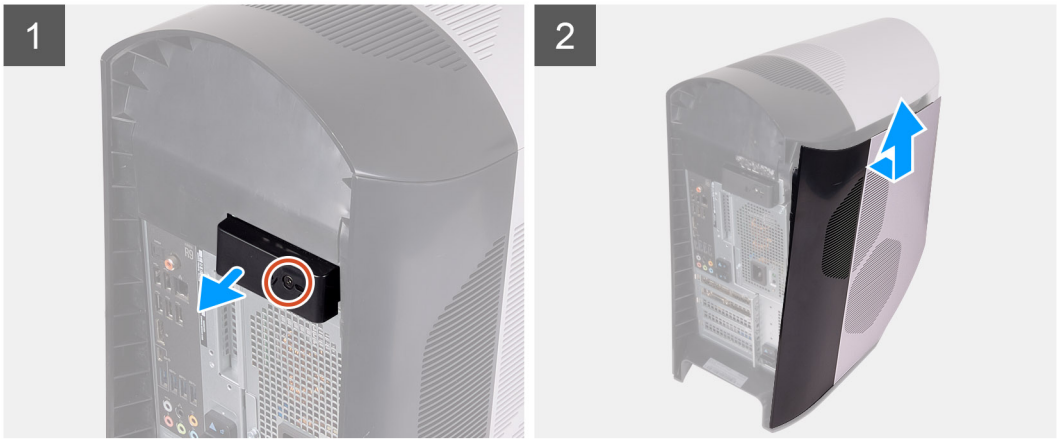
1. Follow the procedure in Before working inside your computer.

About this task

The following images indicate the location of the left-side cover and provides a visual representation of the removal procedure.







Steps

1. Remove the screw (6-32x12-7L) that secures the side-cover release latch to the chassis.
2. Pull the side-cover release latch to release the left-side cover away from the chassis.
3. Lift the left-side panel from the chassis.

Installing the left-side cover

Prerequisites

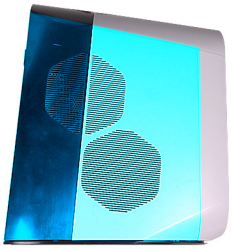
If you are replacing a component, remove the existing component before performing the installation procedure.

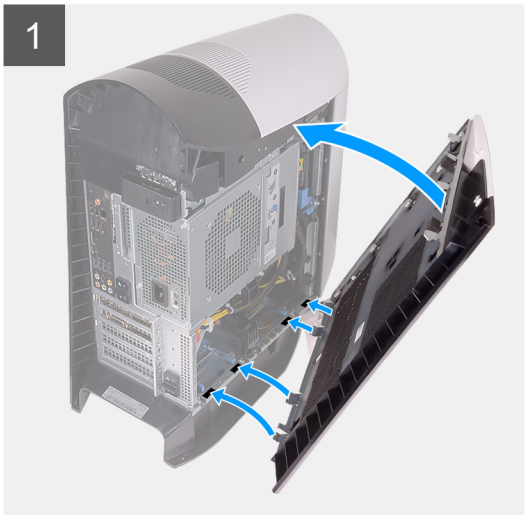
About this task

The following images indicate the location of the left-side cover and provides a visual representation of the installation procedure.



1x
M6-32X12-7L







Steps

1. Locate the tabs on the left-side cover and slots on the chassis.
2. Rotate the left-side cover towards the chassis until it snaps into place.
3. Replace the screw (6-32x12-7L) that secures the side-cover release latch to the chassis.

Next steps

1. Follow the procedure in After working inside your computer.

Top cover

Removing the top cover

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.

About this task

The following images indicate the location of the top cover and provides a visual representation of the removal procedure.





Steps

Starting from the rear, pull up on the top cover to release it from the chassis.

NOTE: Top cover is tightly secured to the chassis by clips and may requires force to remove it off the chassis.

Installing the top cover

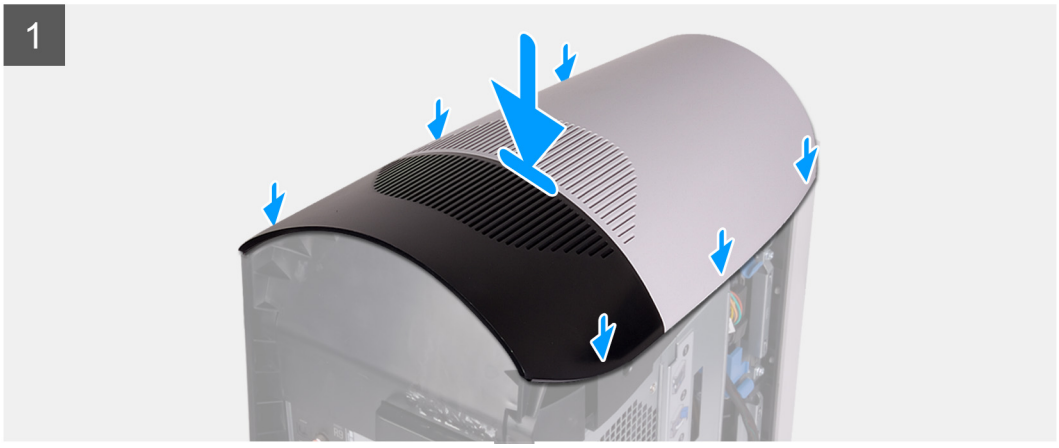
Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the top cover and provides a visual representation of the installation procedure.





Steps

Align the tabs on the top cover with the slots on the chassis and snap the top cover into place.

Next steps

1. Install the left-side cover.
2. Follow the procedure in After working inside your computer.

Right-side cover

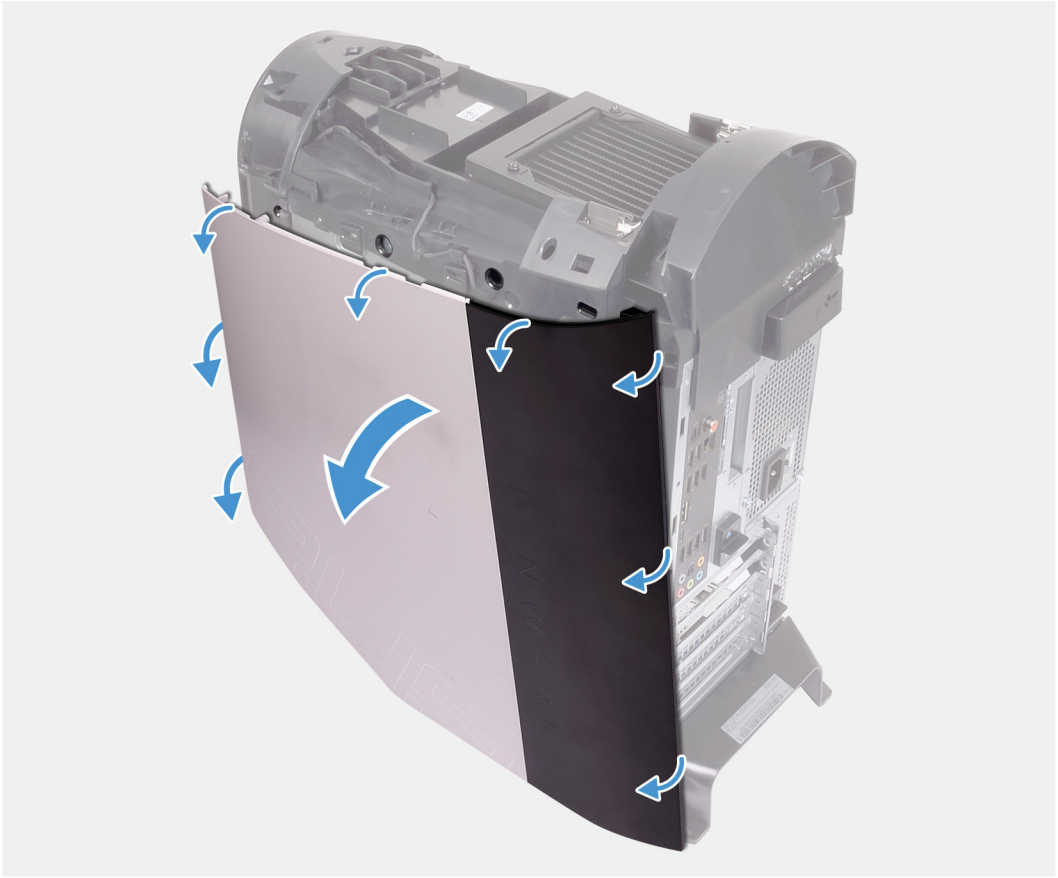
Removing the right-side cover

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the top cover.

About this task

The following images indicate the location of the right-side cover and provides a visual representation of the removal procedure.



Steps

1. Starting from the top-front tab, pull the right-side cover away from the chassis.
2. Remove the right-side cover from the chassis.

Installing the right-side cover

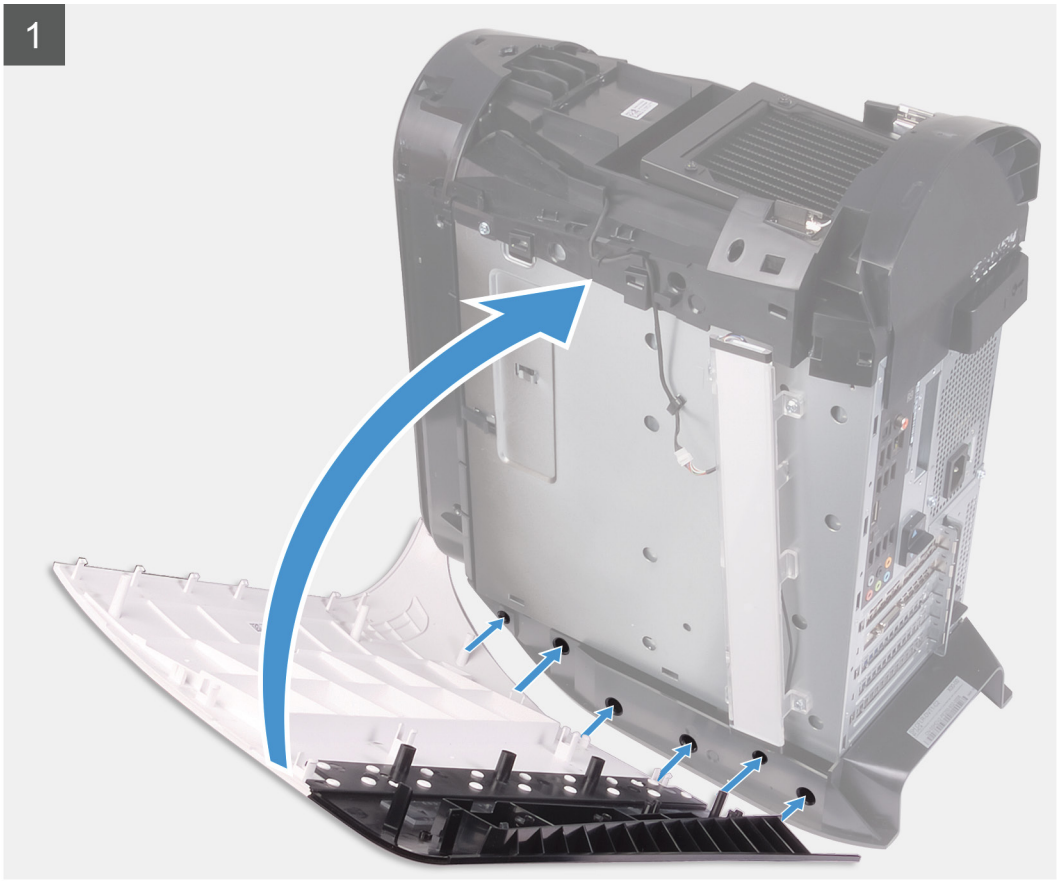
Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

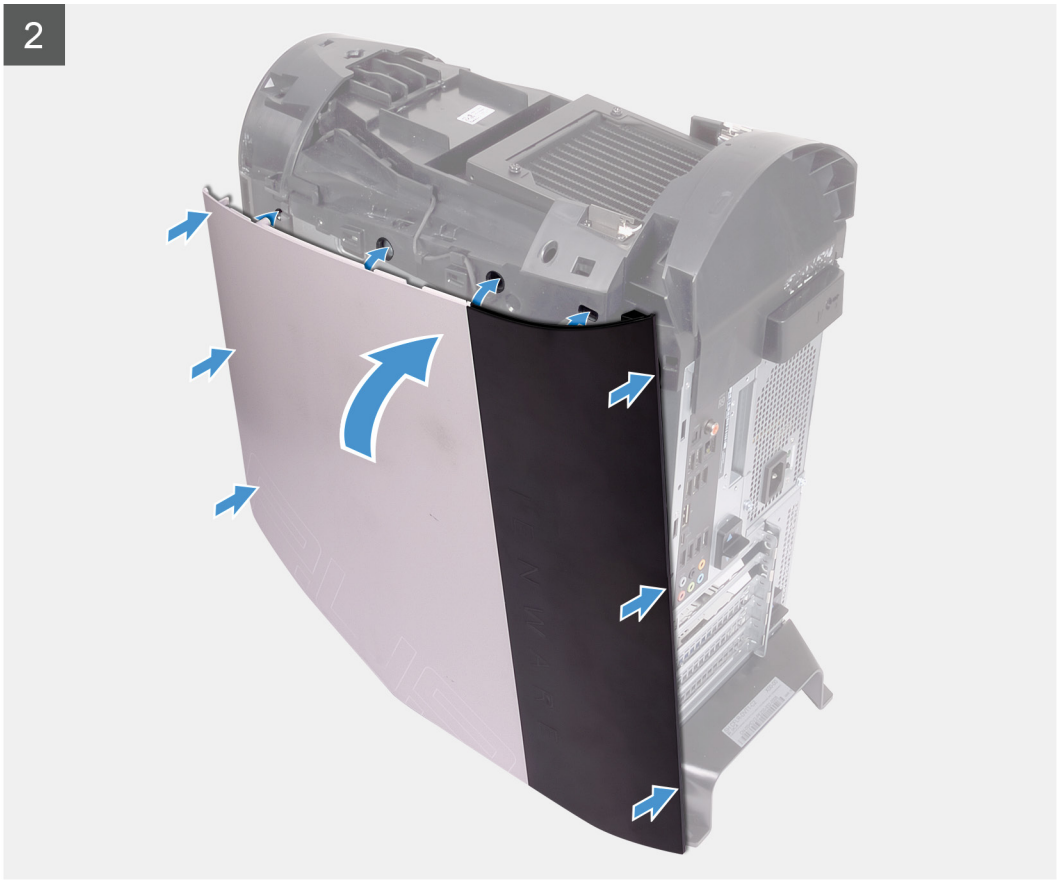
About this task

The following images indicate the location of the right-side cover and provides a visual representation of the installation procedure.

1



2



Steps

1. Align the tabs on the right-side cover with the slots on the chassis
2. Rotate the right-side cover towards the chassis until it snaps into place.

Next steps

1. Install the top cover.
2. Install the left-side cover.
3. Follow the procedure in After working inside your computer.

2.5-inch hard drive

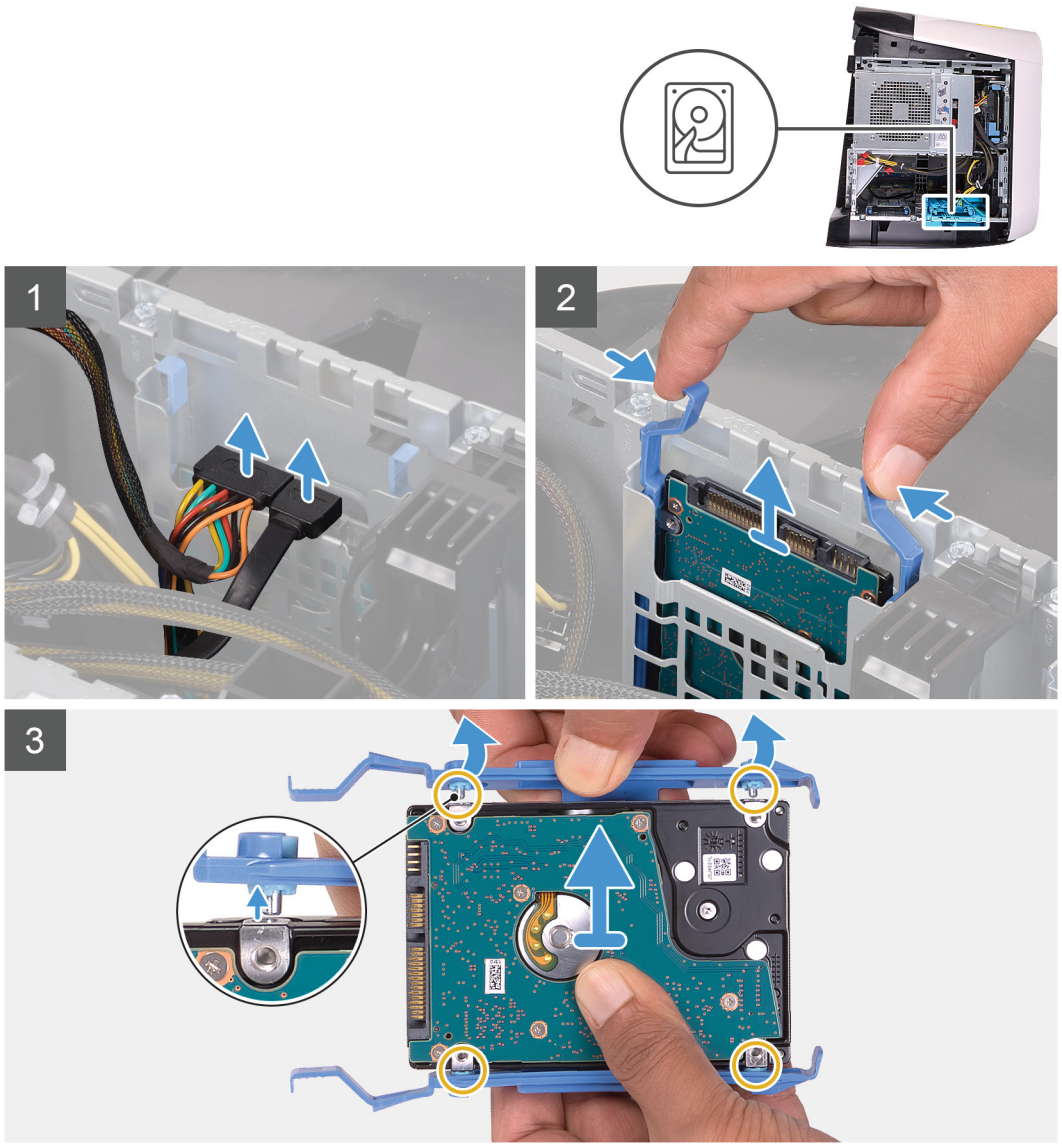
Removing the 2.5-inch hard drive

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.

About this task

The following images indicate the location of the 2.5-inch hard drive and provides a visual representation of the removal procedure.



Steps

1. Disconnect the data and power cables from the hard drive.
2. Press the release tabs on the hard-drive carrier and slide the hard-drive assembly out of the hard-drive cage.
3. Pry the hard-drive carrier to release the tabs on the assembly from the slots on the hard drive.
4. Lift the hard drive out of the hard-drive assembly.

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

NOTE: Repeat the steps to remove any additional 2.5-inch hard drive from your computer.

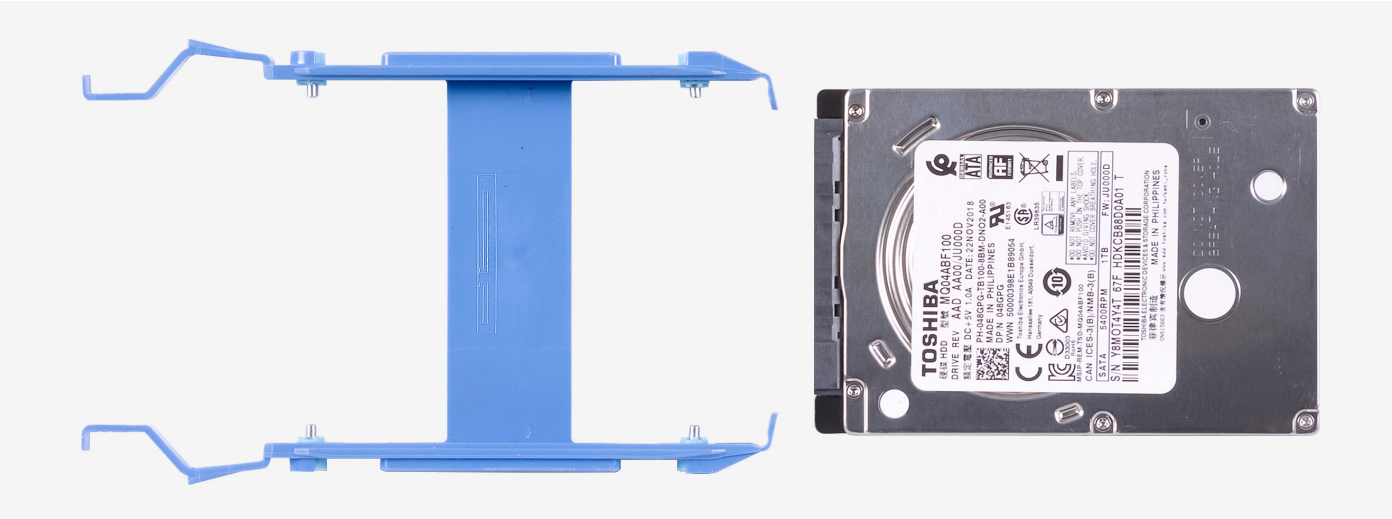
Installing the 2.5-inch hard drive

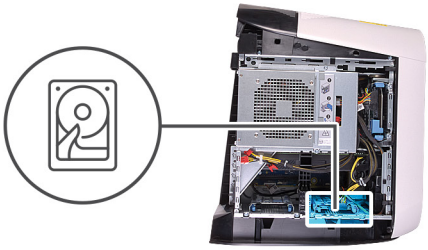
Prerequisites

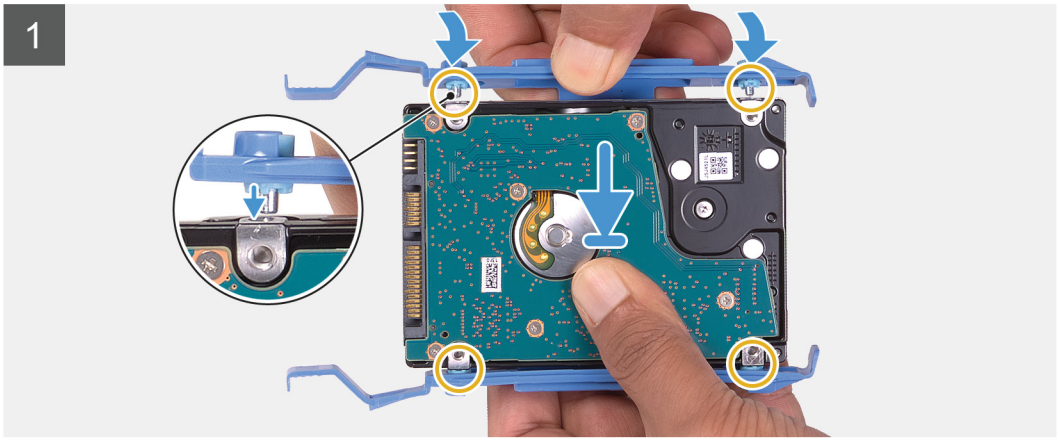
If you are replacing a component, remove the existing component before performing the installation procedure.

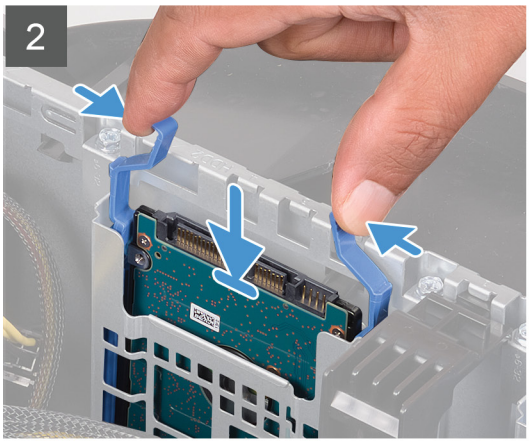
About this task

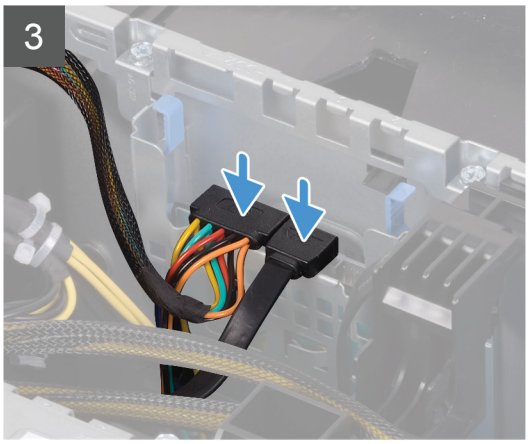
The following images indicate the location of the 2.5-inch hard drive and provides a visual representation of the installation procedure.











NOTE: Note the orientation on the hard-drive carrier to replace it correctly.

Steps

1. Align the hard drive with the pins on the hard-drive carrier.
2. Using the tabs on the opposite side, flex open the carrier to insert the pins on the other side.
3. Slide the hard-drive assembly into the hard-drive cage until it snaps into place.
4. Connect the data cable and power cable to the hard drive.

Next steps

1. Install the left-side cover.
2. Follow the procedure in After working inside your computer.
3. Verify if the storage device is installed correctly (optional):
   - If you are replacing a storage device which does not have the operating system installed, follow the steps in Identifying storage device in device manager.
   - If you are replacing a storage device that had the operating system installed, follow the steps in Identifying your storage device in system setup (BIOS).

     NOTE: To install the operating system on to your storage device, see **Reinstall Windows 10 to the Dell factory image using recovery media** in the knowledge base article 000176966.

Identifying the storage device in system setup (BIOS)

Steps

1. Turn on or restart your computer.
2. Press F2 when the Dell logo is displayed on the screen to enter the BIOS setup program.
   A list of hard drives are displayed under the **System Information** in the **General** group.

Identifying the storage device in Device Manager

Steps

1. On the taskbar, click the search box, and then type `Device Manager`.
2. Click **Device Manager**.
   The **Device Manager** window is displayed.
3. Expand **Disk drives**.

3.5-inch hard drive

Removing the 3.5-inch hard drive

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.

About this task

The following images indicate the location of the 3.5-inch hard drive and provides a visual representation of the removal procedure.



Steps

1. Disconnect the data and power cables from the hard drive.
2. Press the release tabs on the hard-drive carrier and slide the hard-drive carrier out of the hard-drive cage.
3. Pry the hard-drive carrier to release the tabs on the carrier from the slots on the hard drive.
4. Lift the hard drive out of the hard-drive assembly.

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

Installing the 3.5-inch hard drive

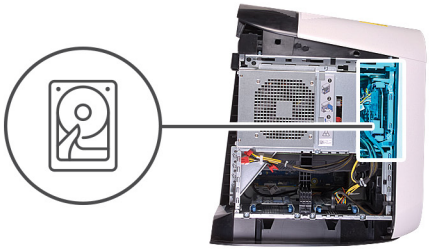
Prerequisites

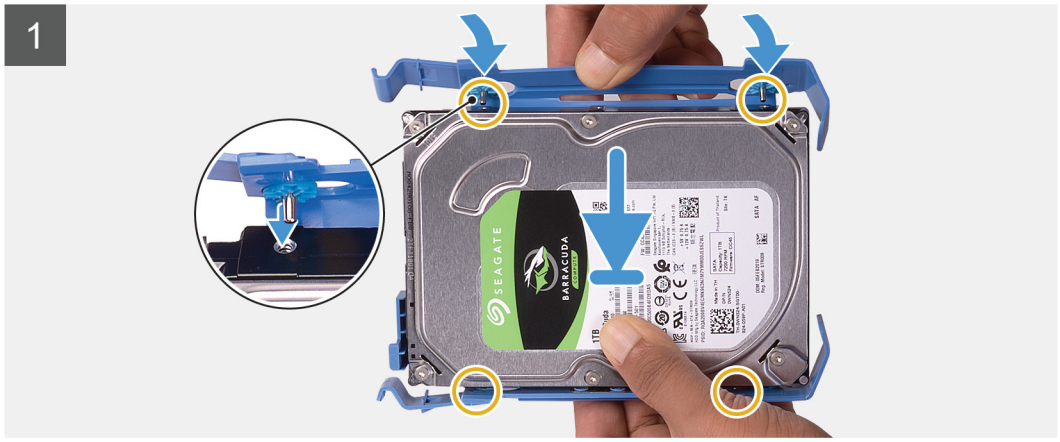
If you are replacing a component, remove the existing component before performing the installation procedure.

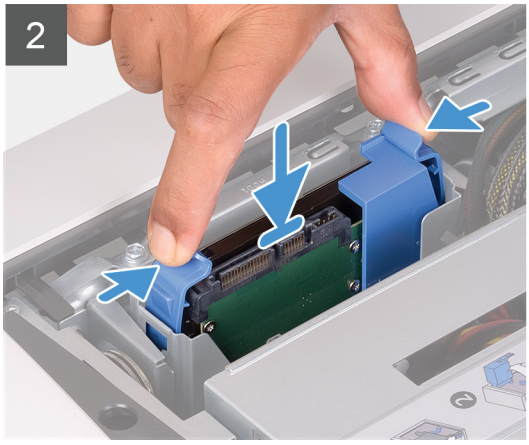
About this task

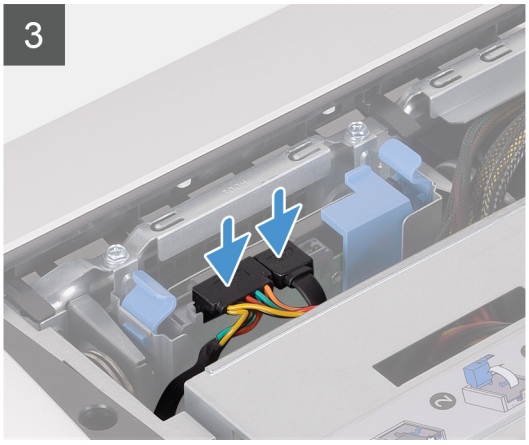
The following images indicate the location of the 3.5-inch hard drive and provides a visual representation of the installation procedure.











NOTE: Note the orientation on the hard-drive carrier to replace it correctly.

Steps

1. Align the hard drive with the pins on the hard-drive carrier.
2. Using the tabs on the opposite side, flex open the carrier to insert the pins on the other side.
3. Slide the hard-drive assembly into the hard-drive cage until it snaps into place.
4. Connect the data and power cables to the hard drive.

Next steps

1. Install the left-side cover.
2. Follow the procedure in After working inside your computer.
3. Verify if the storage device is installed correctly (optional):
   - If you are replacing a storage device which does not have the operating system installed, follow the steps in Identifying storage device in device manager.
   - If you are replacing a storage device that had the operating system installed, follow the steps in Identifying your storage device in system setup (BIOS).

     NOTE: To install the operating system on to your storage device, see **Reinstall Windows 10 to the Dell factory image using recovery media** in the knowledge base article 000176966.

2.5-inch hard-drive cage

Removing the 2.5-inch hard-drive cage

Prerequisites

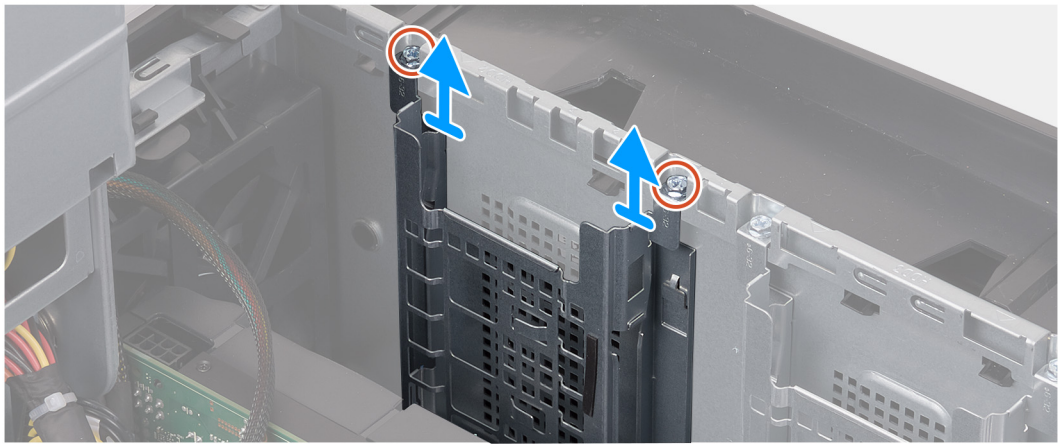
1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the 2.5-inch hard drive, if installed.

