

Alienware Area-51

AAT2250

Owner's Manual

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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Views of Alienware Area-51 AAT2250

Front view



Figure 1. Front view

1. Power button (Alien head)

Press to turn on the computer when the computer is turned off, in sleep state, or in hibernate state.

When the computer is turned on, press the power button to put the computer into a sleep state. Press and hold the power button for 10 seconds to force shut-down the computer.

NOTE: The power-button behavior can be customized in the operating system.

Back view

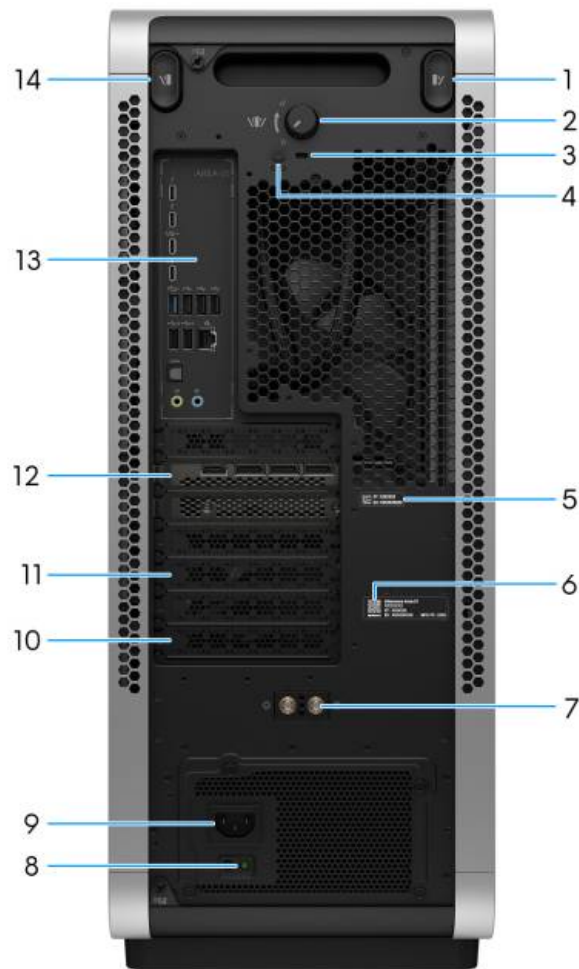


Figure 2. Back view

1. Left cover release button

Press the latch to quickly release the left cover from your computer.

2. Side cover knob

Rotate the side cover knob clockwise to unlock or counter clockwise to lock the knob.

3. Security-cable slot (for Kensington locks)

Connect a security cable to prevent unauthorized movement of your computer.

4. Security screw

The security screw secures the side cover knob to the chassis.

5. Service Tag/Express Service Code label

The Service Tag is a unique alphanumeric identifier that enables Dell service technicians to identify the hardware components in your computer and access warranty information. The Express Service Code is a numeric version of the Service Tag.

6. MyAlienware QR code

MyAlienware is your hub for content that is personalized to your Alienware Area-51 AAT2250, including videos, articles, manuals, and easy access to support.

7. External SMA antenna connectors

Connect the external antenna to improve the wireless communication strength and stability of your computer.

8. Power-supply diagnostics light

The power-supply diagnostics light indicates the power-supply state.

9. Power port

Connect a power cable to provide power to your computer.

10. PCI-Express x4 slot

Connect a PCI-Express card such as audio, network, or expansion card to enhance the capabilities of your computer.

11. PCI-Express x4 slot

Connect a PCI-Express card such as audio, network, or expansion card to enhance the capabilities of your computer.

12. PCI-Express x16

Connect a PCI-Express graphics card for optimal graphics performance.

13. Back panel

Connect USB, audio, video, and other devices.

14. Right cover release button

Press the latch to quickly release the right cover from your computer.

Back panel view

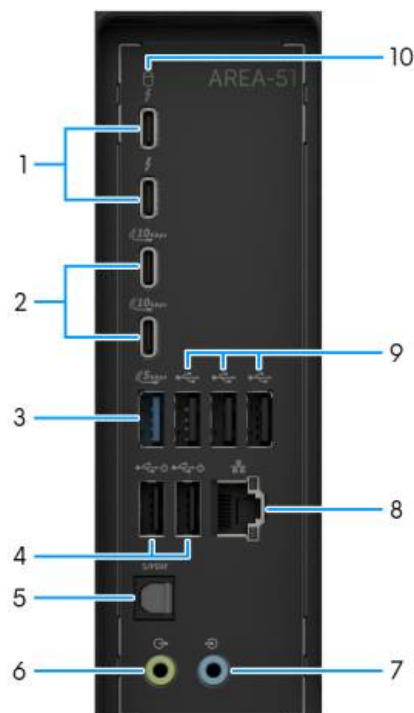


Figure 3. Back panel view

1. Thunderbolt 4 (40 Gbps) ports with DisplayPort Alt Mode/USB Type-C/USB4/Power Delivery (2)

This port supports USB4, DisplayPort 2.1, Thunderbolt 4 and also enables you to connect to an external display using a display adapter. It also supports data transfer rates of up to 40 Gbps for USB4 and Thunderbolt 4. This port supports power delivery up to 15 W.

 **NOTE:** You can connect a Dell Docking Station to the Thunderbolt 4 ports. For more information, search in the Knowledge Base Resource at [Dell Support Site](#).

 **NOTE:** A USB Type-C to DisplayPort adapter (sold separately) is required to connect a DisplayPort device.

 **NOTE:** USB4 is backward compatible with USB 3.2, USB 2.0, and Thunderbolt 3.

 **NOTE:** Thunderbolt 4 supports two 4K displays or one 8K display.

2. **USB 3.2 Gen 2 (10 Gbps) Type-C ports (2)**

Connect devices such as external storage devices and printers. This port provides data transfer speeds up to 10 Gbps.

3. **USB 3.2 Gen 1 (5 Gbps) port**

Connect devices such as external storage devices and printers. This port provides data transfer speeds up to 5 Gbps.

4. **USB 2.0 (480 Mbps) ports with Smart Power On (2)**

Connect devices such as external storage devices and printers. This port provides data transfer speeds up to 480 Mbps.

 **NOTE:** Deep Sleep is enabled by default. Disable Deep Sleep at the BIOS setup to enable Smart Power On feature on your computer.

 **NOTE:** Smart Power On is the ability to wake a computer from S0ix, S4, and S5 sleep states with a move of a mouse or press of a key on the keyboard.

 **NOTE:** This port does not support video or audio streaming or power delivery.

5. **Optical S/PDIF port**

Connect an amplifier, speakers, or a TV for digital audio output through an optical cable.

6. **Line-out port**

Connect audio-output devices such as speakers and amplifiers. In a 2.1 speaker channel setup, connect the left and right speakers. In a 5.1 or a 7.1 speaker channel setup, connect the front-left and front-right speakers.

7. **Line-in port**

Connect recording or playback devices such as a microphone or CD player.

8. **RJ45 ethernet port (2.5 Gbps)**

Connect an ethernet (RJ45) cable from a router or a broadband modem for network or Internet access.

The two lights next to the connector indicate the connectivity status and network activity.

9. **USB 2.0 (480 Mbps) ports (3)**

Connect devices such as external storage devices and printers. This port provides data transfer speeds up to 480 Mbps.

10. **Hard-drive activity light**

Indicates when the hard drive is active.

Top view

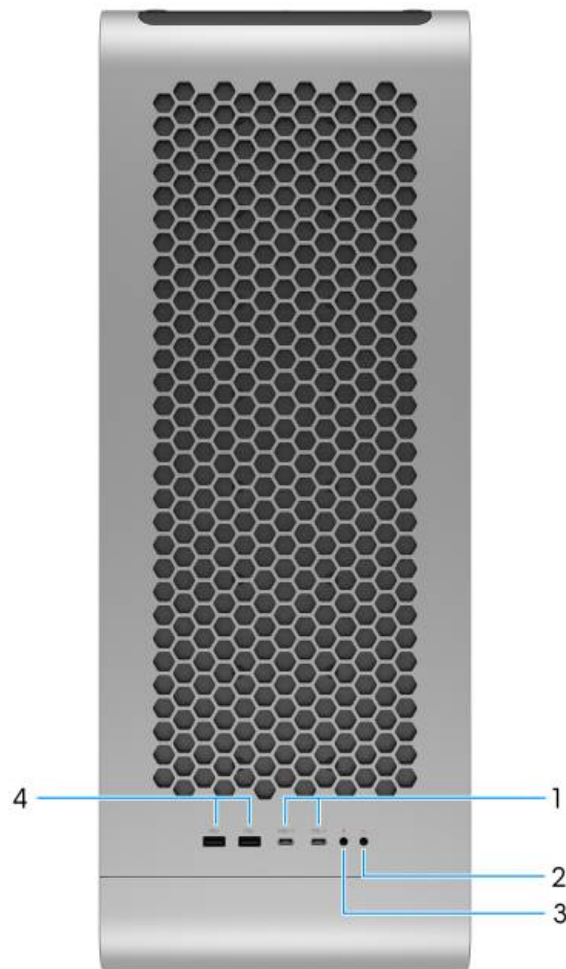


Figure 4. Top view

1. USB 3.2 Gen 2 (10 Gbps) Type-C ports with PowerShare (2)

Connect devices such as external storage devices, printers, and external displays.

The port provides data transfer speeds up to 10 Gbps. Supports Power Delivery that enables two-way power supply between devices. Supports up to 15 W power output that enables faster charging.

NOTE: A USB Type-C to DisplayPort adapter (sold separately) is required to connect a DisplayPort device.

NOTE: PowerShare enables you to charge your USB devices even when your computer is turned off.

NOTE: If the charge on your computer's battery is less than 10 percent, you must connect the power adapter to charge your computer, and USB devices connected to the PowerShare port.

NOTE: If a USB device is connected to the PowerShare port before the computer is turned off or in hibernate state, you must disconnect and connect it again to enable charging.

2. Audio output/headphone

Connect headphones or speakers.

3. Audio input/microphone

Connect an external microphone to provide sound input.

4. USB 3.2 Gen 1 (5 Gbps) ports (2)

Connect devices such as external storage devices and printers. Supports data transfer speeds up to 5 Gbps.

Locate the Service Tag or Express Service Code label of your computer

The service tag is a unique alphanumeric identifier that allows Dell service technicians to identify the hardware components in your computer and access warranty information. The Express Service Code is a numeric version of the Service Tag.

For more information about how to find the Service Tag of your computer, search in the Knowledge Base Resource at the [Dell Support Site](#).



Figure 5. Service Tag/Express Service Code location

Set up your Alienware Area-51 AAT2250

About this task

- NOTE:** The images in this document may differ from your computer depending on the configuration you ordered.
- NOTE:** Depending on the graphics card purchased, your computer may be shipped with a midholder. The midholder is designed to prevent damage to the graphics card and PCIe holder on the system board during shipping. Remove the midholder from the computer before you turn on the computer.
- NOTE:** Computers that are installed with the NVIDIA GeForce RTX 5090 graphics card are not shipped with the midholder. The NVIDIA GeForce RTX 5090 graphics card uses a uniquely engineered extender that provides enhanced support and stability, eliminating the need for a midholder.

Steps

1. Remove the safety screw with Philips screwdriver PH2 and rotate the knob clockwise to unlock the knob.

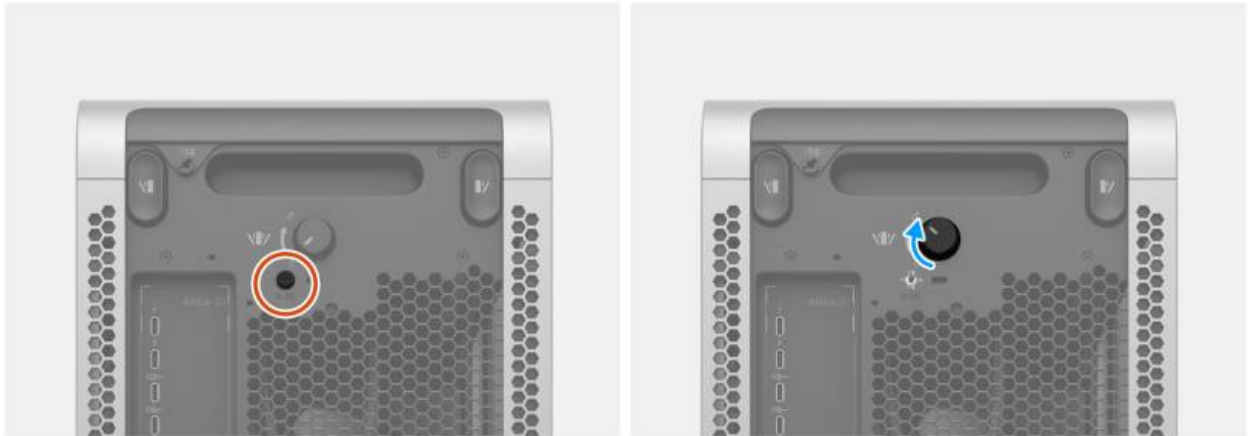


Figure 6. Removing the safety screw and rotating the knob with Philips screwdriver PH2

2. Press the release button on the left side of the chassis and lift the left cover away from the chassis. Place the left cover in a safe place to avoid damage to the glass. Remove the midholder away from the PCIe fan that secures the graphics card in place.



Figure 7. Removing the left cover and the midholder

NOTE: Store your midholder safely. During transportation, including servicing or returning the computer, ensure that the midholder is installed.

3. Align the tabs on the left cover with the slots on the chassis. Then, tilt the left cover towards the computer until it clicks into place.



Figure 8. Installing the left cover

4. Turn the knob counterclockwise until it locks. Then, secure the knob by replacing the safety screw with the Philip screwdriver PH2.

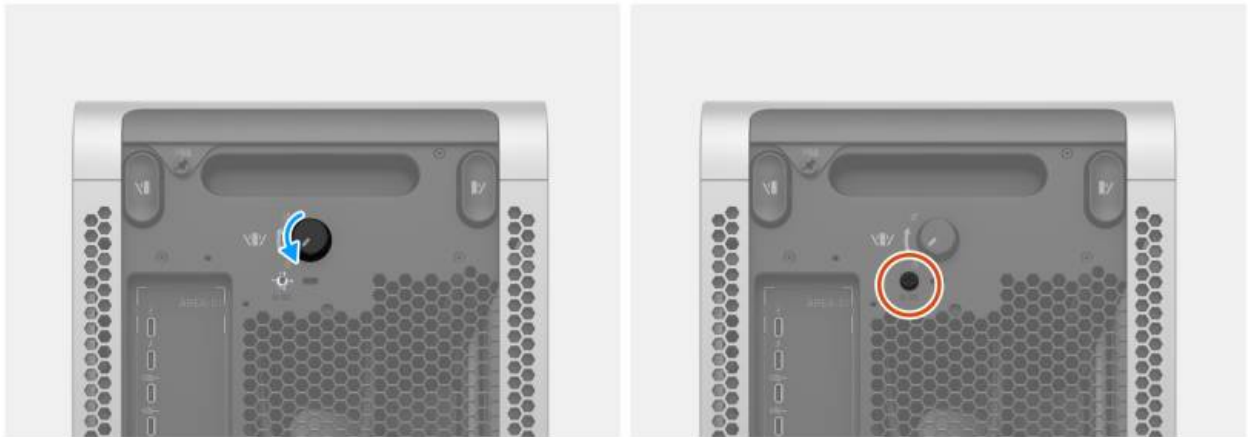


Figure 9. Turning the knob and replacing the safety screw

5. Connect the wired keyboard and mouse to the available ports. To connect a wireless keyboard and mouse, see the instructions on how to connect in the documentation that ships with the wireless keyboard and mouse.



Figure 10. Connecting the wired keyboard and mouse

6. Connect to your network using an Ethernet cable.

Wired network:

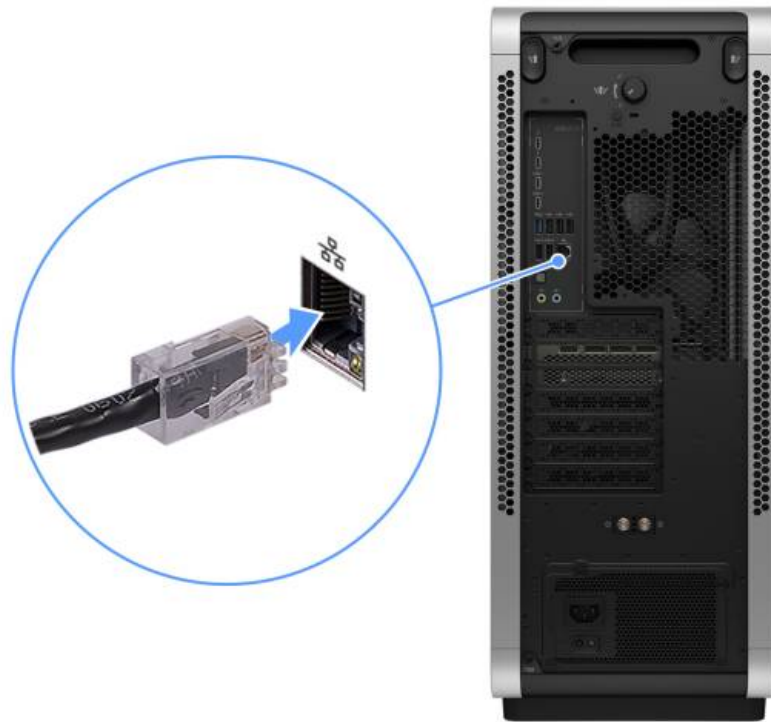


Figure 11. Connecting the Ethernet cable

Wireless network:

This computer is shipped with an external puck antenna. Connect the external antenna during setup, to connect to WiFi and Bluetooth. The external antenna is required to improve the wireless communication strength and stability, while setting up your operating system. To connect the SMA cables, follow the below procedure:

- a. Follow the procedure in [Before working inside your computer](#).
- b. Align and connect the SMA cables to the SMA connectors on the chassis.
- c. Tighten the bolts to secure the SMA cables to the SMA connectors on the chassis.



Figure 12. Connecting the external antenna

- d. Place the antenna in a suitable location.



Figure 13. Placing the antenna in a suitable location

7. Connect the display. For more information about setting up the display, see the documentation that is shipped with your display.



Figure 14. Connecting the display

8. Connect the power cable to the computer and then connect it to the wall outlet.



Figure 15. Connecting the power cable

9. Press the power button at the front of the computer to turn on the computer.



Figure 16. Pressing the power button

Specifications of Alienware Area-51 AAT2250

Dimensions and weight

The following table lists the height, width, depth, and weight of your Alienware Area-51 AAT2250.

Table 1. Dimensions and weight

Description	Values
Front Height	569 mm (22.40 in.)
Rear Height	569 mm (22.40 in.)
Width	231.60 mm (9.12 in.)
Depth	610.50 mm (24.04 in.)
Weight (maximum)  NOTE: The weight of your computer depends on the configuration that is ordered and manufacturing variability.	34.58 kg (76.24 lb)

Processor

The following table lists the details of the processors that are supported on your Alienware Area-51 AAT2250.

Table 2. Processor

Description	Option one	Option two	Option three	Option four
Processor type	Intel Core Ultra 7 265K	Intel Core Ultra 9 285K	Intel Core Ultra 9 285	Intel Core Ultra 7 265
Processor wattage	125 W	125 W	65 W	65 W
Processor total core count	20	24	24	20
Performance-cores	8	8	8	8
Efficient-cores	12	16	16	12
Processor total thread count	20	24	24	20
Processor speed	3.9 GHz to 5.5 GHz	3.7 GHz to 5.6 GHz	2.5 GHz to 5.5 GHz	2.4 GHz to 5.3 GHz
Processor performance cores base frequency	3.9 GHz	3.7 GHz	2.5 GHz	2.4 GHz
Processor performance cores maximum turbo frequency	5.5 GHz	5.6 GHz	5.5 GHz	5.3 GHz
Processor efficient cores base frequency	3.3 GHz	3.2 GHz	1.9 GHz	1.8 GHz
Processor efficient cores maximum turbo frequency	4.6 GHz	4.6 GHz	4.6 GHz	4.6 GHz
Processor L2 cache	36 MB	40 MB	40 MB	36 MB

Table 2. Processor (continued)

Description	Option one	Option two	Option three	Option four
Integrated graphics  NOTE: The computer is equipped with a Thunderbolt 4 port that supports DisplayPort functionality. However, since the computer always has a discrete graphics card that is installed, the primary video detection sequence is set to prioritize the discrete graphics card. Therefore, when a monitor is connected to the onboard Thunderbolt 4 port, it is not displayed in the preboot environment (BIOS setup and shell mode).	Intel Graphics	Intel Graphics	Intel Graphics	Intel Graphics
Neural Processing Unit (NPU)	Intel AI Boost	Intel AI Boost	Intel AI Boost	Intel AI Boost
NPU peak Trillion of Operations Per Second (TOPS) (Int8)	13	13	13	13

Chipset

The following table lists the details of the chipset that is supported on your Alienware Area-51 AAT2250.