About this task

The following images indicate the location of the 2.5-inch and provides a visual representation of the removal procedure.







Steps

1. Remove the two screws (#6-32) that secure the 2.5-inch hard-drive cage to the chassis.
2. Slide and remove the 2.5-inch hard-drive cage off the chassis.

NOTE: Repeat the procedure from step 1 to step 2 to remove the other 2.5-inch hard-drive cage.

Installing the 2.5-inch hard-drive cage

Prerequisites

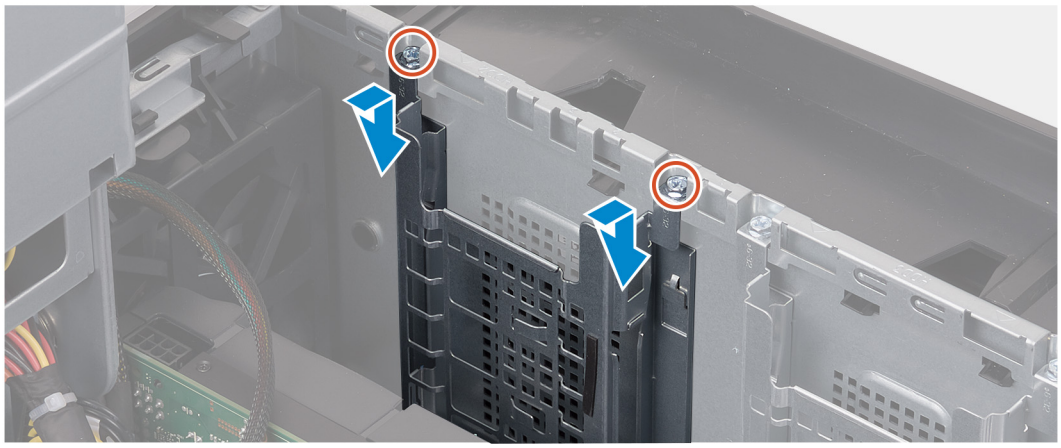
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the 2.5-inch hard-drive cage and provides a visual representation of the installation procedure.







Steps

1. Insert the 2.5-inch hard-drive cage into its slot on the chassis.
2. Align the tabs on the cage with the tabs on the chassis.
3. Replace the two screws (#6-32) that secure the 2.5-inch hard-drive cage to the chassis.

NOTE: Repeat the procedure from step 1 to step 3 to install the other 2.5-inch hard-drive cage.

Next steps

1. Follow the procedure from step 3 to step 4 in installing the 2.5-inch hard drive, if installed.
2. Install the left-side cover.
3. Follow the procedure in After working inside your computer.

3.5-inch hard-drive cage

Removing the 3.5-inch hard-drive cage

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the 3.5-inch hard drive, if installed.

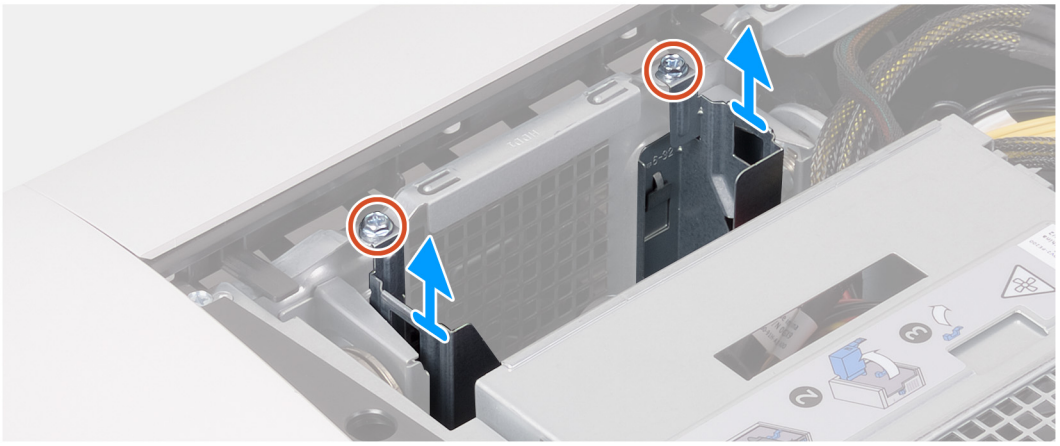
About this task

The following images indicate the location of the 3.5-inch and provides a visual representation of the removal procedure.



2x
#6-32





Steps

1. Remove the two screws (#6-32) that secure the 3.5-inch hard-drive cage to the chassis.
2. Lift the 3.5-inch hard-drive cage off the chassis.

Installing the 3.5-inch hard-drive cage

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

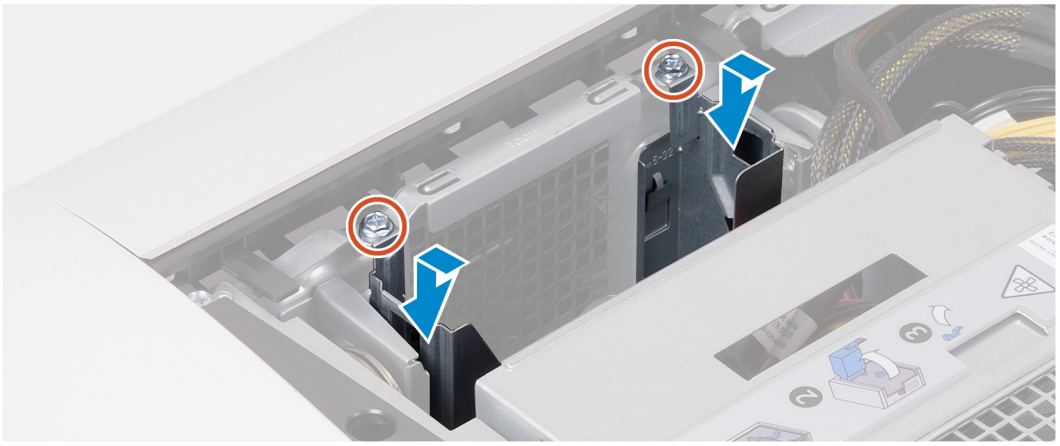
About this task

The following images indicate the location of the 3.5-inch hard-drive cage and provides a visual representation of the installation procedure.



2x
#6-32





Steps

1. Insert the 3.5-inch hard-drive cage into its slot on the chassis.
2. Align the tabs on the cage with the tabs on the chassis.
3. Replace the two screws (#6-32) that secure the 3.5-inch hard-drive cage to the chassis.

Next steps

1. Install the left-side cover.
2. Follow the procedure in After working inside your computer.

460 W power-supply unit

Removing the 460 W power-supply unit

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.

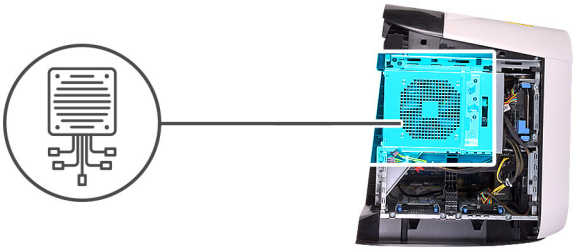
NOTE: Note the routing of all cables as you remove them so that you can route them correctly after you replace the power-supply unit.

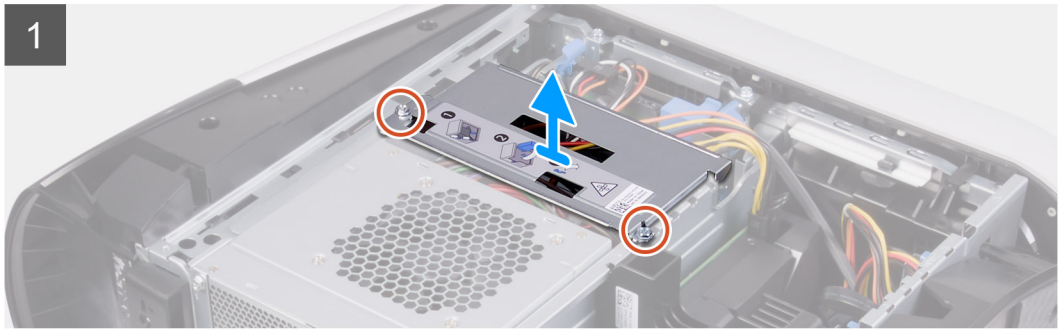
About this task

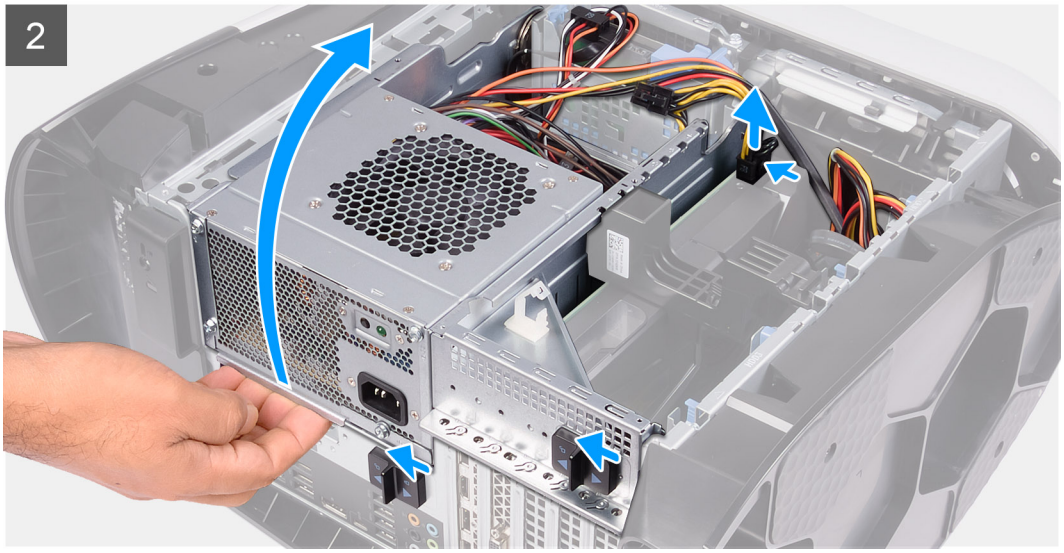
The following images indicate the location of the power-supply unit and provides a visual representation of the removal procedure.

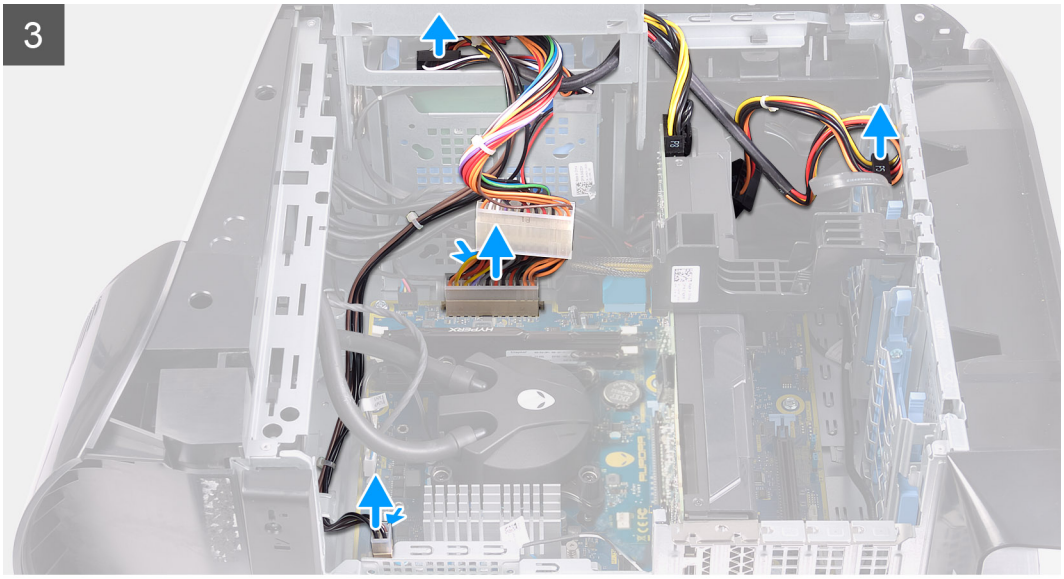


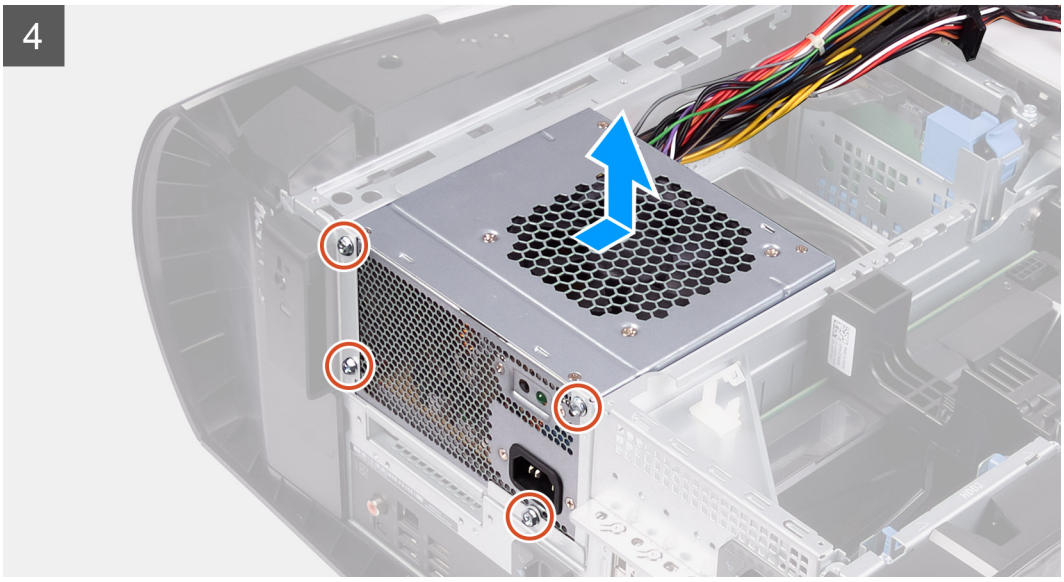
6x
#6-32











Steps

1. Remove the two screws (#6-32) that secure the power-supply unit bracket to the power-supply unit cage.
2. Lift the power-supply unit bracket off the power-supply unit cage.
3. Slide the power-supply unit cage release latches to the unlock position.
4. Lift the power-supply unit cage and rotate the power-supply unit cage away from the chassis.
5. Press the releasing clip on the power-cable connectors.
6. Disconnect the power cables from the hard drives.
7. Disconnect the processor-power cable and system-board power cable from the system board.
8. Rotate the power-supply unit cage towards the chassis.
9. Remove the four screws (#6-32) that secure the power-supply unit to the chassis.
10. Slide and lift the power-supply unit, along with the cables, off the chassis.

Installing the 460 W power-supply unit

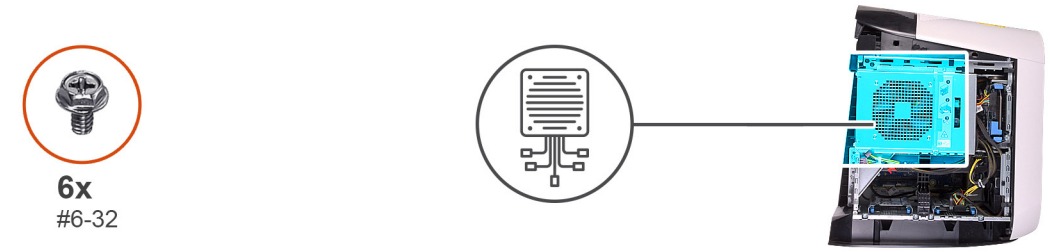
Prerequisites

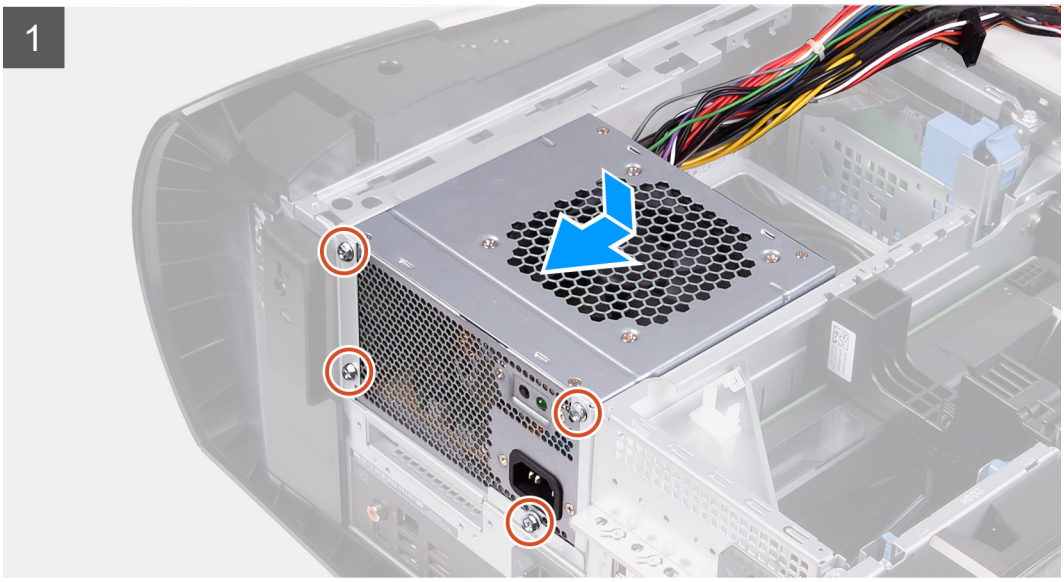
If you are replacing a component, remove the existing component before performing the installation procedure.

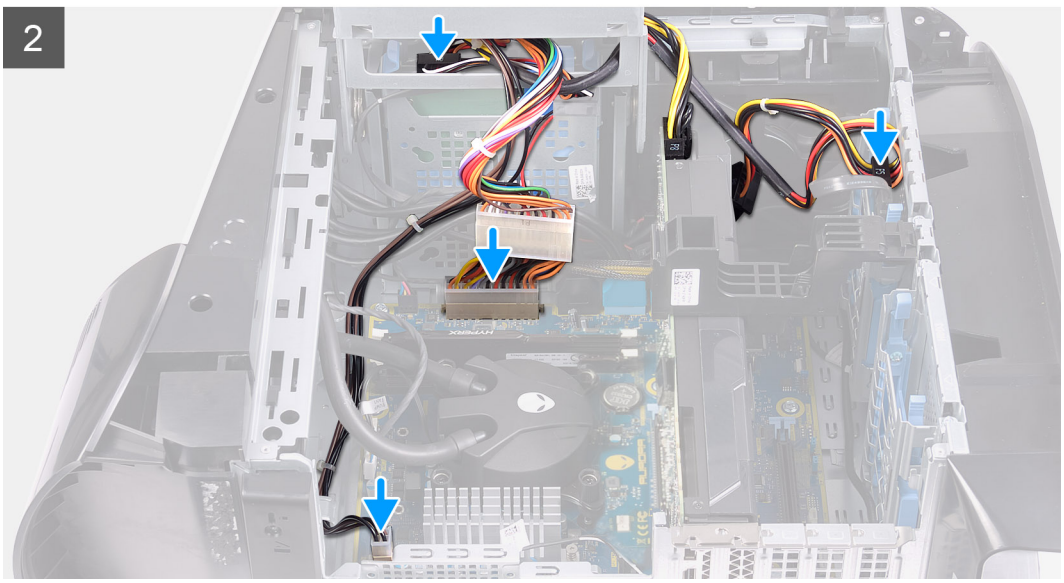
WARNING: The cables and ports on the back of the power-supply unit are color-coded to indicate the different power wattage. Ensure that you plug in the cable to the correct port. Failure to do so may result in damaging the power-supply unit and/or system components.

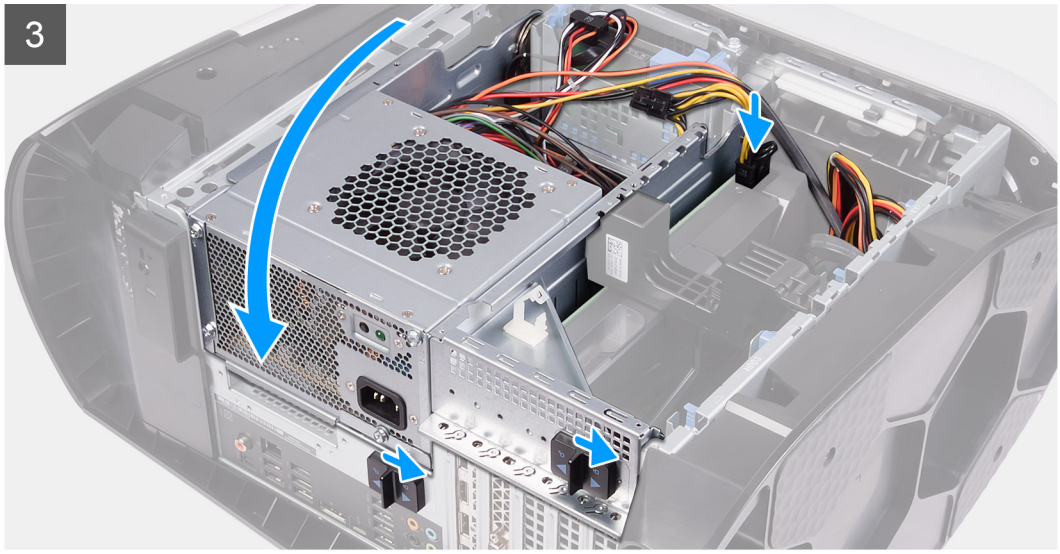
About this task

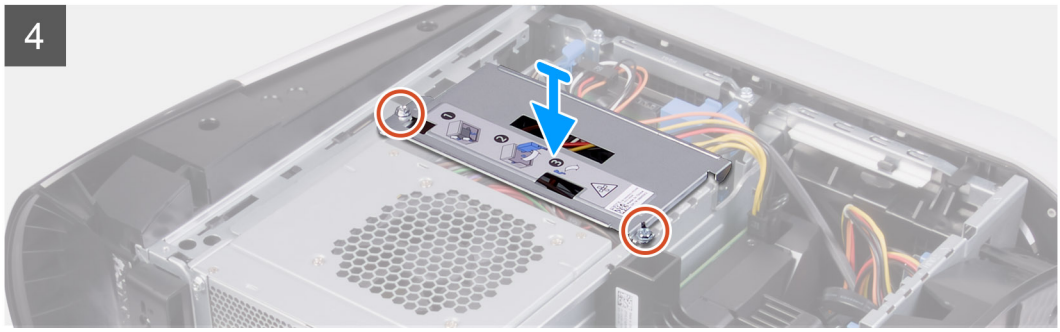
The following images indicate the location of the power-supply unit and provides a visual representation of the installation procedure.











Steps

1. Place the power supply on the chassis.
2. Align the screw holes on the power-supply unit with the screw holes on the chassis.
3. Replace the four screws (#6-32) that secure the power-supply unit to the chassis.
4. Lift and rotate the power-supply unit cage away from the chassis
5. Connect the processor-power cable and system-board power cable to the system board.
6. Connect the power cables to the hard drives.
7. Rotate the power-supply unit cage towards the chassis
8. Slide the power-supply unit cage release latches towards the locked position.
9. Align the screw holes on the power-supply unit bracket with the screw holes on the power-supply unit cage.
10. Replace the two screws (#6-32) that secure the power-supply unit bracket to the power-supply unit cage.

Next steps

1. Install the left-side cover.
2. Follow the procedure in After working inside your computer.

850 W Power-supply unit

Removing the 850 W power-supply unit

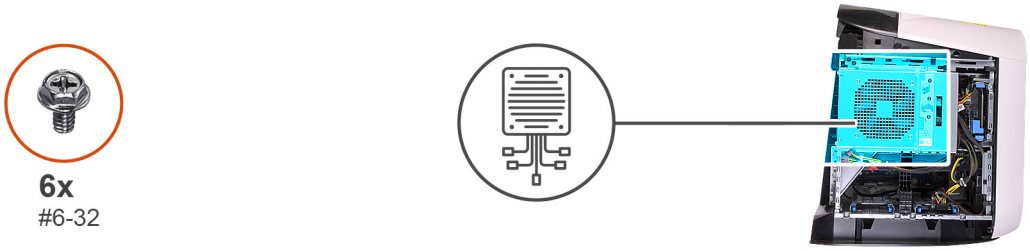
Prerequisites

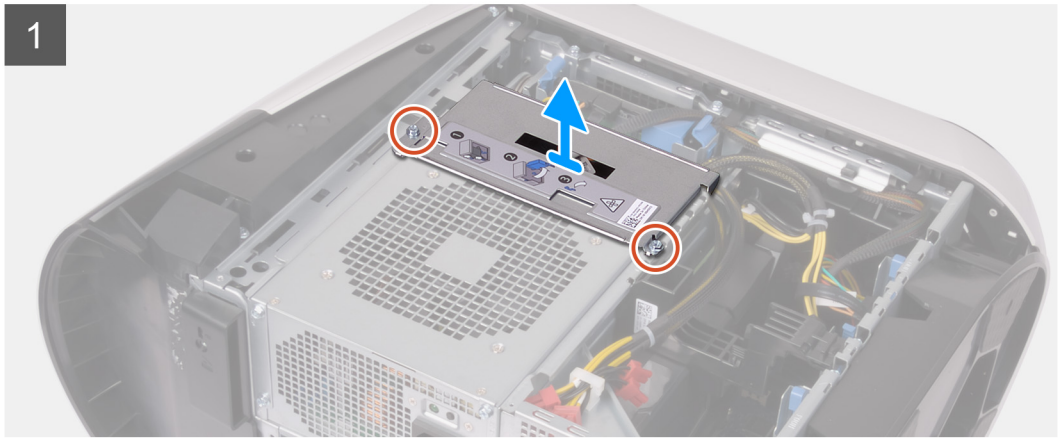
1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.

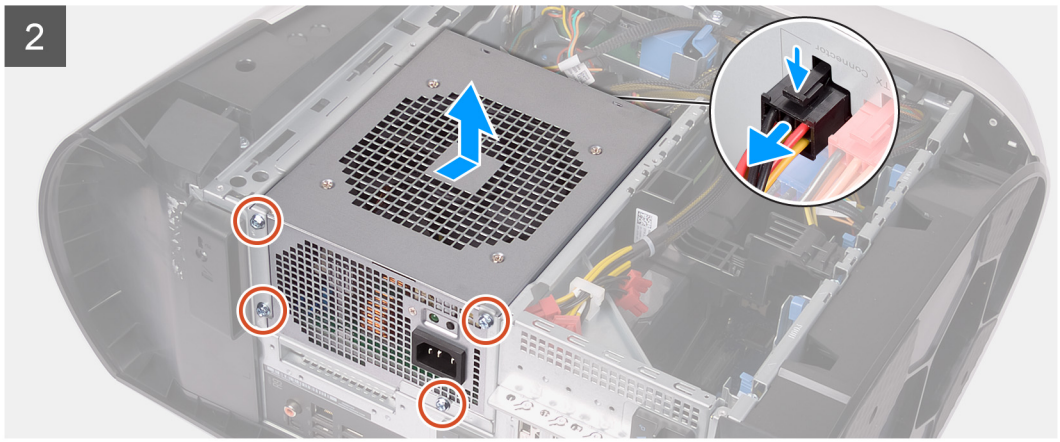
NOTE: Note the routing of all cables as you remove them so that you can route them correctly after you replace the power-supply unit.

About this task

The following images indicate the location of the power-supply unit and provides a visual representation of the removal procedure.







Steps

1. Remove the two screws (#6-32) that secure the power-supply unit bracket to the power-supply unit cage.
2. Lift the power-supply unit bracket off the power-supply unit cage.
3. Slide the power-supply unit cage release latches to the unlock position.
4. Lift the power-supply unit cage and rotate the power-supply unit cage away from the chassis.
5. Press the releasing clip on the power-cable connectors and disconnect all the power cables from the power-supply unit.
6. Remove the four screws (#6-32) that secure the power-supply unit to the chassis.
7. Slide and lift the power-supply unit, along with the cables, off the chassis.

Installing the 850 W power-supply unit

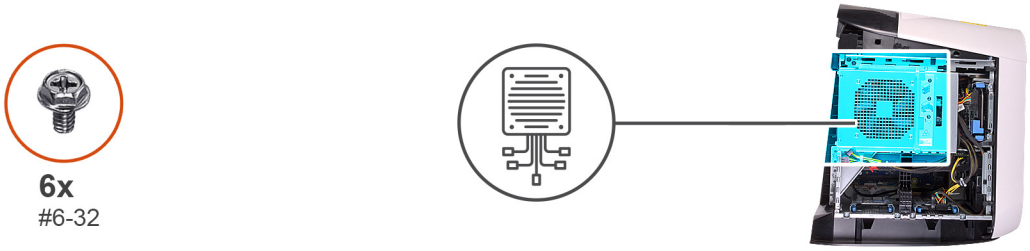
Prerequisites

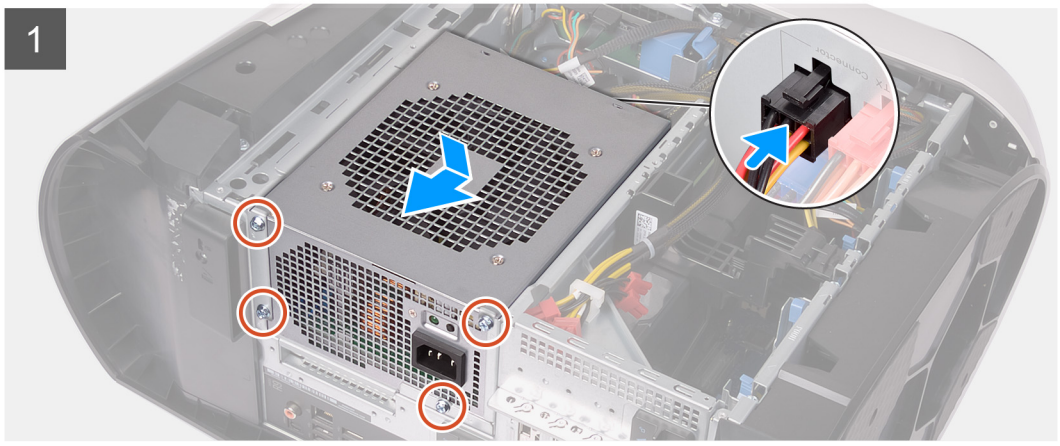
If you are replacing a component, remove the existing component before performing the installation procedure.

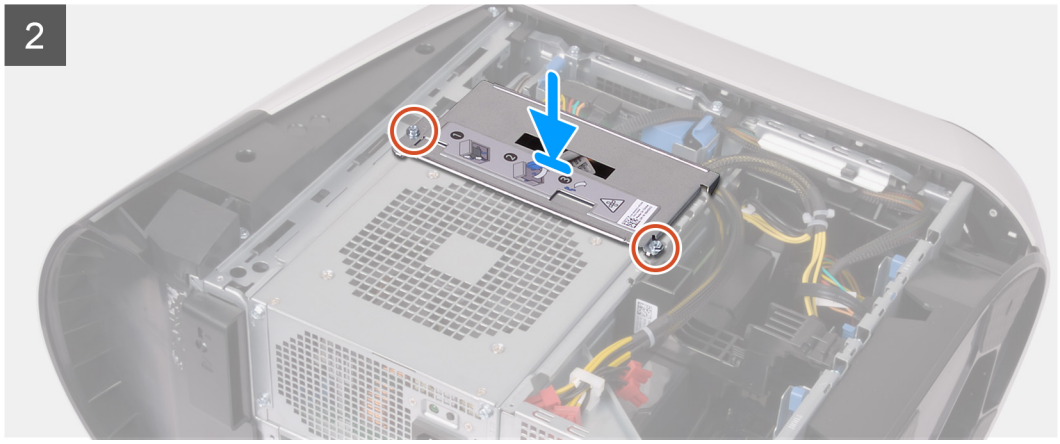
WARNING: The cables and ports on the back of the power-supply unit are color-coded to indicate the different power wattage. Ensure that you plug in the cable to the correct port. Failure to do so may result in damaging the power-supply unit and/or system components.