Table 3. Chipset

Description	Values
Chipset	Z890
Processor	Intel Core Ultra 7/Ultra 9
DRAM bus width	128-bit
Flash EPROM	32 MB
PCIe bus	Up to Gen4

Operating system

Your Alienware Area-51 AAT2250 supports the following operating systems:

- Windows 11 Home
- Windows 11 Pro

Memory

The following table lists the memory specifications that are supported on your Alienware Area-51 AAT2250.

Table 4. Memory specifications

Description	Values
Memory slots	Two slots
Memory type	Dual-channel DDR5
Memory speed	• 5600 MT/s • 6400 MT/s
Maximum memory configuration	64 GB
Minimum memory configuration	16 GB
Memory size per slot	8 GB, 16 GB, or 32 GB
Memory configurations supported	• 16 GB: 2 x 8 GB, DDR5, 5600 MT/s, UDIMM, dual-channel; up to 64 GB (additional memory sold separately) • 64 GB: 2 x 32 GB, DDR5, 6400 MT/s, CUDIMM, dual-channel • 32 GB: 2 x 16 GB, DDR5, 6400 MT/s, UDIMM, dual-channel, XMP • 64 GB: 2 x 32 GB, DDR5, 6400 MT/s, UDIMM, dual-channel, XMP NOTE: The maximum speed of XMP must be enabled in BIOS or AWCC. Only Dell Certified Kingston XMP memory is supported.

Ports and connectors

The following table lists the external and internal ports available on your Alienware Area-51 AAT2250.

Table 5. External ports and connectors

Description	Values
Network	One RJ45 ethernet port (2.5 Gbps)
USB	Rear ports • Three USB 2.0 (480 Mbps) ports • Two USB 2.0 (480 Mbps) ports with Smart Power On • One USB 3.2 Gen 1 (5 Gbps) port • Two USB 3.2 Gen 2 (10 Gbps) Type-C ports • Two Thunderbolt 4 (40 Gbps) ports with DisplayPort Alt Mode/USB Type-C/USB4/Power Delivery Top ports • Two USB 3.2 Gen 2 (10 Gbps) Type-C port with PowerShare • Two USB 3.2 Gen 1 (5 Gbps) ports
Audio	Top ports • One audio output/headphone - 3.5 mm, 2 stack • One audio input/microphone - 3.5 mm, 2 stack Rear ports

Table 5. External ports and connectors (continued)

Description	Values
	- One optical S/PDIF port - One line-in port - 3.5 mm, 2 stack - One line-out port - 3.5 mm, 2 stack
Video	Supported through discrete GPU
Media card reader	Not supported
Power port	110 V/220 V
Security	One security-cable slot (wedge-shaped)

Table 6. Internal ports and connectors

Description	Values
PCIe expansion card slots	- One PCIe x16 mechanical/x16 electrical Gen5 slot - Two PCIe Gen4 x4 slots
mSATA	Not supported
SATA	Three
M.2	Three M.2 card slots supporting 2230 or 2280 solid state drives  NOTE: To learn more about the features of different types of M.2 cards, see the Knowledge Base resource at the Dell Support Site.  NOTE: The M.2 2230 SSD, 3.5-inch hard drive, and 2.5-inch hard drive are sold separately.

Ethernet

The following table lists the wired Ethernet Local Area Network (LAN) specifications on your Alienware Area-51 AAT2250.

Table 7. Ethernet specifications

Description	Values
Model number	Killer E3100G Ethernet controller integrated on the system board
Transfer rate	10/100/1000/2500 Mbps

Wireless module

The following table lists the Wireless Local Area Network (WLAN) module specifications on your Alienware Area-51 AAT2250.

Table 8. Wireless module specifications

Description	Values
Model number	Intel Killer BE1750x
Transfer rate	5760 Mbps
Frequency bands supported	2.4 GHz/5 GHz/6 GHz
Wireless standards	- WiFi 802.11a/b/g - Wi-Fi 4 (WiFi 802.11n)

Table 8. Wireless module specifications (continued)

Description	Values
	• Wi-Fi 5 (WiFi 802.11ac) • Wi-Fi 6E (WiFi 802.11ax) • Wi-Fi 7 (WiFi 802.11be)
Encryption	• 64-bit/128-bit WEP • AES-CCMP • TKIP
Bluetooth wireless card	Bluetooth 5.4 wireless card
 NOTE: The wireless configuration above is available in certain regions and with certain product configurations only.  NOTE: The version of the Bluetooth wireless card may vary depending on the operating system that is installed on your computer.  NOTE: This computer is shipped with an external puck antenna.  WARNING: Ensure that your computer is connected to an external antenna to enable wireless and Bluetooth.	

Audio

The following table lists the audio specifications on your Alienware Area-51 AAT2250.

Table 9. Audio specifications

Description	Values
Audio type	Integrated 5.1 channel audio with S/PDIF port
Audio controller	Realtek ALC1220
Internal audio interface	High-definition audio interface
External audio interface	• 5.1 channel output - optical S/PDIF • Line-in/Line-out ports • Line-out/Microphone-in ports

Storage

This section lists the storage options on your Alienware Area-51 AAT2250.

Your Alienware Area-51 AAT2250 supports one of the following storage configurations:

- Up to three M.2 2280 PCIe NVMe SSD
- Up to three M.2 2280 PCIe NVMe SSD + one 3.5-inch hard drive
- Up to three M.2 2280 PCIe NVMe SSD + two 2.5-inch hard drive
- Up to three M.2 2280 PCIe NVMe SSD + one 3.5-inch hard drive + one 2.5-inch hard drive

 **NOTE:** The M.2 2230 SSD, 3.5-inch hard drive, and 2.5-inch hard drive are sold separately.

Table 10. Storage specifications

Storage type	Interface type	Capacity	Slots supported
One M.2 2280 SSD	PCIe Gen5 x4 NVMe, up to 16 Gbps	Up to 2 TB	Slot 1 (Boot drive)
Two M.2 2280 SSD	PCIe Gen4 x4 NVMe, up to 8 Gbps	Up to 4 TB	Slot 1 (Boot drive), Slot 2, and Slot 3

Power ratings

The following table lists the power rating specifications on your Alienware Area-51 AAT2250.

For optimal performance and safety, follow the below guidelines when using your computer:

- Always use the original power cable shipped with your computer to ensure compatibility and safety.
- To ensure the proper functioning of your computer, do not exceed the recommended maximum load as this may damage the computer. If you are using circuit breakers, it is recommended to use greater than or equal to 20 A.
- For reliable operation, consider isolating the computer from other devices on the same circuit to minimize interference and prevent overloading.
- To maintain optimal performance and reduce the risk of issues, it is recommended to plug the computer directly into a wall outlet instead of using an extension cord.

Table 11. Power ratings

Description	Option one	Option two
Type	850 W	1500 W
Input voltage	90 VAC–264 VAC	90 VAC–264 VAC
Input frequency	47 Hz–63 Hz	47 Hz–63 Hz
Input current (maximum)	11.50 A	13.50 A
Output current (continuous)	12 V1/24 A, 12 V2/36 A, 12 V3/40 A, 12 VSB/5 A	12 V1/32 A, 12 V2/44 A, 12 V3/90 A, 12 VSB/5 A
Rated output voltage	12 V1, 12 V2, 12 V3, 12 VSB	12 V1, 12 V2, 12 V3, 12 VSB
Operating temperature range	5°C–45°C (41°F–113°F)	5°C–45°C (41°F–113°F)
Storage temperature range	–40°C–70°C (–40°F–158°F)	–40°C–70°C (–40°F–158°F)

Power-supply unit connectors

The following table lists the power-supply unit connectors that are supported on your Alienware Area-51 AAT2250.

Table 12. Power-supply unit connectors

Power-supply unit	Power-supply unit connectors
ATX12VO 850 W Gold	• One 8-pin connector for the processor • One 10-pin connector for the system board • One 6-pin connector for AUX • One 8-pin connector for DATA • One 12-pin + 4-pin connector for the graphics card
ATX12VO 1500 W Platinum	• One 8-pin and one 4-pin connector for the processor • One 10-pin connector for the system board • One 6-pin connector for AUX • One 8-pin connector for DATA • Two 12-pin + 4-pin connectors for the graphics card

Video

The following table lists the detailed discrete graphics specifications on your Alienware Area-51 AAT2250.

- i NOTE:** For proper functioning of four monitors on your computer with the below graphic cards, to ensure that the display pixel clock speed remains below 1335 MHz. If the pixel clock speed of one display exceeds 1335 MHz, only three monitors are displayed. Similarly, if the pixel clock speed of more than two displays exceed 1335 MHz, a maximum of two monitors are displayed.

NOTE: The computer is equipped with a Thunderbolt 4 port that supports DisplayPort functionality. However, since the computer always has a discrete graphics card that is installed, the primary video detection sequence is set to prioritize the discrete graphics card. Therefore, when a monitor is connected to the onboard Thunderbolt 4 port, it will not be displayed in the preboot environment (BIOS setup and shell mode).

Table 13. Discrete graphics specifications

Controller	Number of cards	External display support	Memory size	Memory type	PCIe version	Power consumption	Minimum required PSU
NVIDIA GeForce RTX 5070	1	- Three DisplayPort 2.1b ports - One HDMI 2.1b port	12 GB	GDDR7	4	250 W	850 W
NVIDIA GeForce RTX 5070 Ti	1	- Three DisplayPort 2.1b ports - One HDMI 2.1b port	16 GB	GDDR7	4	285 W	850 W
NVIDIA GeForce RTX 5080	1	- Three DisplayPort 2.1b ports - One HDMI 2.1b port	16 GB	GDDR7	4	360 W	850 W, if shipped with a 65 W Intel Core Ultra 9 285 or Intel Core Ultra 7 265 processor 1500 W if shipped with a 125 W Intel Core Ultra 9 285K or Intel Core Ultra 7 265K processor
NVIDIA GeForce RTX 5090	1	- Three DisplayPort 2.1b ports - One HDMI 2.1b port	32 GB	GDDR7	4	575 W	1500 W
NVIDIA GeForce RTX 4090D NOTE: This card is available for purchase only in China and Hong Kong.	1	- Three DisplayPort 1.4 ports - One HDMI 2.1 port	24 GB	GDDR6X	4	425 W	1500 W

Video port resolution

The following table lists the video port resolution for your Alienware Area-51 AAT2250.

i NOTE: To ensure proper functioning of four monitors on your computer with the below graphic cards, it is important to ensure that the display pixel clock speed remains below 1335 MHz. If the pixel clock speed of one display exceeds 1335 MHz, only three monitors will be displayed. Similarly, if the pixel clock speed of more than two displays exceed 1335 MHz, only a maximum of two monitors will be displayed.

i NOTE: The computer is equipped with a Thunderbolt 4 port that supports DisplayPort functionality. However, since the computer always has a discrete graphics card that is installed, the primary video detection sequence is set to prioritize the discrete graphics card. Therefore, when a monitor is connected to the onboard Thunderbolt 4 port, it will not be displayed in the pre-boot environment (BIOS setup and shell mode).

Table 14. Video port resolution

Graphics card	Video ports	Maximum supported resolution
NVIDIA GeForce RTX 5070	- Three DisplayPort 2.1b¹ - One HDMI 2.1b port	DisplayPort: 7680 x 4320 at 120 Hz^{4,8} 7680 x 4320 at 60 Hz^{5,8} 7680 x 4320 at 60 Hz^{5,7} 5120 x 3200 at 60 Hz⁵ 5120 x 2880 at 60 Hz⁵ 3840 x 2160 at 120 Hz^{5,6} 3840 x 2160 at 144 Hz⁵ HDMI: 7680 x 4320 at 60 Hz 3840 x 2160 at 120 Hz 4096 x 2160 at 120 Hz
NVIDIA GeForce RTX 5070 Ti	- Three DisplayPort 2.1b¹ - One HDMI 2.1b port	DisplayPort: 7680 x 4320 at 120 Hz^{4,8} 7680 x 4320 at 60 Hz^{5,8} 7680 x 4320 at 60 Hz^{5,7} 5120 x 3200 at 60 Hz⁵ 5120 x 2880 at 60 Hz⁵ 3840 x 2160 at 120 Hz^{5,6} 3840 x 2160 at 144 Hz⁵ HDMI: 7680 x 4320 at 60 Hz 3840 x 2160 at 120 Hz 4096 x 2160 at 120 Hz
NVIDIA GeForce RTX 5080	- Three DisplayPort 2.1b¹ - One HDMI 2.1b port	DisplayPort: 7680 x 4320 at 120 Hz^{4,8} 7680 x 4320 at 60 Hz^{5,8} 7680 x 4320 at 60 Hz^{5,7} 5120 x 3200 at 60 Hz⁵ 5120 x 2880 at 60 Hz⁵ 3840 x 2160 at 120 Hz^{5,6} 3840 x 2160 at 144 Hz⁵ HDMI: 7680 x 4320 at 60 Hz 3840 x 2160 at 120 Hz 4096 x 2160 at 120 Hz
NVIDIA GeForce RTX 5090	- Three DisplayPort 2.1b¹ - One HDMI 2.1b port	DisplayPort: 7680 x 4320 at 120 Hz^{4,8}

Table 14. Video port resolution (continued)

Graphics card	Video ports	Maximum supported resolution
		• 7680 x 4320 at 60 Hz^{5,8} • 7680 x 4320 at 60 Hz^{5,7} • 5120 x 3200 at 60 Hz⁵ • 5120 x 2880 at 60 Hz⁵ • 3840 x 2160 at 120 Hz^{5,6} • 3840 x 2160 at 144 Hz⁵ HDMI: • 7680 x 4320 at 60 Hz • 3840 x 2160 at 120 Hz • 4096 x 2160 at 120 Hz
NVIDIA GeForce RTX 4090D <i>i</i> NOTE: This card is available for purchase only in China and Hong Kong.	• Three DisplayPort 1.4a¹ • One HDMI 2.1a port	DisplayPort: • 7680 x 4320 at 120 Hz⁴ • 7680 x 4320 at 60 Hz⁵ • 7680 x 4320 at 60 Hz⁶ • 5120 x 3200 at 60 Hz⁷ • 5120 x 2880 at 60 Hz⁷ HDMI: • 7680 x 4320 at 60 Hz • 3840 x 2160 at 120 Hz • 4096 x 2160 at 120 Hz

For 50-series cards

¹ Depending on GPU resources applied to the port.

² Maximum raw bandwidth represents the raw bandwidth of four lanes of UHBR20.

³ Assume RGB/Y'CBCR 4:4:4 color, unless otherwise stated.

⁴ Using DSC compression.

⁵ Uncompressed.

⁶ Requires >= UHBR10.

⁷ Requires >= UHBR20.

⁸ Requires >= UHBR13.5.

⁹ NVIDIA GPU supports 4K 480 Hz HDR and 8K 120 Hz HDR and Variable Refresh Rate (VRR) as specified in HDMI 2.1b.

¹⁰ GB20x GPU contains 8 display tiles with max 1.08 GHz (pixel clock)/tiles. Multiple tiles (1,2,4,6,8) can be assigned in one IFP to support higher resolutions. The GB20x GPU can support up to four independent displays simultaneously if the total display tile usage is 8 or fewer.

For 4090D

¹ DisplayPort 1.2 certified, DisplayPort 1.3/1.4 ready.

² Depending on the GPU resources that are applied to the port.

³ Maximum raw bandwidth represents the raw bandwidth of four lanes of HBR3.

⁴ Requires two DisplayPort 1.4a links and DSC compression.

⁵ Requires either a single DisplayPort 1.4a link with DSC compression or two DP links with no compression.

⁶ Using DSC compression.

⁷ Uncompressed.

⁷ NVIDIA GPU supports 4K 120 Hz HDR and 8K 60 Hz HDR and Variable Refresh Rate (VRR) as specified in HDMI 2.1a.

Graphics card dimensions

Table 15. Graphics card dimensions

Graphics card	TBP	Height	Width (slot)	Weight	Length	Minimum required PSU
NVIDIA RTX 5070	250 W	115.15 mm (4.53 in.)	2.5x	1.08 kg (2.38 lb)	305 mm (12 in.)	850 W
NVIDIA RTX 5070 Ti	285 W	134.45 mm (5.29 in.)	2.5x	1.44 kg (3.17 lb)	305 mm (12 in.)	850 W
NVIDIA RTX 5080	360 W	134.45 mm (5.29 in.)	2.5x	1.44 kg (3.17 lb)	305 mm (12 in.)	850 W, if shipped with a 65 W Intel Core Ultra 9 285 or Intel Core Ultra 7 265 processor 1500 W if shipped with a 125 W Intel Core Ultra 9 285K or Intel Core Ultra 7 265K processor
NVIDIA RTX 5090	575 W	152 mm (5.98 in.)	3x	1.94 kg (4.28 lb)	305 mm (12 in.)	1500 W
NVIDIA RTX 4090D	425 W	134.45 mm (5.29 in.)	2.5x	1.65 kg (3.63 lb)	305 mm (12 in.)	1500 W

NOTE: Service warranty is provided only for the graphics card that is supported on your computer. For more information about the list of graphics card supported, see [Video](#).

NOTE: Total Board Power (TBP) is the total power consumption of a graphics card, including the GPU, memory, voltage regulators, and other components like fans and lights. It is essentially the overall power that is drawn from the Power Supply Unit (PSU) to support the overall functionality of the graphics card.

Operating and storage environment

The following table lists the operating and storage specifications on your Alienware Area-51 AAT2250.

Airborne contaminant level: G1 as defined by ISA-S71.04-1985

Table 16. Operating and storage environment

Description	Operating	Storage
Temperature range	0°C–35°C (32°F–95°F)	-40°C–65°C (-40°F–149°F)
Relative humidity (maximum)	10%–90% (non-condensing)	0%–95% (non-condensing)
Vibration (maximum)*	0.66 GRMS	1.30 GRMS
Shock (maximum)	110 G†	160 G†
Altitude range	-15.2 m–3048 m (-49.87 ft–10,000 ft)	-15.2 m–10,668 m (-49.87 ft–35,000 ft)

CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.

* Measured using a random vibration spectrum that simulates the user environment.

† Measured using a 2 ms half-sine pulse.

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 in this document assumes that you have read the safety information that is shipped with your computer.

-  **WARNING:** Before working inside your computer, read the safety information that is shipped with your computer. For more safety best practices, see [Dell Regulatory Compliance Home Page](#).
-  **WARNING:** Disconnect your computer from 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 your computer to an electrical outlet.
-  **WARNING:** For laptops, discharge the battery completely before removing it. Disconnect the AC power adapter from the computer and operate the computer solely on battery power—the battery is fully discharged when the computer no longer turns on when the power button is pressed.
-  **CAUTION:** To avoid damaging the computer, ensure that the work surface is flat, dry, and clean.
-  **CAUTION:** You should only perform troubleshooting and repairs as authorized or directed by the Dell technical support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty.
-  **CAUTION:** Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity which could harm internal components.
-  **CAUTION:** To avoid damaging the components and cards, handle them by their edges, and avoid touching the pins and the contacts.
-  **CAUTION:** When you disconnect a cable, pull it by its connector or its pull tab, not the cable itself. Some cables have connectors with locking tabs or thumbscrews that you must disengage before disconnecting the cable. When disconnecting cables, keep them evenly aligned to avoid bending the connector pins. When connecting cables, ensure that the connector on the cable is correctly oriented and aligned with the port.
-  **CAUTION:** Press and eject any installed card from the media-card reader.