About this task

The following images indicate the location of the power-supply unit and provides a visual representation of the installation procedure.







Steps

1. Place the power supply on the chassis.
2. Align the screw holes on the power-supply unit with the screw holes on the chassis.
3. Replace the four screws (#6-32) that secure the power-supply unit to the chassis.
4. Connect all the power cables to the power-supply unit.
5. Align the screw holes on the power-supply unit bracket with the screw holes on the power-supply unit cage.

6. Replace the two screws (#6-32) that secure the power-supply unit bracket to the power-supply unit cage.

Next steps

1. Install the left-side cover.
2. Follow the procedure in After working inside your computer.

Right tron-light board

Removing the right tron-light board

Prerequisites

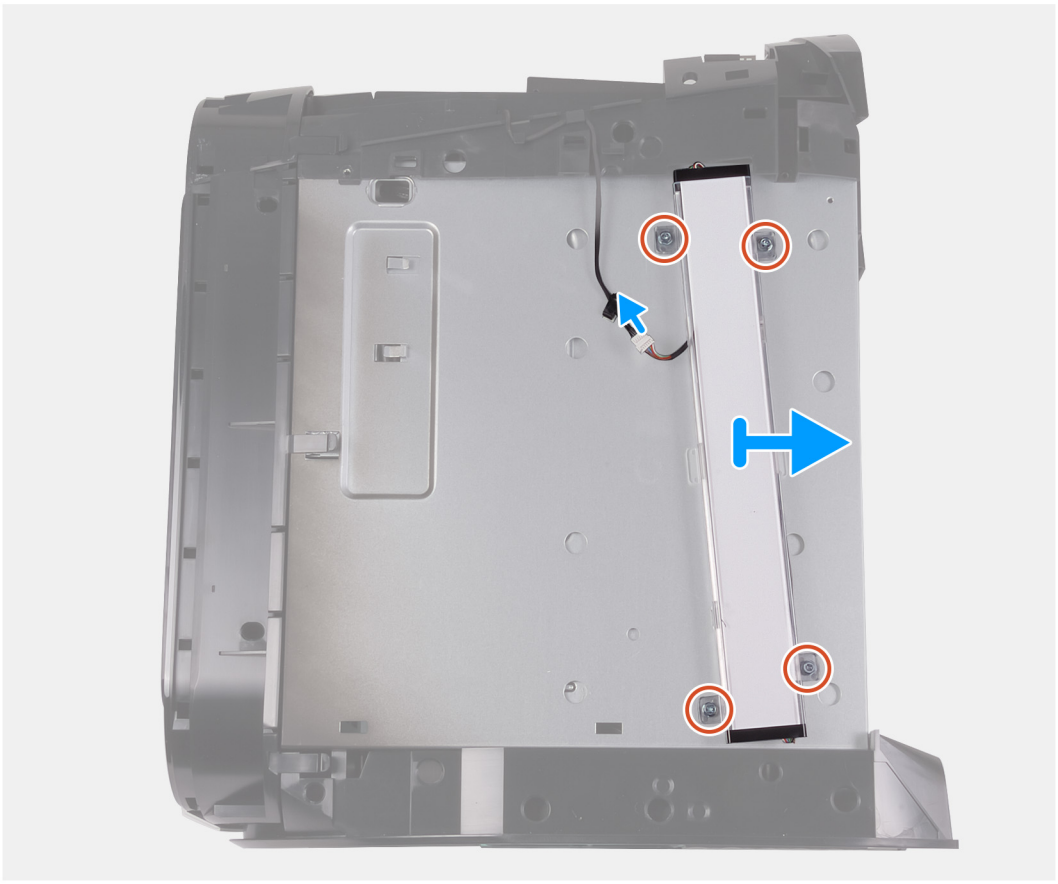
1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the top-cover.
4. Remove the right-side cover.

About this task

The following images indicate the location of the right tron-light board and provides a visual representation of the removal procedure.



4x
#6-32



Steps

1. Disconnect the tron-light cable.
2. Remove the four screws (#6-32) that secure the right tron-light board to the chassis.
3. Remove the right tron-light board off the chassis.

Installing the right tron-light board

Prerequisites

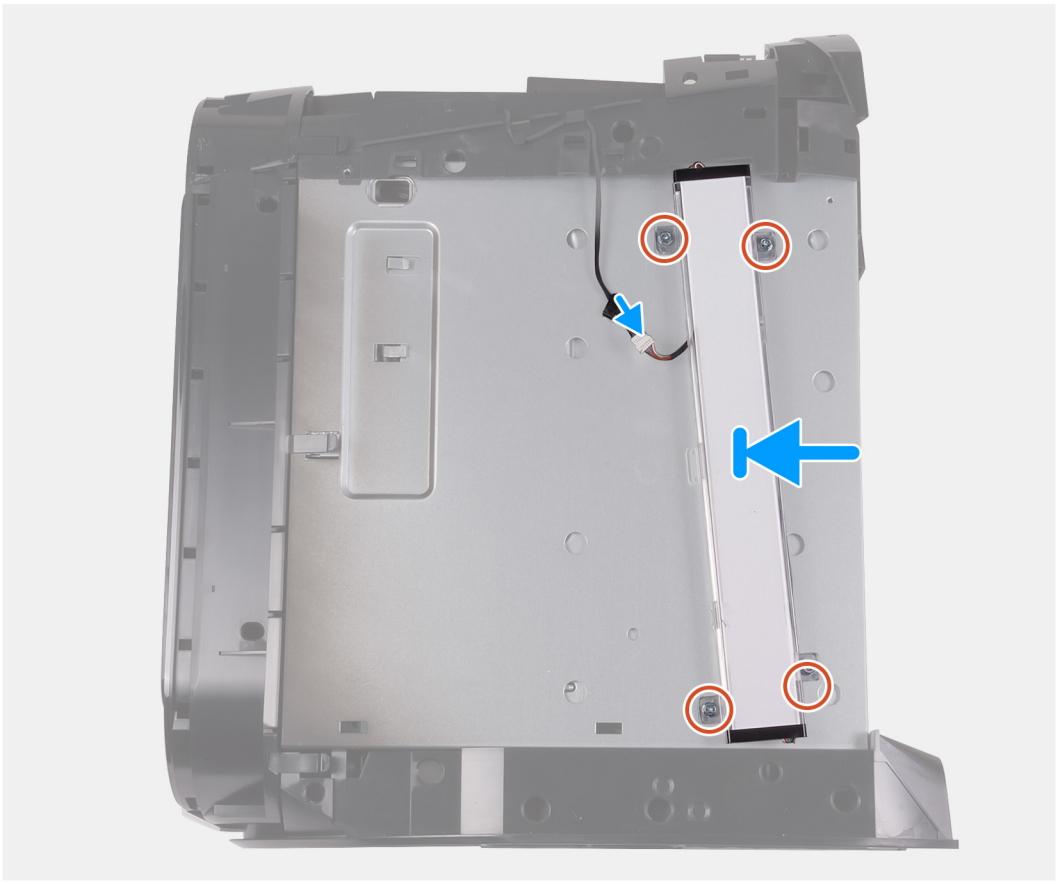
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the right tron-light board and provides a visual representation of the installation procedure.



4x
#6-32



Steps

1. Align the screw holes on the right tron-light board with the screw holes on the chassis.
2. Replace the four screws (#6-32) that secure the right tron-light board to the chassis.
3. Connect the tron-light cable.

Next steps

1. Install the right-side cover.
2. Install the top-cover.
3. Install the left-side cover.
4. Follow the procedure in After working inside your computer.

Processor liquid-cooling assembly

Removing the processor liquid-cooling assembly

Prerequisites

1. Follow the procedure in Before working inside your computer.

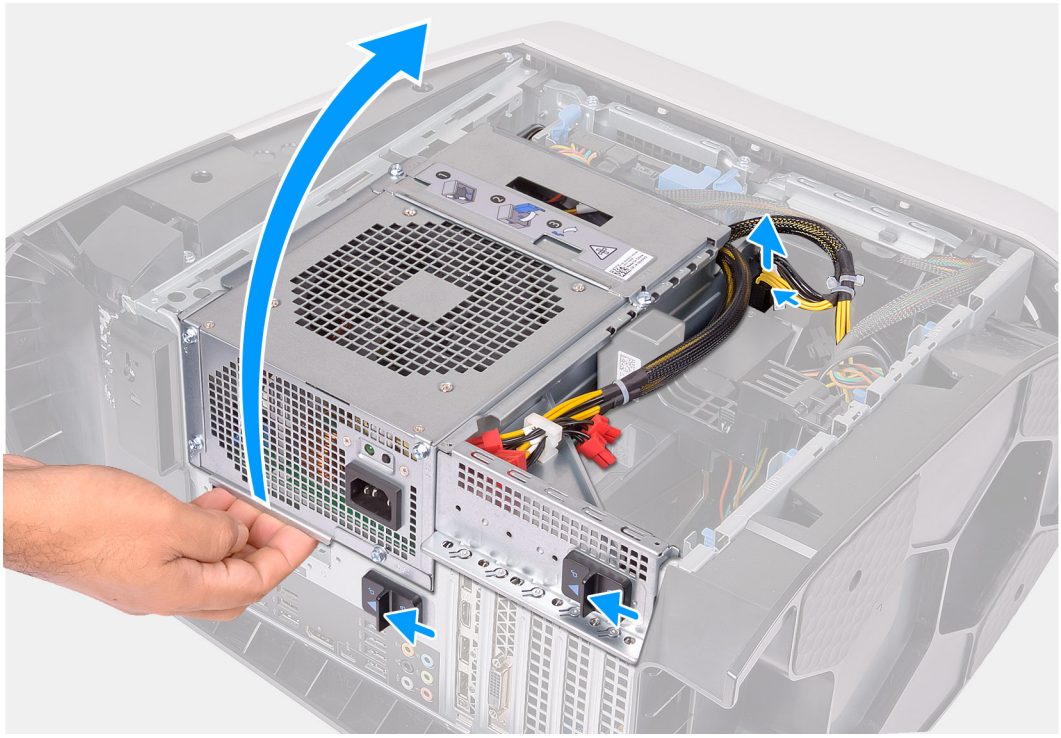
   WARNING: Despite having a plastic shield, the processor liquid-cooling assembly may be very hot during normal operation. Ensure that it had sufficient time to cool before you touch it.

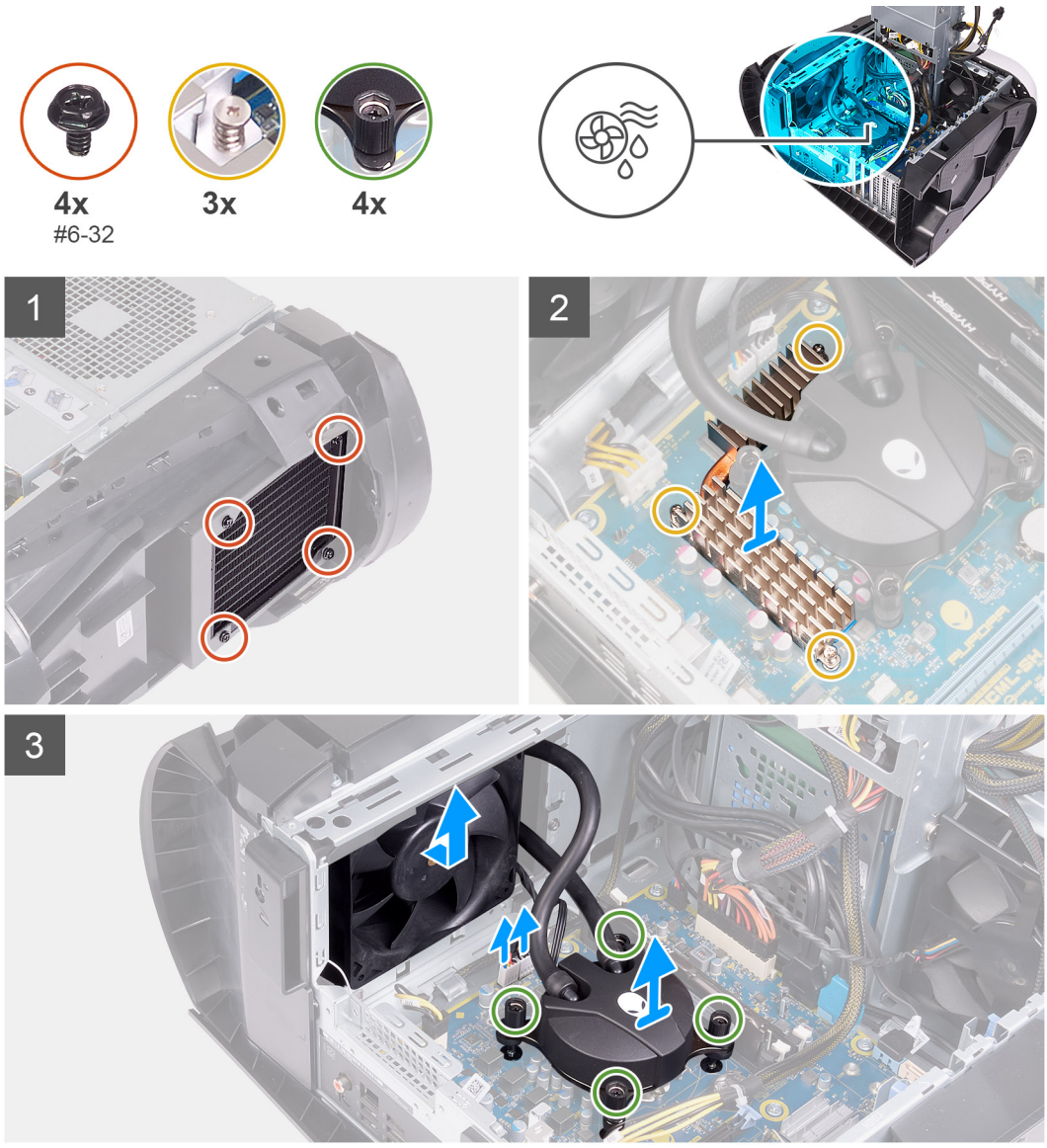
   CAUTION: To ensure maximum cooling for the processor, do not touch the heat transfer areas on the processor liquid-cooling assembly. The oils in your skin can reduce the heat transfer capability of the thermal grease.
2. Remove the left-side cover.
3. Remove the top-cover.
4. Remove the right-side cover.
5. Remove the memory modules.

About this task

The following images indicate the location of the processor liquid-cooling assembly and provides a visual representation of the removal procedure.







Steps

1. Lay the computer on the right side.
2. Press the releasing clip on the power-cable connectors and disconnect the power cables from the graphics card.
3. Slide the power-supply unit cage release latches to the unlock position.
4. Lift the power-supply unit cage.
5. Rotate the power-supply unit cage away from the chassis.
6. Loosen the three captive screws that secure the VR heat sink to the system board.
7. Remove the four screws (#6-32) that secure the radiator and fan assembly to the radiator and fan cage.
8. Lift the VR heat sink off the computer.
9. Disconnect the processor-cooling assembly cables from the system board.
10. In the reverse sequential order (as indicated on the processor cooler), loosen the four captive screws that secure the processor cooler to the system board.

    NOTE: If your are using an electric screwdriver, torque the screws at 6.9 +/-1.15 kilogram-force centimeter (6 +/-1 pound force inch).

11. Lift the processor-cooling assembly along with the cables off the computer.

Installing the processor liquid-cooling assembly

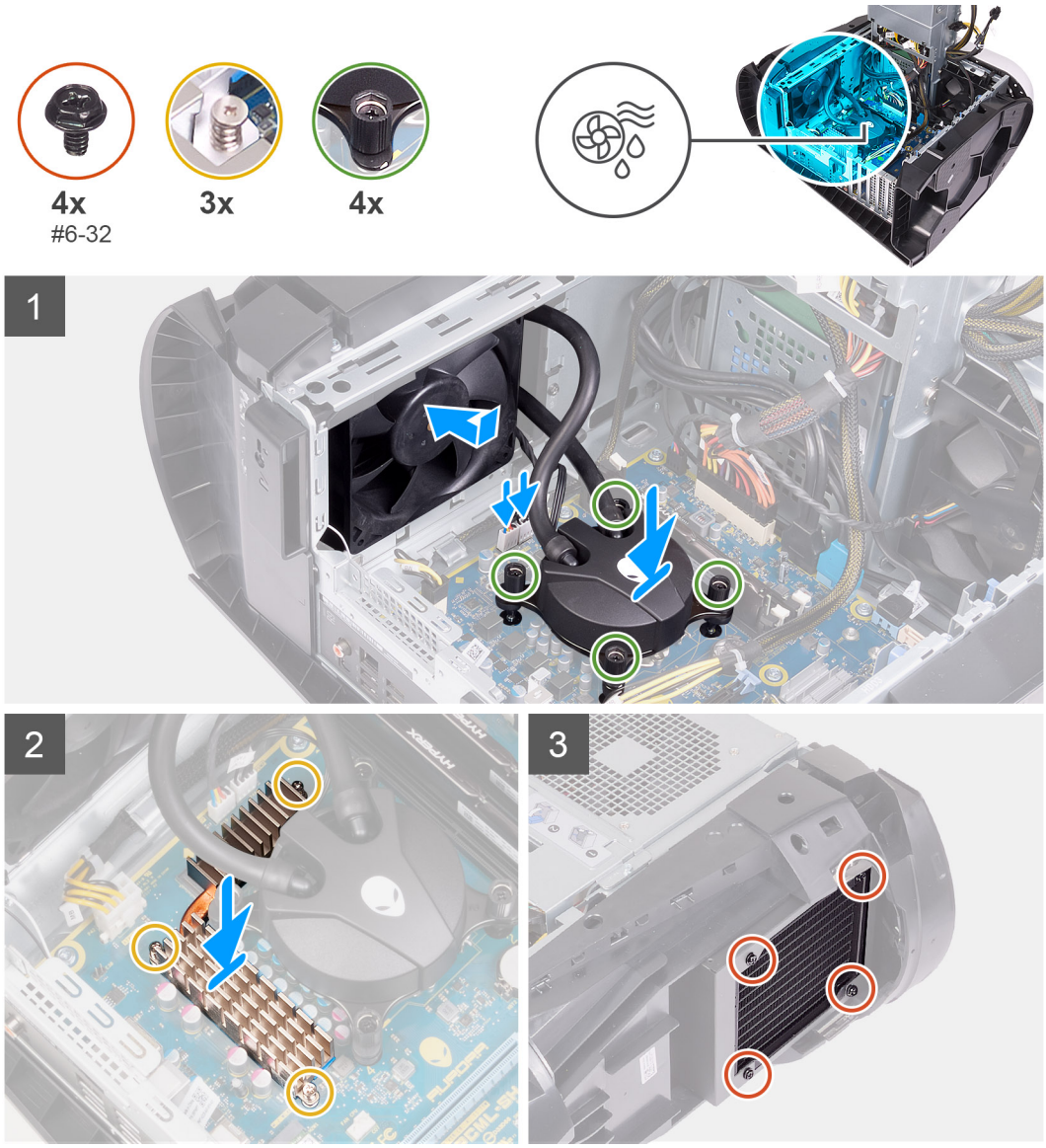
Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

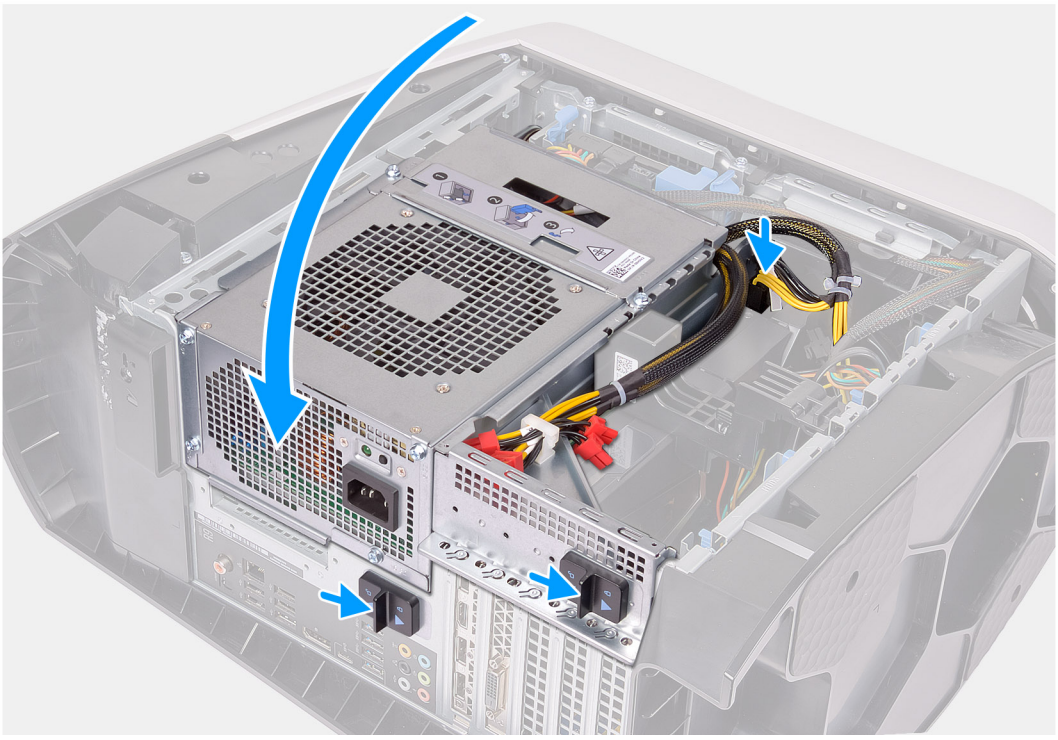
CAUTION: Incorrect alignment of the processor liquid-cooling assembly can damage the system board and processor.

About this task

The following images indicate the location of the processor liquid-cooling assembly and provides a visual representation of the installation procedure.







Steps

1. Slide the radiator and fan assembly into the radiator and fan cage.

   NOTE: Ensure that the hoses are facing the front of the system

2. Align the screw holes on the processor cooler with the screw holes on the system board.
3. Align the screw holes of the VR heat sink with the screw holes on the system board.
4. Tighten the three captive screws that secure the VR heat sink to the system board.
5. In the sequential order (as indicated on the processor cooler), tighten the four captive screws that secure the processor cooler to the system board.

   NOTE: If your are using an electric screwdriver, torque the screws at 6.9 +/-1.15 kilogram-force centimeter (6 +/-1 pound force inch).

6. Connect the processor-cooling assembly cables to the system board.
7. Replace the four screws (#6-32) that secure the radiator and fan assembly to the chassis.
8. Rotate the power-supply unit cage towards the chassis.
9. Connect the power cables to the graphics card.
10. Slide the power-supply unit cage release latches towards the locked position.

Next steps

1. Install the right-side cover.
2. Install the top-cover.
3. Install the left-side cover.
4. Follow the procedure in After working inside your computer.

Coin-cell battery

Removing the coin-cell battery

Prerequisites

1. Follow the procedure in Before working inside your computer.

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

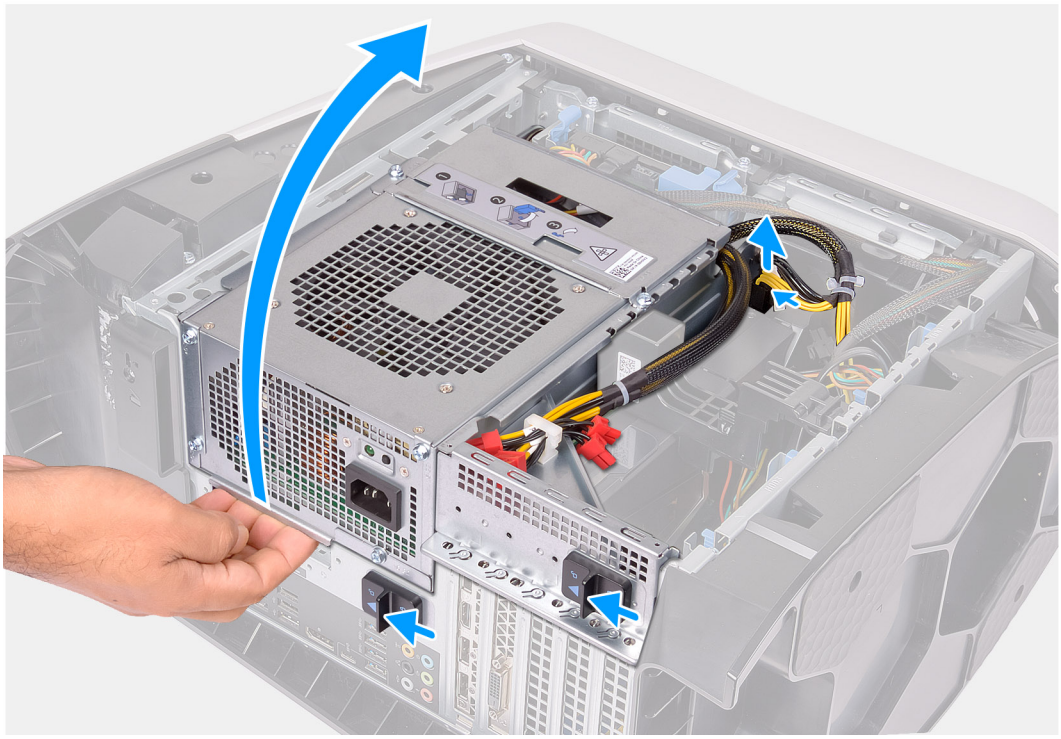
   CAUTION: Removing the coin-cell battery resets the BIOS setup program's settings to default. It is recommended that you note the BIOS setup program's settings before removing the coin-cell battery.

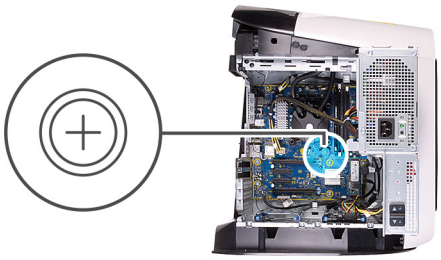
2. Remove the left-side cover.

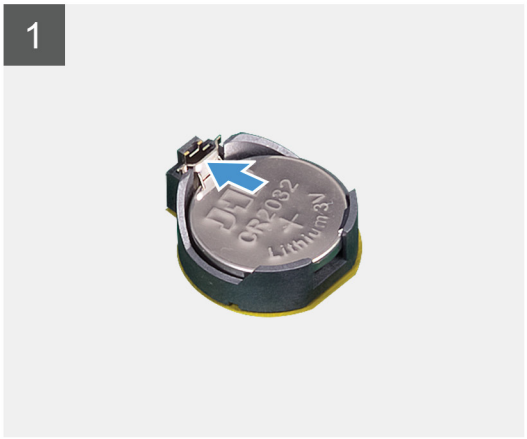
About this task

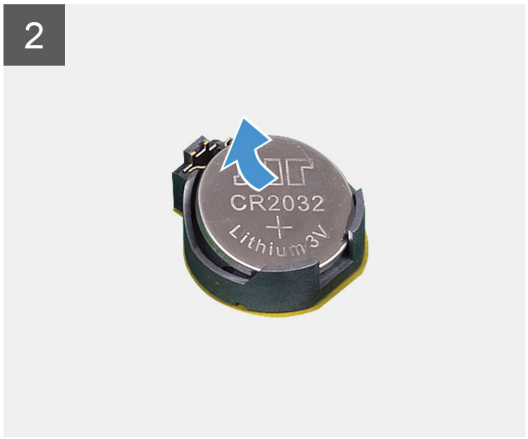
The following images indicate the location of the coin-cell battery and provides a visual representation of the removal procedure.











Steps

1. Lay the computer on the right side.
2. Press the releasing clip on the power-cable connectors and disconnect the power cables from the graphics card.
3. Slide the power-supply unit cage release latches to the unlock position.
4. Lift the power-supply unit cage and rotate the power-supply unit cage away from the chassis.
5. Press the battery-release lever away from the coin-cell battery until the coin-cell battery pops up.
6. Lift the coin-cell battery out of its socket.

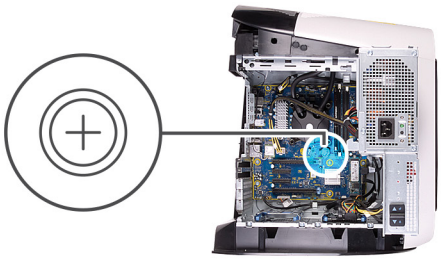
Installing the coin-cell battery

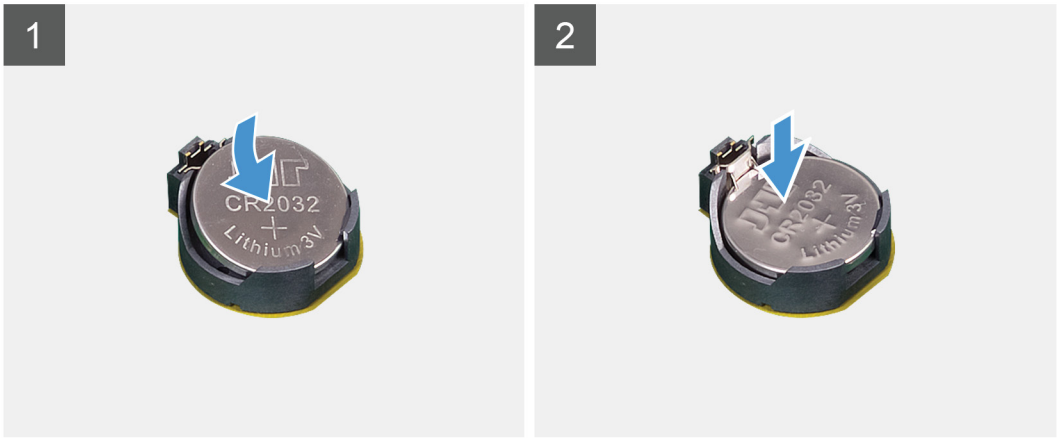
Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

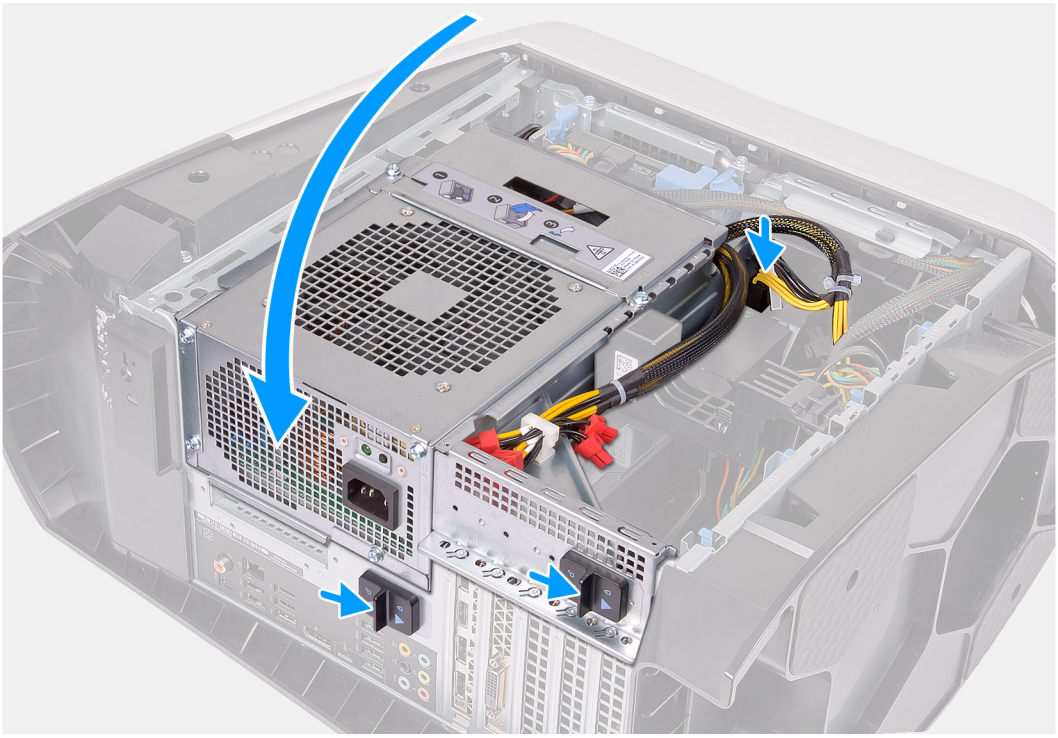
About this task

The following images indicate the location of the coin-cell battery and provides a visual representation of the installation procedure.









Steps

1. Insert a new coin-cell battery (CR2032) into the battery socket with the positive side facing up, and snap the battery into place.

2. Rotate the power-supply unit cage towards the chassis.
3. Connect the power cables to the graphics card.
4. Slide the power-supply unit cage release latches towards the locked position.

Next steps

1. Install the left-side cover.
2. Follow the procedure in After working inside your computer.

Memory modules

Removing the memory modules

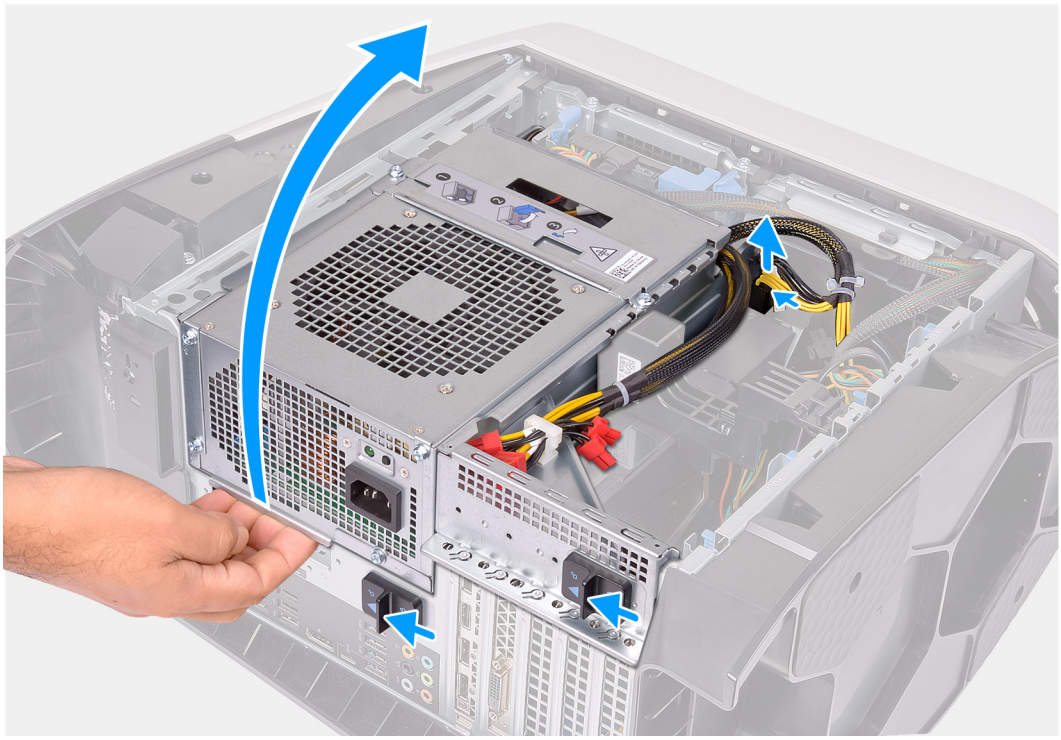
Prerequisites

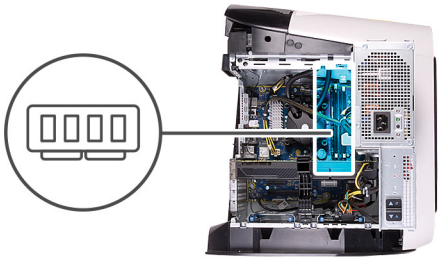
1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.

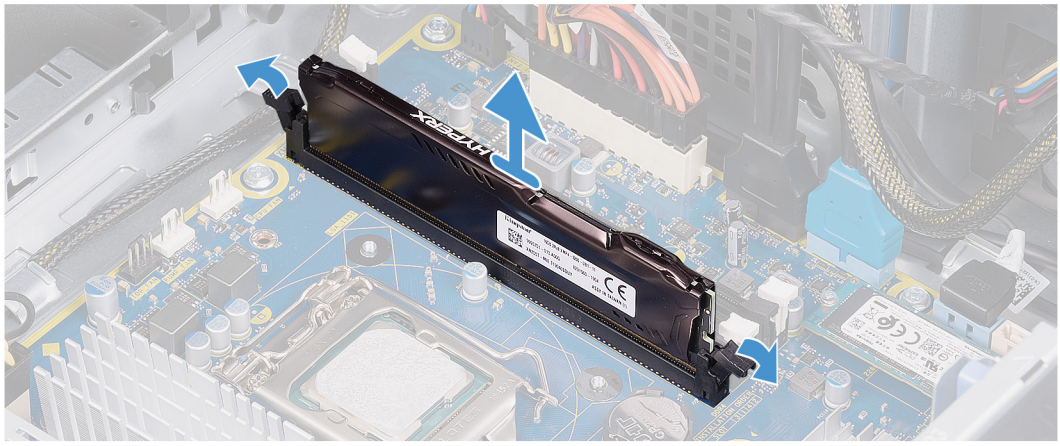
About this task

The following images indicate the location of the memory modules and provides a visual representation of the removal procedure.









Steps

1. Lay the computer on the right side.
2. Press the releasing clip on the power-cable connectors and disconnect the power cables from the graphics card.
3. Slide the power-supply unit cage release latches to the unlock position.
4. Lift the power-supply unit cage and rotate the power-supply unit cage away from the chassis.
5. Push the securing clips away from the memory module.
6. Grasp the memory module near the securing clip, and then gently ease the memory module out of the memory-module slot.

NOTE: Repeat step 5 to step 6 to remove any other memory modules installed in your computer.

CAUTION: To prevent damage to the memory module, hold the memory module by the edges. Do not touch the components on the memory module.

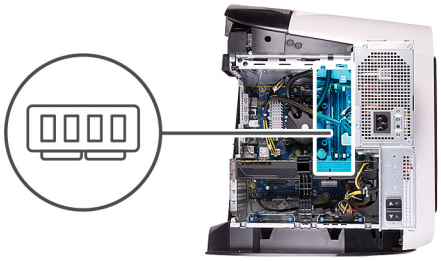
Installing the memory modules

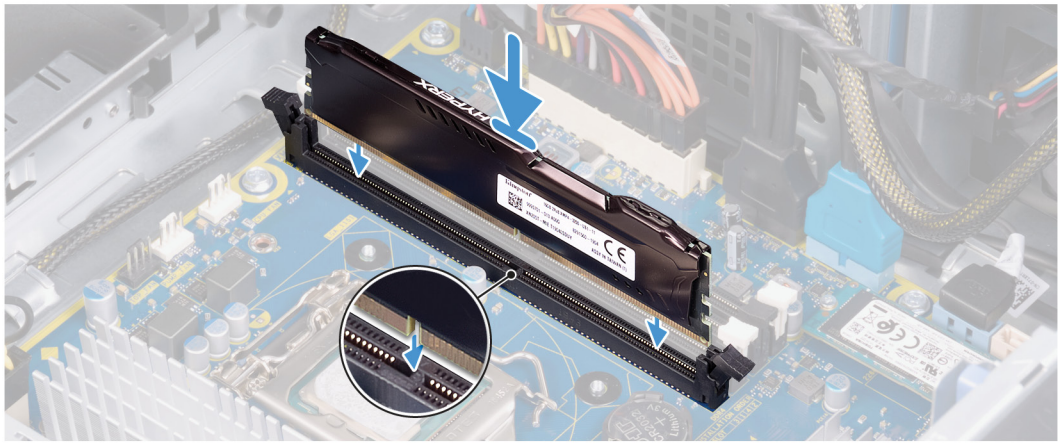
Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

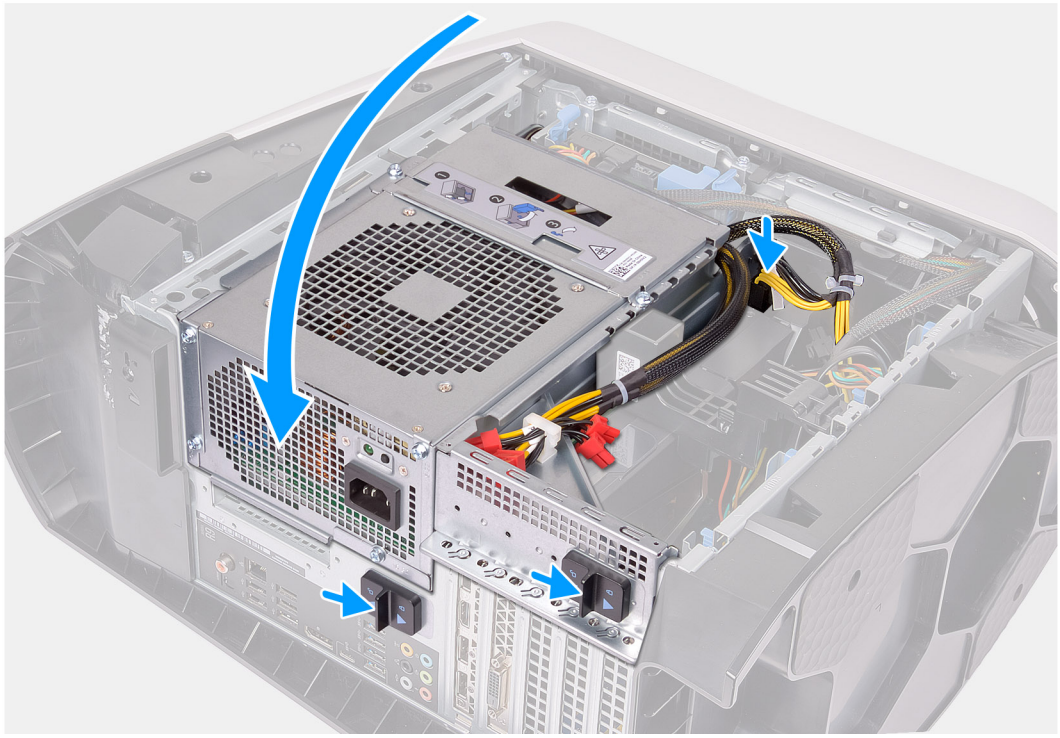
About this task

The following images indicate the location of the memory modules and provides a visual representation of the installation procedure.









Steps

1. Ensure that the securing clips are extended away from the memory-module slot.

2. Align the notch on the memory module with the tab on the memory-module slot.
3. Insert the memory module into the memory-module slot and press the memory module down until it snaps into position and the securing clips lock in place.

   CAUTION: To prevent damage to the memory module, hold the memory module by the edges. Do not touch the components on the memory module.

   NOTE: Repeat step 1 to step 3 to replace any other memory modules installed in your computer.

4. Rotate the power-supply unit cage towards the chassis.
5. Slide the power-supply unit cage release latches towards the locked position.

   NOTE: Use slots XMM1 and XMM2 if you need to use two memory modules. For more information, see system-board components.

   The following table lists the available memory configuration matrix:

Table 2. Memory configuration matrix

Configuration	Slot			
	XMM1	XMM2	XMM3	XMM4
8 GB DDR4	8 GB			
16 GB DDR4	8 GB	8 GB		
32 GB DDR4	16 GB	16 GB		
64 GB DDR4	16 GB	16 GB	16 GB	16 GB
16 GB XMP	8 GB	8 GB		
32 GB XMP	16 GB	16 GB		
64 GB XMP	16 GB	16 GB	16 GB	16 GB

Next steps

1. Remove the left-side cover.
2. Follow the procedure in After working inside your computer.

Solid-state drive

Removing the solid-state drive

Prerequisites

1. Follow the procedure in Before working inside your computer.

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

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

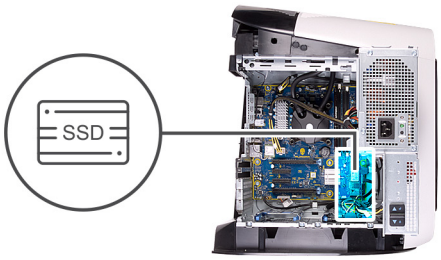
2. Remove the left-side cover.
3. Remove the single-graphics card or dual-graphics card, as applicable.

About this task

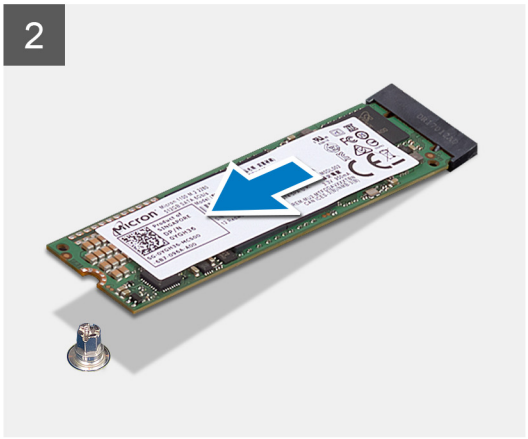
The following images indicate the location of the solid-state drive and provides a visual representation of the removal procedure.



1x
M2x2.5







Steps

1. Remove the screw (M2x2.5) that secures the solid-state drive to the system board.
2. Slide and lift the solid-state drive off the system board.

Installing the solid-state drive

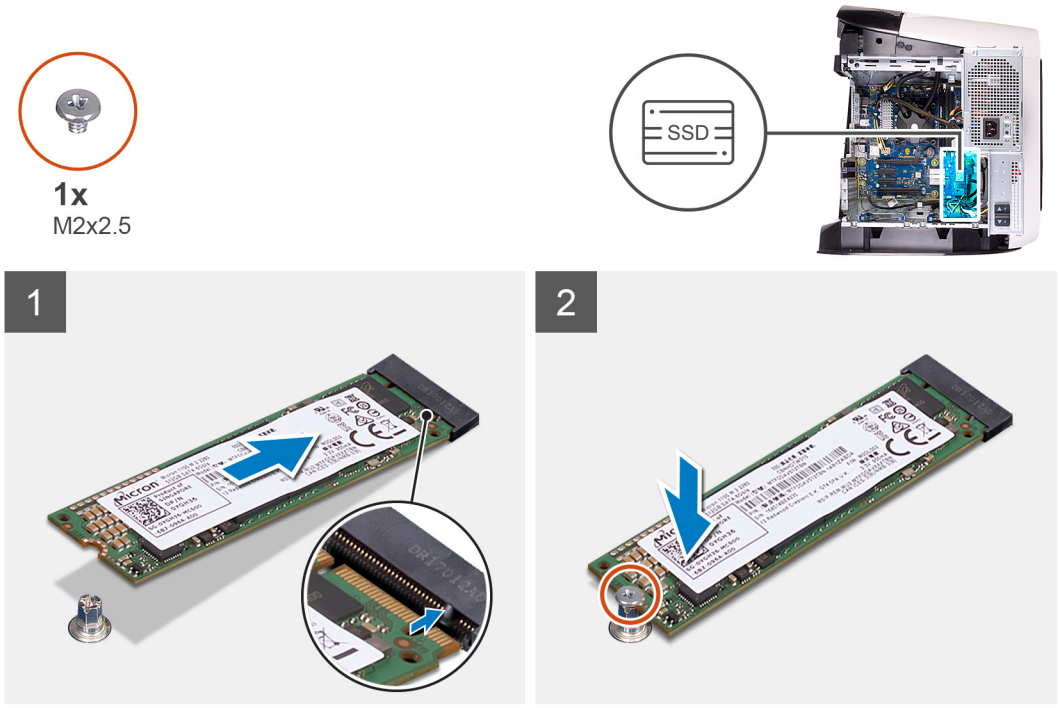
Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

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

About this task

The following images indicate the location of the solid-state drive and provides a visual representation of the installation procedure.



Steps

1. Align the notch on the solid-state drive with the tab on the solid-state drive slot.
2. Insert the solid-state drive at a 45-degree angle into the system board.
3. Press the other end of the solid-state drive down and replace the screw (M2x2.5) that secure the solid-state drive to the system board.

Next steps

1. Install the single-graphics card.
2. Install the left-side cover.
3. Follow the procedure in After working inside your computer.
4. Verify if the storage device is installed correctly (optional):
   - If you are replacing a storage device which does not have the operating system installed, follow the steps in Identifying storage device in device manager.
   - If you are replacing a storage device that had the operating system installed, follow the steps in Identifying your storage device in system setup (BIOS).

     NOTE: To install the operating system on to your storage device, see **Reinstall Windows 10 to the Dell factory image using recovery media** in the knowledge base article 000176966.

Single-graphics card

Removing the single-graphics card

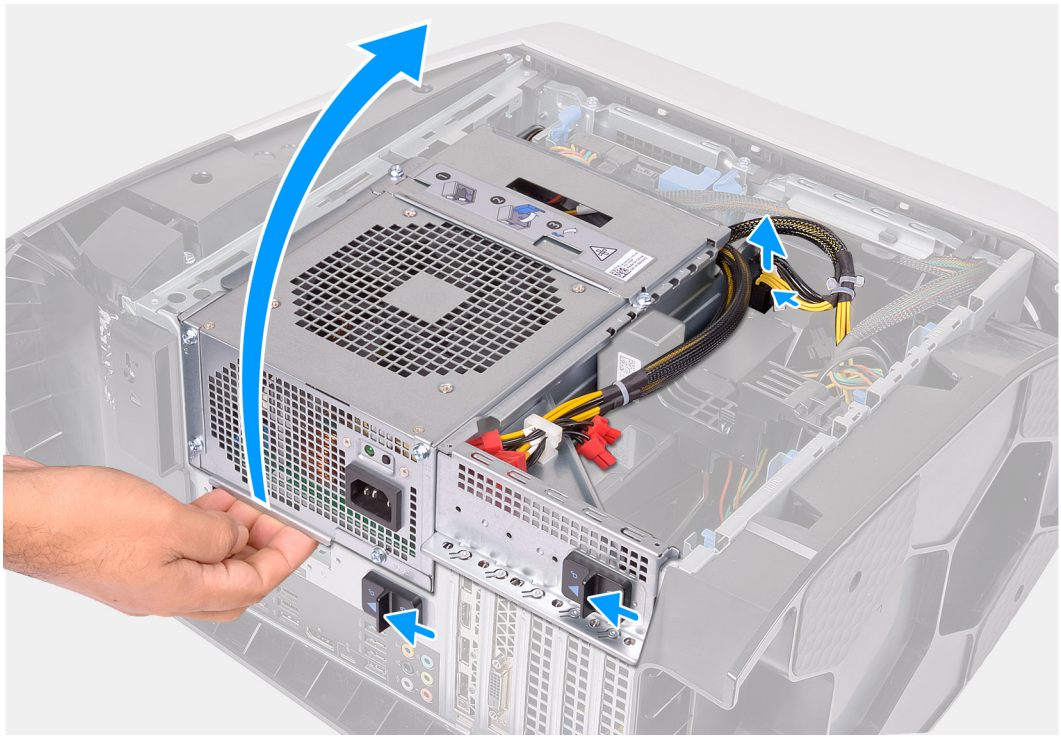
Prerequisites

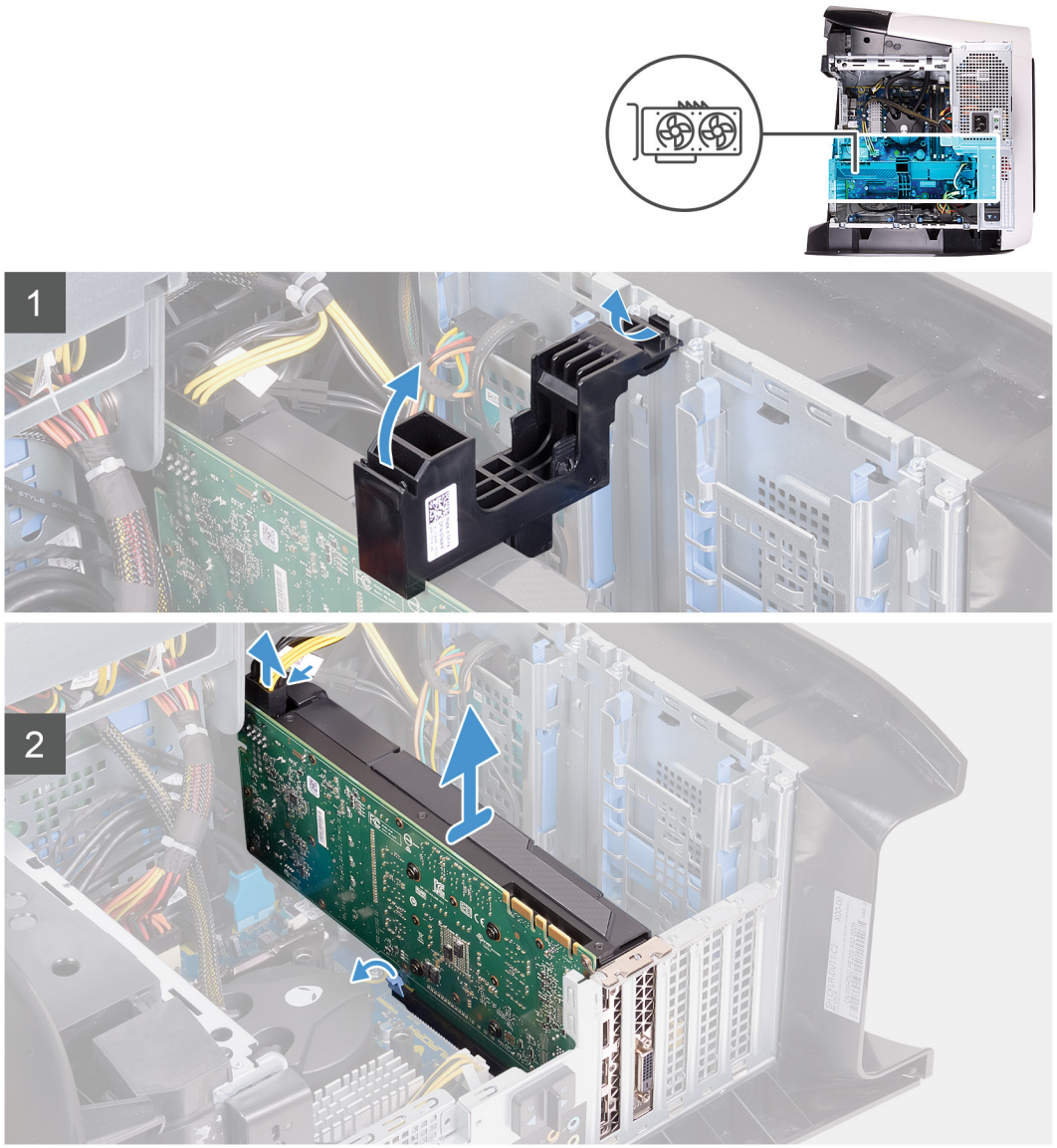
1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.

About this task

The following images indicate the location of the graphics card and provides a visual representation of the removal procedure.







Steps

1. Lay the computer on the right side.
2. Press the releasing clip on the power-cable connectors and disconnect the power cables from the graphics card.
3. Slide the power-supply unit cage release latches to the unlock position.
4. Lift the power-supply unit cage and rotate the power-supply unit cage away from the chassis.
5. Lift to release the graphics-card bracket from the chassis.
6. Press the releasing clip on the power-cable connectors and disconnect the power cables from the graphics card.
7. Push the securing tab on the PCIe slot away from the graphics card, grasp the card by its top corner, and ease it out of the slot.

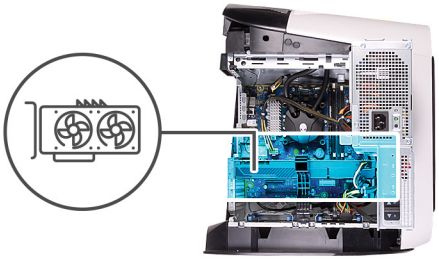
Installing the single-graphics card

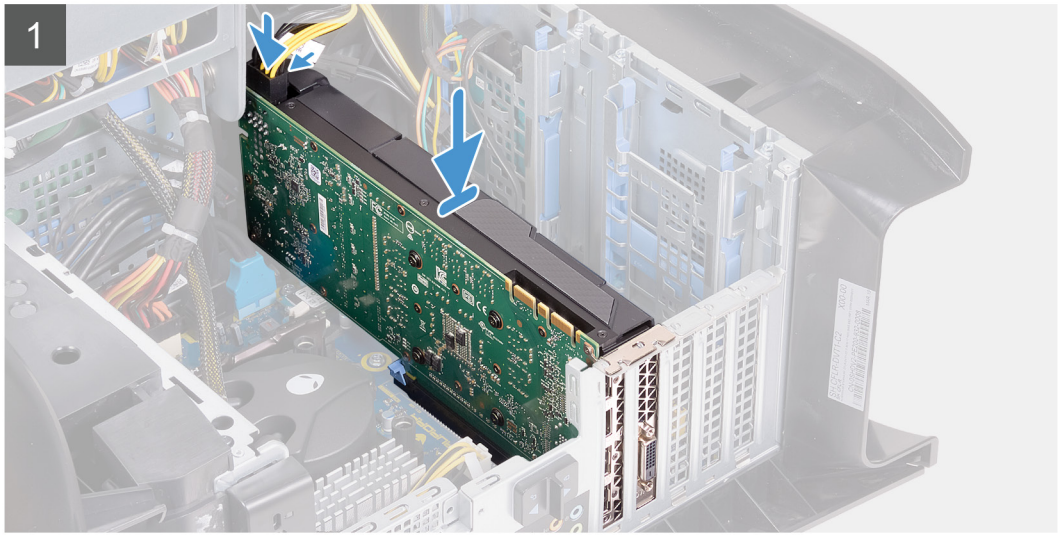
Prerequisites

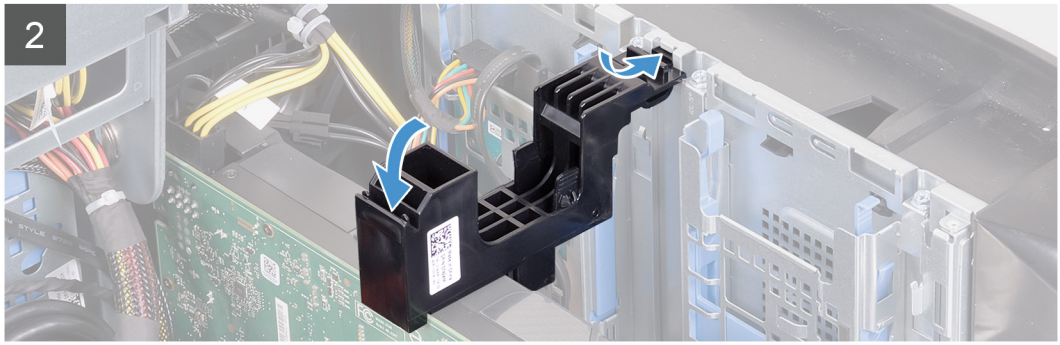
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

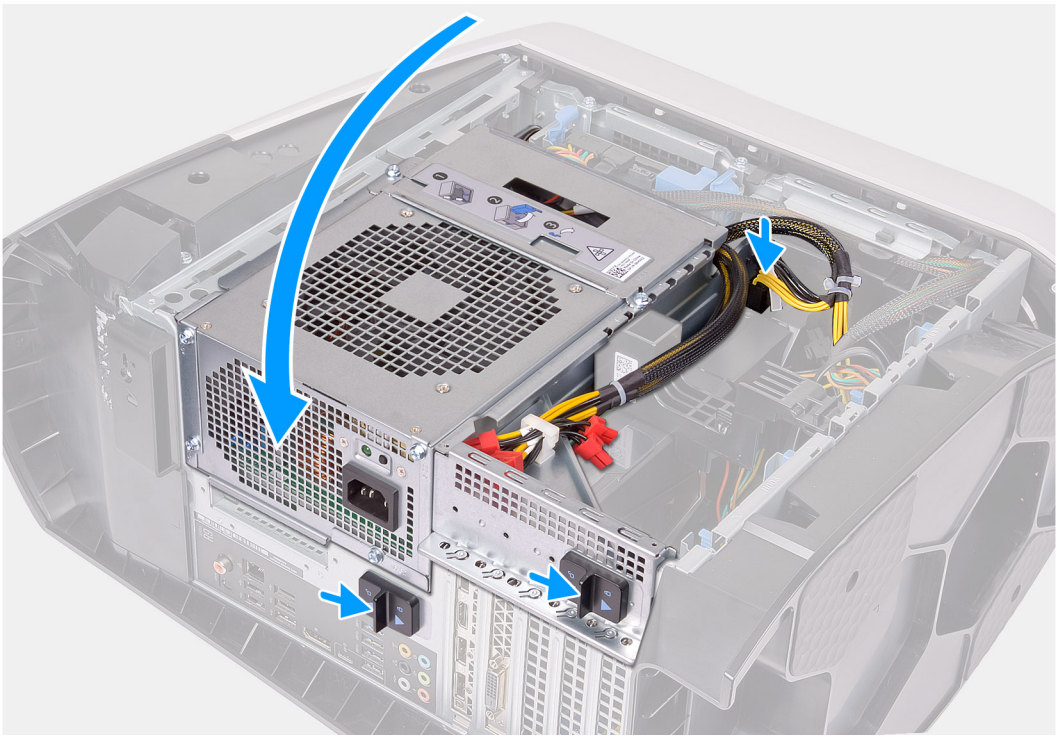
The following images indicate the location of the graphics card and provides a visual representation of the installation procedure.




1


2





NOTE: Install AMD Vega 20 only into the PCIe slot 1 of your computer. If installed on PCIe slot 4, the power-supply unit cannot be closed.

NOTE: If you are using any other graphics card other than AMD Vega 20, it can be installed into the appropriate PCIe slot i.e. X4, X8 or X16 on your computer.

Steps

1. Place the card into the X16 slot and press down firmly until the graphics card snaps into place.
2. Connect the power cables to the graphics card.
3. Slide the tab on the graphics-card bracket into the slot on the chassis and rotate it into place.
4. Rotate the power-supply unit cage towards the chassis.
5. Connect the power cables to the graphics card.
6. Slide the power-supply unit cage release latches towards the locked position.

Next steps

1. Install the left-side cover.
2. Follow the procedure in After working inside your computer.

Dual-graphics card

Removing the dual-graphics card

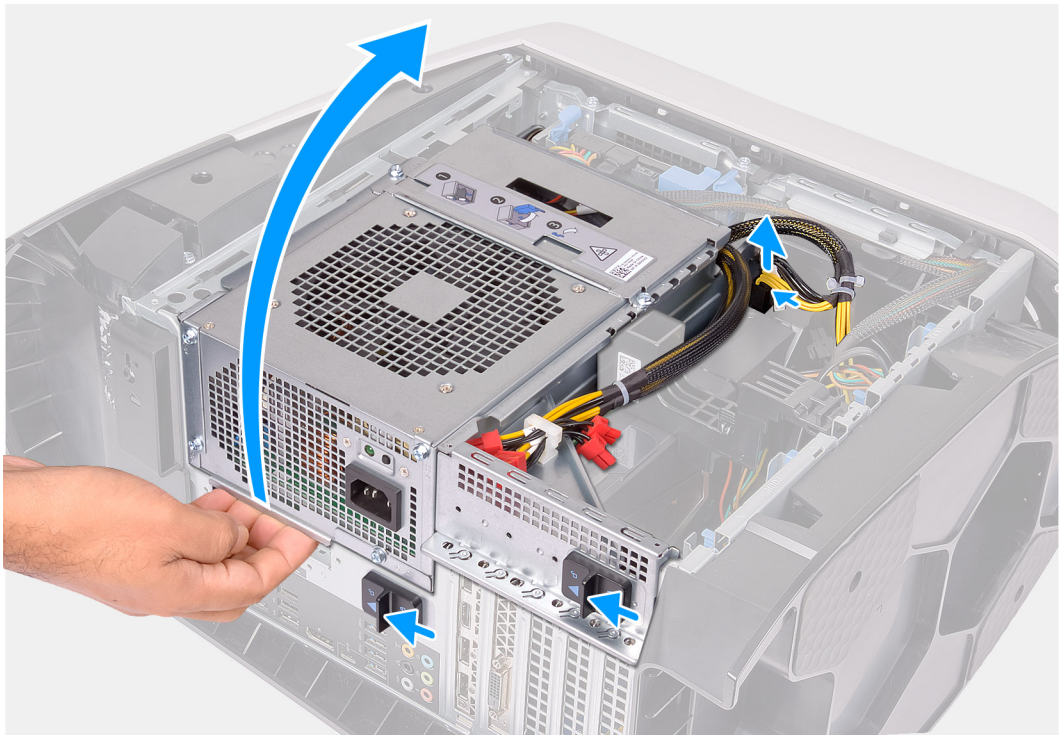
Prerequisites

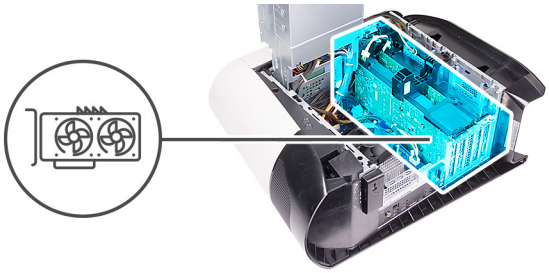
1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.