Before working inside your computer

About this task

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

Steps

1. Save and close all open files and exit all open applications.
2. Shut down your computer. For Windows operating system, 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. Turn off all the attached peripherals.
4. Disconnect your computer from the electrical outlet.

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

 **CAUTION:** To disconnect a network cable, unplug the cable from your computer.

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

Safety precautions

This section details the primary steps to be followed before disassembling any device or component.

Observe the following safety precautions before any installation or break-fix procedures involving disassembly or reassembly:

- Turn off the computer and all attached peripherals.
- Disconnect the computer from AC power.
- Disconnect all network cables and peripherals from the computer.
- Use an ESD field service kit when working inside your computer to avoid electrostatic discharge (ESD) damage.
- Place the removed component on an anti-static mat after removing it from the computer.
- Press and hold the power button for 15 seconds to discharge the residual power in the system board.

Bonding

Bonding is a method for connecting two or more grounding conductors to the same electrical potential. This is done by using a field service electrostatic discharge (ESD) kit. When connecting a bonding wire, ensure that it is connected to bare metal and never to a painted or nonmetal surface. Ensure that the wrist strap is secure and in full contact with your skin. Remove all jewelry, watches, bracelets, or rings before grounding yourself and the equipment.

Electrostatic discharge—ESD protection

ESD is a major concern when you handle electronic components, especially sensitive components such as expansion cards, processors, memory modules, and system boards. A slight charge 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.

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 module that has received a static shock and immediately generates a "No POST/No Video" symptom with a beep code that is 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 memory module receives a static shock, but the tracing is merely weakened and does not immediately produce outward symptoms that are 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, and so on.

Intermittent failures that are also called latent or "walking wounded" are difficult to detect and troubleshoot.

Perform the following steps to prevent ESD damage:

- Use a wired ESD wrist strap that is properly grounded. Wireless anti-static straps 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, use the anti-static wrist strap to discharge the static electricity from your body.

 **NOTE:** You can protect against ESD and discharge static electricity from your body by touching a metal-grounded object before you interact with anything electronic, for example, an unpainted metal surface on your computer's I/O panel. When connecting a peripheral (including handheld digital assistants) to your computer, you should always ground both yourself and the peripheral before connecting it to the computer. In addition, as you work inside the computer, periodically touch a metal-grounded object to remove any static charge that your body may have accumulated.

For more information about the wrist strap and ESD wrist strap tester, see [Components of an ESD Field Service Kit](#).

- 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.

 **CAUTION:** It is critical to keep ESD-sensitive devices away from internal parts that are insulated and often highly charged, such as plastic heat sink casings.

Working environment

. For example, deploying the kit for a server environment is different than for a desktop or laptop environment. Servers are typically installed in a rack within a data center; desktops or laptops 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 computer 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 component 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 anti-static mat, in the computer, or inside an ESD bag.

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 anti-static mat and to any bare metal on the computer being worked on. Once deployed properly, service parts can be removed from the ESD bag and placed directly on the anti-static mat. ESD-sensitive items are safe in your hand, on the anti-static mat, in the computer, or inside an ESD bag.
- **Wrist Strap and Bonding Wire** – If an anti-static mat is not being used, the wrist strap and bonding wire should be connected directly between your wrist and an exposed metal part of the hardware. If you are using an anti-static mat, connect the wrist strap and bonding wire to the anti-static mat to ensure protection for any hardware placed on the mat. The physical connection of the wrist strap and bonding wire between your skin, the anti-static mat, and the hardware is known as bonding. Use only Field Service kits with a wrist strap, anti-static mat, and bonding wire. Never use wireless wrist straps. Always be cautious 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 an ESD strap are prone to damage over time. When using an unmonitored ESD kit, it is recommended to test the wrist strap regularly—ideally before each service session, and at a minimum, once per week. The most reliable method for testing is with a wrist strap tester. To perform the test, connect the bonding wire of the wrist strap to the tester while wearing the strap. Press the test button to initiate the check. A green LED indicates a successful test, while a red LED and audible alarm signal a failure.

 **NOTE:** It is recommended to always use the traditional wired ESD grounding wrist strap and protective anti-static mat when servicing Dell products. In addition, it is critical to keep sensitive parts separate from all insulator parts while servicing the computer.

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 equipment:

 **CAUTION:** Do not lift a device weighing more than 50 lb (23 kg) without adequate assistance. Always use a minimum of two people or an appropriate mechanical lifting aid to transport, install, remove, or reposition the 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 technique 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 components 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.

Information on repairability for Québec - From Dell Canada Inc. - to Quebec consumers

Dell does not guarantee the availability of replacement parts, repair services, or information necessary for maintenance or repair.

Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver #1
- Phillips screwdriver #2
- Philips screwdriver PH2
- Plastic scribe

Screw list

- NOTE:** When removing screws from a component, it is recommended to note the screw type and 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 surfaces when replacing a component.
- NOTE:** Screw color may vary depending on the configuration ordered.

Table 17. Screw list

Component	Screw type	Quantity	Screw image
Left cover	#6-32	1	
Right cover	#6-32	1	
Top cover	M3x5	2	
Single-graphics card	#6-32	2	
M.2 2230 or M.2 2280 SSD (installed in slots M.2 PCIe SSD-0, M.2 PCIe SSD-1, or M.2 PCIe SSD-2)	M2x3.5	1	
Wireless card	M2x3.5	1	
Power-supply unit cover	M2x5	2	
Power-supply unit holder	#6-32	2	
Power supply unit (850 W or 1500 W)	#6-32	4	
AlienFX board	#6-32	3	
2.5-inch hard drive cage	#6-32	1	
2.5-inch hard drive	M3x5	4	
Top I/O-panel	#6-32	1	

Table 17. Screw list (continued)

Component	Screw type	Quantity	Screw image
Front bezel	#6-32	2	
Side light	M3x3	2	
Top-fan assembly	M3x5	4	
Top fan	#6-32	4	
Front fan	M3x5	2	
Bottom fan	M3x5	2	
SMA cable	M3x3	2	
System board	#6-32	9	

Major components of Alienware Area-51 AAT2250

 **NOTE:** The optional components may not be present in your computer, depending on the configuration ordered.

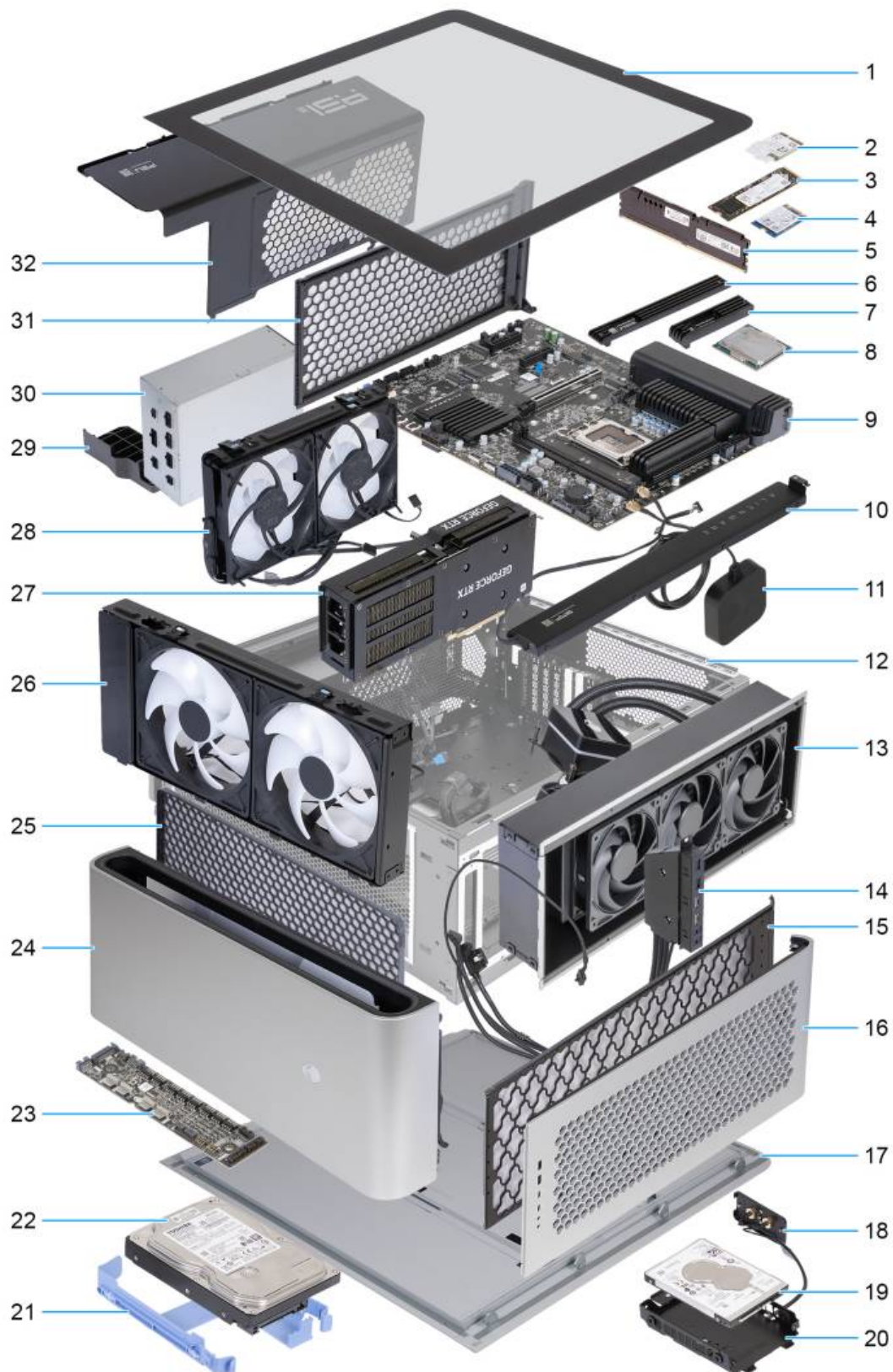


Figure 17. Major components of Alienware Area-51 AAT2250

1. Left cover
2. Wireless card with wireless bracket
3. M.2 2280 SSD

4. M.2 2230 SSD (sold separately)
5. Memory module
6. SSD thermal shield (M.2 PCIe SSD-1 and M.2 PCIe SSD-2)
7. SSD thermal shield (M.2 PCIe SSD-0)
8. Processor
9. System-board assembly
10. Side light
11. External antenna
12. Chassis
13. Processor liquid-cooling assembly
14. Top I/O-panel
15. Top fan filter
16. Top cover
17. Right cover
18. SMA cable
19. 2.5-inch hard drive (sold separately)
20. 2.5-inch hard drive cage
21. 3.5-inch hard drive carrier
22. 3.5-inch hard drive (sold separately)
23. AlienFX board
24. Front bezel
25. Front fan filter
26. Front-fan assembly
27. Graphics card
28. Bottom-fan assembly
29. Power-supply unit holder
30. Power-supply unit
31. Bottom fan filter
32. Power-supply unit cover

System-board components

AlienFX board conversion kit (sold separately)

Brief introduction of the kit

The AlienFX board conversion kit is required to replace your Alienware system board with a third-party motherboard. The kit enables you to turn on the computer, use the top-I/O USB ports on the chassis, and control the fans and AlienFX lights when a third-party motherboard is installed through Alienware Command Center. The AlienFX board conversion kit can be purchased through [Dell site](#). For more information about the AlienFX board conversion kit, see the documentation that is shipped with the kit.

What is in the kit?

The kit includes the following components:

Table 18. AlienFX kit contents

Items	Description
Three MicroATX motherboard screw nuts	
Top I/O-USB dongle	

Table 18. AlienFX kit contents (continued)

Items	Description
14-pin fan power-bridge cable assembly	
AlienFX 4-pin power-switch cable	

AlienFX board conversion kit

To install a third-party motherboard on your Alienware Area-51 AAT2250, you must purchase an additional third-party AlienFX board conversion kit from Dell. The AlienFX board conversion kit can be purchased through the [Dell site](#). For more information about the AlienFX board conversion kit, see the documentation that is shipped with the kit.

NOTE: If you are using the AlienFX-board conversion kit to install a third-party AMD motherboard on your Alienware Area-51, you must install a third-party AMD processor due to AMD Platform Secure Boot (PSB) requirements.

CAUTION: The service warranty is valid only if the computer is using the components that is shipped from the factory. Dell does not offer technical support for any components that are purchased outside of Dell.

WARNING: Dell cannot guarantee that all the components that are shipped with the computer will fit or be compatible with the third-party motherboard.

NOTE: Before you begin, it is recommended to backup all the files and download a copy of Windows and all Area-51 drivers from [Dell site](#).

NOTE: To power the AlienFX board with a third-party motherboard, a different power supply, or extension cables might be required. Check your third-party motherboard for power supply compatibility.

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).

Steps

1. To begin, check if your third-party motherboard is compatible with the PSU. If it is not compatible, remove and install the PSU that is compatible with your third-party motherboard.
2. Remove the [system board](#).
3. When installing a MicroATX motherboard, use the screw nuts in the kit to connect the third-party motherboard to the chassis. Follow the procedure from the manufacturer and install the third-party motherboard. Connect the corresponding cables to the motherboard.
4. The ELC power connector on the AlienFX board must be connected to it with a SATA power cable.

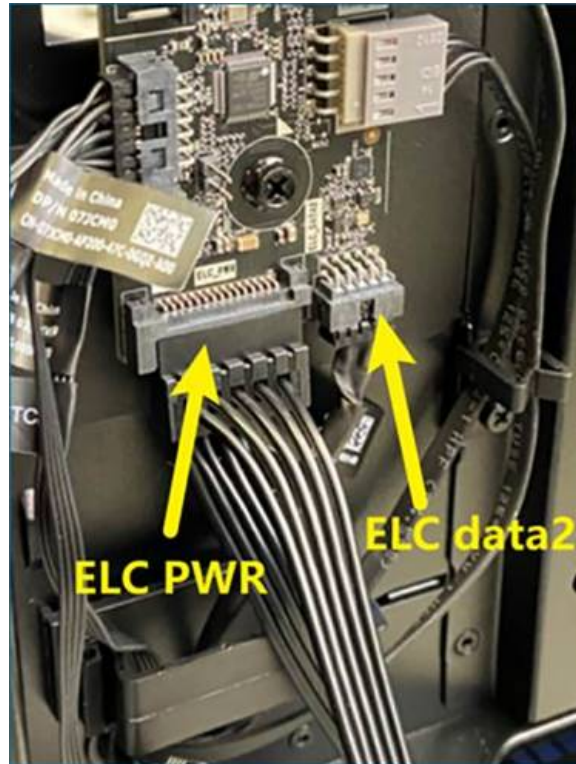


Figure 18. ELC power connector

5. Connect the top I/O-USB cable to the dongle in the conversion kit. Connect the dongle to the 20-pin connector on the third-party motherboard.



Figure 19. Connect the top I/O-USB dongle

6. If your third-party motherboard has enough fan ports for all the fans on your computer, then connect all the fan cables directly to the motherboard. If the third-party motherboard does not have enough ports to support the number of fans on your computer, connect the 14-pin fan power-bridge cable to the connector on the AlienFX board. Then, connect the three four-pin connectors to the motherboard fan connectors. Connect all the fans to the AlienFX board. You may need extension cables for this step.

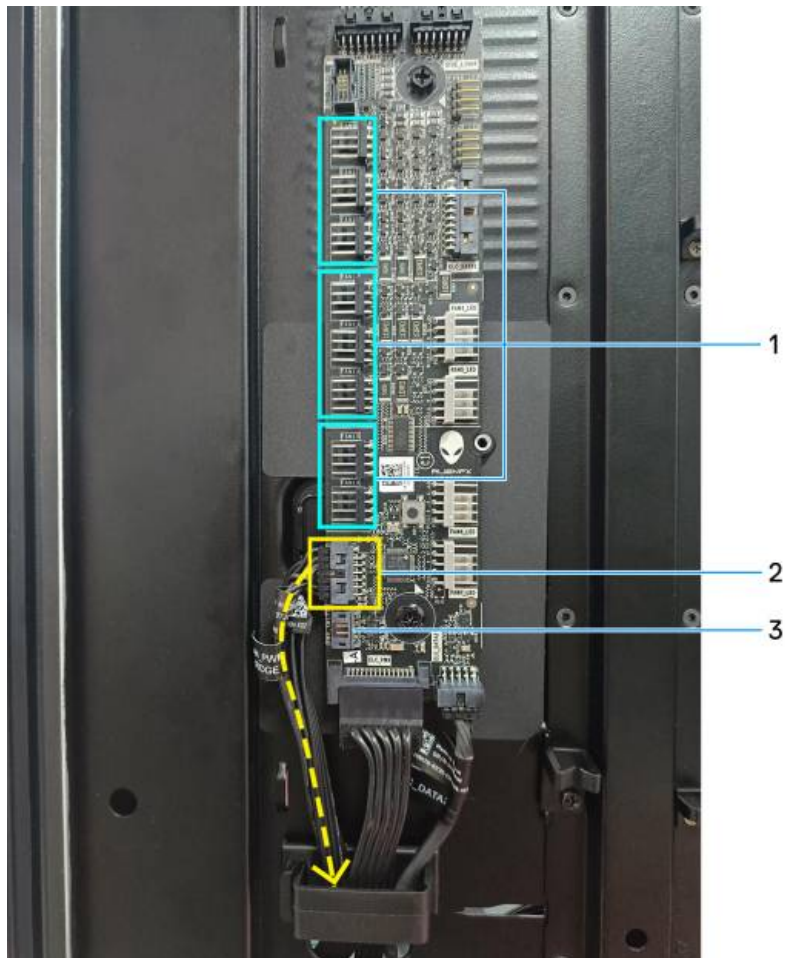


Figure 20. Connect the fan power-bridge cable assembly

Table 19. AlienFX board connectors

Callout	Description
1	Third-party fan connectors
2	Fan power-bridge connector
3	Power-switch cable connector

NOTE: If the bottom-fan module has three fans, it is recommended to insert all the three fans.

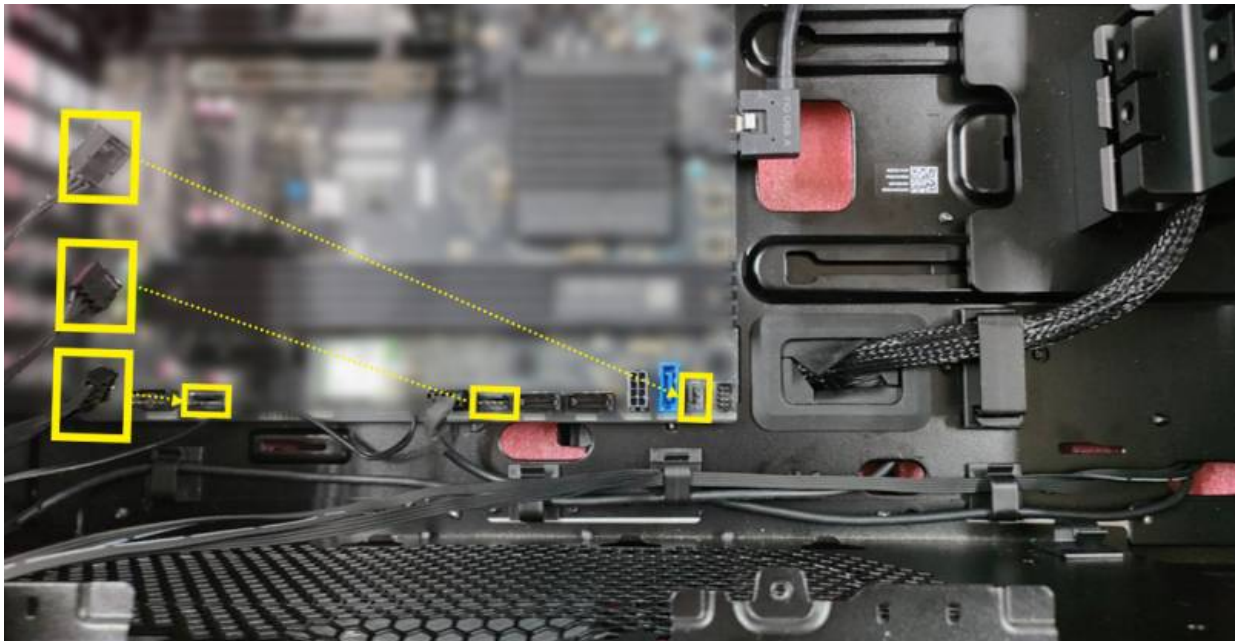


Figure 21. Fan power-bridge cable assembly

7. Connect the AlienFX power-switch cable to its connector on the AlienFX board and to the PLED and power button connectors on the motherboard.