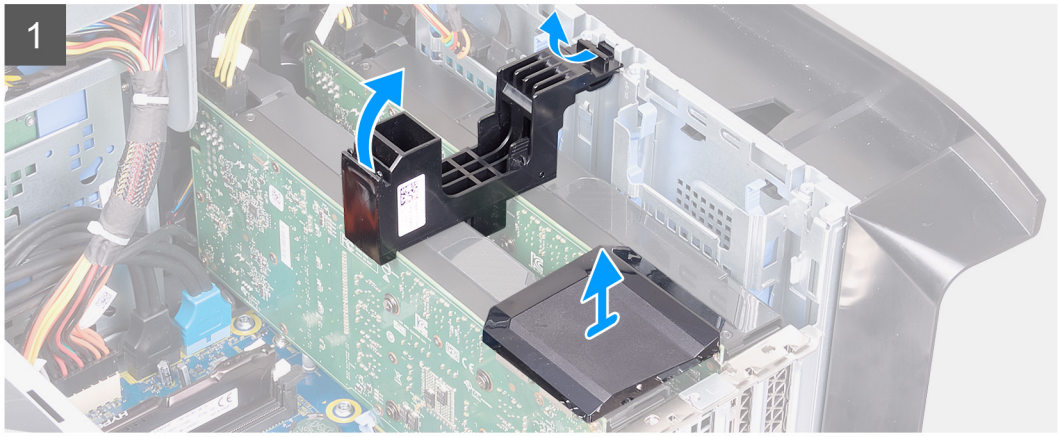
About this task

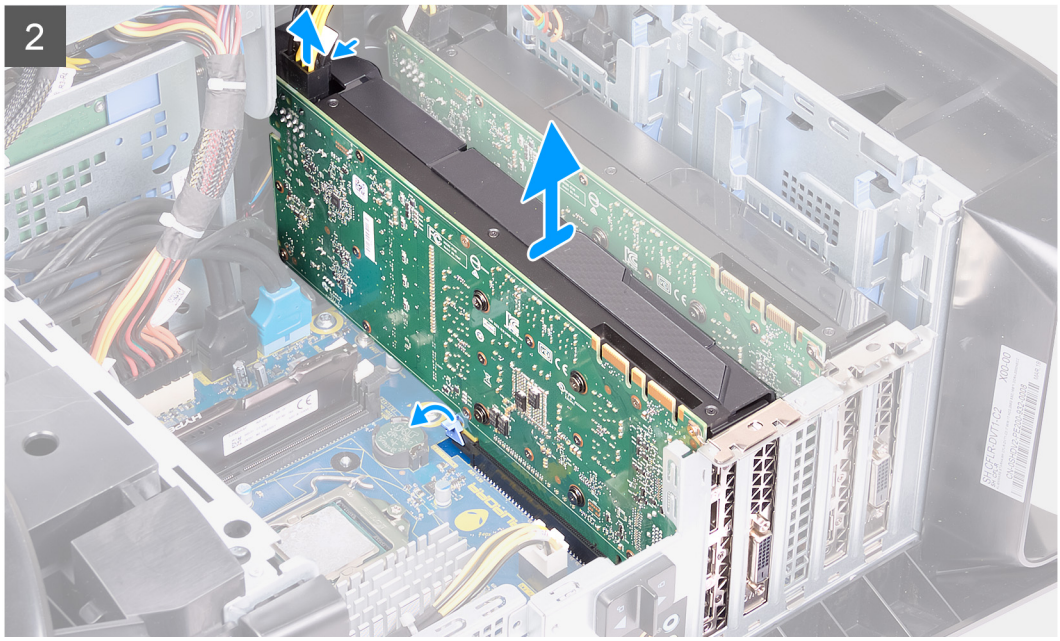
The following images indicate the location of the graphics card and provides a visual representation of the removal procedure.











Steps

1. Lay the computer on the right side.
2. Press the releasing clip on the power-cable connectors and disconnect the power cables from the graphics card.
3. Slide the power-supply unit cage release latches to the unlock position.
4. Lift the power-supply unit cage and rotate the power-supply unit cage away from the chassis.
5. Lift the graphics bridge that connects the graphics cards.
6. Lift to release the graphics-card bracket from the chassis.
7. Press the releasing clip on the power-cable connectors and disconnect the power cables from the graphics card.
8. Push the securing tab on the PCIe slot away from the graphics card, grasp the card by its top corner, and ease it out of the slot on the PCI-Express x8 slot.
9. Push the securing tab on the PCIe slot away from the graphics card, grasp the card by its top corner, and ease it out of the slot on the PCI-Express x16/x8 slot.

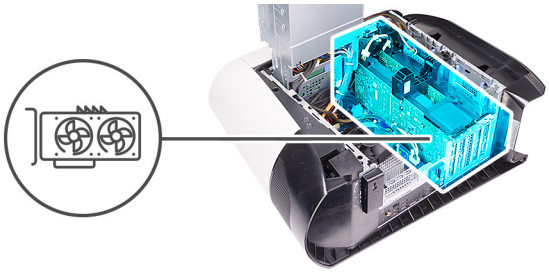
Installing the dual-graphics card

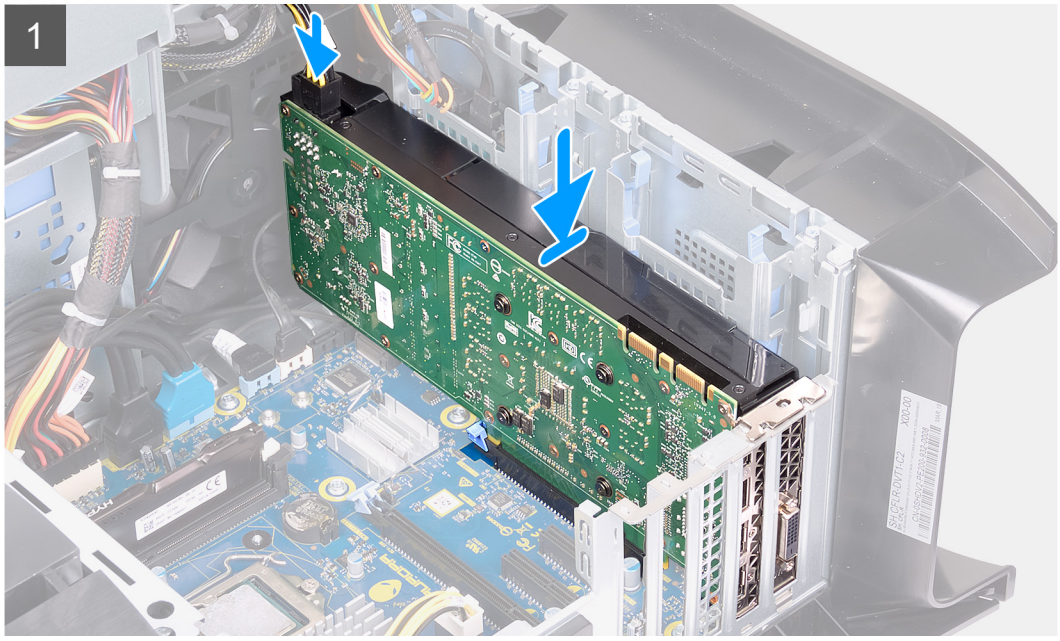
Prerequisites

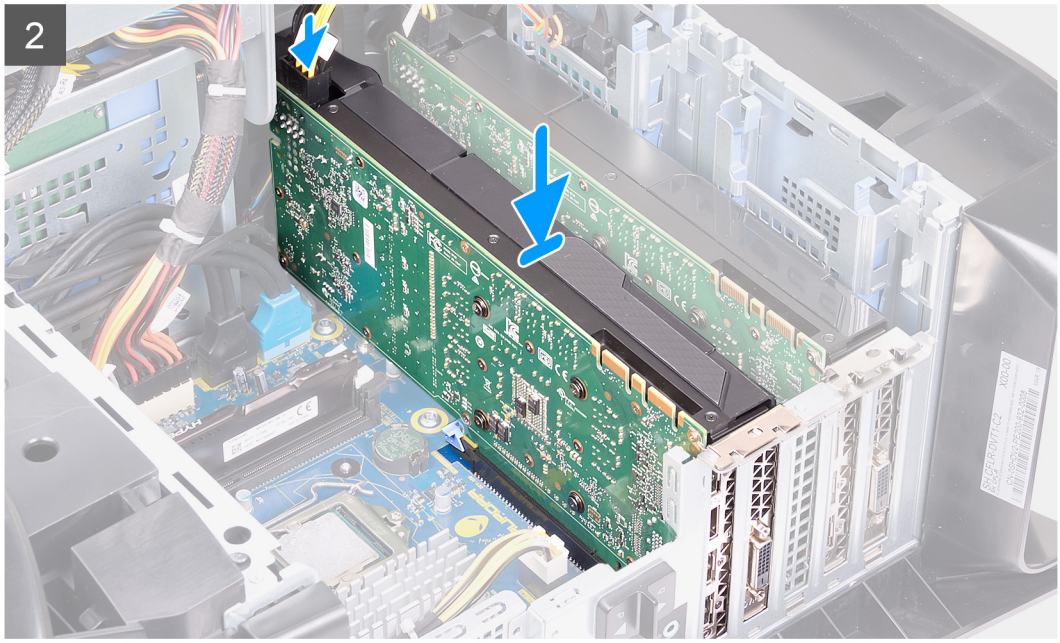
If you are replacing a component, remove the existing component before performing the installation procedure.

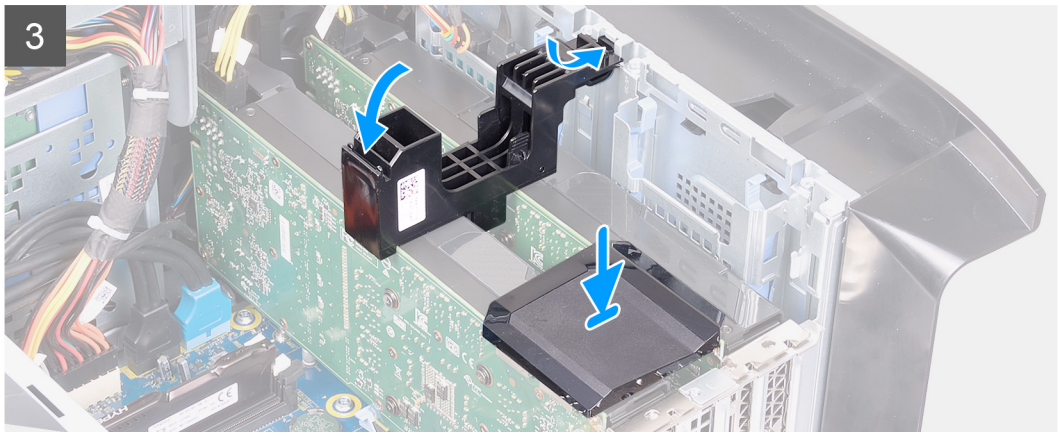
About this task

The following images indicate the location of the graphics card and provides a visual representation of the installation procedure.

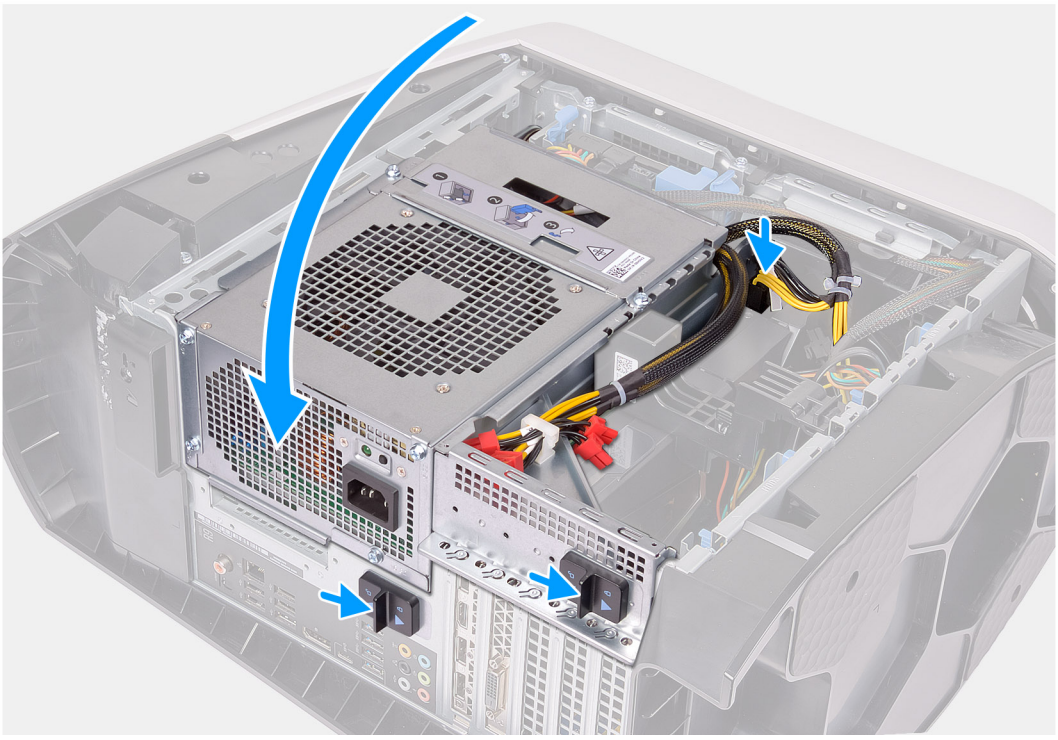





2


3





NOTE: Install AMD Vega 20 only into the PCIe slot 1 of your computer. If installed on PCIe slot 4, the power-supply unit cannot be closed.

NOTE: If you are using any other graphics card other than AMD Vega 20, it can be installed into the appropriate PCIe slot i.e. X4, X8 or X16 on your computer.

Steps

1. Align the graphics card with the slot on the system board.
2. Place the card into the x16/x8 slot and press down firmly until the graphics card snaps into place.
3. Place the card into the x8 slot and press down firmly until the graphics card snaps into place.
4. Connect the power cables to the graphics card.
5. Slide the tab on the graphics-card bracket into the slot on the chassis and snap it into place.
6. Replace the graphics bridge that connects the graphics cards.
7. Rotate the power-supply unit cage towards the chassis.
8. Connect the power cables to the graphics card.
9. Slide the power-supply unit cage release latches towards the locked position.

Next steps

1. Install the left-side cover.
2. Follow the procedure in After working inside your computer.

Front bezel

Removing the front bezel

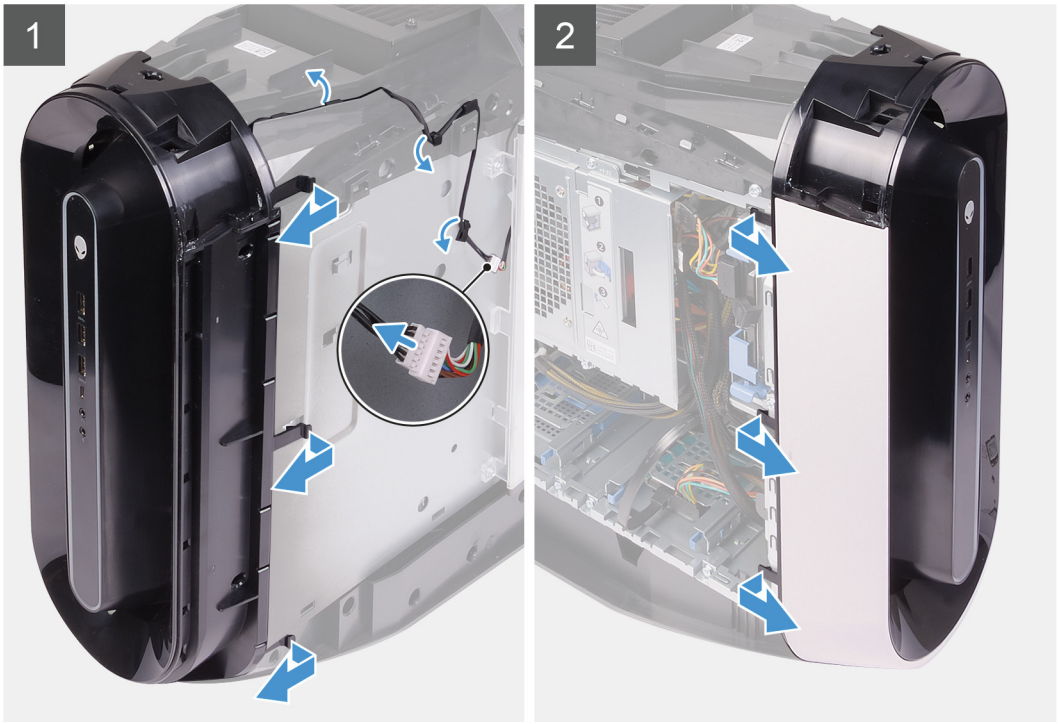
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the top-cover.
4. Remove the right-side cover.
5. Remove the single-graphics card or dual-graphics card, as applicable.

About this task

The following images indicate the location of the front bezel and provides a visual representation of the removal procedure.

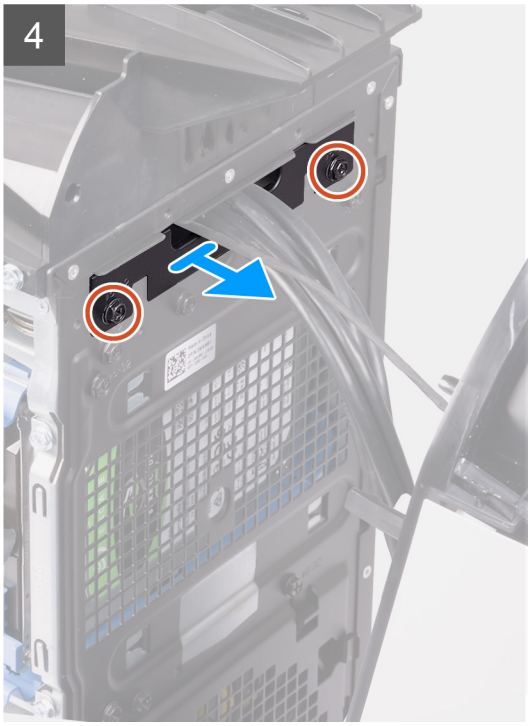


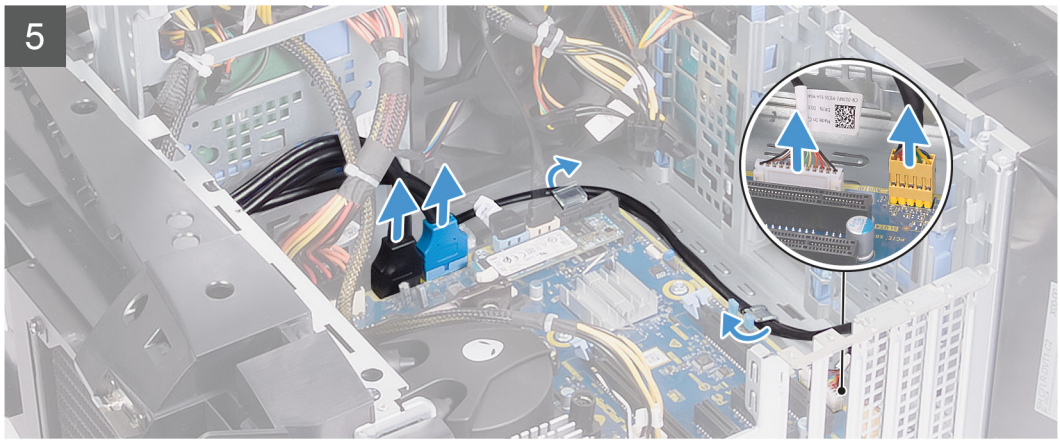


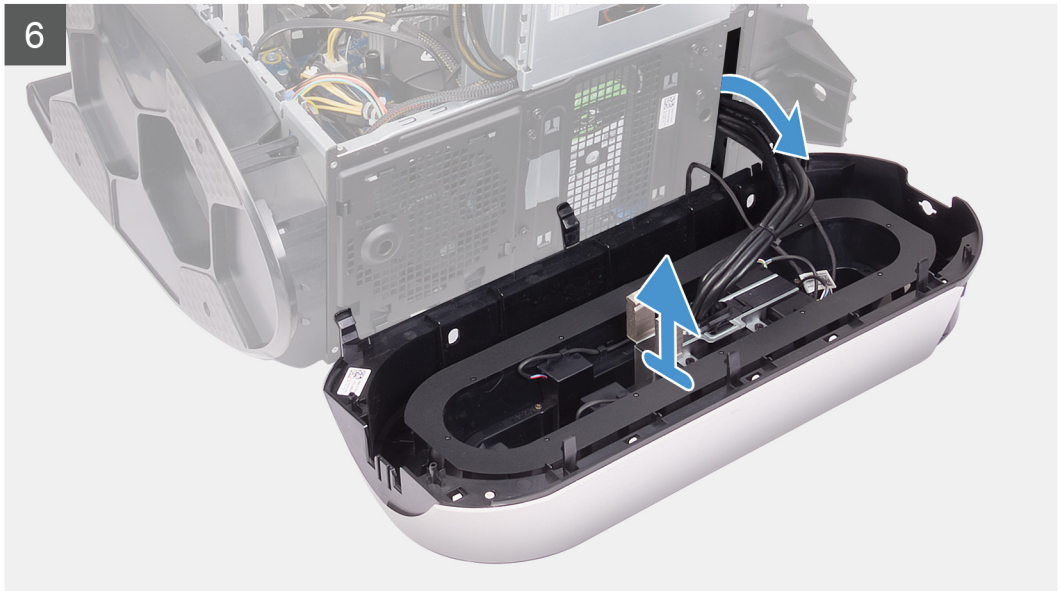


2x
#6-32









Steps

1. Disconnect the tron-light cable and then remove the cable from the routing guides on the chassis.
2. Lay the computer on the right side.
3. Press the releasing clip on the power-cable connectors and disconnect the power cables from the graphics card.
4. Slide the power-supply unit cage release latches to the unlock position.
5. Lift the power-supply unit cage and rotate the power-supply unit cage away from the chassis.
6. Disconnect the USB cables, LED controller cable and audio cable from the system board and remove the cables from the routing guides on the inside of the chassis.
7. Place the computer in an upright position.
8. Rotate the power-supply unit cage towards the chassis.
9. Rotate and pull the front bezel away from the front of the chassis to release the tabs on the front bezel from the slots on the front panel.
10. Remove the two screws (#6-32) that secure the front-panel slot cover to the chassis.
11. Remove the cable management cover off the chassis.
12. Route the cables through the slot on the front panel and lift the front bezel away from the chassis.

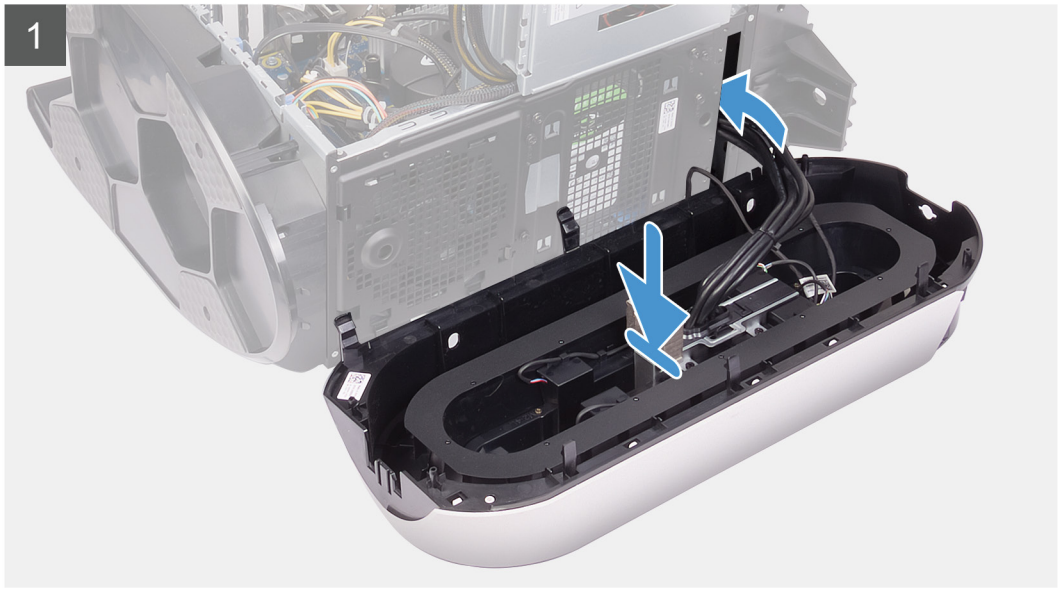
Installing the front bezel

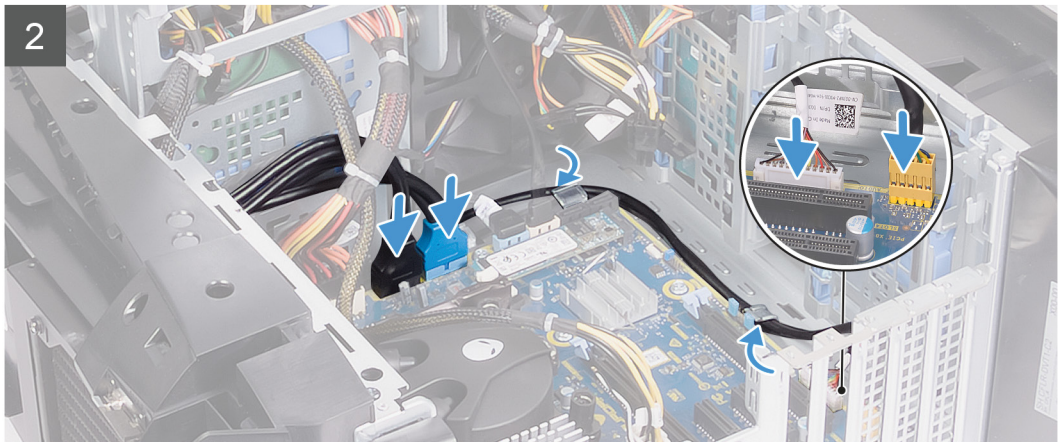
Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

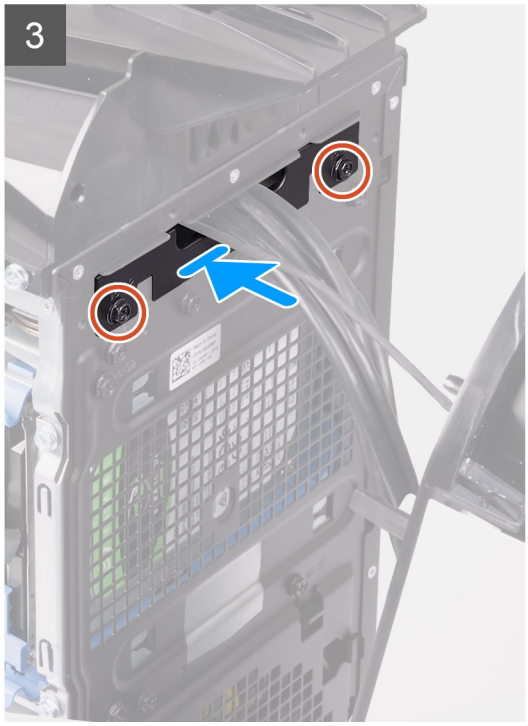
The following images indicate the location of the front bezel and provides a visual representation of the installation procedure.







2x
#6-32



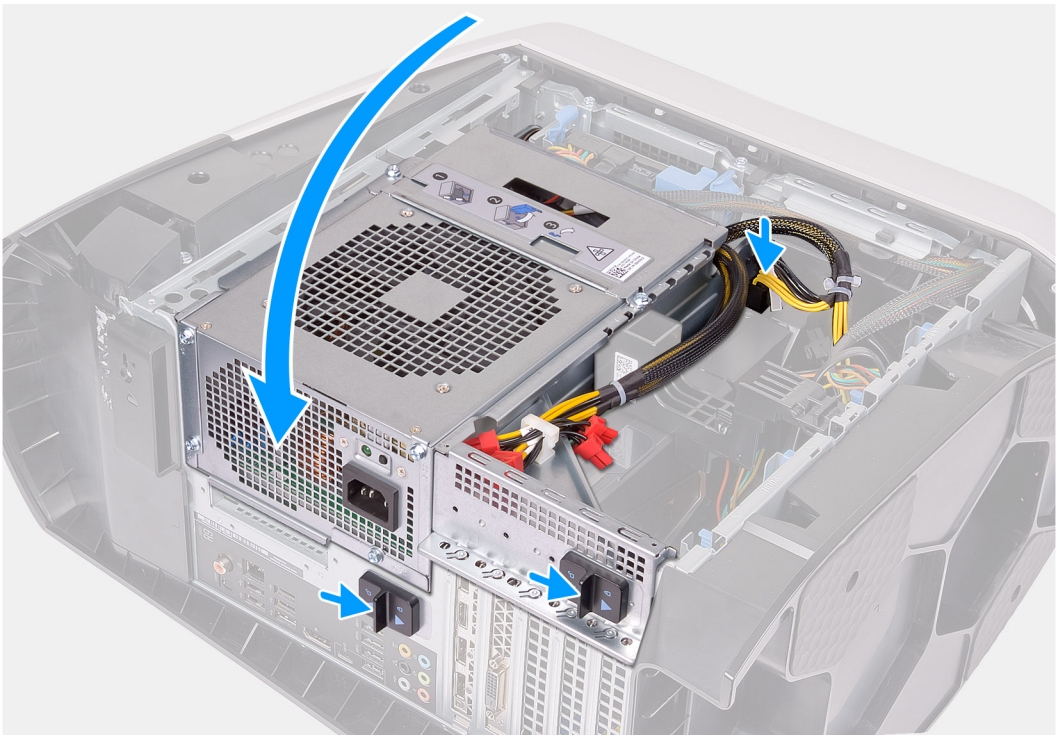





5


6





Steps

1. Route the cables through the slot on the front panel and align and clip the front bezel into place.
2. Align the screw hole of the cable management cover with the screw hole on the chassis.
3. Replace the two screws (#6-32) that secure the cable management cover to the chassis.
4. Connect the USB cables, LED controller cable and audio cable to the system board and route the cables through the routing guides on the inside of the chassis.
5. Place the computer in an upright position.
6. Rotate the power-supply unit cage towards the chassis.
7. Connect the power cables to the graphics card.
8. Slide the power-supply unit cage release latches towards the locked position.
9. Route the tron-light cable through the routing guides on the chassis and connect the tron-light cable.

Next steps

1. Install the single-graphics card or dual-graphics card, as applicable.
2. Install the right-side cover.
3. Install the top-cover.
4. Install the left-side cover.
5. Follow the procedure in After working inside your computer.

Top bezel

Removing the top bezel

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the top cover.
4. Remove the right-side cover.
5. Remove the wireless card.
6. Remove the front bezel.

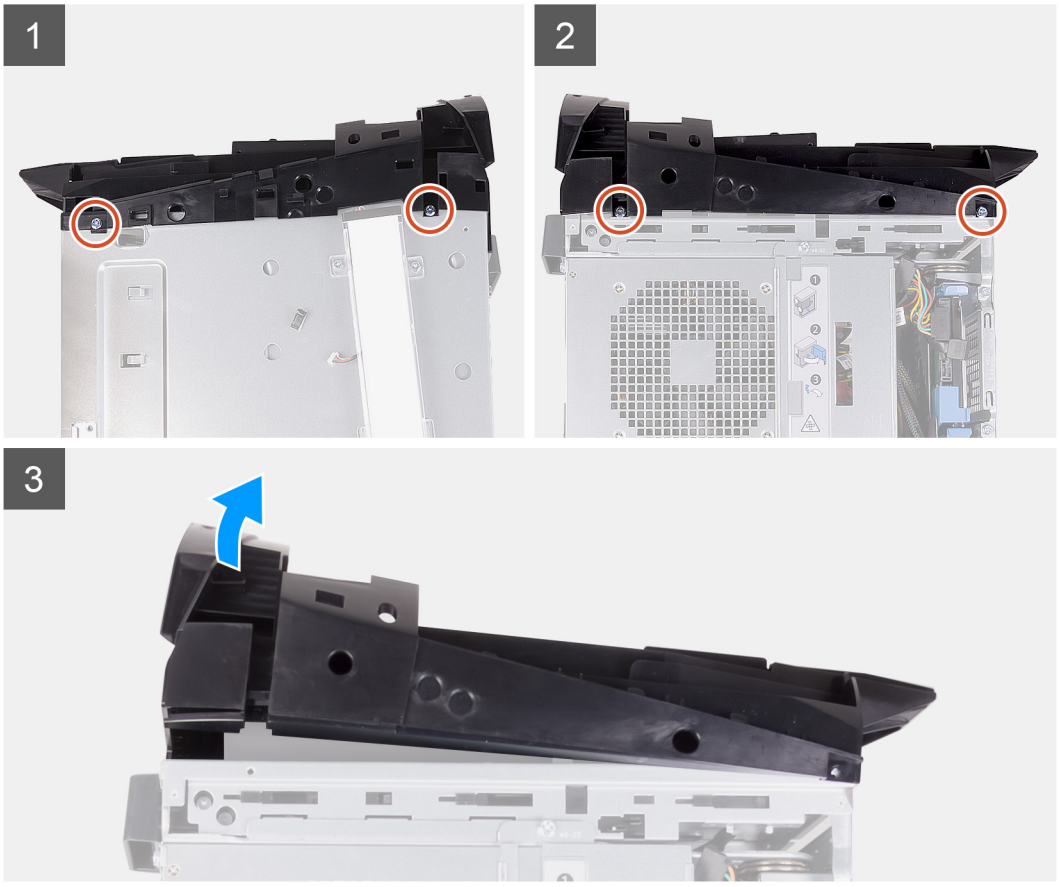
About this task

The following images indicate the location of the top bezel and provides a visual representation of the removal procedure.



4x
#6-32





Steps

1. Remove the four screws (#6-32) that secure the top bezel to the right and left of the chassis.
2. Lift the top cover off the chassis.

Installing the top bezel

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

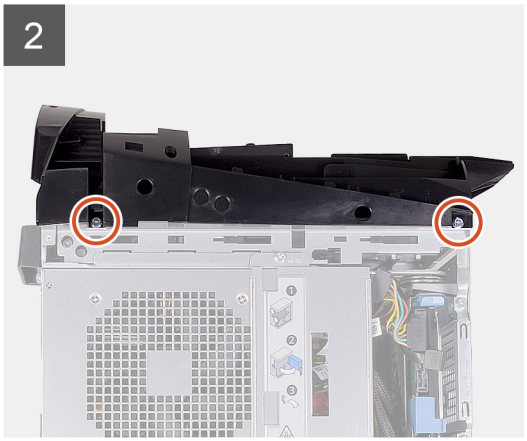
The following images indicate the location of the top bezel and provides a visual representation of the installation procedure.

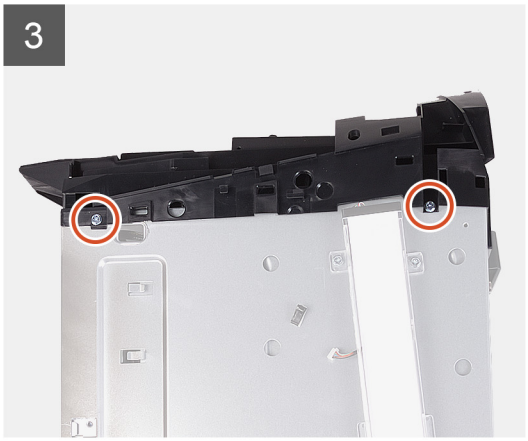


4x
#6-32









Steps

1. Route the antenna cable through the slots on the chassis.
2. Align the tabs on the top cover with the slots on the chassis and snap the top cover into place.
3. Replace the four screws (#6-32) that secure the top bezel to the right and left of the chassis.

Next steps

1. Install the front bezel.
2. Install the wireless card.
3. Install the right-side cover.
4. Install the top cover.

5. Install the left-side cover.
6. Follow the procedure in After working inside your computer.

Bottom cover

Removing the bottom cover

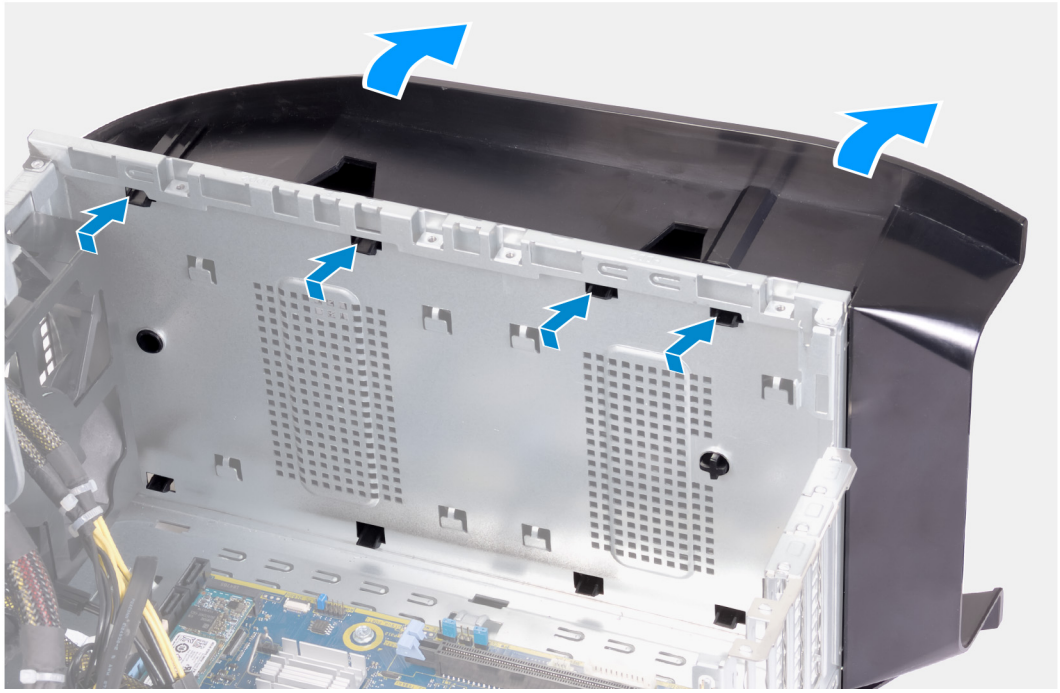
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the top cover.
4. Remove the right-side cover.
5. Remove the 2.5-inch hard-drive cages.
6. Remove the front bezel.

About this task

The following images indicate the location of the bottom cover and provides a visual representation of the removal procedure.





Steps

1. Place the computer on a clean and flat surface with the left side facing up.
2. Press the securing tabs to release the bottom cover from the slots on the chassis.
3. Remove the bottom cover from the chassis.

Installing the bottom cover

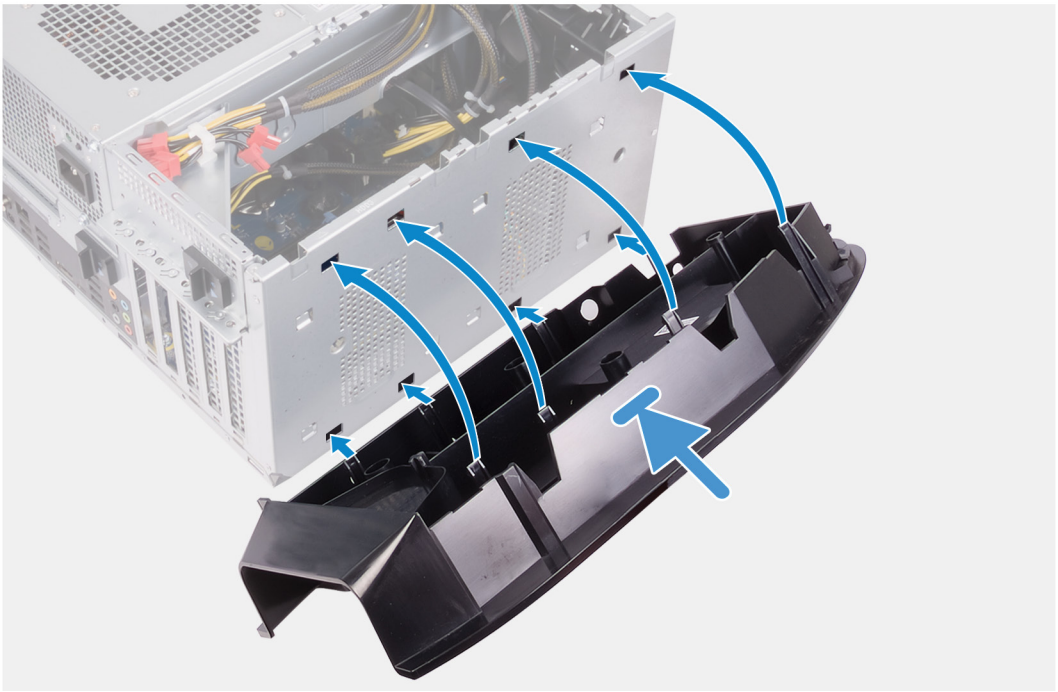
Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the bottom cover and provides a visual representation of the installation procedure.





Steps

1. Align the tabs on the bottom cover with the slots on the chassis.
2. Rotate the bottom cover towards the chassis until it snaps into place.

Next steps

1. Install the front bezel.
2. Install the 2.5-inch hard-drive cages.
3. Install the right-side cover.
4. Install the top cover.
5. Install the left-side cover.
6. Follow the procedure in After working inside your computer.

Processor fan and heat-sink assembly

Removing the processor fan and heat-sink assembly

Prerequisites

1. Follow the procedure in Before working inside your computer.

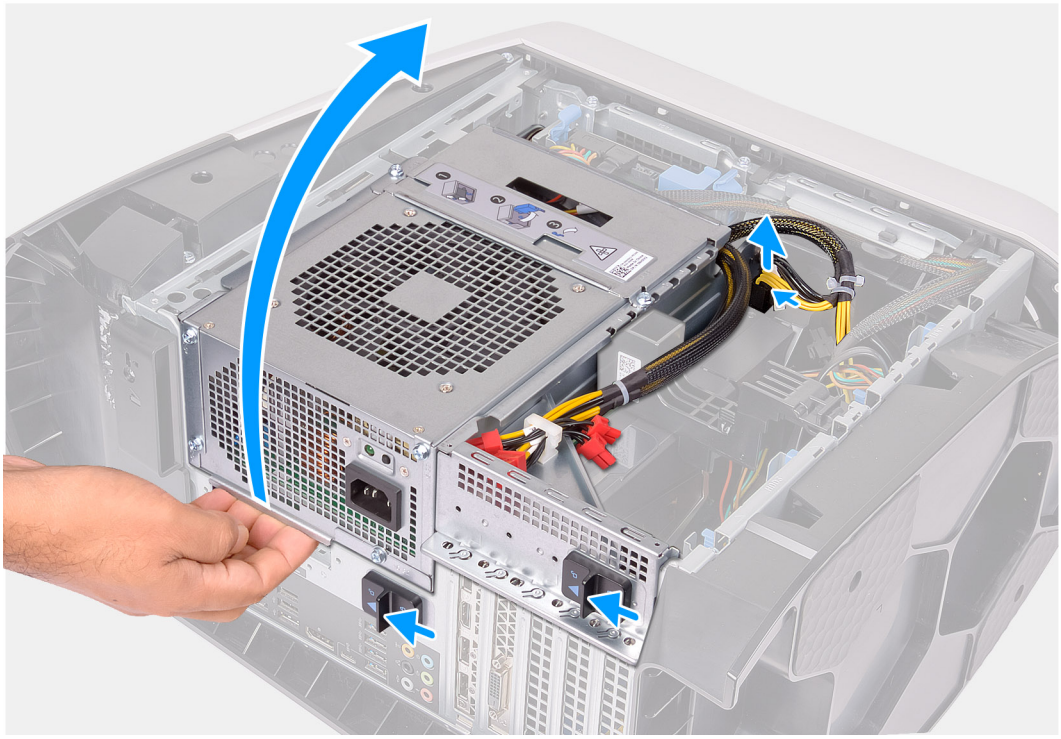
   NOTE: The heat sink may become hot during normal operation. Allow sufficient time for the heat sink to cool before you touch it.

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

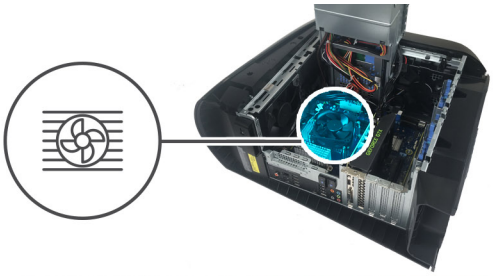
About this task

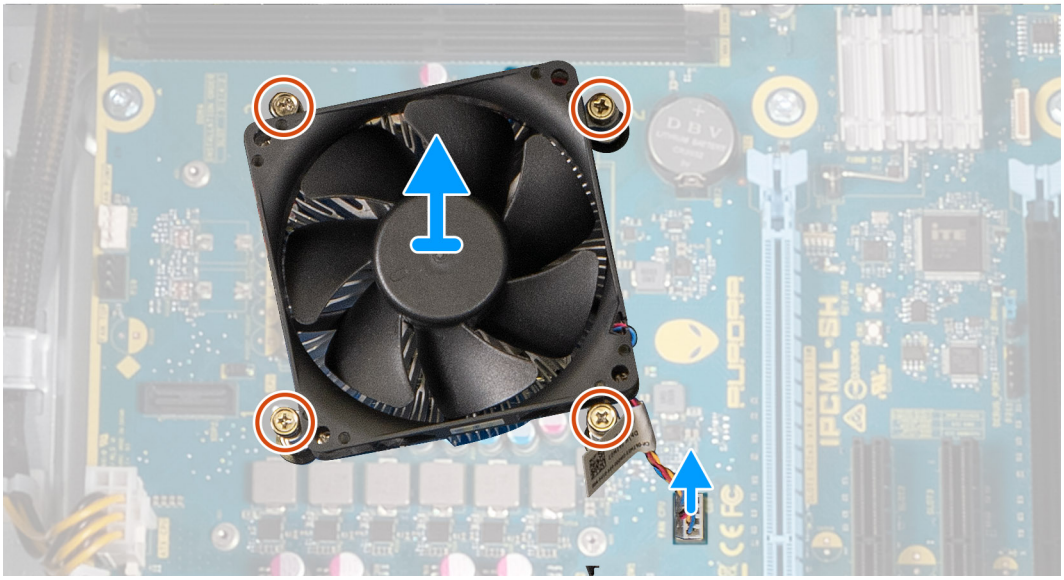
The following images indicate the location of the processor fan and heat-sink assembly and provides a visual representation of the removal procedure.











Steps

1. Lay the computer on the right side.
2. Press the releasing clip on the power-cable connectors and disconnect the power cables from the graphics card.
3. Slide the power-supply unit cage release latches to the unlock position.
4. Lift the power-supply unit cage and rotate the power-supply unit cage away from the chassis.
5. Disconnect the processor-fan cable from the system board.
6. In reverse sequential order, loosen the four captive screws that secure the processor fan and heat-sink assembly to the system board.
7. Lift the processor fan and heat-sink assembly off the system board.

Installing the processor fan and heat-sink assembly

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

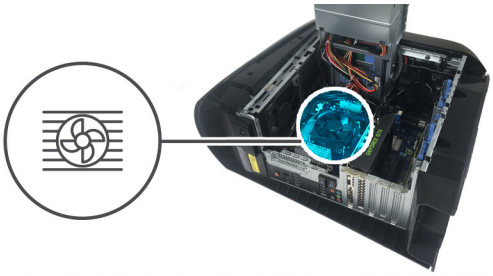
CAUTION: If either the processor or the heat sink is replaced, use the thermal grease provided in the kit to ensure that thermal conductivity is achieved.

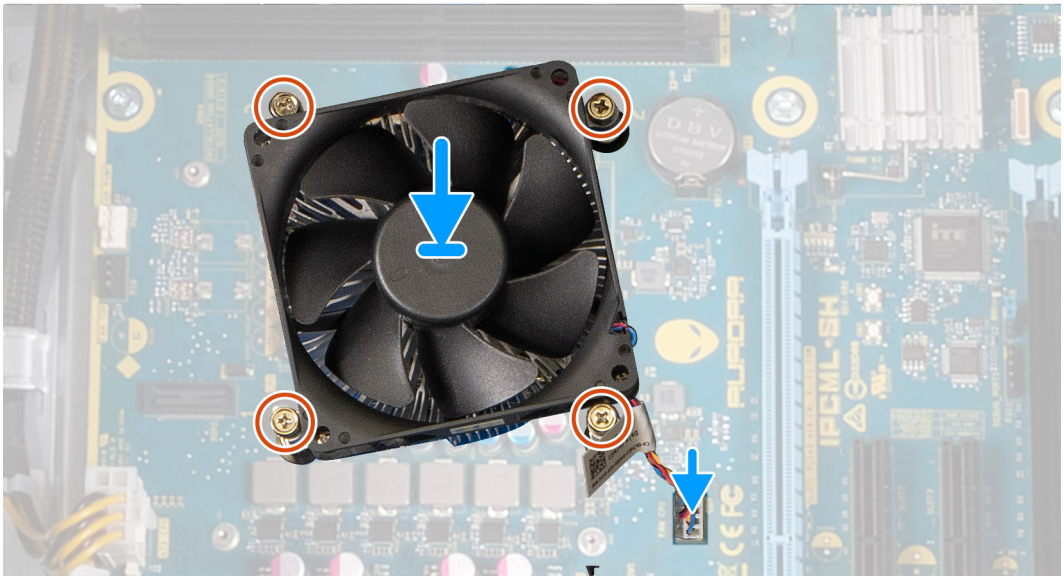
About this task

The following images indicate the location of the processor fan and heat-sink assembly and provides a visual representation of the installation procedure.

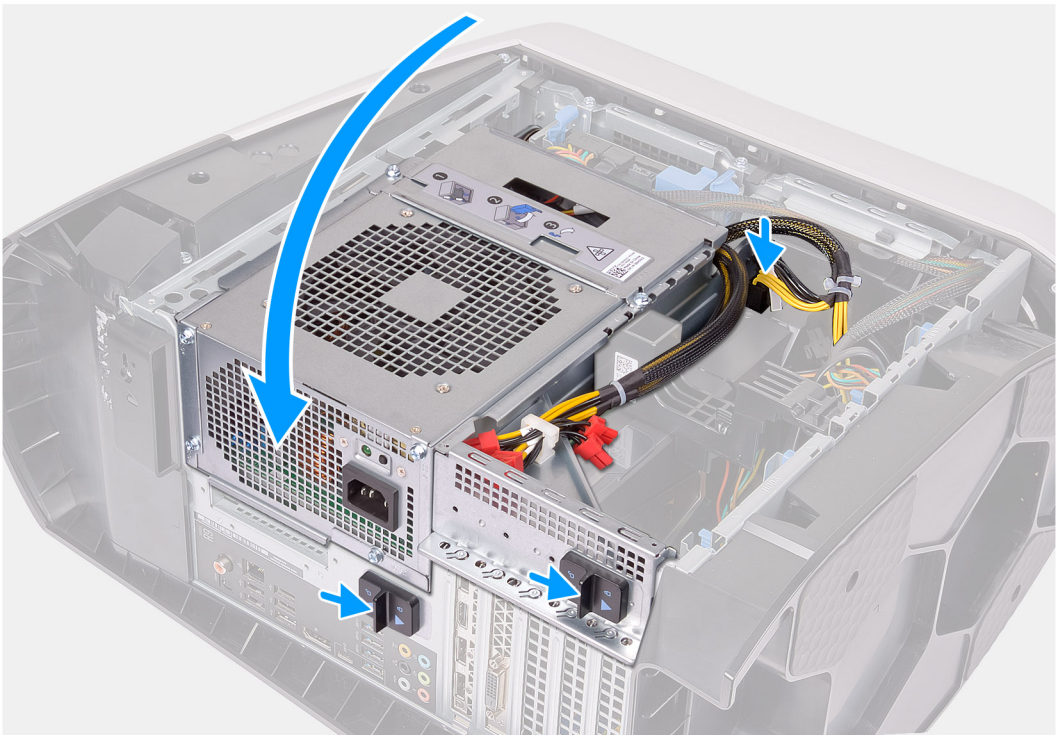


4x









Steps

1. Place the processor fan and heat-sink assembly on the processor.
2. Align the captive screws on the processor fan heat-sink assembly with the screw holes on the system board.
3. In sequential order, tighten the four captive screws that secure the processor fan and heat-sink assembly to the system board.
4. Connect the processor-fan cable to the system board.
5. Rotate the power-supply unit cage towards the chassis.
6. Connect the power cables to the graphics card.
7. Slide the power-supply unit cage release latches towards the locked position.

Next steps

1. Install the left-side cover.
2. Follow the procedure in After working inside your computer.

Processor

Removing the processor

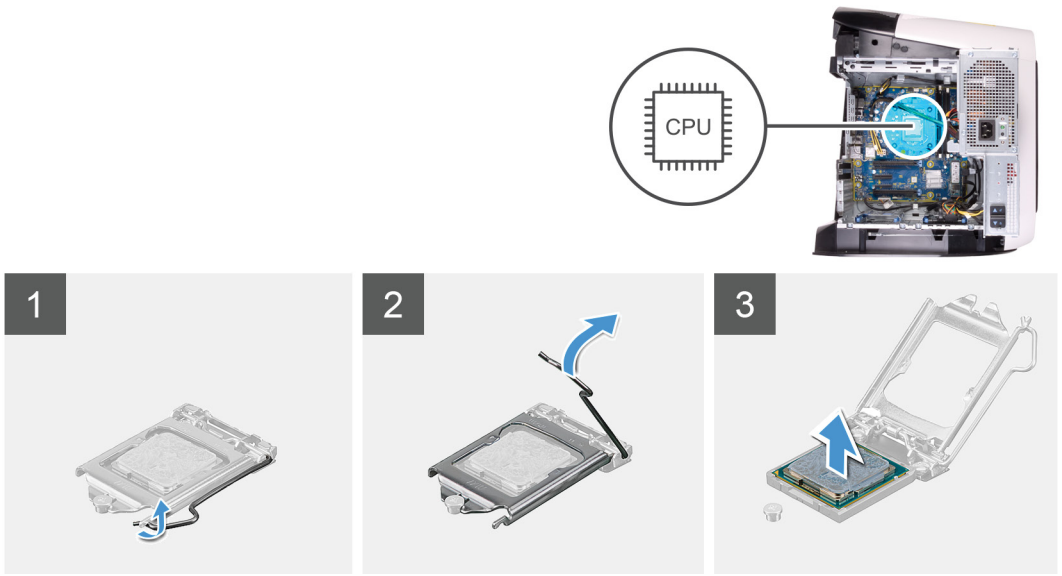
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.

3. Remove the processor liquid-cooling assembly or processor fan and heat-sink assembly, as applicable.

About this task

The following images indicate the location of the processor and provides a visual representation of the removal procedure.



Steps

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.

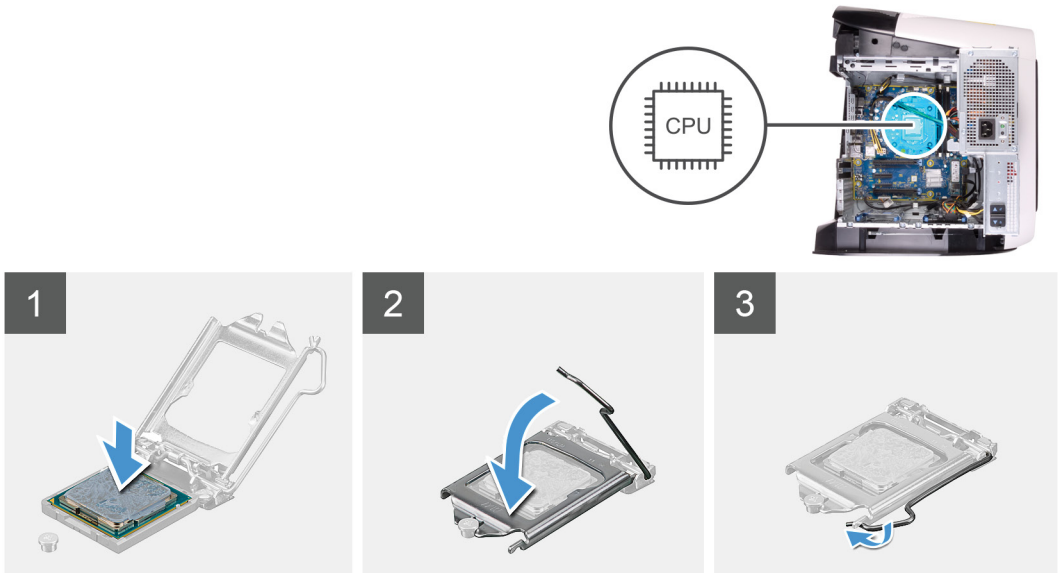
Installing the processor

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the processor and provides a visual representation of the installation procedure.



Steps

1. Ensure 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: 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.

Next steps

1. Install the processor liquid-cooling assembly or processor fan and heat-sink assembly, as applicable.
2. Install the left-side cover.
3. Follow the procedure in After working inside your computer.

Wireless card

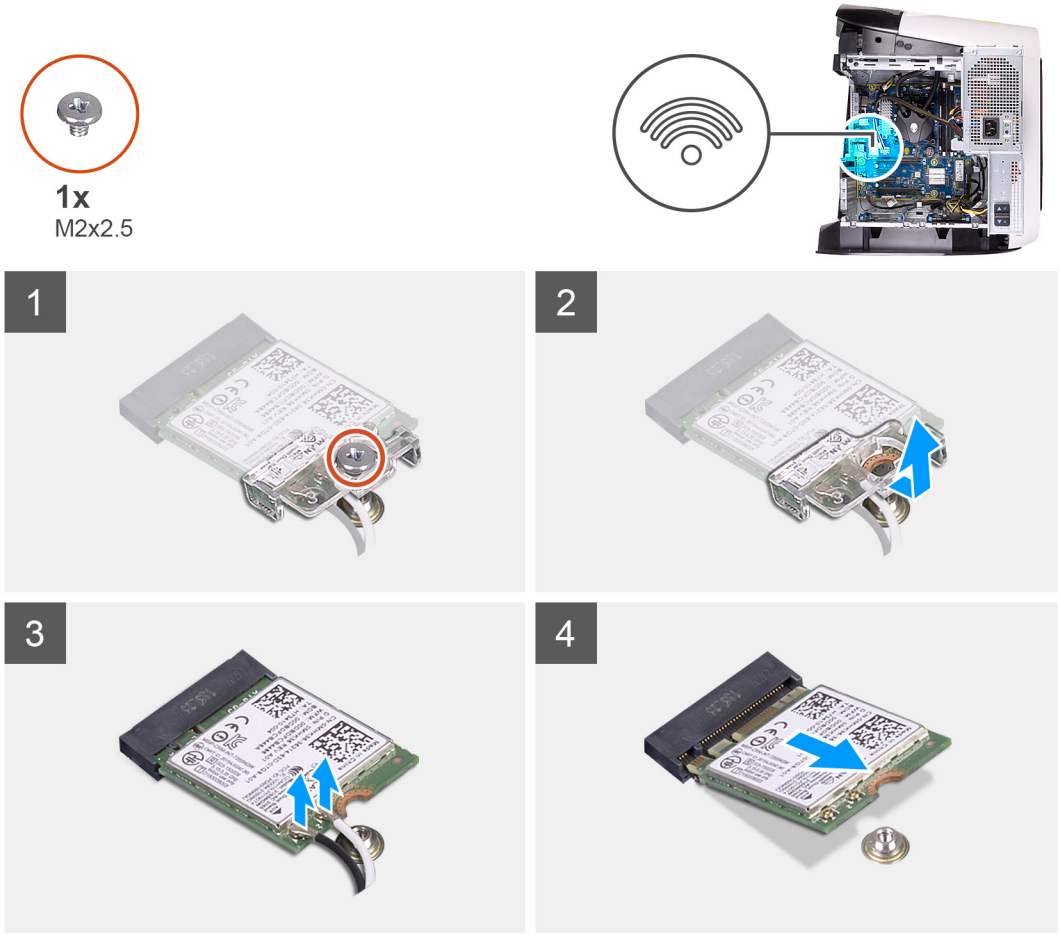
Removing the wireless card

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the single-graphics card or dual-graphics card, as applicable.

About this task

The following images indicate the location of the wireless card and provides a visual representation of the removal procedure.



Steps

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

Installing the wireless card

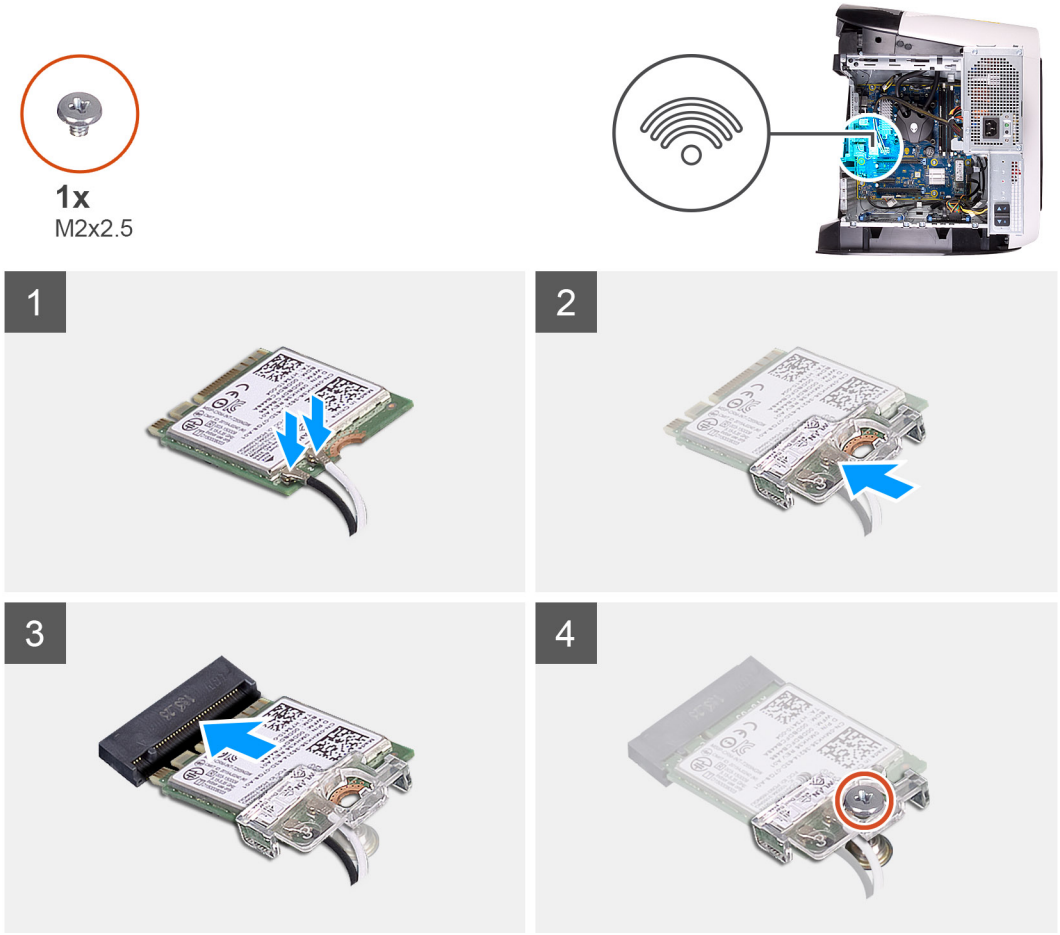
Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

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

About this task

The following images indicate the location of the wireless card and provides a visual representation of the installation procedure.



Steps

1. 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 3. Antenna-cable color scheme

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

2. Place the wireless-card bracket on the wireless card.
3. Align the notch on the wireless card with the tab on the wireless-card slot.
4. Slide the wireless card at an angle into the wireless-card slot.
5. Replace the screw (M2x2.5) that secures the wireless card to the system board.

Next steps

1. Install the single-graphics card or dual-graphics card, as applicable.
2. Install the left-side cover.
3. Follow the procedure in After working inside your computer.