NOTE: During boot up, if the power button does not work, try connecting the PWS SW cable upside down on the third-party motherboard. The process and method of cable routing may vary with the third-party motherboard that you are using.



Figure 22. Power switch cable

NOTE: Do not connect the SATA PWR and the ELC DATA1 cables that were shipped along with your computer to the motherboard.



Figure 23. Do not connect the SATA PWR and the ELC DATA1 cables that were shipped along with your computer to the motherboard.

8. Replace the remaining components that were removed from the system board. Install Microsoft Windows and update all the drivers. Install the Alienware Command Center.

Next steps

1. Follow the procedure in [After working inside your computer.](#)

Thermal solution matrix

 **NOTE:** NVIDIA GeForce RTX 4090D is available for purchase only in China and Hong Kong.

Table 20. Thermal solution matrix for 125 W processors

Processor		Intel Core Ultra 7K (125 W)	Intel Core Ultra 7K (125 W)	Intel Core Ultra 9K (125 W)
Power supply		850 W ATX12V Gold	1500 W ATX12V Platinum	1500 W ATX12V Platinum
Processor		Ultra 7 265K	Ultra 7 265K	Ultra 9 285K
Graphics card power consumption		Up to 350 W	Up to 600 W	Up to 600 W
Graphics card		- RTX 5070 - RTX 5070 Ti - RTX 5080	- RTX 5070 - RTX 5070 Ti - RTX 5080 - RTX 5090 - RTX 4090D	- RTX 5070 - RTX 5070 Ti - RTX 5080 - RTX 5090 - RTX 4090D
Processor cooler type		240 mm Liquid Cooler 360 mm Liquid Cooler	240 mm Liquid Cooler 360 mm Liquid Cooler	360 mm Liquid Cooler
Fan name	Fan connector location on system board			
Liquid cooler "pump"	PWR PUMP	240 mm Liquid Cooler¹ 360 mm Liquid Cooler²	240 mm Liquid Cooler¹ 360 mm Liquid Cooler²	360 mm Liquid Cooler ²
Top Fan 1 (120 mm)	FAN1	240 mm Liquid Cooler¹ 360 mm Liquid Cooler²	240 mm Liquid Cooler¹ 360 mm Liquid Cooler²	360 mm Liquid Cooler ²
Top Fan 2 (120 mm)	FAN2	240 mm Liquid Cooler¹ 360 mm Liquid Cooler²	240 mm Liquid Cooler¹ 360 mm Liquid Cooler²	360 mm Liquid Cooler ²
Top Fan 3 (120 mm)	FAN3	360 mm Liquid Cooler ²	360 mm Liquid Cooler ²	360 mm Liquid Cooler ²
Front Fan (180 mm RGB)	FAN4	Yes	Yes	Yes
Front Fan (180 mm RGB)	FAN5	Yes	Yes	Yes
Bottom Fan 1 (140 mm RGB)	FAN6	Yes	Yes	Yes
Bottom Fan 2 (140 mm RGB)	FAN7	Yes	Yes	Yes
¹ 240 mm Liquid Cooler Module integrates with a water pump (Connector: PWR PUMP) and two 120 mm top fans with radiator. ² 360 mm Liquid Cooler Module integrates with a water pump (Connector: PWR PUMP) and three 120 mm top fans with radiator.				

Table 21. Thermal solution matrix for 65 W processors

Processor		Intel Core Ultra 7 (65 W)	Intel Core Ultra 9 (65 W)	Intel Core Ultra 7 (65 W)	Intel Core Ultra 9 (65 W)
Power supply		850 W ATX12V Gold	850 W ATX12V Gold	1500 W ATX12V Platinum	1500 W ATX12V Platinum
Processor		Ultra 7 265	Ultra 9 285	Ultra 7 265	Ultra 9 285
Graphics card power consumption		Up to 350 W	Up to 350 W	Up to 600 W	Up to 600 W
Graphics card		• RTX 5070 • RTX 5070 Ti • RTX 5080	• RTX 5070 • RTX 5070 Ti • RTX 5080	• RTX 5070 • RTX 5070 Ti • RTX 5080 • RTX 5090 • RTX 4090D	• RTX 5070 • RTX 5070 Ti • RTX 5080 • RTX 5090 • RTX 4090D
Processor cooler type		• 240 mm Liquid Cooler • 360 mm Liquid Cooler	• 240 mm Liquid Cooler • 360 mm Liquid Cooler	• 240 mm Liquid Cooler • 360 mm Liquid Cooler	• 240 mm Liquid Cooler • 360 mm Liquid Cooler
Fan name	Fan connector location on system board				
Liquid cooler "pump"	PWR PUMP	• 240 mm Liquid Cooler¹ • 360 mm Liquid Cooler²	• 240 mm Liquid Cooler¹ • 360 mm Liquid Cooler²	• 240 mm Liquid Cooler¹ • 360 mm Liquid Cooler²	• 240 mm Liquid Cooler¹ • 360 mm Liquid Cooler²
Top Fan 1 (120 mm)	FAN1	• 240 mm Liquid Cooler¹ • 360 mm Liquid Cooler²	• 240 mm Liquid Cooler¹ • 360 mm Liquid Cooler²	• 240 mm Liquid Cooler¹ • 360 mm Liquid Cooler²	• 240 mm Liquid Cooler¹ • 360 mm Liquid Cooler²
Top Fan 2 (120 mm)	FAN2	• 240 mm Liquid Cooler¹ • 360 mm Liquid Cooler²	• 240 mm Liquid Cooler¹ • 360 mm Liquid Cooler²	• 240 mm Liquid Cooler¹ • 360 mm Liquid Cooler²	• 240 mm Liquid Cooler¹ • 360 mm Liquid Cooler²
Top Fan 3 (120 mm)	FAN3	360 mm Liquid Cooler ²	360 mm Liquid Cooler ²	360 mm Liquid Cooler ²	360 mm Liquid Cooler ²
Front Fan (180 mm RGB)	FAN4	Yes	Yes	Yes	Yes
Front Fan (180 mm RGB)	FAN5	Yes	Yes	Yes	Yes
Bottom Fan 1 (140 mm RGB)	FAN6	Yes	Yes	Yes	Yes
Bottom Fan 2 (140 mm RGB)	FAN7	Yes	Yes	Yes	Yes
¹ 240 mm Liquid Cooler Module integrates with a water pump (Connector: PWR PUMP) and two 120 mm top fans with radiator. ² 360 mm Liquid Cooler Module integrates with a water pump (Connector: PWR PUMP) and three 120 mm top fans with radiator.					

Removing and installing Customer Replaceable Units (CRUs)

The replaceable components in this chapter are Customer Replaceable Units (CRUs).

 **CAUTION:** Customers can replace only the Customer Replaceable Units (CRUs) following the safety precautions and replacement procedures.

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

Midholder

Removing the midholder

Prerequisites

-  **NOTE:** Depending on the graphics card purchased, your computer may be shipped with a midholder. The midholder is designed to prevent damage to the graphics card and PCIe holder on the system board during shipping. Remove the midholder from the computer before you turn on the computer. For more information about the support of midholder, see [midholder](#).
-  **NOTE:** Computers that are installed with the NVIDIA GeForce RTX 5090 graphics card are not shipped with the midholder. The NVIDIA GeForce RTX 5090 graphics card uses a uniquely engineered extender that provides enhanced support and stability, eliminating the need for a midholder.

1. Follow the procedure in [Before working inside your computer](#).

About this task

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

Steps

1. Remove the safety screw (#6-32) with Philips screwdriver PH2 and rotate the knob clockwise to unlock the knob.
2. Press the release button on the left side of the chassis and lift the left cover away from the chassis.

 **NOTE:** Place the left cover in a safe place to avoid damage to the glass.
3. Remove the midholder away from the PCIe fan that secures the graphics card in place.

 **NOTE:** Store your midholder safely. During transportation, including servicing or returning the computer, ensure that the midholder is installed.

Installing the midholder

Prerequisites

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

About this task

NOTE: Depending on the graphics card purchased, your computer may be shipped with a midholder. The midholder is designed to prevent damage to the graphics card and PCIe holder on the system board during shipping. Remove the midholder from the computer before you turn on the computer. For more information about the support of midholder, see [midholder](#).

NOTE: Computers that are installed with the NVIDIA GeForce RTX 5090 graphics card are not shipped with the midholder. The NVIDIA GeForce RTX 5090 graphics card uses a uniquely engineered extender that provides enhanced support and stability, eliminating the need for a midholder.

The following images indicate the location of the midholder and provide a visual representation of the installation procedure.

Steps

1. Install the midholder onto the PCIe fan on the computer to secure the graphics card.
2. Align the tabs at the bottom of the left cover with the slots on the chassis.
3. Tilt the left cover towards the computer until it clicks into place.
4. Turn the knob counterclockwise until it locks.
5. Replace the safety screw (#6-32) with the Philip screwdriver PH2 that secures the knob to the chassis.

Next steps

1. Follow the procedure in [After working inside your computer](#).

External antenna

Removing the external antenna

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).

About this task

NOTE: This computer is shipped with an external puck antenna. Connect the external antenna during setup, to connect to WiFi and Bluetooth. The external antenna improves the wireless communication strength and stability, while setting up your operating system.

The following images indicate the location of the external-antenna connectors and provide a visual representation of the removal procedure.



Figure 24. Removing the external antenna

Steps

1. To remove the external antenna, loosen the bolts that connect the external antenna cables to the SMA connectors on the chassis.
2. Disconnect the external antenna cables from the SMA connectors and remove the external antenna from the chassis.

Installing the external antenna

Prerequisites

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

About this task

NOTE: This computer is shipped with an external puck antenna. Connect the external antenna during setup, to connect to WiFi and Bluetooth. The external antenna improves the wireless communication strength and stability, while setting up your operating system.

The following images indicate the location of the external antenna connectors and provide a visual representation of the installation procedure.

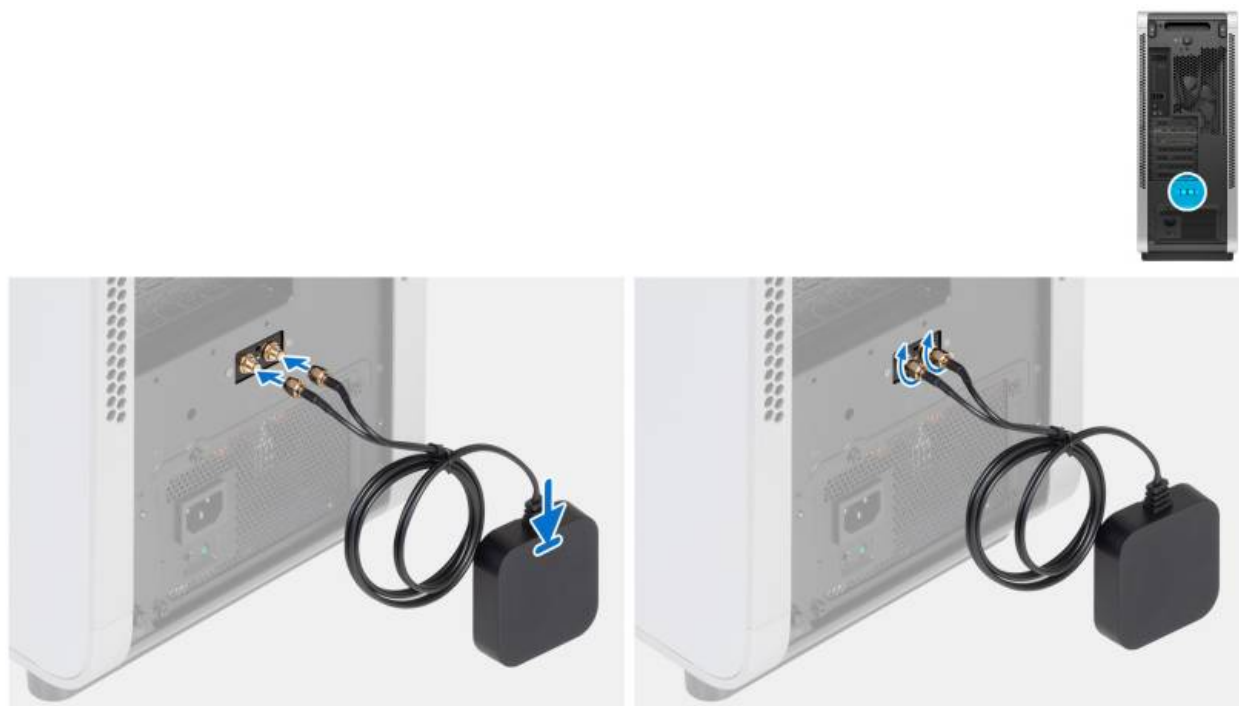


Figure 25. Installing the external antenna

Steps

1. To install the external antenna, align and connect the external antenna cables to the SMA connectors on the chassis.
2. Tighten the bolts to secure the external antenna cables to the SMA connectors on the chassis.
3. Place the antenna in a suitable location.



Figure 26. Placing the antenna in a suitable location

Next steps

1. Follow the procedure in [After working inside your computer.](#)

Top-fan filter

QR code for fan filter maintenance video

The following image indicates the location of the QR code for fan filter maintenance video. Scan the QR code on the chassis to view the top, bottom, or front fan filter maintenance video.



Figure 27. QR code for fan filter maintenance video

Removing the top fan filter

You can view the video to maintain the top, bottom, and front fan filters. For more information, see [QR code for fan filter maintenance video](#).

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).

NOTE: To clean the fan filter, use the compressed air to remove the dust. Then, use a microfiber cloth to wipe away any remaining surface dust.

About this task

The following images indicate the location of the top fan filter and provide a visual representation of the removal procedure.

Steps

1. Loosen the captive screw that secures the top fan filter to the chassis.
2. Pull the top fan filter away from the top cover.

Installing the top fan filter

You can view the video to maintain the top, bottom, and front fan filters. For more information, see [QR code for fan filter maintenance video](#).

Prerequisites

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

NOTE: To clean the fan filter, use the compressed air to remove the dust. Then, use a microfiber cloth to wipe away any remaining surface dust.

About this task

The following images indicate the location of the top fan filter and provide a visual representation of the installation procedure.

Steps

1. Insert the top fan filter into the slot on the top cover.
2. Tighten the captive screw that secures the top fan filter to the chassis.

Next steps

1. Follow the procedure in [After working inside your computer](#).

Bottom-fan filter

QR code for fan filter maintenance video

The following image indicates the location of the QR code for fan filter maintenance video. Scan the QR code on the chassis to view the top, bottom, or front fan filter maintenance video.



Figure 28. QR code for fan filter maintenance video

Removing the bottom fan filter

You can view the video to maintain the top, bottom, and front fan filters. For more information, see [QR code for fan filter maintenance video](#).

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).

NOTE: To clean the fan filter, use the compressed air to remove the dust. Then, use a microfiber cloth to wipe away any remaining surface dust.

About this task

The following images indicate the location of the bottom fan filter and provide a visual representation of the removal procedure.

Steps

1. Loosen the captive screw that secures the bottom fan filter to the chassis.
2. Pull the bottom fan filter away from the chassis.

Installing the bottom fan filter

You can view the video to maintain the top, bottom, and front fan filters. For more information, see [QR code for fan filter maintenance video](#).

Prerequisites

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

NOTE: To clean the fan filter, use the compressed air to remove the dust. Then, use a microfiber cloth to wipe away any remaining surface dust.

About this task

The following images indicate the location of the bottom fan filter and provide a visual representation of the installation procedure.

Steps

1. Insert the bottom fan filter into the slot at the bottom of the chassis.
2. Tighten the captive screw that secures the bottom fan filter to the chassis.

Next steps

1. Follow the procedure in [After working inside your computer](#).

Front-fan filter

QR code for fan filter maintenance video

The following image indicates the location of the QR code for fan filter maintenance video. Scan the QR code on the chassis to view the top, bottom, or front fan filter maintenance video.



Figure 29. QR code for fan filter maintenance video

Removing the front fan filter

You can view the video to maintain the top, bottom, and front fan filters. For more information, see [QR code for fan filter maintenance video](#).

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).

NOTE: To clean the fan filter, use the compressed air to remove the dust. Then, use a microfiber cloth to wipe away any remaining surface dust.

About this task

The following images indicate the location of the front fan filter and provide a visual representation of the removal procedure.



Figure 30. Removing the front fan filter

Steps

Use the tab to pull the filter out of the front cover that is held in place by magnets.

Installing the front fan filter

You can view the video to maintain the top, bottom, and front fan filters. For more information, see [QR code for fan filter maintenance video](#).

Prerequisites

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

NOTE: To clean the fan filter, use the compressed air to remove the dust. Then, use a microfiber cloth to wipe away any remaining surface dust.

About this task

The following images indicate the location of the front fan filter and provide a visual representation of the installation procedure.



Figure 31. Installing the front fan filter

Steps

Align and place the fan filter into the front fan filter slot. The fan filter is held in place by magnets.

Next steps

1. Follow the procedure in [After working inside your computer](#).

Left cover

Removing the left cover

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).

About this task

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

Steps

1. Remove the safety screw (#6-32) that secures the knob to the chassis.
2. Rotate the knob clockwise to unlock the knob.

3. Press the release button on the left side of the chassis and lift the left cover away from the chassis.

 **NOTE:** Place the left cover in a safe place to avoid damage to the glass.

Installing the left 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 cover and provide a visual representation of the installation procedure.

 **NOTE:** Do not apply pressure to avoid breakage of the glass and handle with care while installing the left cover.

Steps

1. Align the tabs at the bottom of the left cover with the slots on the chassis.
2. Tilt the left cover towards the computer until it clicks into place.
3. Turn the knob counterclockwise until it locks.
4. Replace the safety screw (#6-32) that secures the knob to the chassis.

Next steps

1. Follow the procedure in [After working inside your computer](#).

Right cover

Removing the right cover

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).

About this task

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

Steps

1. Remove the safety screw (#6-32) that secures the knob to the chassis.
2. Rotate the knob clockwise to unlock the knob.
3. Press the release button on the right side of the chassis and lift the right cover away from the chassis.

Installing the right 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 cover and provide a visual representation of the installation procedure.

Steps

1. Align the tabs at the bottom of the right cover with the slots on the chassis.

2. Tilt the cover towards the computer until it clicks into place.
3. Turn the knob counterclockwise until it locks.
4. Replace the safety screw (#6-32) that secures the knob 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 cover](#).
3. Remove the [top fan filter](#).

About this task

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

Steps

1. Remove the two screws (M3x5) that secure the top cover to the chassis.
2. Slide and lift the top cover away from 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 provide a visual representation of the installation procedure.

Steps

1. Align the tabs on the top cover with the slots on the chassis and slide the top cover until it clicks into place.
2. Replace the two screws (M3x5) that secure the top cover to the chassis.

Next steps

1. Install the [top fan filter](#).
2. Install the [left cover](#).
3. Follow the procedure in [After working inside your computer](#).

Memory module

QR code for memory module video

The following image indicates the location of the QR code for memory module video. Scan the QR code on the chassis to view the memory removal and installation video.



Figure 32. QR code for memory module video

Removing the memory module

You can view the video to remove or install a memory module. For more information, see [QR code for memory module video](#).

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [left cover](#).

About this task

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



Figure 33. Removing the memory module

Steps

1. Lay the computer on the right side.
2. Push the securing clips away from the memory module.

3. Lift the memory module off the memory-module slot on the system board.

NOTE: Repeat step 2 to step 3 to remove any other memory module installed in your computer.

CAUTION: To prevent damage to the memory module, hold the memory module by the edges. Do not touch the components or metallic contacts on the memory module as electrostatic discharge (ESD) can inflict severe damage on the components. To read more about ESD protection, see [ESD protection](#).

Installing the memory module

You can view the video to remove or install a memory module. For more information, see [QR code for memory module video](#).

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 module and provide a visual representation of the installation procedure.

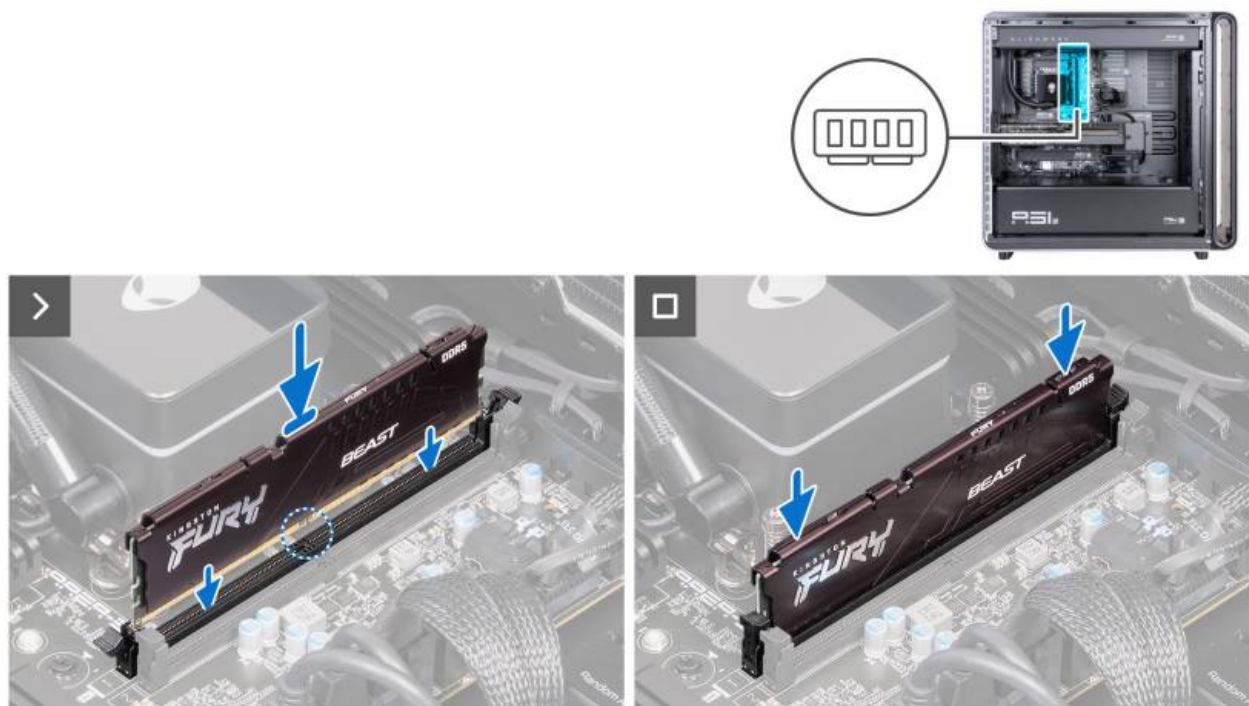


Figure 34. Installing the memory module

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 on the system board.
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 or metallic contacts on the memory module as electrostatic discharge (ESD) can inflict severe damage on the components. To read more about ESD protection, see [ESD protection](#).

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

Table 22. Memory configuration matrix

Configuration	Slot	
	DIMM1	DIMM2
16 GB DDR5	8 GB	8 GB
32 GB DDR5	16 GB	16 GB
64 GB DDR5	32 GB	32 GB

Next steps

1. Install the [left cover](#).
2. Follow the procedure in [After working inside your computer](#).

Single-graphics card

QR code for graphics card video

The following image indicates the location of the QR code for graphics card video. Scan the QR code on the chassis to view the graphics card removal and installation video.



Figure 35. QR code for graphics card video

Removing the single-graphics card

You can view the video to remove or install a graphics card. For more information, see [QR code for graphics card video](#).

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [left cover](#).

About this task

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

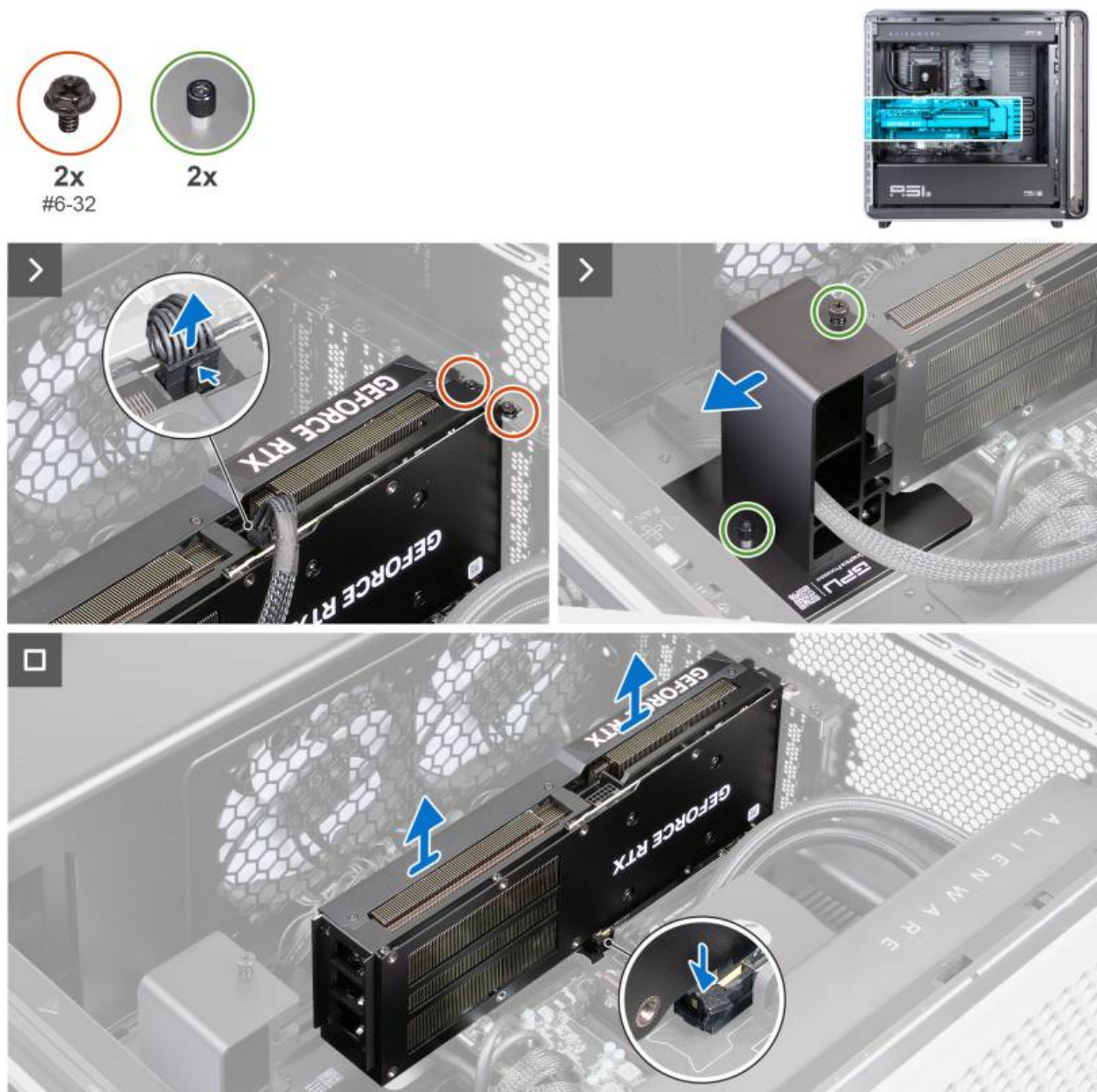


Figure 36. Removing the single-graphics card

Steps

1. Lay the computer on the right side.
2. Press the clip on the graphics-card power connector and disconnect the cable from the graphics card.
i **NOTE:** The type of connector on your graphics card varies depending on the configuration ordered.
3. Remove the two screws (#6-32) that secure the graphics card to the rear wall of the chassis.
4. Loosen the captive screw that secures the end holder to the chassis and slide the holder away from the graphics card.
i **NOTE:** Depending on the configuration of graphics card you have ordered, there might be an additional captive screw that must be loosened.
5. Push the securing tab on the PCIe slot away from the graphics card.
6. Grasp the card by its top corner, and ease it out of the slot.
i **NOTE:** When handling the graphics card, position your hands at the top of the module and make sure not to put pressure on the fan blades.



Figure 37. Right location to hold the graphics card

Installing the single-graphics card

You can view the video to remove or install a graphics card. For more information, see [QR code for graphics card video](#).

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 single-graphics card and provide a visual representation of the installation procedure.

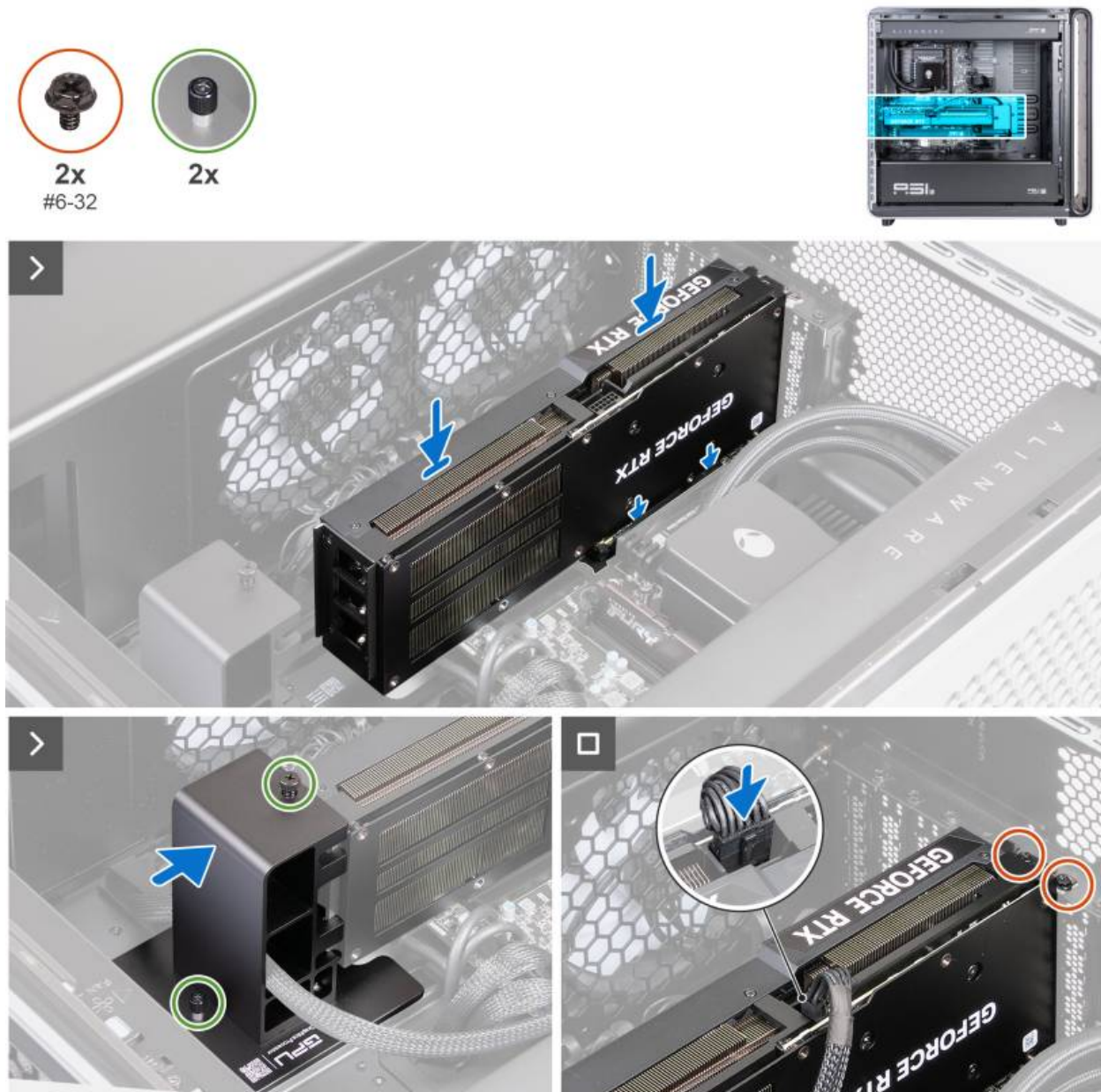


Figure 38. Installing the single-graphics card

Steps

1. Align the notch on the graphics card with the tab on the PCIe slot on the system board.
2. Press the graphics card down firmly until the graphics card snaps into place.
3. Push the graphics card end holder towards the graphics card to secure it in place.
4. Tighten the captive screw that secures the end holder to the graphics card.

NOTE: Depending on the configuration of graphics card you have ordered, there might be an additional captive screw that must be tightened.
5. Replace the two screws (#6-32) that secure the graphics card to the rear wall of the chassis.
6. Connect the power cable to its corresponding power connector on the graphics card and ensure that the cables are fully seated.

NOTE: Ensure that the cables are completely inserted into the connectors.

NOTE: The type of connector on your graphics card varies depending on the configuration ordered.

Next steps

1. Install the [left cover](#).
2. Follow the procedure in [After working inside your computer](#).

Graphics-card midholder and graphics-card end holder

The following table indicates if the graphics-card midholder and the graphics-card end holder are shipped with your Alienware Area-51 AAT2250.

Solid state drive (SSD)

QR code for SSD video

The following image indicates the location of the QR code for SSD video. Scan the QR code on the chassis to view the SSD removal and installation video.



Figure 39. QR code for SSD video

Removing the M.2 2230 SSD

You can view the video to remove or install an SSD. For more information, see [QR code for SSD video](#).

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [left cover](#).

About this task

NOTE: This procedure applies only to computers with a M.2 2230 SSD. The M.2 SSD slots are marked as M.2 PCIe SSD-0, M.2 PCIe SSD-1, or M.2 PCIe SSD-2 on the system board.

NOTE: The M.2 2230 SSD is sold separately.

The following images indicate the location of the M.2 2230 SSD and provide a visual representation of the removal procedure.



Figure 40. Removing the M.2 2230 SSD

Steps

1. Lay the computer on the right side.
2. Loosen the two captive screws that secure the M.2 2230 SSD thermal shield to the system board.
3. Lift the M.2 2230 SSD thermal shield off the SSD.
4. Remove the screw (M2x3.5) that secures the SSD to the system board.
5. Slide and lift the M.2 2230 SSD off SSD slot on the system board.

Installing the M.2 2230 SSD

You can view the video to remove or install an SSD. For more information, see [QR code for SSD video](#).

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

NOTE: This procedure applies only to computers shipped with a M.2 2230 SSD. The M.2 SSD slots are marked as M.2 PCIe SSD-0, M.2 PCIe SSD-1, or M.2 PCIe SSD-2 on the system board.

NOTE: The M.2 2230 SSD is sold separately.

If you want to replace your M.2 2230 SSD with a M.2 2280 SSD, the SSD screw mount must be shifted to fit the M.2 2280 SSD.

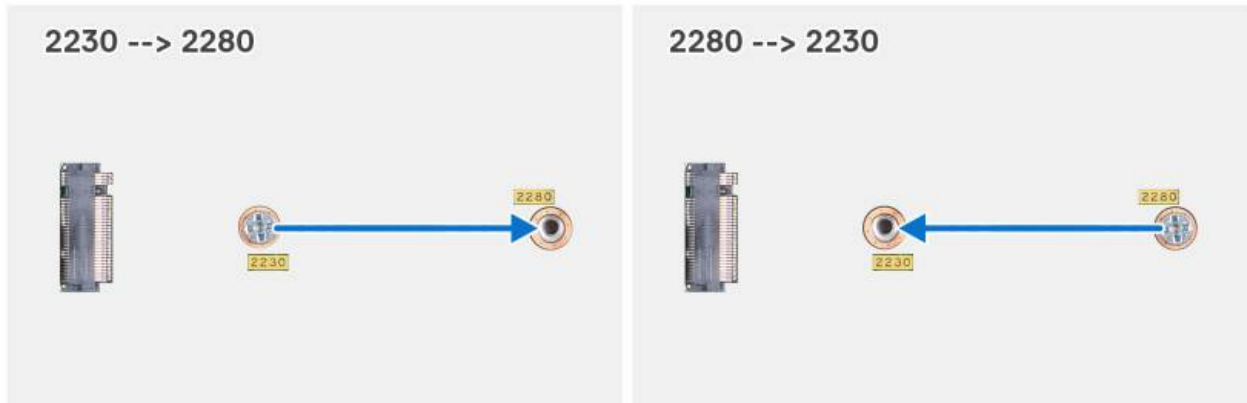


Figure 41. SSD screw mount

Follow the procedure in [Installing the M.2 2280 solid state drive](#), to install a M.2 2280 SSD.

The following images indicate the location of the M.2 2230 SSD and provide a visual representation of the installation procedure.

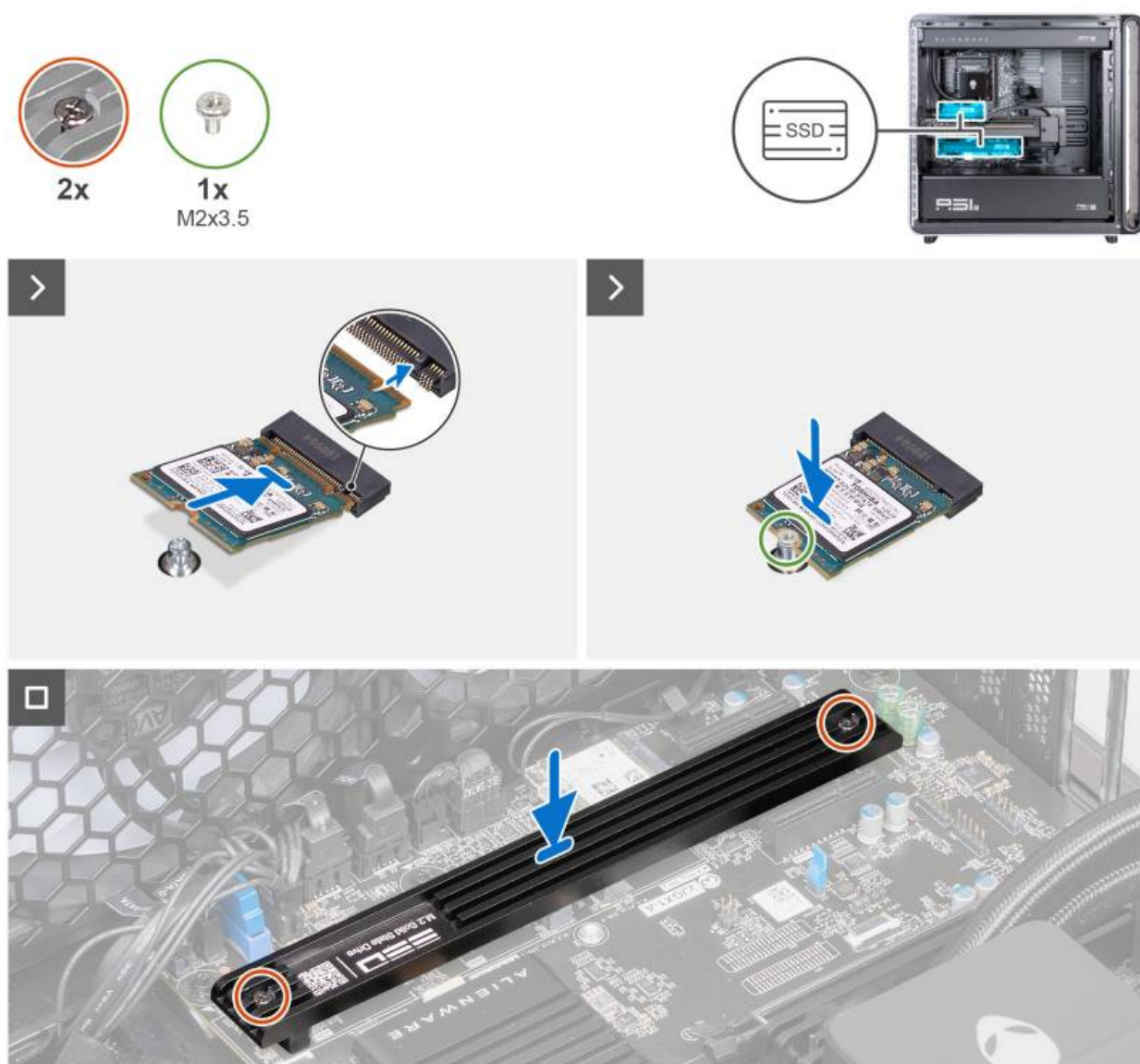


Figure 42. Installing the M.2 2230 SSD

NOTE: When replacing with a new SSD, ensure to remove the thermal pad from the old SSD and adhere the thermal pad to the new SSD. If the thermal pad is damaged or worn out, ensure to replace it with a new thermal pad.