Antennas

Removing the antennas

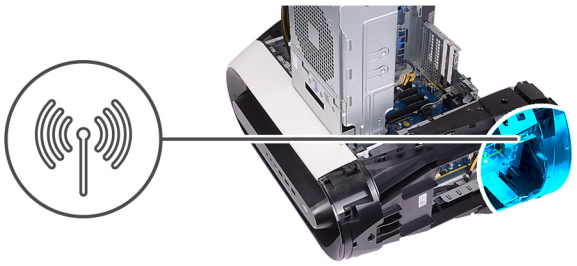
Prerequisites

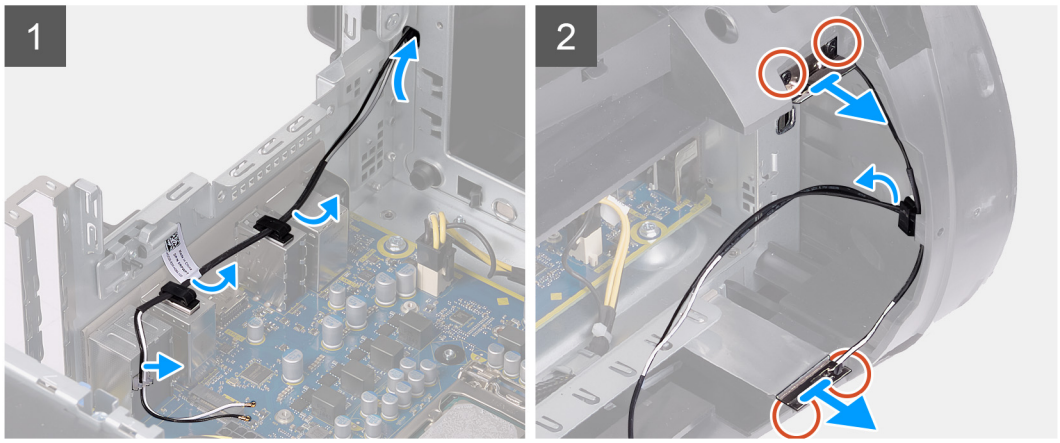
1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the top-cover.
4. Remove the right-side cover.
5. Remove the wireless card.
6. Remove the front bezel.

About this task

The following images indicate the location of the antennas and provides a visual representation of the removal procedure.







Steps

1. Remove the four screws (M3x4t) that secures the antennas to the top bezel.
2. Remove the antenna cables from the routing guides on the top bezel.
3. Lift the antenna off the top bezel.

Installing the antennas

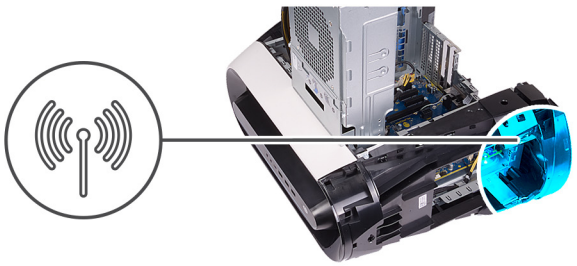
Prerequisites

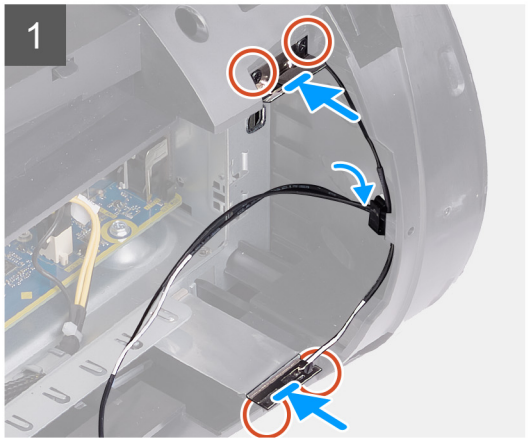
If you are replacing a component, remove the existing component before performing the installation procedure.

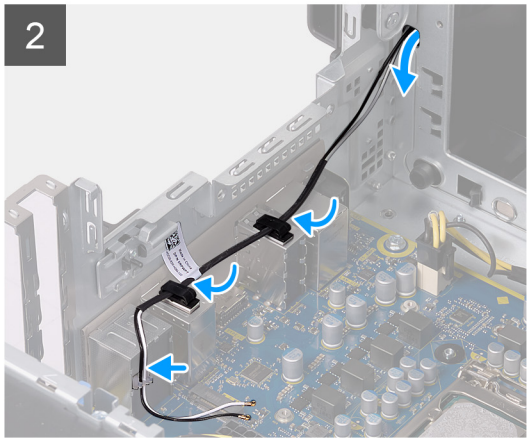
About this task

The following images indicate the location of the antennas and provides a visual representation of the installation procedure.









Steps

1. Adhere the antenna to the chassis.
2. Replace the four screws (M3x4t) that secures the antennas to the chassis.
3. Route the antenna cables through the routing guides on the top bezel.

Next steps

1. Install the front bezel.
2. Install the wireless card.
3. Install the right-side cover.
4. Install the top-cover.
5. Install the left-side cover.
6. Follow the procedure in After working inside your computer.

Front I/O-panel

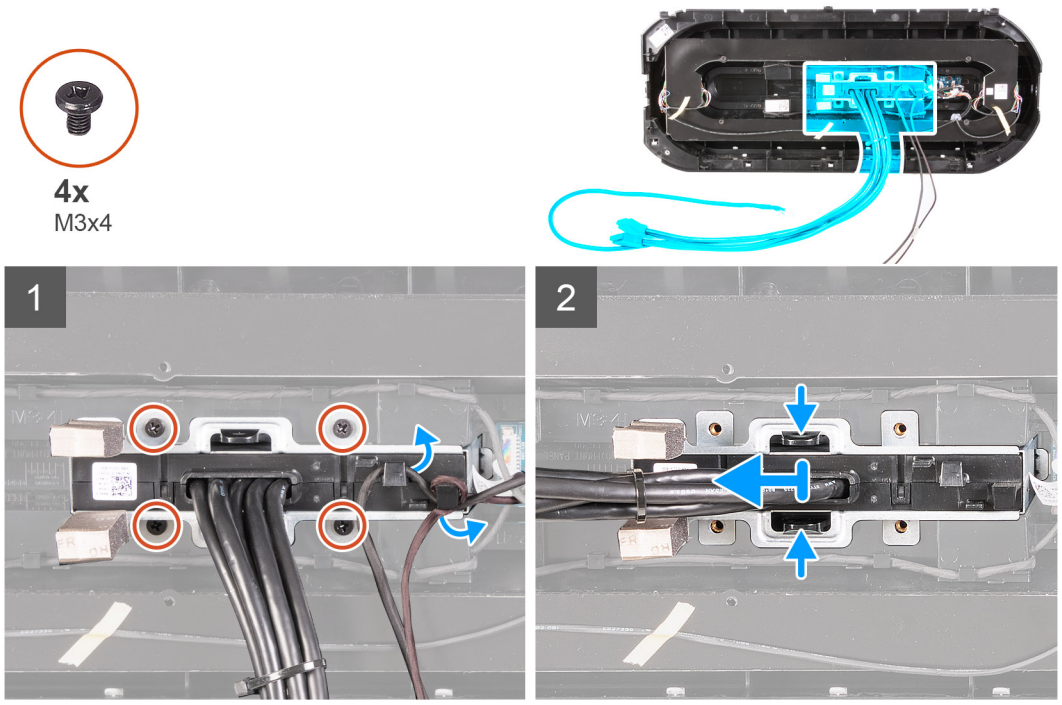
Removing the front I/O panel

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the top cover.
3. Remove the left-side cover.
4. Remove the right-side cover.
5. Remove the front bezel.

About this task

The following images indicate the location of the front I/O-panel and provides a visual representation of the removal procedure.



Steps

1. Remove the four screws (M3x4) that secures the front I/O-panel to the front bezel.
2. Remove the cable from the routing guides on the front I/O-panel.
3. Press the two clips and lift the front I/O-panel off the front bezel.

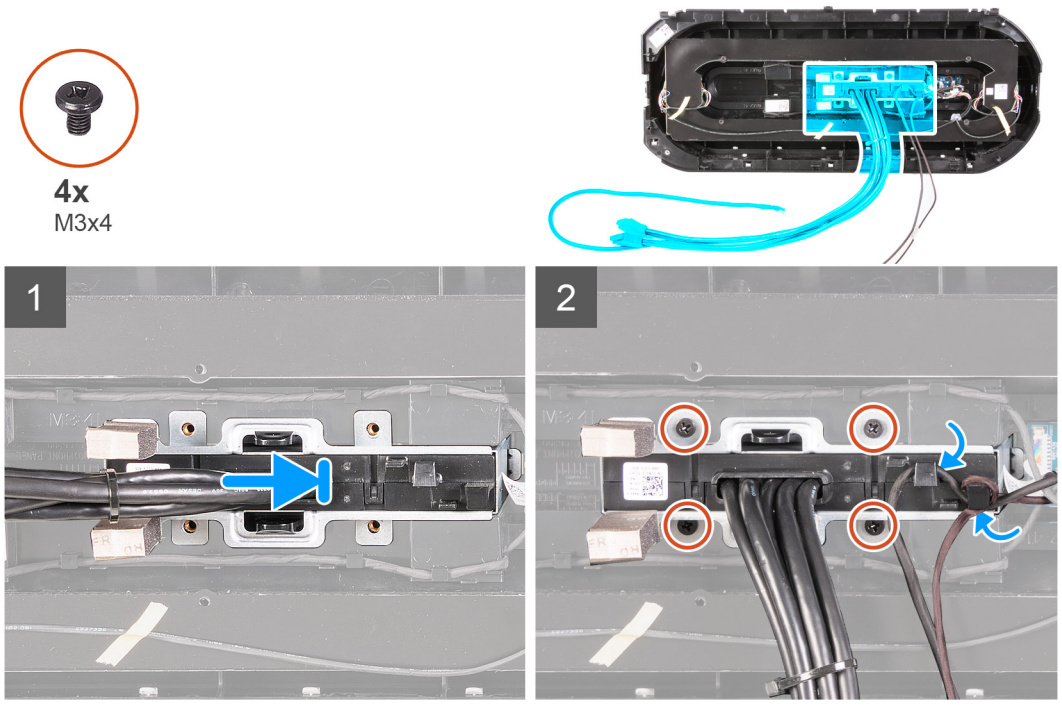
Installing the front I/O-panel

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the front I/O-panel and provide a visual representation of the installation procedure.



Steps

1. Align the screw holes on the front I/O-panel with the screw holes on the front bezel and snap it into place.
2. Route the cables through the routing guides on the front I/O-panel.
3. Replace the four screws (M3x4) that secures the front I/O-panel to the front bezel.

Next steps

1. Install the front bezel.
2. Install the right-side cover.
3. Install the left-side cover.
4. Install the top cover.
5. Follow the procedure in After working inside your computer.

Front-chassis fan

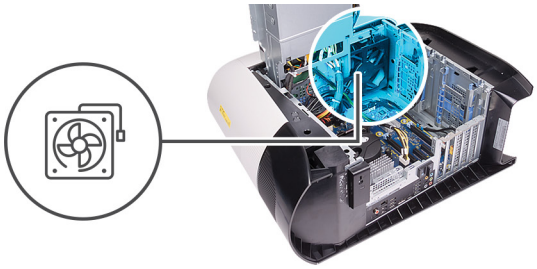
Removing the front-chassis fan

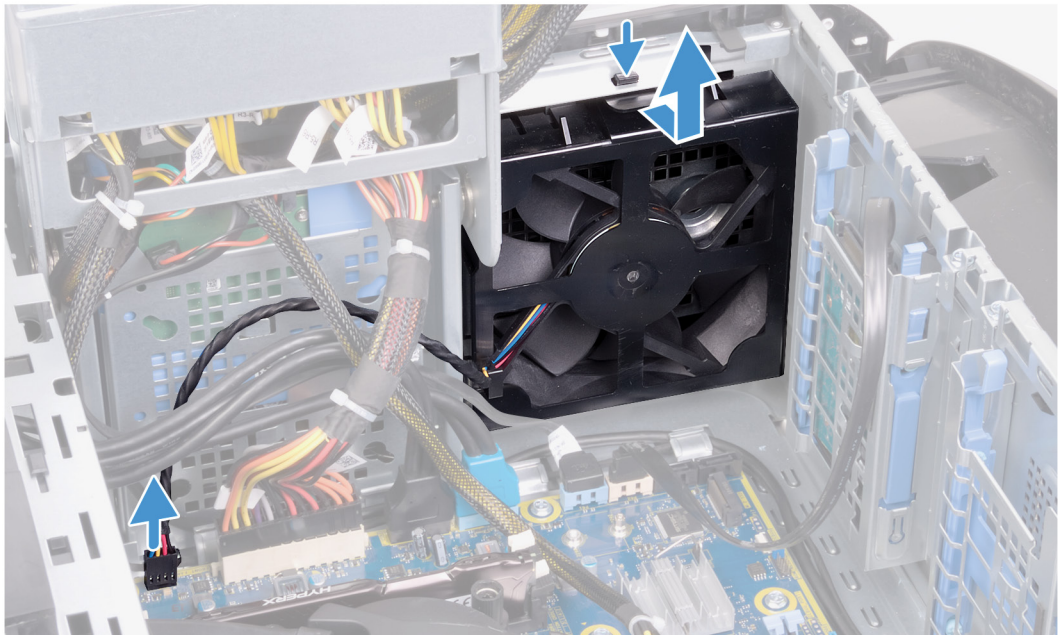
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the single-graphics card or dual-graphics card, as applicable.

About this task

The following images indicate the location of the front-chassis fan and provides a visual representation of the removal procedure.





Steps

1. Disconnect the front-chassis fan cable from the system board.
2. Push the tab to release the front-chassis fan from the chassis.
3. Slide and lift the front-chassis fan off the chassis.

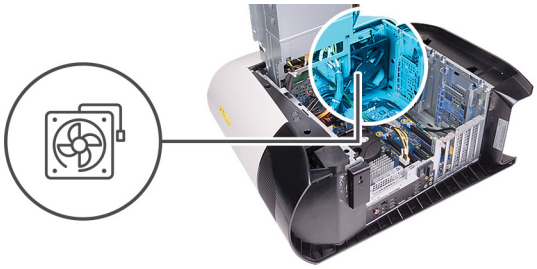
Installing the front-chassis fan

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the front-chassis fan and provides a visual representation of the installation procedure.





Steps

1. Align the tabs on the front-chassis fan with the slots on the chassis and slide the fan until it snaps into position.
2. Connect the front-chassis fan cable to the system board.

Next steps

1. Install the single-graphics card or dual-graphics card, as applicable.
2. Install the left-side cover.
3. Follow the procedure in After working inside your computer.

Top-chassis fan

Removing the top-chassis fan

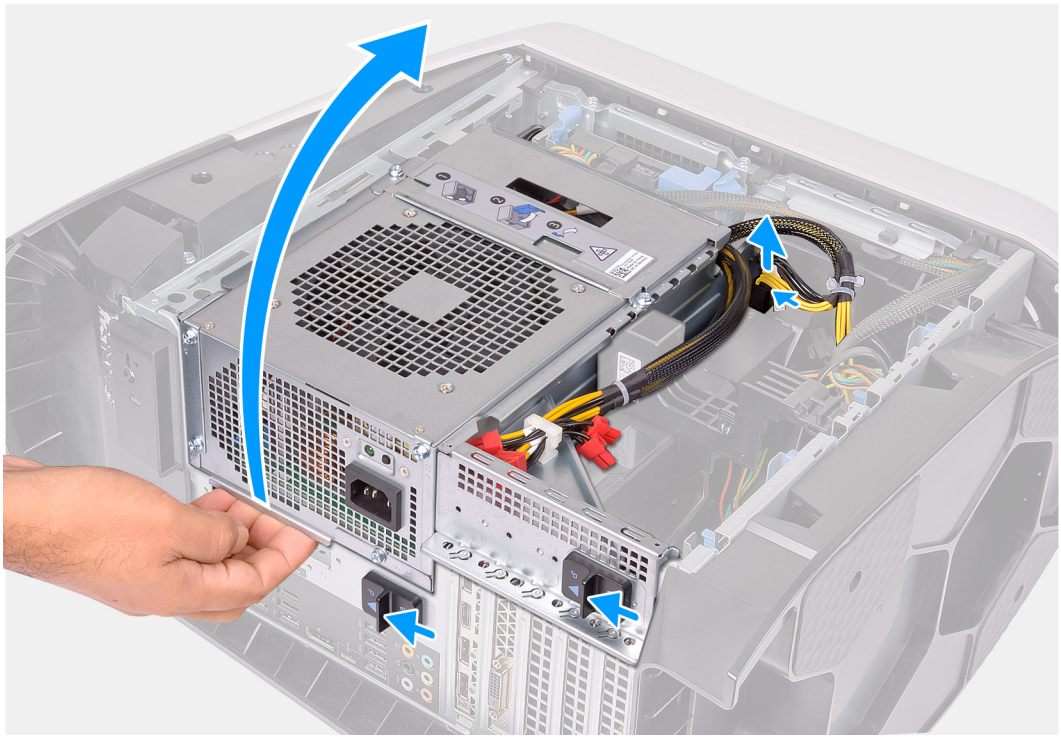
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.

About this task

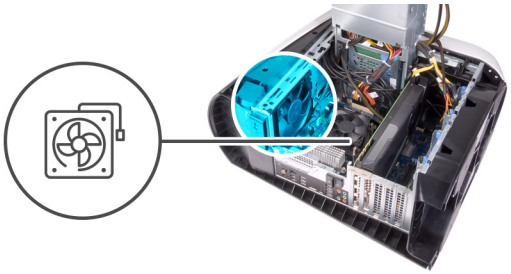
The following images indicate the location of the top-chassis fan and provides a visual representation of the removal procedure.

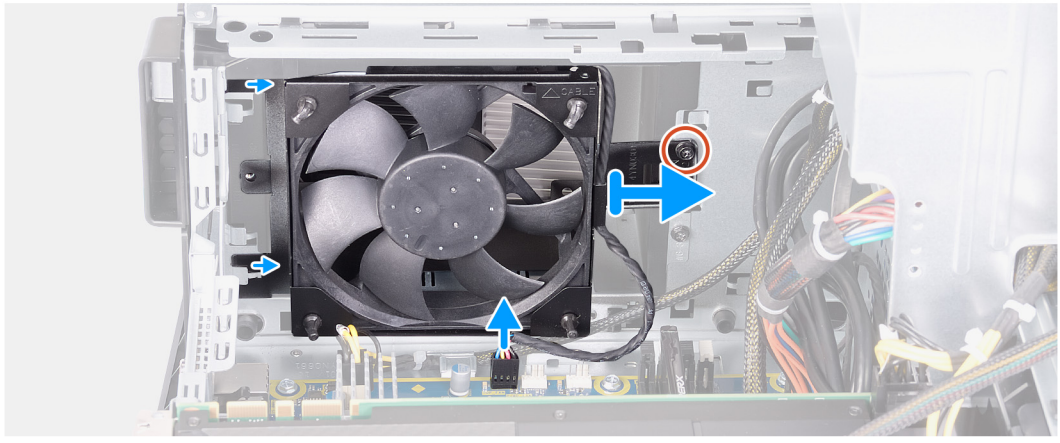






1x
#6-32





Steps

1. Lay the computer on the right side.

2. Press the releasing clip on the power-cable connectors and disconnect the power cables from the graphics card.
3. Slide the power-supply unit cage release latches to the unlock position.
4. Lift the power-supply unit cage and rotate the power-supply unit cage away from the chassis.
5. Remove the screw that secures the top-chassis fan to the chassis.
6. Disconnect the top-chassis fan cable from the system board.
7. Remove the top-chassis fan from the chassis.
8. Remove the top-chassis fan cable from the routing guide on the top-chassis fan bracket.
9. Push the rubber grommets through the holes at each corner of the fan to release top-chassis fan from the bracket.
10. Slide the top-chassis fan off the top-chassis fan bracket.

Installing the top-chassis fan

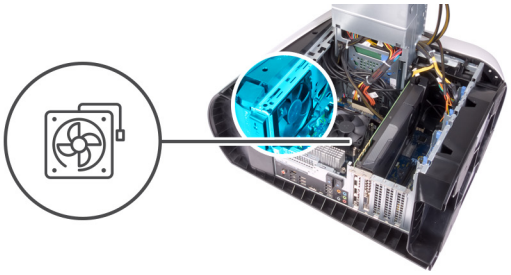
Prerequisites

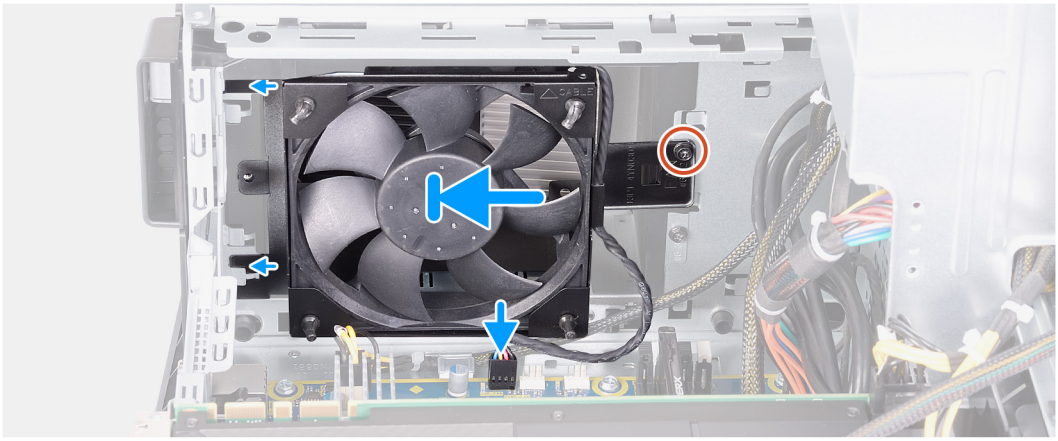
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

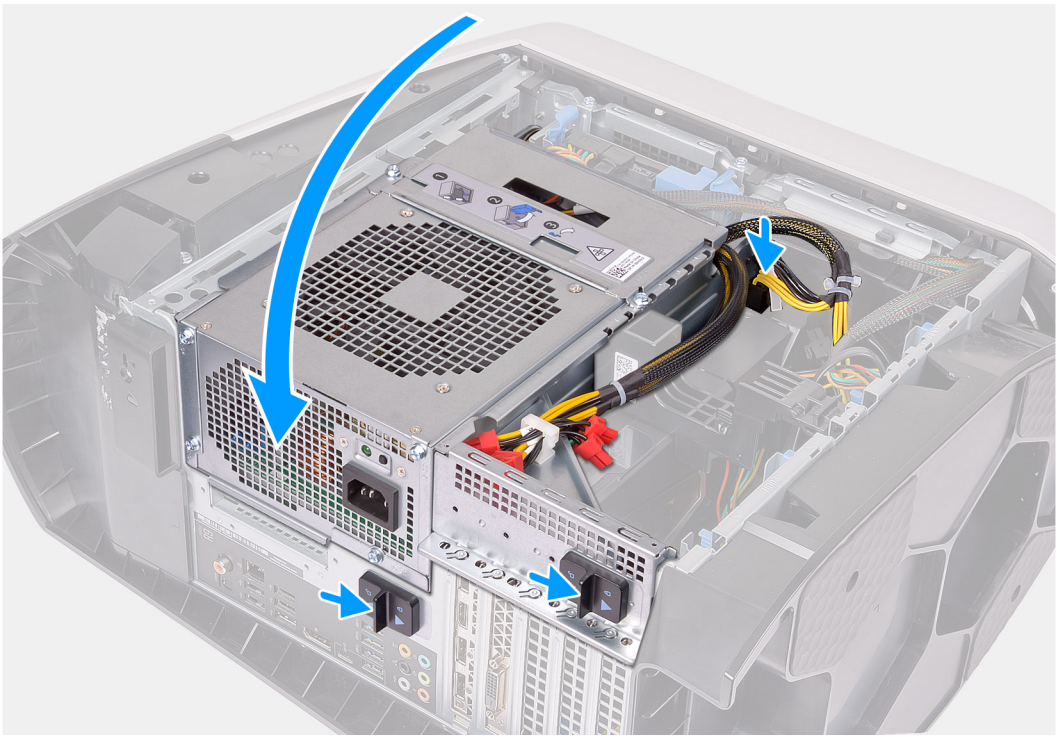
The following images indicate the location of the top-chassis fan and provides a visual representation of the installation procedure.











Steps

1. Align the holes on the top-chassis fan with the holes on the top-chassis fan bracket.
2. Insert the ends of the rubber grommets through the holes at each corner of the fan.
3. Align the grommets in the fan with the holes at each corner of the top-chassis fan bracket and pull through until they snap into place.
4. Replace the screw (#6-32) that secures the top-chassis fan to the chassis.
5. Route the top-chassis fan cable through the routing guide on the bracket.
6. Align the tabs on the top-chassis fan with the slots on the chassis and slide the fan until it snaps into position.
7. Replace the screw that secures the top-chassis fan to the chassis.
8. Connect the top-chassis fan cable to the system board.
9. Rotate the power-supply unit cage towards the chassis.
10. Connect the power cables to the graphics card.
11. Slide the power-supply unit cage release latches towards the locked position.

Next steps

1. Install the left-side cover.
2. Follow the procedure in After working inside your computer.

Front AlienFX LED boards

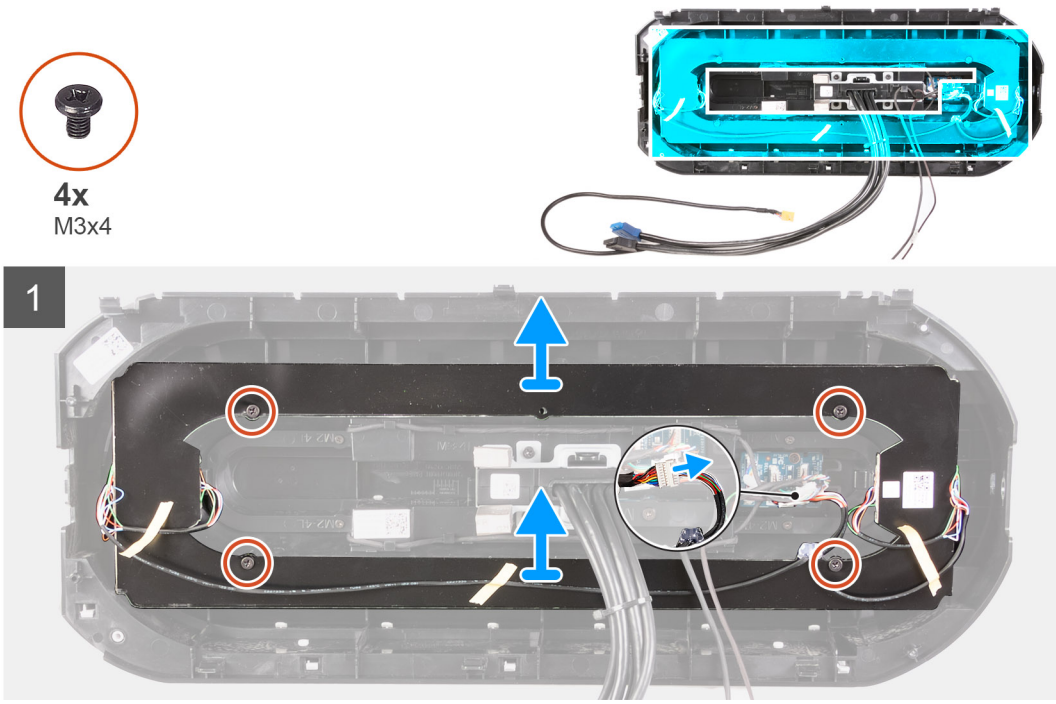
Removing the front AlienFX LED board

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the right-side cover.
4. Remove the top-cover.
5. Remove the front bezel.

About this task

The following images indicate the location of the front AlienFX LED board and provides a visual representation of the removal procedure.



Steps

1. Disconnect the AlienFX LED board cable from a Y-cable.
2. Remove the four screws (M3x4) that secure the AlienFX LED board to the front bezel.
3. Lift the AlienFX LED board off the front bezel.

Installing the front AlienFX LED board

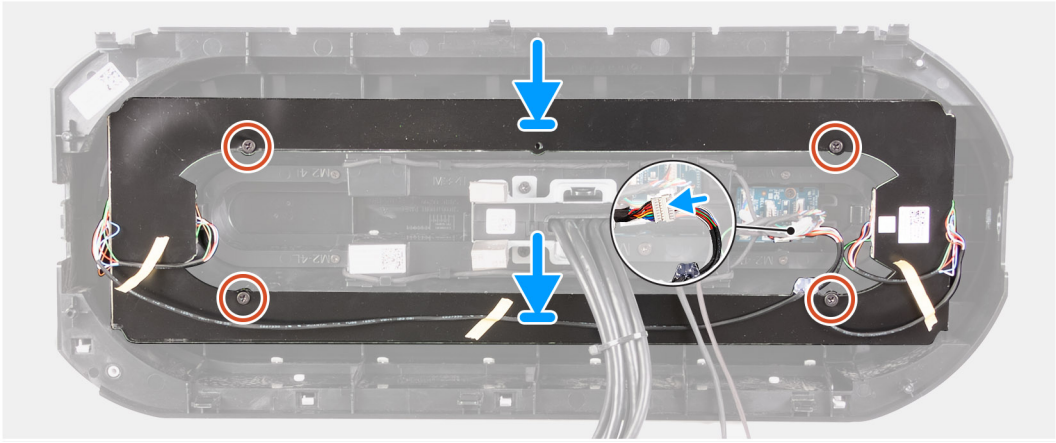
Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the front AlienFX LED board and provides a visual representation of the installation procedure.





Steps

1. Align the screw hole of the AlienFX LED board to the screw hole on the front bezel.
2. Replace the four screws (M3x4) that secure the AlienFX LED board to the front bezel.
3. Connect the AlienFX LED board cable from a Y-cable.

Next steps

1. Install the front bezel.
2. Install the top-cover.
3. Install the right-side cover.
4. Install the left-side cover.
5. Follow the procedure in After working inside your computer.

Power-button board

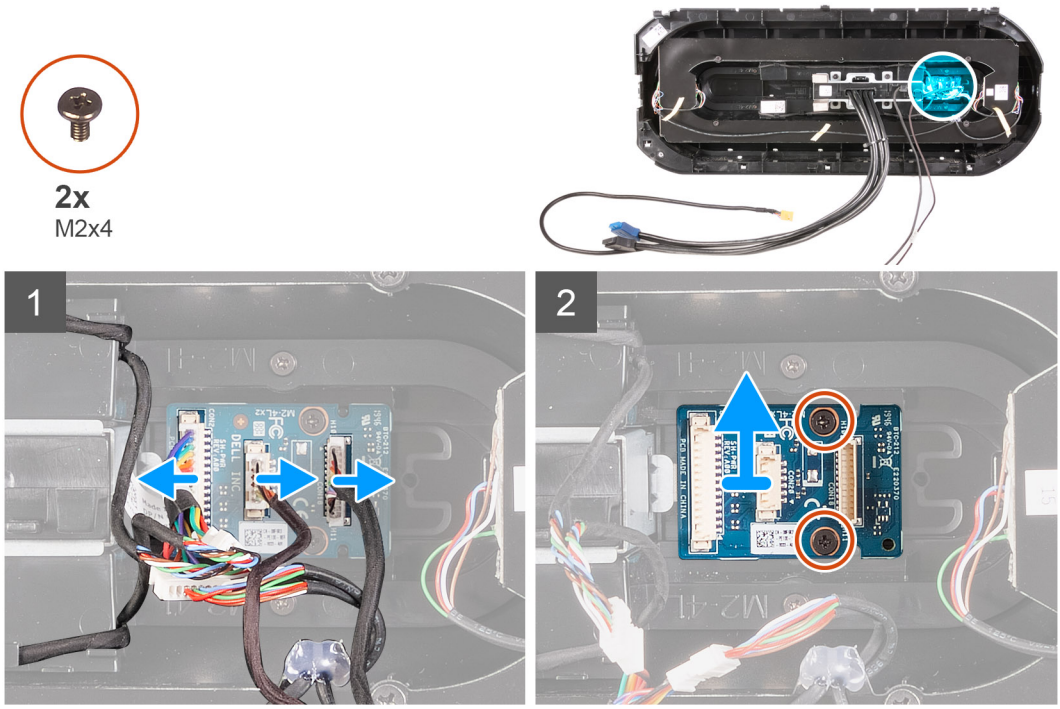
Removing the power-button board

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the right-side cover.
4. Remove the top-cover.
5. Remove the front bezel.

About this task

The following images indicate the location of the power-button board and provides a visual representation of the removal procedure.



Steps

1. Remove the two screws (M2x4) that secure the power-button module to the front bezel.
2. Lift the power-button module off the front bezel.
3. Disconnect the cables from the power-button module.