Steps

1. Align the notch on the M.2 2230 SSD with the tab on the SSD slot on the system board.
2. Insert the M.2 2230 SSD at a 45-degree angle into the SSD slot on the system board.
3. Press the other end of the M.2 2230 SSD down, and replace the screw (M2x3.5) that secures the M.2 2230 SSD to the system board.
4. Tighten the two captive screws that secure the M.2 2230 SSD thermal shield to the system board.

Next steps

1. Install the [left cover](#).
2. Follow the procedure in [After working inside your computer](#).
3. Verify if the storage device is installed correctly (optional):
 - a. 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](#).
 - b. If you are replacing a storage device which does not have 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 to the Dell factory image using recovery media** in the Knowledge Base Resource at [Dell Support Site](#).

Removing the M.2 2280 SSD

You can view the video to remove or install an SSD. For more information, see [QR code for SSD video](#).

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [left cover](#).

About this task

NOTE: This procedure applies only to computers shipped with a M.2 2280 SSD. The M.2 SSD slots are marked as M.2 PCIe SSD-0, M.2 PCIe SSD-1, or M.2 PCIe SSD-2 on the system board.

The following images indicate the location of the M.2 2280 SSD and provide a visual representation of the removal procedure.



Figure 43. Removing the M.2 2280 SSD

Steps

1. Lay the computer on the right side.
2. Loosen the two captive screws that secure the M.2 2280 SSD thermal shield to the system board.
3. Lift the M.2 2280 SSD thermal shield off the SSD.
4. Remove the screw (M2x3.5) that secures the SSD to the system board.
5. Slide and lift the M.2 2280 SSD off SSD slot on the system board.

Installing the M.2 2280 SSD

You can view the video to remove or install an SSD. For more information, see [QR code for SSD video](#).

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

 **NOTE:** This procedure applies only to computers shipped with a M.2 2280 SSD. The M.2 SSD slots are marked as M.2 PCIe SSD-0, M.2 PCIe SSD-1, or M.2 PCIe SSD-2 on the system board.

If you want to replace your M.2 2280 SSD with a M.2 2230 SSD, the SSD screw mount must be shifted to fit the M.2 2230 SSD.

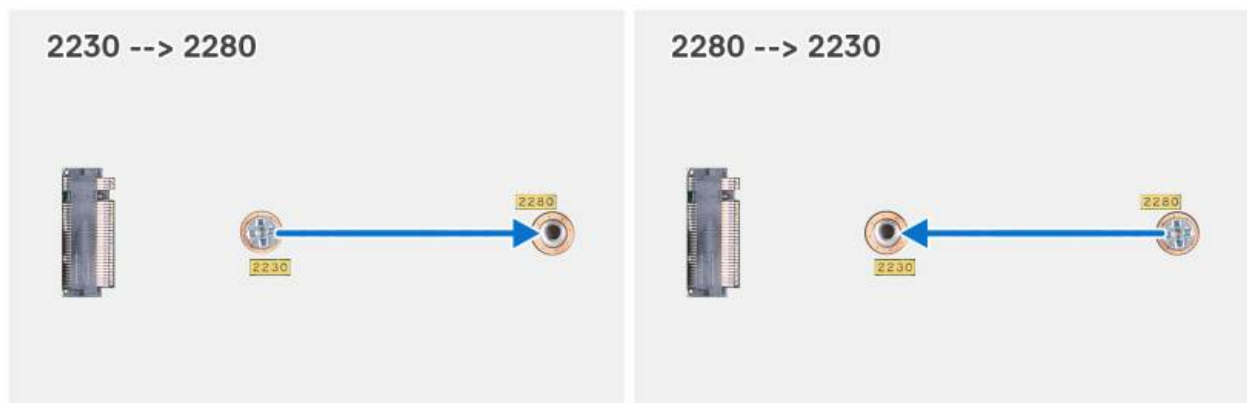


Figure 44. SSD screw mount

Follow the procedure in [Installing the M.2 2230 solid state drive](#), to install a M.2 2230 SSD.

The following images indicate the location of the M.2 2280 SSD and provide a visual representation of the installation procedure.

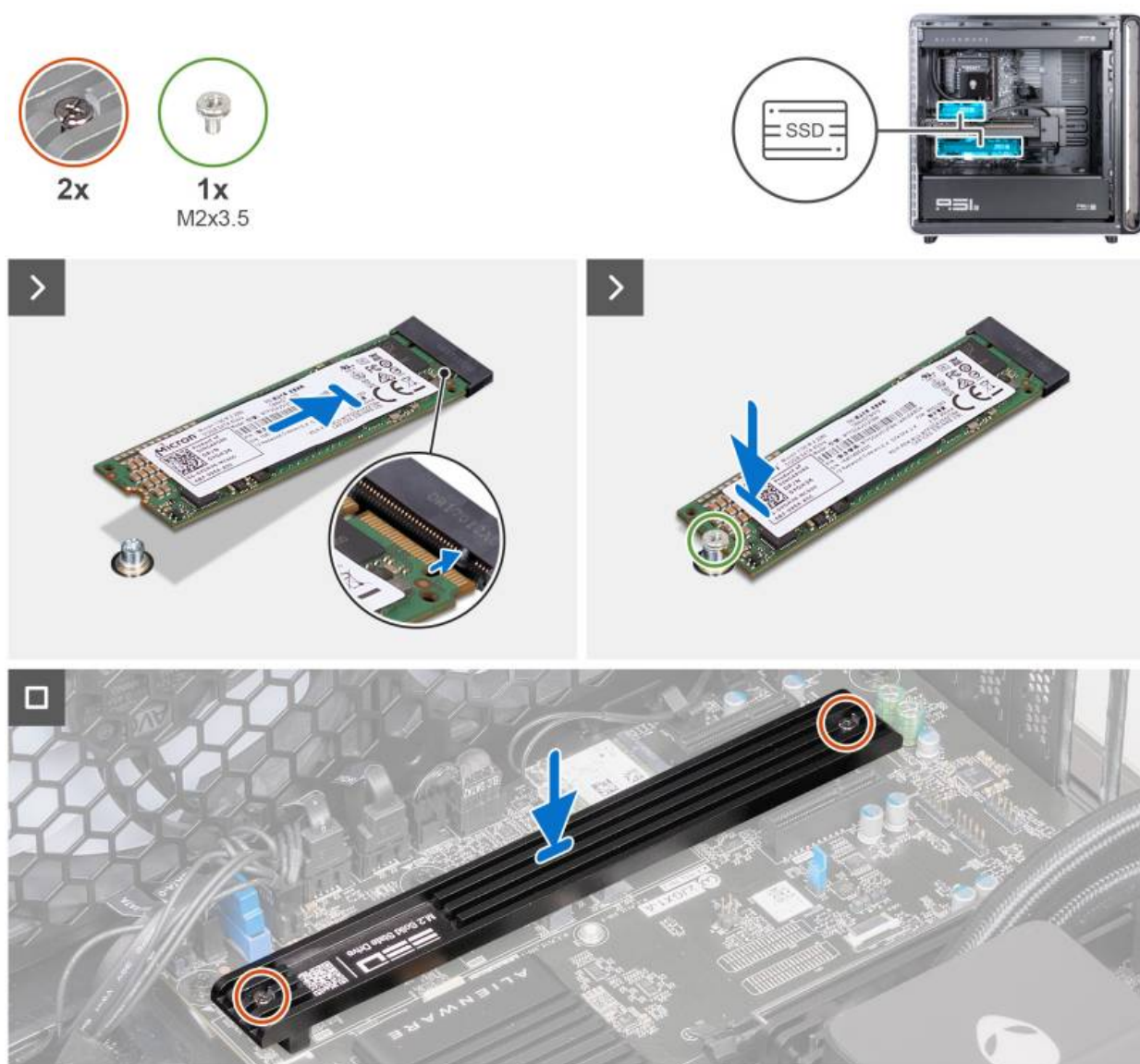


Figure 45. Installing the M.2 2280 SSD

NOTE: When replacing with a new SSD, ensure to remove the thermal pad from the old SSD and adhere the thermal pad to the new SSD. If the thermal pad is damaged or worn out, ensure to replace it with a new thermal pad.

Steps

1. Align the notch on the M.2 2280 SSD with the tab on the SSD slot on the system board.
2. Insert the M.2 2280 SSD at a 45-degree angle into the SSD slot on the system board.
3. Press the other end of the M.2 2280 SSD down, and replace the screw (M2x3.5) that secures the M.2 2280 SSD to the system board.
4. Tighten the two captive screws that secure the M.2 2280 SSD thermal shield to the system board.

Next steps

1. Install the [left cover](#).
2. Follow the procedure in [After working inside your computer](#).
3. Verify if the storage device is installed correctly (optional):
 - a. 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](#).
 - b. If you are replacing a storage device which does not have 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 to the Dell factory image using recovery media** in the Knowledge Base Resource at [Dell Support Site](#).

Coin-cell battery cover

Removing the coin-cell battery cover

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [left cover](#).

About this task

 **NOTE:** The coin-cell battery cover is designed to prevent children from accessing the coin-cell battery. The coin-cell battery cover does not affect the computer's functionality.

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

Steps

1. Lay the computer on the right side.
2. Using your fingertips, press the edges of the coin-cell battery cover on both the sides.
3. Release the coin-cell battery cover from the coin-cell battery slot on the system board.
4. Lift the coin-cell battery cover away from the coin-cell battery slot.

Installing the coin-cell battery cover

Prerequisites

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

About this task

 **NOTE:** The coin-cell battery cover is designed to prevent children from accessing the coin-cell battery. The coin-cell battery cover does not affect the computer's functionality.

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

Steps

1. Using your fingertips, press the edges of the coin-cell battery cover on both the sides.
2. Align and place the coin-cell battery cover into the coin-cell battery slot on the system board.

Next steps

1. Install the [left cover](#).
2. 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](#).



WARNING: Before working inside your computer, read the safety information that is shipped with your computer. For more safety best practices, see [Dell Regulatory Compliance Home Page](#).



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 cover](#).
3. Remove the [coin-cell battery cover](#).

About this task

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

Steps

1. Lay the computer on the right side.
2. Press the battery-release lever away from the coin-cell battery until the coin-cell battery pops up.
3. Slide and lift the coin-cell battery out of the coin-cell battery slot.

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 provide a visual representation of the installation procedure.

Steps

Insert the coin-cell battery into the coin-cell battery slot with the positive side facing up, and snap the battery into place.

Next steps

1. Install the [coin-cell battery cover](#).
2. Install the [left 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 cover](#).

About this task

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

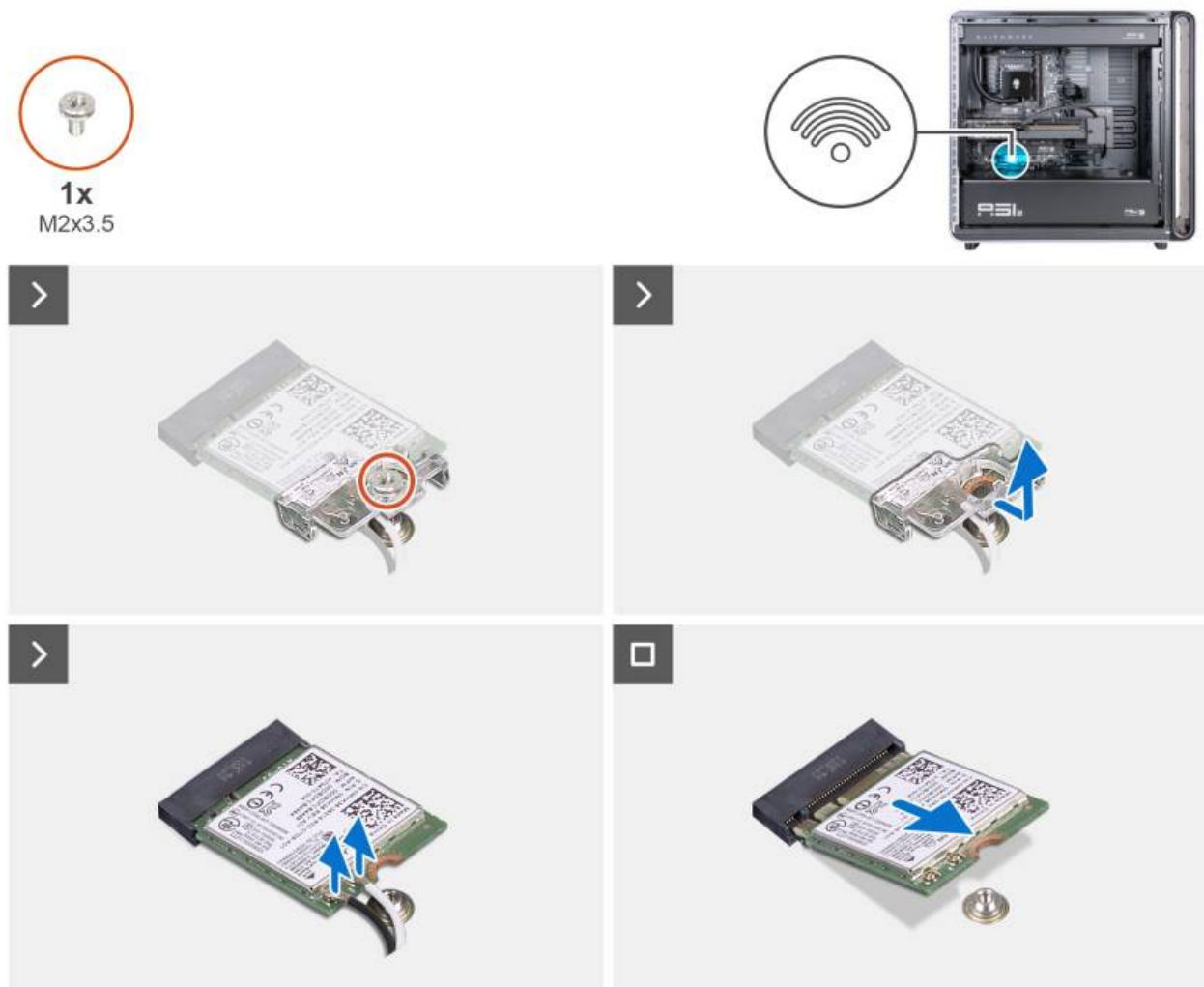


Figure 46. Removing the wireless card

Steps

1. Lay the computer on the right side.
2. Remove the screw (M2x3.5) that secures the wireless card and wireless-card bracket to the system board.
3. Lift the wireless-card bracket off the wireless card.
4. Disconnect the SMA cables from the wireless card.
5. Slide and remove the wireless card from the wireless-card slot on the system board.

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 card, do not place any cables under it.

About this task

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



Figure 47. Installing the wireless card

Steps

1. Connect the SMA cables to the wireless card.
2. Align and 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 (M2x3.5) that secures the wireless card and wireless-card bracket to the system board.

Next steps

1. Install the [left cover](#).
2. Follow the procedure in [After working inside your computer](#).

Power-supply unit cover

Removing the power-supply unit cover

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [left cover](#).

About this task

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



Figure 48. Removing the power-supply unit cover

Steps

1. Remove the two screws (M2x5) that secure the power-supply unit cover to the chassis.
2. Slide the power-supply unit cover to remove from the tabs on the top and bottom of the chassis.
3. Lift the power-supply unit cover off the chassis.

Installing the power-supply unit 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 power-supply unit cover and provide a visual representation of the installation procedure.



Figure 49. Installing the power-supply unit cover

Steps

1. Slide and lock the power-supply unit cover tabs to the slots on the top and bottom of the chassis.
2. Replace the two screws (M2x5) that secure the power-supply unit cover to the chassis.

Next steps

1. Install the [left cover](#).
2. Follow the procedure in [After working inside your computer](#).

Power-supply unit

QR code for power-supply unit video

The following image indicates the location of the QR code for power-supply unit video. Scan the QR code to view the power-supply unit removal and installation video.



Figure 50. QR code for power-supply unit video

Removing the power-supply unit

You can view the video to remove and install the power-supply unit. For more information, see [QR code for power-supply unit video](#).

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [right cover](#).

About this task

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

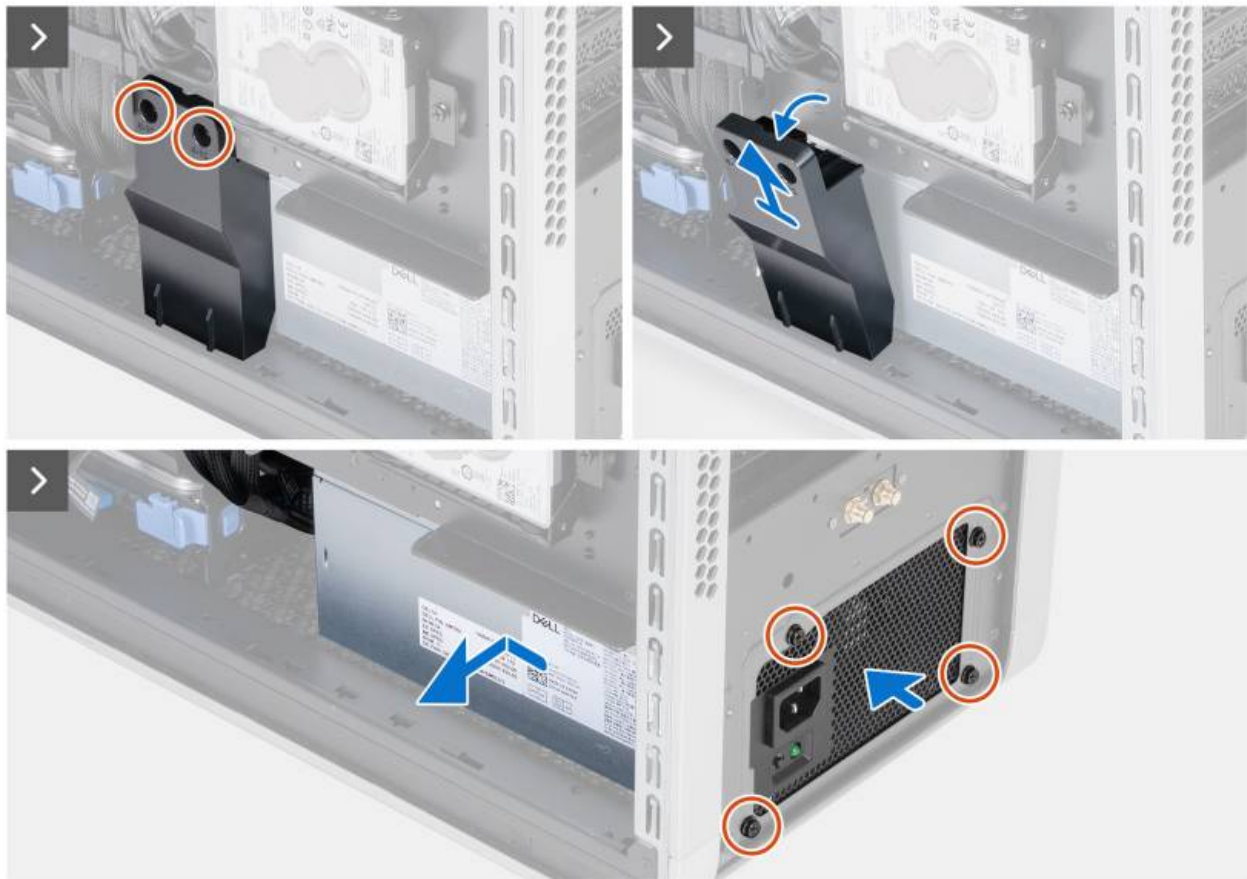
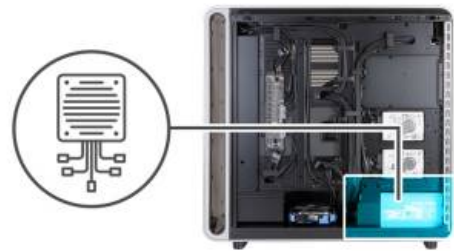


Figure 51. Removing the power-supply unit

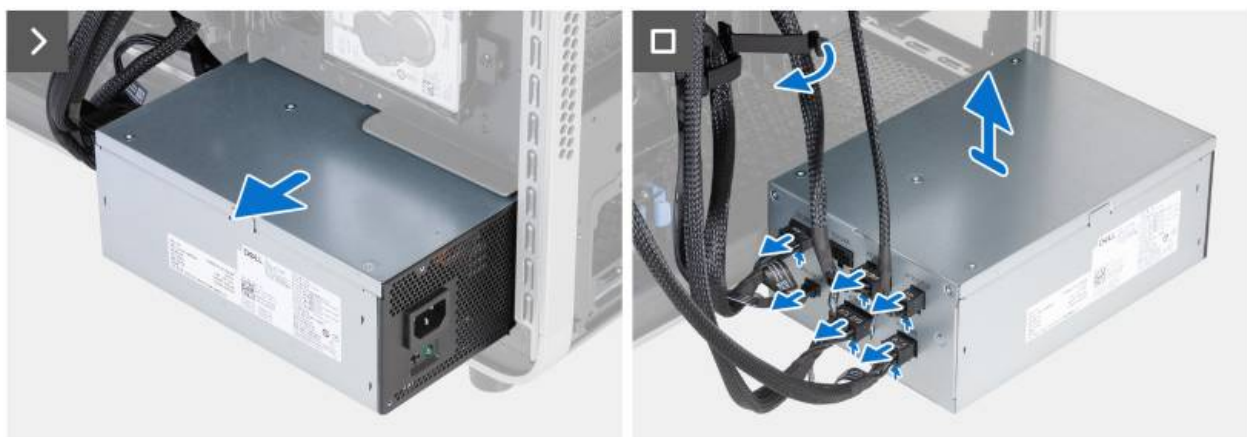


Figure 52. Removing the power-supply unit

Steps

1. Remove the two screws (#6-32) that secure the power-supply unit holder to the chassis.

2. Remove the power-supply unit holder from the respective slots on the chassis.

NOTE: The location of the slots on the chassis varies depending on the power-supply unit configuration. Make a note of the slots before you remove the power-supply unit holder.

3. Remove the four screws (#6-32) at the rear chassis that secure the power-supply unit to the chassis.
4. Unlock the securing clip and remove the power-supply unit cables from the securing clip.
5. Push the power-supply unit to release it from the power-supply unit chamber on the chassis.
6. Slide and remove the power-supply unit, along with the cables, from the chassis.

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. For more information about the power-supply unit connectors, see [850 W connectors](#) or [1500 W connectors](#).

7. Disconnect the power cables that are connected to the power-supply unit.

Installing the power-supply unit

You can view the video to remove and install the power-supply unit. For more information, see [QR code for power-supply unit video](#).

Prerequisites

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

WARNING: 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 computer components.

About this task

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

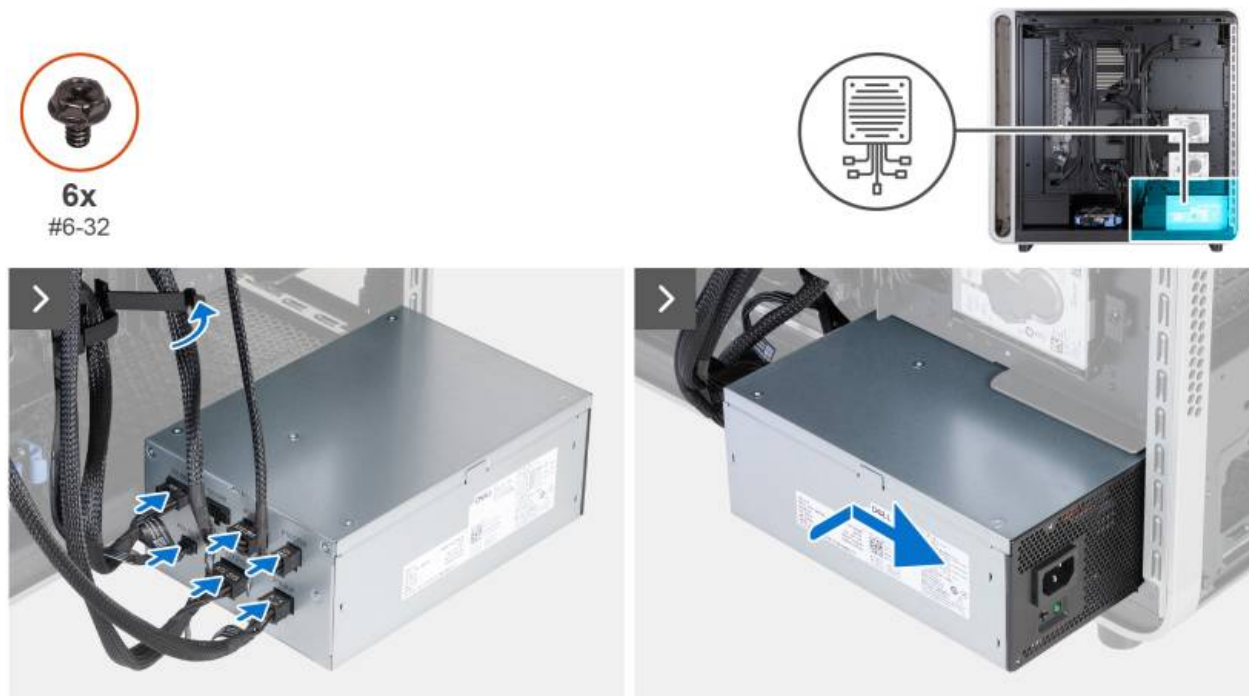


Figure 53. Installing the power-supply unit

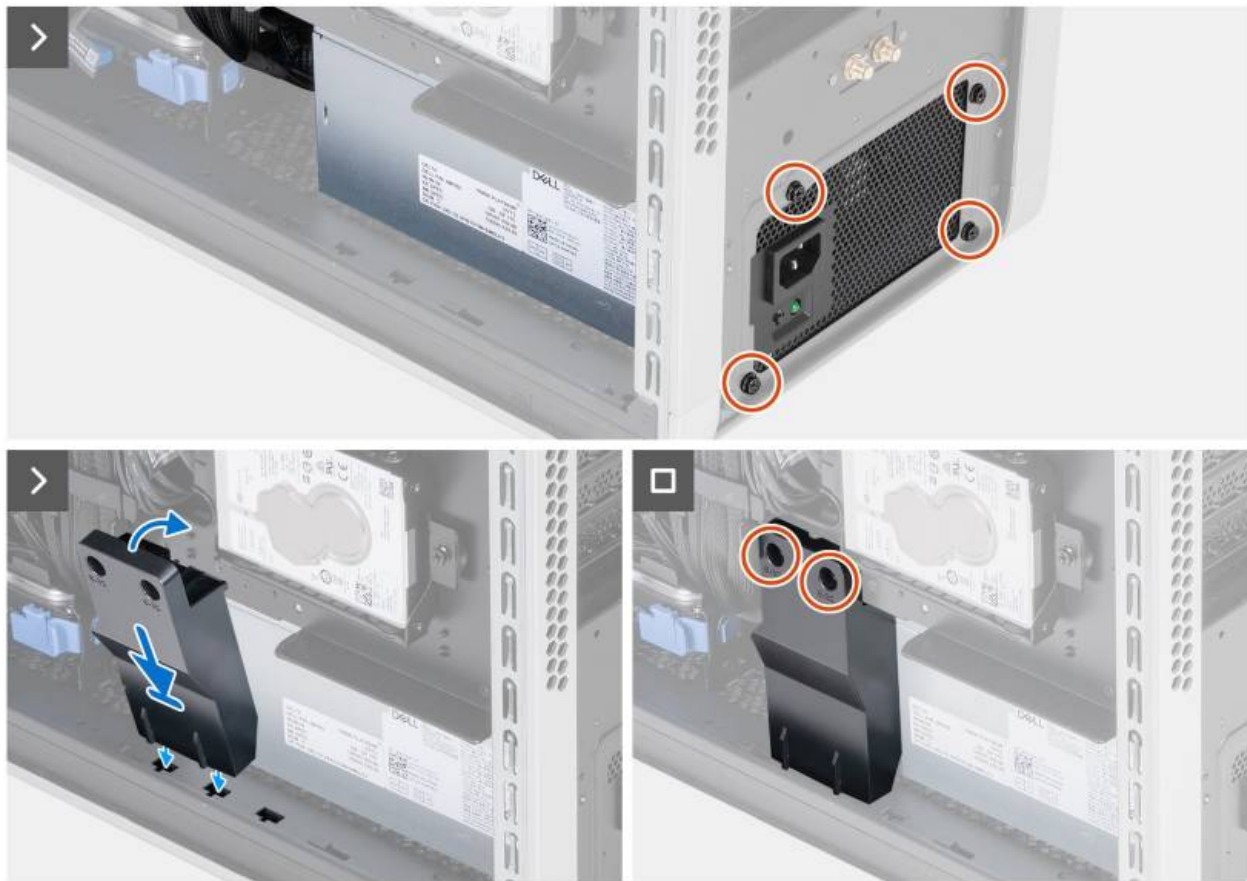


Figure 54. Installing the power-supply unit

Steps

1. Connect all the power cables to the respective connectors on the power-supply unit.
For more information about the power-supply unit connectors, see [850 W connectors](#) or [1500 W connectors](#).
2. Slide and push the power-supply unit to the chassis.
3. Insert the power-supply unit cables into the securing clip and lock the securing clip to secure the power-supply unit cables.
4. Slide and push the power-supply unit into the power-supply unit chamber towards the rear side of the chassis.
5. Replace the four screws (#6-32) at the rear chassis that secure the power-supply unit to the chassis.
6. Align the power-supply unit holder tabs to the slots on the chassis and install the power-supply unit holder into the respective slots on the chassis.

NOTE: The location of the slots on the chassis varies depending on the power-supply unit configuration. Install the power-supply unit holder to the same slot from where it was removed.

7. Replace the two screws (#6-32) that secure the power-supply unit holder to the chassis.

Next steps

1. Install the [right cover](#).
2. Follow the procedure in [After working inside your computer](#).

Power-supply unit connectors (850 W)

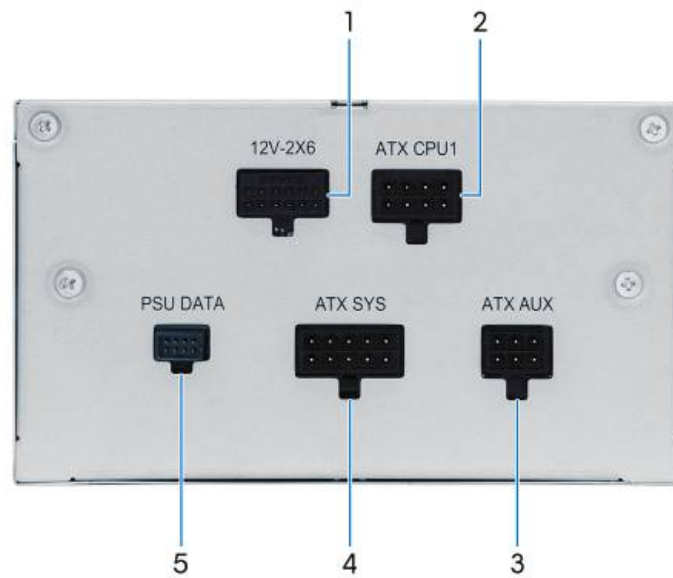


Figure 55. Power-supply unit connectors (850 W)

1. 12-pin + 4-pin connector for the graphics card
2. 8-pin connector for the processor
3. 6-pin connector for AUX
4. 10-pin connector for the system board
5. 8-pin connector for DATA

Power-supply unit connectors (1500 W)

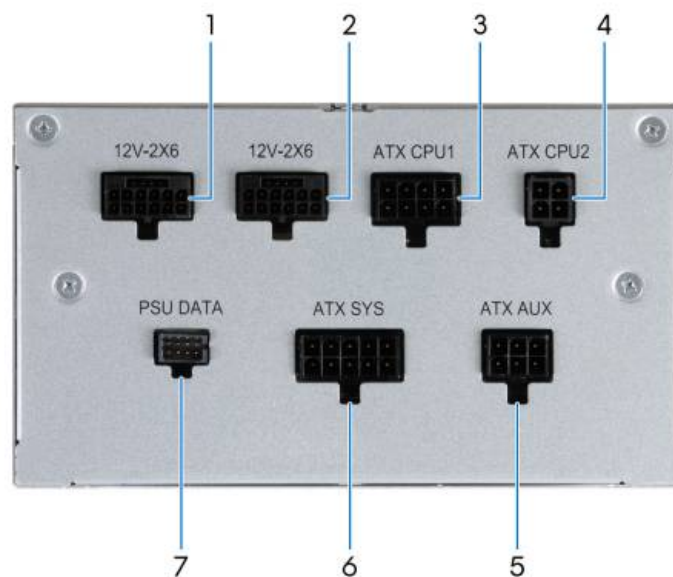


Figure 56. Power-supply unit connectors (1500 W)

1. 12-pin + 4-pin connector for the graphics card

2. 12-pin + 4-pin connector for the graphics card
3. 8-pin connector for the processor
4. 4-pin connector for the processor
5. 6-pin connector for AUX
6. 10-pin connector for the system board
7. 8-pin connector for DATA

AlienFX board

Removing the AlienFX board

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [right cover](#).

About this task

NOTE: The service warranty for the AlienFX board is valid only if it is used with the system board that comes with the factory shipment. Dell does not offer technical support for system boards that are purchased outside of Dell.

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

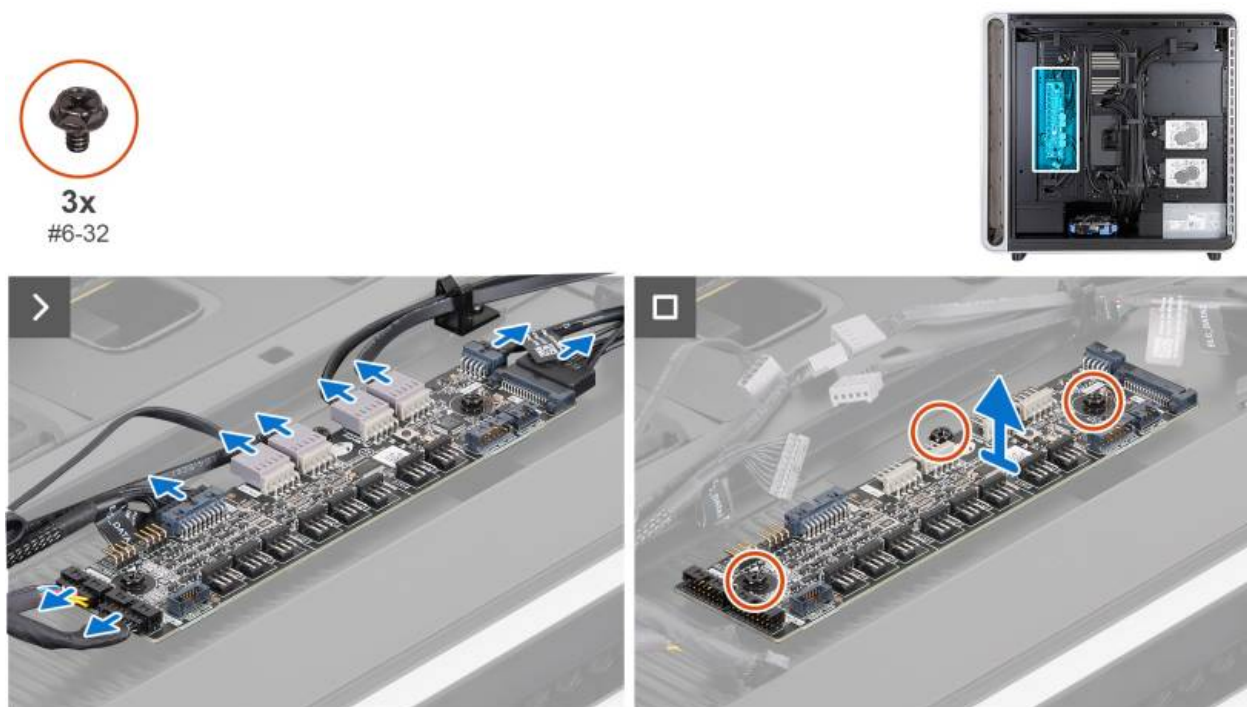


Figure 57. Removing the AlienFX board

Steps

1. Lay the computer on the left side.
2. Disconnect all the cables from the AlienFX board.

NOTE: Note the connection and routing of the cables as you remove them so that you can connect them correctly when replacing the AlienFX board. For more information about AlienFX-board connectors, see [AlienFX-board connectors](#).

3. Remove the three screws (#6-32) that secure the AlienFX board to the chassis.
4. Lift the AlienFX board off the chassis.

Installing the AlienFX board

Prerequisites

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

NOTE: The service warranty for the AlienFX board is valid only if it is used with the system board that comes with the factory shipment. Dell does not offer technical support for system boards that are purchased outside of Dell.

About this task

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

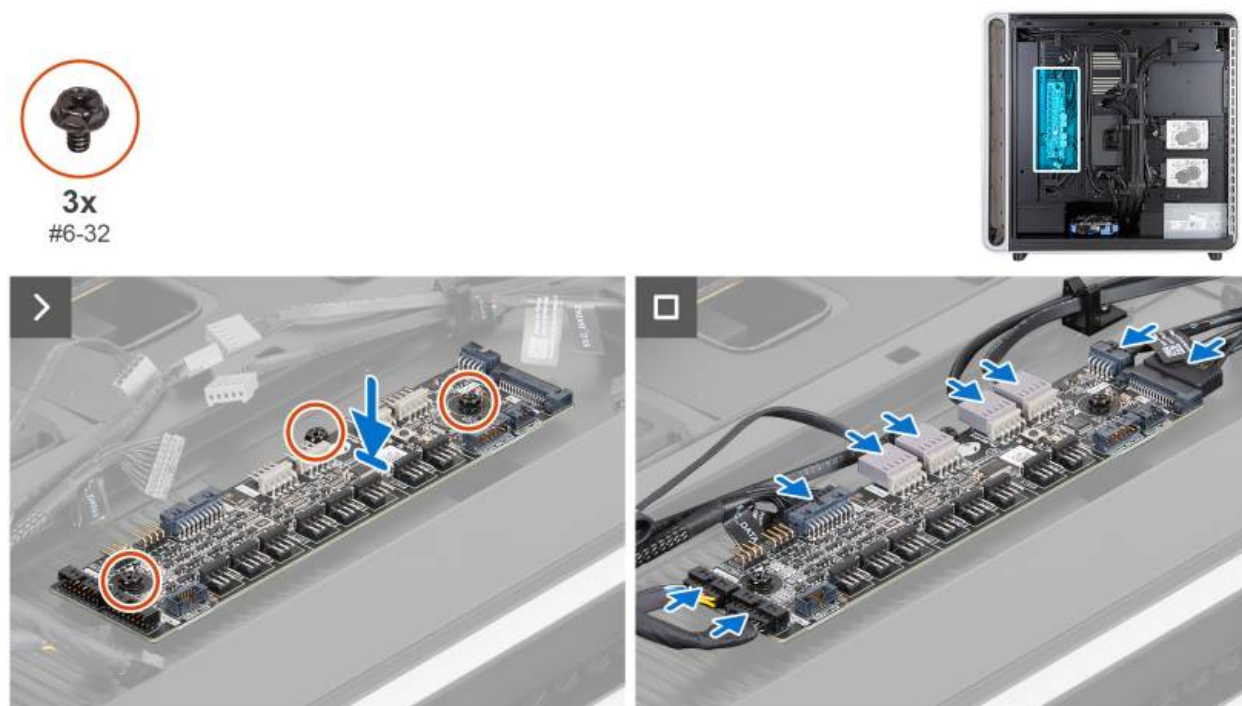


Figure 58. Installing the AlienFX board

Steps

1. Using the alignment posts, place the AlienFX board on the slot on the chassis.
2. Replace the three screws (#6-32) that secure the AlienFX board to the chassis.
3. Connect all the cables to the AlienFX board.