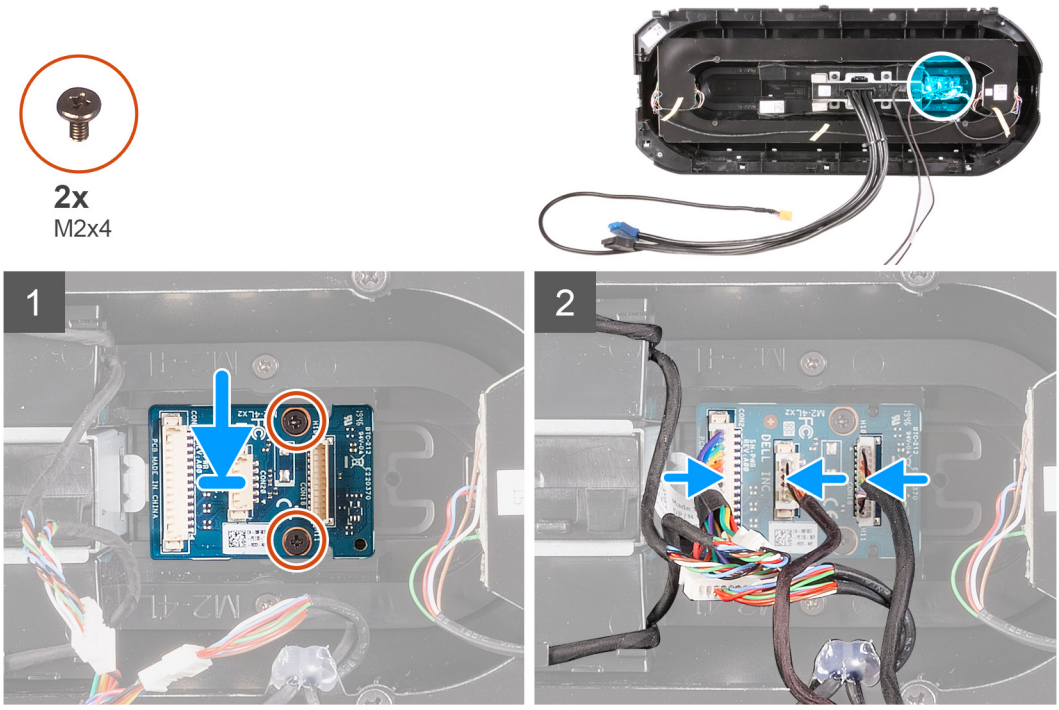
Installing the power-button board

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the power-button board and provides a visual representation of the installation procedure.



Steps

1. Align the screw holes on the power-button module with the screw holes on the front bezel.
2. Replace the two screws (M2x4) that secure the power-button module to the front bezel.
3. Connect the cables to the power-button module.

Next steps

1. Install the front bezel.
2. Install the top-cover.
3. Install the right-side cover.
4. Install the left-side cover.
5. Follow the procedure in After working inside your computer.

System board

Removing the system board

Prerequisites

1. Follow the procedure in Before working inside your computer.

   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.

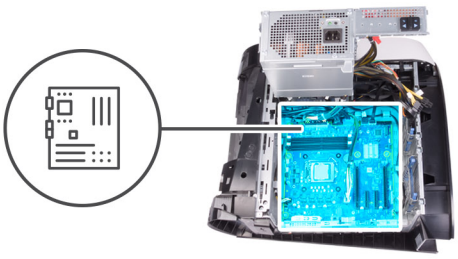
   NOTE: Before disconnecting the cables from the system board, note the location of the connectors so that you can reconnect the cables correctly after you replace the system board.
2. Remove the left-side cover.
3. Remove the memory modules.
4. Remove the solid-state drive.
5. Remove the wireless card.
6. Remove the processor liquid-cooling assembly or processor fan and heat-sink assembly, as applicable.

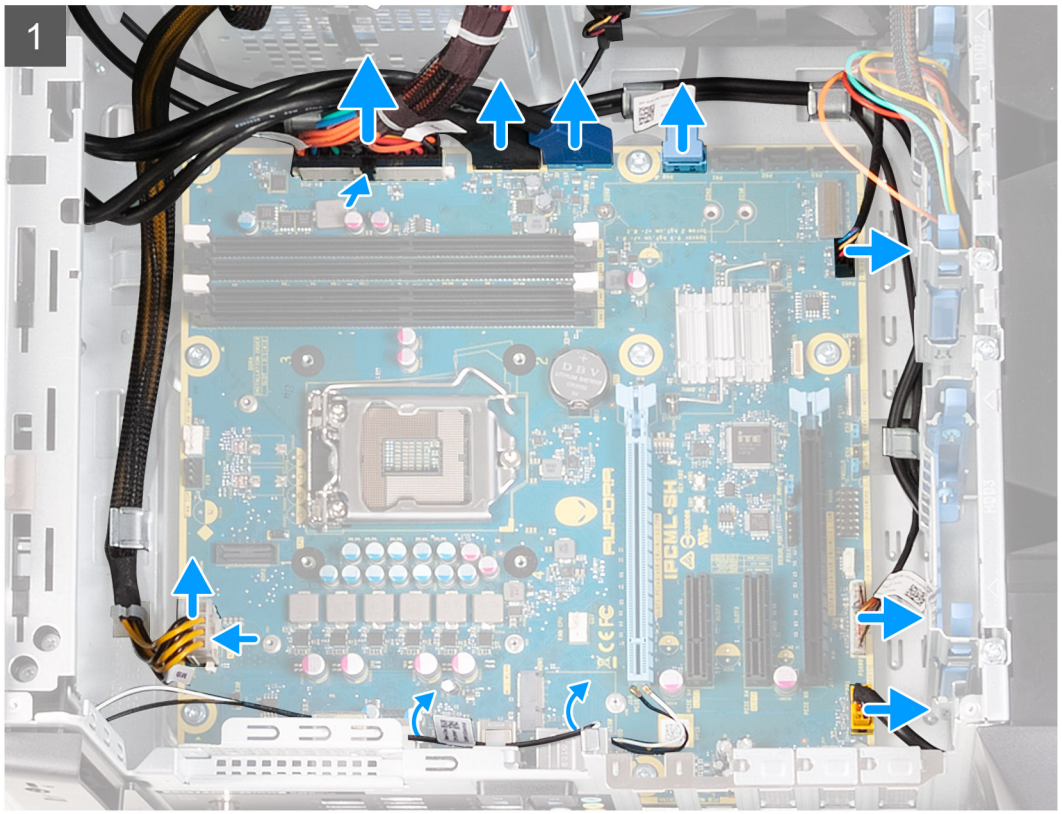
7. Remove the single-graphics card or dual-graphics card, as applicable.
8. Remove the processor.

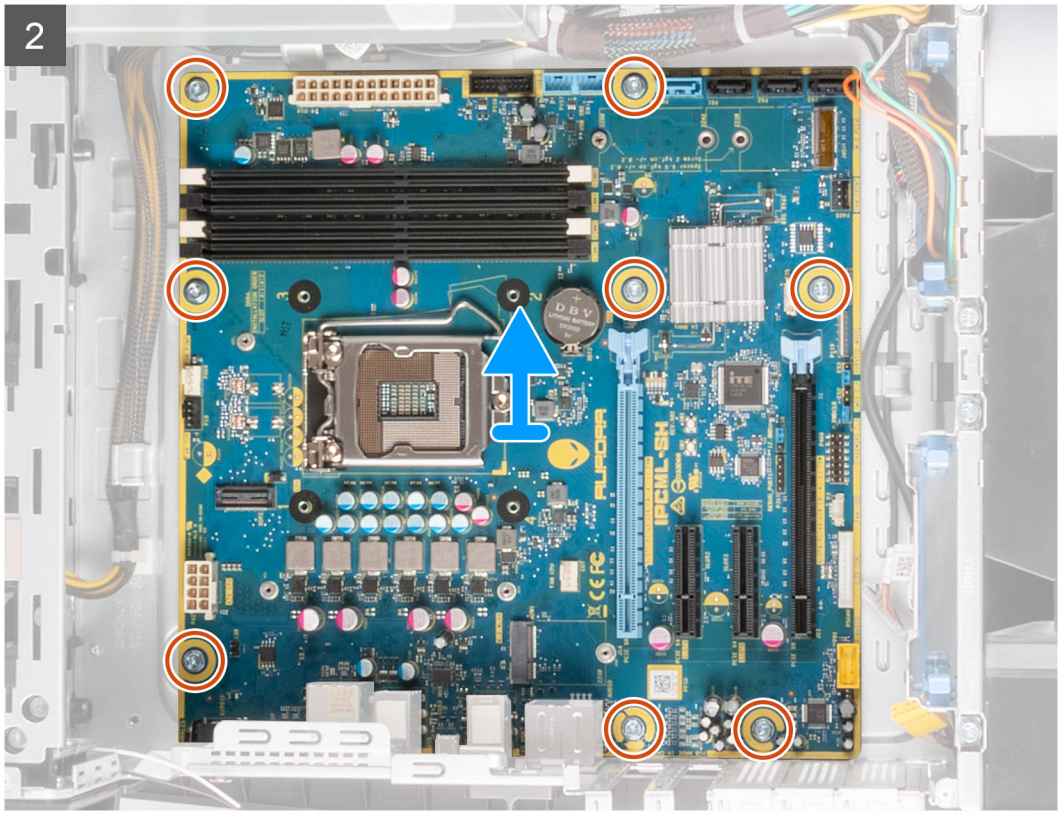
About this task

The following images indicate the location of the system board and provides a visual representation of the removal procedure.









Steps

1. Disconnect all the cables connected to the system board.

   NOTE: Note the routing of all cables as you remove them so that you can route them correctly after you replace the system board. For information on system-board connectors, see "system-board components".

2. Remove the eight screws (#6-32) that secure the system-board assembly to the chassis.
3. Lift the system board off the chassis.

Installing the system board

Prerequisites

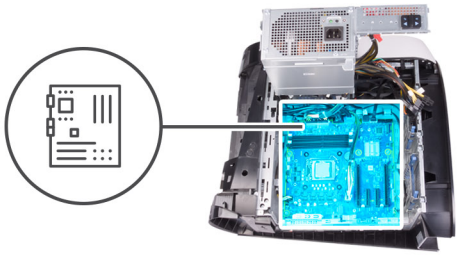
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

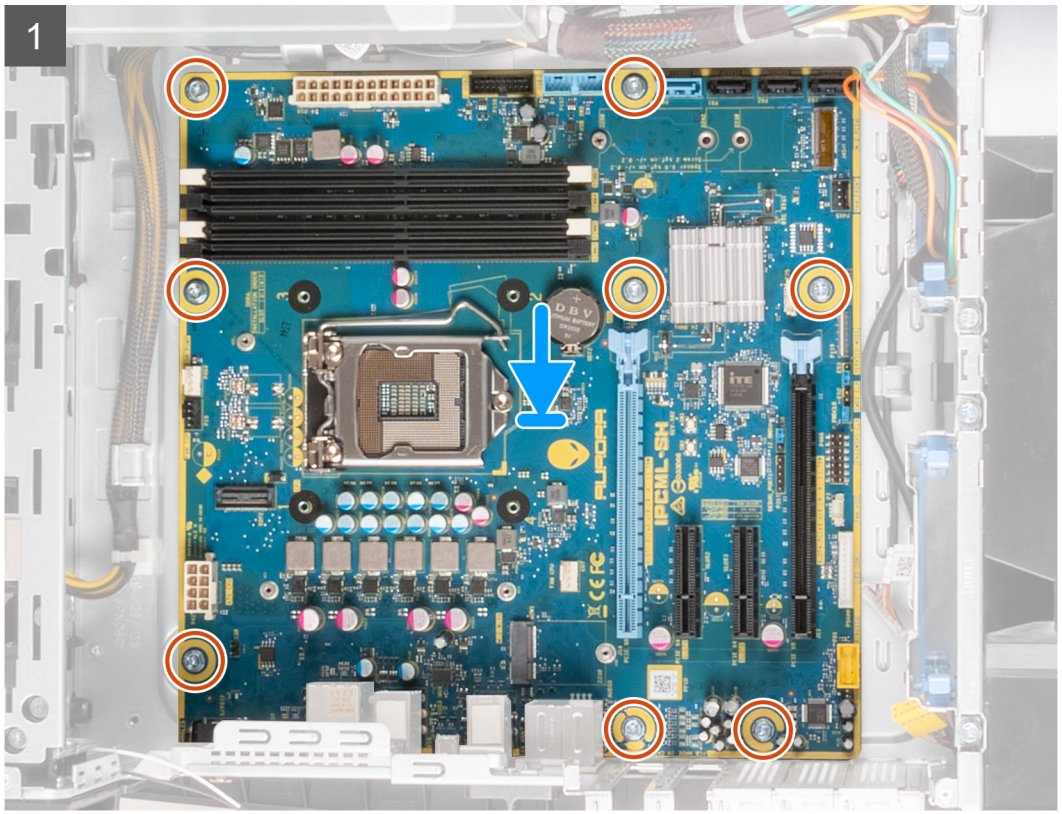
The following images indicate the location of the system board and provides a visual representation of the installation procedure.

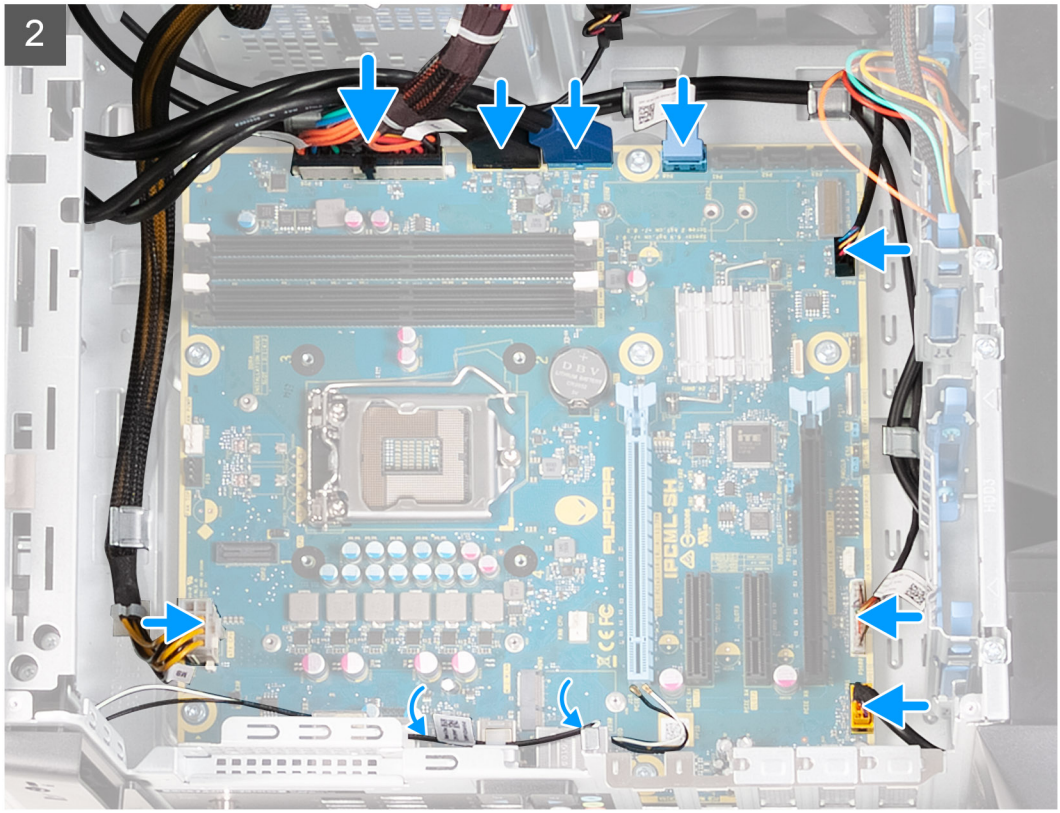


8x
#6-32



1





Steps

1. Align the ports on the system-board assembly with the slots on the chassis and align the system-board assembly in place.
2. Slide the system-board assembly to engage the latches that secure it to the chassis.
3. Replace the eight screws (#6-32) that secure the system-board assembly to the chassis.
4. Route and connect the cables that you disconnected from the system-board assembly.

NOTE: For information on system-board connectors, see "system-board components".

Next steps

1. Install the processor.
2. Install the single-graphics card or dual-graphics card, as applicable.
3. Install the processor liquid-cooling assembly or processor fan and heat-sink assembly, as applicable.
4. Install the wireless card.
5. Install the solid-state drive.
6. Install the memory modules.
7. Install the left-side cover.
8. Follow the procedure in After working inside your computer.

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.

Entering the Service Tag in the BIOS setup program

Steps

1. Turn on or restart your computer.
2. Press F2 when the Dell logo is displayed to enter the BIOS setup program.

3. Navigate to the **Main** tab and enter the Service Tag in the **Service Tag Input** field.

Next steps

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

Device drivers

Operating system

- Windows 10 Home (64-bit)
- Windows 10 Professional (64-bit)

Downloading the audio driver

Steps

1. Turn on your computer.
2. Go to www.dell.com/support.
3. 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**.
5. Click the **Detect Drivers** button.
6. Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7. If necessary, your computer starts to download and install **SupportAssist**.

   NOTE: Review on-screen instructions for browser-specific instructions.

8. Click **View Drivers for My System**.
9. Click **Download and Install** to download and install all driver updates detected for your computer.
10. Select a location to save the files.
11. If prompted, approve requests from **User Account Control** to make changes on the system.
12. The application installs all drivers and updates identified.

    NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13. For manual download and installation, click **Category**.
14. Click **Audio** in the drop-down list.
15. Click **Download** to download the audio driver for your computer.
16. After the download is complete, navigate to the folder where you saved the audio driver file.
17. Double-click the audio driver file icon and follow the instructions on the screen to install the driver.

Downloading the graphics driver

Steps

1. Turn on your computer.
2. Go to www.dell.com/support.
3. 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**.
5. Click the **Detect Drivers** button.
6. Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.

7. If necessary, your computer starts to download and install **SupportAssist**.

   NOTE: Review on-screen instructions for browser-specific instructions.

8. Click **View Drivers for My System**.
9. Click **Download and Install** to download and install all driver updates detected for your computer.
10. Select a location to save the files.
11. If prompted, approve requests from **User Account Control** to make changes on the system.
12. The application installs all drivers and updates identified.

    NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13. For manual download and installation, click **Category**.
14. Click **Video** in the drop-down list.
15. Click **Download** to download the graphics driver for your computer.
16. After the download is complete, navigate to the folder where you saved the graphics driver file.
17. Double-click the graphics driver file icon and follow the instructions on the screen to install the driver.

Downloading the USB driver

Steps

1. Turn on your computer.
2. Go to www.dell.com/support.
3. 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**.
5. Click the **Detect Drivers** button.
6. Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7. If necessary, your computer starts to download and install **SupportAssist**.

   NOTE: Review on-screen instructions for browser-specific instructions.

8. Click **View Drivers for My System**.
9. Click **Download and Install** to download and install all driver updates detected for your computer.
10. Select a location to save the files.
11. If prompted, approve requests from **User Account Control** to make changes on the system.
12. The application installs all drivers and updates identified.

    NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13. For manual download and installation, click **Category**.
14. Click **Chipset** in the drop-down list.
15. Click **Download** to download the USB driver for your computer.
16. After the download is complete, navigate to the folder where you saved the USB driver file.
17. Double-click the USB driver file icon and follow the instructions on the screen to install the driver.

Downloading the WiFi driver

Steps

1. Turn on your computer.

2. Go to www.dell.com/support.
3. 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**.
5. Click the **Detect Drivers** button.
6. Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7. If necessary, your computer starts to download and install **SupportAssist**.

   NOTE: Review on-screen instructions for browser-specific instructions.

8. Click **View Drivers for My System**.
9. Click **Download and Install** to download and install all driver updates detected for your computer.
10. Select a location to save the files.
11. If prompted, approve requests from **User Account Control** to make changes on the system.
12. The application installs all drivers and updates identified.

    NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13. For manual download and installation, click **Category**.
14. Click **Network** in the drop-down list.
15. Click **Download** to download the WiFi driver for your computer.
16. After the download is complete, navigate to the folder where you saved the WiFi driver file.
17. Double-click the WiFi driver icon and follow the instructions on the screen to install the driver.

Downloading the media-card reader driver

Steps

1. Turn on your computer.
2. Go to www.dell.com/support.
3. 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**.
5. Click the **Detect Drivers** button.
6. Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7. If necessary, your computer starts to download and install **SupportAssist**.

   NOTE: Review on-screen instructions for browser-specific instructions.

8. Click **View Drivers for My System**.
9. Click **Download and Install** to download and install all driver updates detected for your computer.
10. Select a location to save the files.
11. If prompted, approve requests from **User Account Control** to make changes on the system.
12. The application installs all drivers and updates identified.

    NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13. For manual download and installation, click **Category**.
14. Click **Chipset** in the drop-down list.
15. Click **Download** to download the media-card reader driver for your computer.
16. After the download is complete, navigate to the folder where you saved the media-card reader driver file.

17. Double-click the media-card reader driver file icon and follow the instructions on the screen to install the driver.

Downloading the chipset driver

Steps

1. Turn on your computer.
2. Go to www.dell.com/support.
3. 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**.
5. Click the **Detect Drivers** button.
6. Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7. If necessary, your computer starts to download and install **SupportAssist**.

   NOTE: Review on-screen instructions for browser-specific instructions.

8. Click **View Drivers for My System**.
9. Click **Download and Install** to download and install all driver updates detected for your computer.
10. Select a location to save the files.
11. If prompted, approve requests from **User Account Control** to make changes on the system.
12. The application installs all drivers and updates identified.

    NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13. For manual download and installation, click **Category**.
14. Click **Chipset** in the drop-down list.
15. Click **Download** to download the chipset driver for your computer.
16. After the download is complete, navigate to the folder where you saved the saved the chipset driver file.
17. Double-click the chipset driver file icon and follow the instructions on the screen to install the driver.

Downloading the network driver

Steps

1. Turn on your computer.
2. Go to www.dell.com/support.
3. 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**.
5. Click the **Detect Drivers** button.
6. Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7. If necessary, your computer starts to download and install **SupportAssist**.

   NOTE: Review on-screen instructions for browser-specific instructions.

8. Click **View Drivers for My System**.
9. Click **Download and Install** to download and install all driver updates detected for your computer.
10. Select a location to save the files.
11. If prompted, approve requests from **User Account Control** to make changes on the system.
12. The application installs all drivers and updates identified.

NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13. For manual download and installation, click **Category**.
14. Click **Network** in the drop-down list.
15. Click **Download** to download the network driver for your computer.
16. After the download is complete, navigate to the folder where you saved the network driver file.
17. Double-click the network driver file icon and follow the instructions on the screen to install the driver.

System setup

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

System setup

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

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

Use the BIOS Setup program for the following purposes:

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

Entering BIOS setup program

About this task

Turn on (or restart) your computer and press F2 immediately.

Navigation keys

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

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

Boot Sequence

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

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

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

- Removable Drive (if available)
- STXXXX Drive (if available)

  NOTE: XXX denotes the SATA drive number.

- Optical Drive (if available)
- SATA Hard Drive (if available)
- Diagnostics

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

System setup options

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

Table 4. System setup options—Main menu

Main	
System Time	Displays the current time in hh:mm:ss format.
System Date	Displays the current date in mm/dd/yyyy format.
BIOS Information	
BIOS Version	Displays the BIOS version number.
Product Information	
Product Name	Displays the product name. Default: Alienware Aurora R11
Service Tag	Displays the service tag of your computer.
Asset Tag	Displays the asset tag of your computer.
CPU Information	
CPU Type	Displays the processor type
CPU Speed	Displays the speed of the processor.
CPU ID	Displays the processor identification code.
Cache L1	Displays the processor L1 cache size.
Cache L2	Displays the processor L2 cache size.
Cache L3	Displays the processor L3 cache size.
Memory Information	
System Memory	Displays the total computer memory installed.
Memory Speed	Displays the memory speed.

Table 5. System setup options—Advanced menu

Advanced	
Advanced BIOS Features	
SATA Operation	Allows you to configure the operating mode of the integrated SATA hard drive controller.
Power Options	
Numlock Key	Allows you to set the status of the Num Lock key during boot to On or Off.
Wake Up by Integrated LAN	Allow the computer to be powered on by special LAN signals.
AC Recovery	Sets what action the computer takes when power is restored.
Deep Sleep Control	Allows you to define the controls when Deep Sleep is enabled.
USB Wake Support (S3)	Allows you to enable the USB devices to wake the system from Standby.
USB PowerShare (S4/S5)	Allows you to charge external devices.

Table 5. System setup options—Advanced menu

Advanced	
USB PowerShare Wake Support (S4/S5)	Allows you to enable front the USB devices to wake the system from S4/S5.
Auto Power On	
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.
Numlock Key	Allows you to set the status of the Num Lock key during boot to On or Off.
Performance Options	
Overclocking Feature	
Core Over Clocking Level	Allows you enable or disable the OC level1/level2 setting and adjust the processor flex ratio and voltage in the Customization mode.
Computrace	Allows you to enable or disable the Computrace service using the Absolute software.
Core Ratio Limit Override	Allows you to set the core ratio limit.
Single Core	Allows you to select single core or multiple cores.
Core Voltage Mode	Allows you to select between adaptive and override voltage modes.
Core Voltage Offset	Allows you to set the override value of core voltage.
Long Duration PWR Limit	Allows you to set the turbo mode power limit.
Short Duration PWR Limit Options	Allows you to set the turbo mode power limit.
XMP Memory	Allows you to set the XMP memory.

Table 6. System setup options—Security menu

Security	
Admin Password Status	Displays whether the admin password is set.
System Password Status	Displays whether the system password is set.
HDD Password Status	Displays if the hard drive password is set.
Admin Password	Displays the admin password.
System Password	Displays the system password.
HDD Password	Displays the hard drive password.
Firmware TPM	Displays the firmware TPM.

Table 7. System setup options—Boot menu

Boot	
Boot List Option	Displays the available boot devices.
File Browser Add Boot Option	Allows you to set the boot path in the boot option list.

Table 7. System setup options—Boot menu

Boot	
File Browser Del Boot Option	Allows you to delete the boot path in the boot option list.
Enable USB Boot Support	Allows you to enable or disable the USB Boot control.
Boot Option Priorities	Displays the available boot devices.
Boot Option #1	Displays the first boot device. Default: UEFI: Windows Boot Manager.
Boot Option #2	Displays the second boot device. Default: Onboard NIC Device.
Boot Option #3	Displays the third boot device. Default: Onboard NIC Device.

Table 8. System setup options—Exit menu

Save & 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.
Restore Defaults	Allows you to load default values for all system setup options.
Discard Changes	Allows you to exit your changes.
Save Changes	Allows you to save your changes.

Clearing CMOS settings

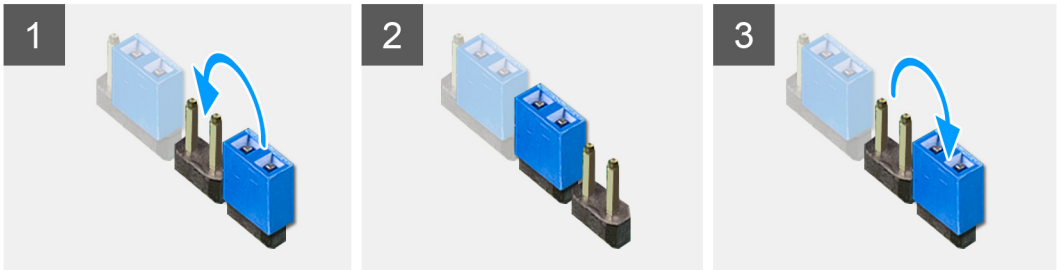
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.

About this task

The following images indicate the location of the CMOS jumper and provide a visual representation of the clearing CMOS procedure.





Steps

1. Disconnect the system-board power cable from the system board.
2. Remove the jumper plug from pins 217 and replace it on pins 216 (P216).
3. Wait for 5 seconds.
4. Remove the jumper plug from pins 216 and replace it on pins 217.
5. Connect the system-board power cable to the system board.

Next steps

1. Remove the left-side cover.
2. Follow the procedure in After working inside your computer.

Clearing forgotten password

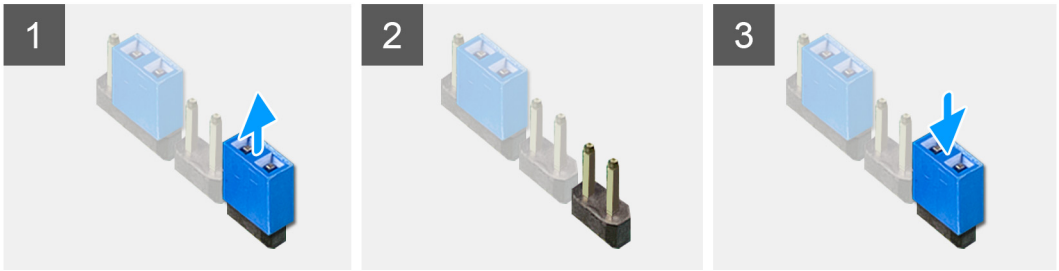
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.

About this task

The following images indicate the location of the memory modules and provide a visual representation of the removal procedure.





Steps

1. Remove the jumper plug from pins 215.
2. Turn on your computer and wait until the operating system is completely loaded.
3. Shut down your computer.
4. Replace the jumper plug on pins 215.

Next steps

1. Remove the left-side cover.
2. Follow the procedure in After working inside your computer.

Troubleshooting

SupportAssist diagnostics

About this task

The SupportAssist diagnostics (previously known as ePSA diagnostics) performs a complete check of your hardware. The SupportAssist diagnostics is embedded in the BIOS and is launched by it internally. The SupportAssist diagnostics provides a set of options for particular devices or device groups. It allows you to:

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

NOTE: Some tests are meant for specific devices and require user interaction. Ensure that you are present in front of the computer when the diagnostic tests are performed.

For more information, see SupportAssist Pre-Boot System Performance Check.

System diagnostic lights

The computer POST (Power On Self Test) ensures that it meets the basic computer requirements and the hardware is working appropriately before the boot process begins. If the computer passes the POST, the computer continues to start in a normal mode. However, if the computer fails the POST, the computer emits a series of LED codes in amber color during the start-up.

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

Table 9. Diagnostics

Number of Power LED flashes	Problem description
1	System board: BIOS and ROM failure
2	No memory or RAM detected, system board, PSU
3	System board or chipset error
4	Memory or RAM failure
5	CMOS battery failure
6	Video card or chip failure
7	CPU failure
3,6	BIOS recovery image not found
3,7	BIOS recovery image found but invalid

Recovering the operating system

When your computer is unable to boot to the operating system even after repeated attempts, it automatically starts Dell SupportAssist OS Recovery.

Dell SupportAssist OS Recovery is a standalone tool that is preinstalled in all Dell computers installed with Windows 10 operating system. It consists of tools to diagnose and troubleshoot issues that may occur before your computer boots to the operating system. It enables you to diagnose hardware issues, repair your computer, back up your files, or restore your computer to its factory state.

You can also download it from the Dell Support website to troubleshoot and fix your computer when it fails to boot into their primary operating system due to software or hardware failures.

For more information about the Dell SupportAssist OS Recovery, see *Dell SupportAssist OS Recovery User's Guide* at www.dell.com/support.

Flashing BIOS (USB key)

Steps

1. Follow the procedure from step 1 to step 7 in "Flashing the BIOS" to download the latest BIOS setup program file.
2. Create a bootable USB drive. For more information see the knowledge base article SLN143196 at www.dell.com/support.
3. Copy the BIOS setup program file to the bootable USB drive.
4. Connect the bootable USB drive to the computer that needs the BIOS update.
5. Restart the computer and press **F12** when the Dell logo is displayed on the screen.
6. Boot to the USB drive from the **One Time Boot Menu**.
7. Type the BIOS setup program filename and press **Enter**.
8. The **BIOS Update Utility** appears. Follow the instructions on the screen to complete the BIOS update.

Flashing the BIOS

About this task

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

Follow these steps to flash the BIOS:

Steps

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.

WiFi power cycle

About this task

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

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

Steps

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

5. Turn on the wireless router.
6. Turn on the modem.
7. Turn on your computer.

Flea power release

About this task

Flea power is the residual static electricity that remains on the computer even after it has been powered off and the battery has been removed. The following procedure provides the instructions on how to conduct flea power release:

Steps

1. Turn off your computer.
2. Disconnect the power adapter from your computer.
3. Press and hold the power button for 15 seconds to drain the flea power.
4. Connect the power adapter to your computer.
5. Turn on your computer.