CAUTION: To avoid damaging the connector, cable, or system board, ensure that the cable connector is oriented and aligned correctly before inserting into the socket.

NOTE: For more information about AlienFX-board connectors, see [AlienFX-board connectors](#).

Next steps

1. Install the [right cover](#).
2. Follow the procedure in [After working inside your computer](#).

AlienFX-board connectors

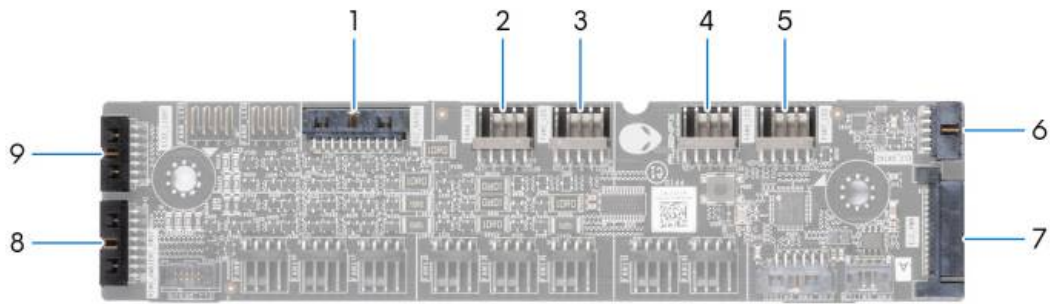


Figure 59. AlienFX-board connectors

1. AlienFX data connector (ELC_DATA1)
2. Front fan LED connector (FAN4_LED)
3. Front fan LED connector (FAN5_LED)
4. Bottom fan LED connector (FAN6_LED)
5. Bottom fan LED connector (FAN7_LED)
6. AlienFX data connector (ELC_DATA2)
7. AlienFX power connector (ELC_PWR)
8. Alien head power button (RING_AMBIENT_PWBT)
9. Side-light connector (SIDE_LIGHT)

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 [right cover](#).

About this task

NOTE: The 2.5-inch hard drive is sold separately.

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



Figure 60. Removing the 2.5-inch hard drive



Figure 61. Removing the 2.5-inch hard drive

Steps

1. Lay the computer on the left side.

2. Remove the screw (#6-32) that secures the 2.5-inch hard drive cage to the chassis.
3. Remove the 2.5-inch hard drive cage from the tabs on the chassis.
4. Slide and lift the 2.5-inch hard drive cage away from the chassis.
5. Disconnect the data and power cables from the hard drive.
6. Remove the four screws (M3x5) that secure the hard drive to the hard drive cage.

 **NOTE:** Note the orientation on the hard drive cage and the hard drive to replace it correctly.

7. Lift the hard drive out of the hard drive cage.

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

 **NOTE:** The 2.5-inch hard drive is sold separately.

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

 **NOTE:** Ensure that the hard drive cage and hard drive orientation are correct when installing the hard drive.

Steps

1. Align and place the hard drive in the hard drive cage.
2. Replace the four screws (M3x5) that secure the hard drive to the hard drive cage.
3. Connect the data and power cables to the hard drive.
4. Align the tabs on the hard drive cage with the slots on the chassis and slide the hard drive cage into the chassis.
5. Replace the screw (#6-32) that secures the 2.5-inch hard drive cage to the chassis.

Next steps

1. Install the [right 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](#) or [Identifying your storage device in system setup \(BIOS\)](#), to identify the storage device.

 **NOTE:** To install the operating system on to your storage device, see **Reinstall Windows to the Dell factory image using recovery media** in the Knowledge Base Resource at [Dell Support Site](#).

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 [right cover](#).

About this task

 **NOTE:** The 3.5-inch hard drive is sold separately.

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



Figure 62. Removing the 3.5-inch hard drive

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.

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

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 carrier.

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

NOTE: The 3.5-inch hard drive is sold separately.

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



Figure 63. Installing the 3.5-inch hard drive

NOTE: Ensure that the hard drive orientation is correct when installing the hard drive.

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 [right 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](#) or [Identifying your storage device in system setup \(BIOS\)](#), to identify the storage device.

 **NOTE:** To install the operating system on to your storage device, see **Reinstall Windows to the Dell factory image using recovery media** in the Knowledge Base Resource at [Dell Support Site](#).

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**.

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.

Removing and installing Field Replaceable Units (FRUs)

The replaceable components in this chapter are Field Replaceable Units (FRUs).

 **CAUTION:** The information in this removing and installing FRUs section is intended for authorized service technicians only.

 **CAUTION:** To avoid any potential damage to the component or loss of data, Dell Technologies recommends that an authorized service technician replaces the Field Replaceable Units (FRUs).

 **CAUTION:** Your warranty does not cover damages that may occur during FRU repairs that are not authorized by Dell Technologies.

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

Top I/O-panel

Removing the top I/O-panel

 **CAUTION:** The information in this removal section is intended for authorized service technicians only.

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [left cover](#).
3. Remove the [right cover](#).
4. Remove the [top fan filter](#).
5. Remove the [top cover](#).
6. Remove the [graphics card](#).
7. Remove the [power-supply unit cover](#).
8. Remove the [bottom fan](#).

About this task

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



1x
#6-32

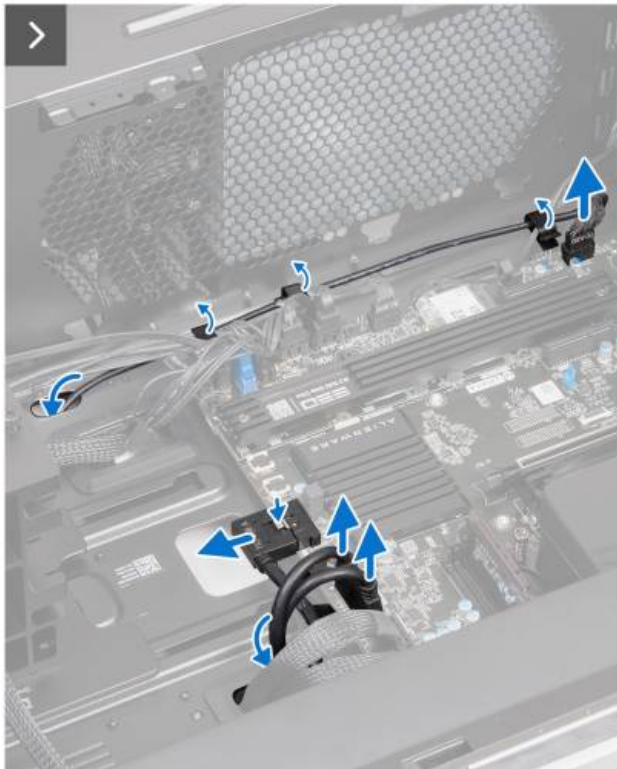


Figure 64. Removing the top I/O-panel



Figure 65. Removing the top I/O-panel

Steps

1. Lay the computer on the right side.
2. Disconnect the USB cables from the USB cable connectors (TIO USB A, TIO USB C2, and TIO USB C2) on the system board.
3. Disconnect the audio cable from the audio cable connector (TIO AUDIO) on the system board.

4. Remove the audio cable from the routing guides on the chassis.
5. Remove the USB cables through the opening on the chassis.
6. Remove the audio cable through the opening on the chassis.
7. Lay the computer in the upright position.
8. Unlock the securing clips and remove the USB cables from the securing clips.
9. Remove the audio cable out of the securing clips on the chassis.
10. Remove the screw (#6-32) that secures the top I/O-panel to the chassis.
11. Slide and remove the top I/O-panel, along with the cables, through the opening on the chassis.

Installing the top I/O-panel

 **CAUTION:** The information in this installation section is intended for authorized service technicians only.

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 I/O-panel and provide a visual representation of the installation procedure.



Figure 66. Installing the top I/O-panel

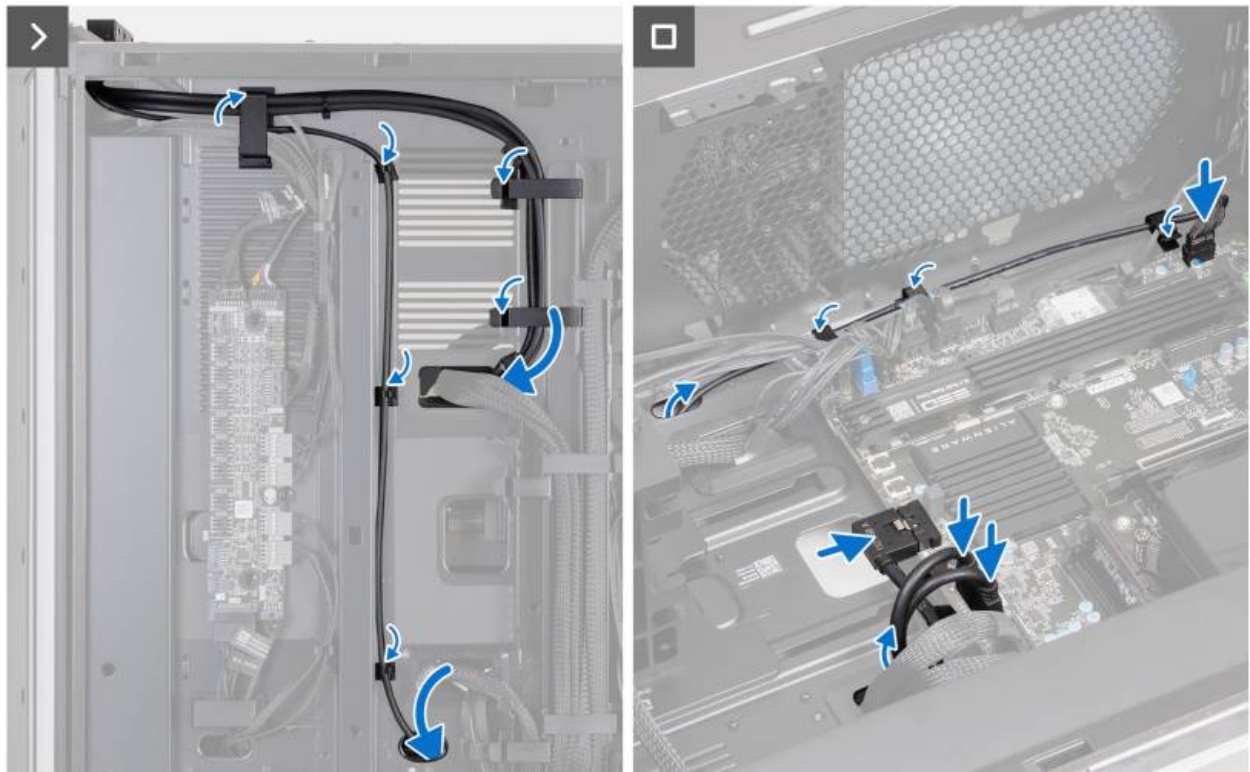


Figure 67. Installing the top I/O-panel

Steps

1. Align and slide the top I/O-panel through the opening on the chassis.
2. Replace the screw (#6-32) that secures the top I/O-panel to the chassis.
3. Insert the audio cable into the securing clip on the chassis and lock the securing clip to secure the audio cable.
4. Insert the USB cables into the securing clip and lock the securing clip to secure the USB cables.
5. Route the audio cable through the opening on the chassis.
6. Route the USB cables through the opening on the chassis.
7. Lay the computer on the right side.
8. Route the audio cable through the routing guides on the chassis.
9. Connect the audio cable to the audio cable connector (TIO AUDIO) on the system board.
10. Connect the USB cables to the USB cable connectors (TIO USB A, TIO USB C2, and TIO USB C2) on the system board.

Next steps

1. Install the [bottom fan](#).
2. Install the [power-supply unit cover](#).
3. Install the [graphics card](#).
4. Install the [top cover](#).
5. Install the [top fan filter](#).
6. Install the [right cover](#).
7. Install the [left cover](#).
8. Follow the procedure in [After working inside your computer](#).

Front bezel

Removing the front bezel

 **CAUTION:** The information in this removal section is intended for authorized service technicians only.

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [left cover](#).
3. Remove the [right cover](#).
4. Remove the [top fan filter](#).
5. Remove the [top cover](#).
6. Remove the [front fan filter](#).

About this task

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



Figure 68. Removing the front bezel

Steps

1. Disconnect the power button LED cable from the LED connector (RING_AMBIENT_PWBT) on the AlienFX board.
2. Unlock the securing clip and remove the power button LED cable from the securing clip and route the cable through opening at the top of the chassis.
3. Remove the two screws (#6-32) that secure the front bezel to the chassis.
4. Slide and lift the front bezel, along with the power button LED cable, away from the chassis.

Installing the front bezel

 **CAUTION:** The information in this installation section is intended for authorized service technicians only.

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 provide a visual representation of the installation procedure.



Figure 69. Removing the front bezel

Steps

1. Using the alignment post at the bottom, align and place the front bezel on the chassis.
2. Push the front bezel towards the chassis and ensure the tabs clip onto the slots of the chassis.
3. Route the power button LED cable through the opening on the chassis.
4. Insert the power button LED cable into the securing clip and lock the securing clip to secure the power button LED cable.
5. Connect the power button LED cable to the LED connector (RING_AMBIENT_PWBT) on the AlienFX board.

Next steps

1. Install the [front fan filter](#).
2. Install the [top cover](#).
3. Install the [top fan filter](#).
4. Install the [right cover](#).
5. Install the [left cover](#).
6. Follow the procedure in [After working inside your computer](#).

Side light

Removing the side light

 **CAUTION:** The information in this removal section is intended for authorized service technicians only.

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [left cover](#).
3. Remove the [right cover](#).

About this task

The following images indicate the location of the side light and provide a visual representation of the removal procedure.



2x
M3x3



Figure 70. Removing the side light



Figure 71. Removing the side light

Steps

1. Disconnect the side-light cable from the connector (SIDE_LIGHT) on the AlienFX board on the right side of the chassis.

2. Unlock the securing clip and remove the side-light cable from the securing clip.
3. Route the side-light cable through the opening on the chassis.
4. Lay the computer on the right side.
5. Remove the two screws (M3x3) that secure the side light to the chassis.
6. Rotate the side light to remove the tabs on the side light from the slots on the chassis.
7. Remove the side light off the chassis.

Installing the side light

 **CAUTION:** The information in this installation section is intended for authorized service technicians only.

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 side light and provide a visual representation of the installation procedure.



Figure 72. Installing the side light



Figure 73. Installing the side light

Steps

1. Align the tabs on the side light with the slots on the chassis and insert the side light into the chassis.
2. Align the screw hole of the side light with the screw hole on the chassis.
3. Replace the two screws (M3x3) that secure the side light to the chassis.
4. Route the side-light cable through the opening on the chassis.
5. Place the computer in the upright position.
6. Insert the side-light cable into the securing clip and lock the securing clip to secure the side-light cable.
7. Connect the side-light cable to the connector (SIDE_LIGHT) on the AlienFX board on the right side of the chassis.

Next steps

1. Install the [right cover](#).
2. Install the [left cover](#).
3. Follow the procedure in [After working inside your computer](#).

Processor liquid-cooling assembly

Removing the processor liquid-cooling assembly

CAUTION: The information in this removal section is intended for authorized service technicians only.

NOTE: Depending on the configuration ordered, your computer is shipped either with a 240 mm or a 360 mm 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 hot during normal operation. Ensure that it had sufficient time 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 cover](#).
3. Remove the [top fan filter](#).
4. Remove the [top cover](#).

About this task

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



Figure 74. Removing the processor liquid-cooling assembly

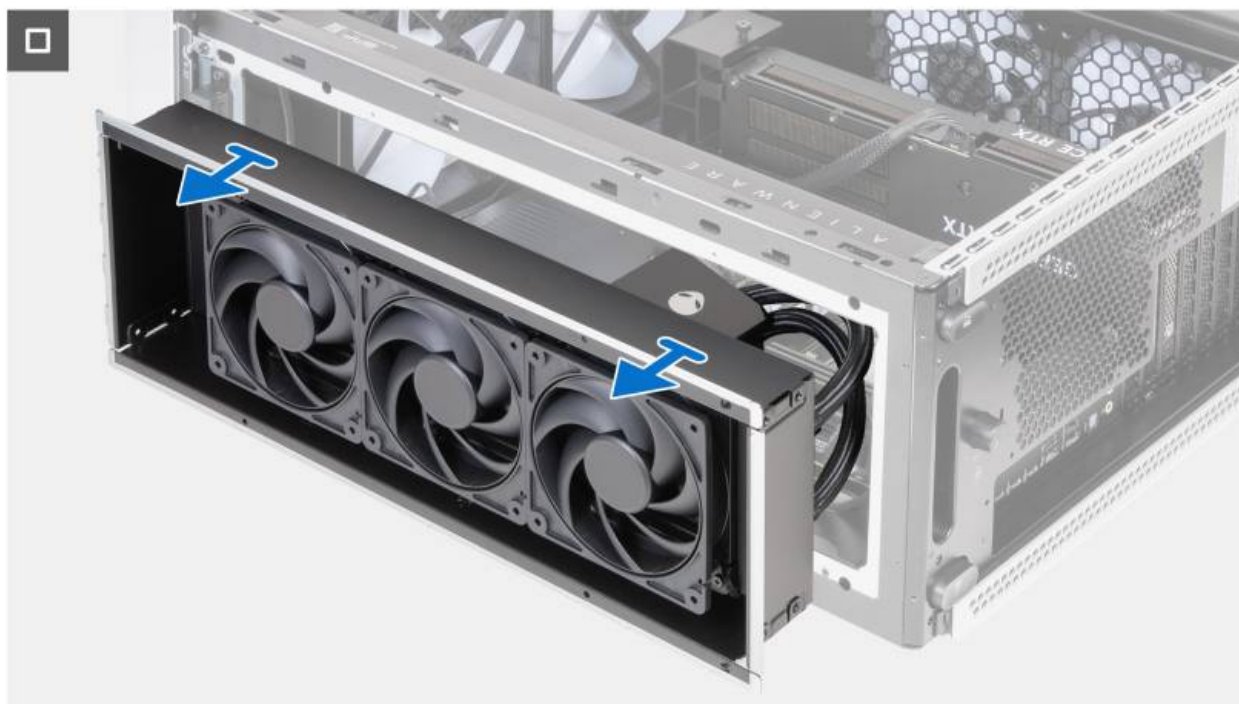


Figure 75. Removing the processor liquid-cooling assembly

Steps

1. Lay the computer on the right side.
2. Remove the four screws (M3x5) that secures the top fan assembly to the chassis.
3. Disconnect the top fan assembly cables from the fan connectors (FAN1, FAN2, and FAN3) on the system board.
NOTE: Depending on the configuration ordered, the number of fan connectors may vary.
4. Remove the top fan assembly cables from the securing clip on the chassis.
5. Disconnect the processor liquid-cooling assembly cables from the connectors (LED PUMP and PWR PUMP) on the system board.
6. In the reverse sequential order, loosen the four captive screws that secure the processor liquid-cooling assembly to the system board.
7. Remove the top-fan assembly, along with the processor liquid-cooling assembly and cables, out of the chassis.

Installing the processor liquid-cooling assembly

CAUTION: The information in this installation section is intended for authorized service technicians only.

NOTE: Depending on the configuration ordered, your computer is shipped either with a 240 mm or a 360 mm 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.

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

About this task

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

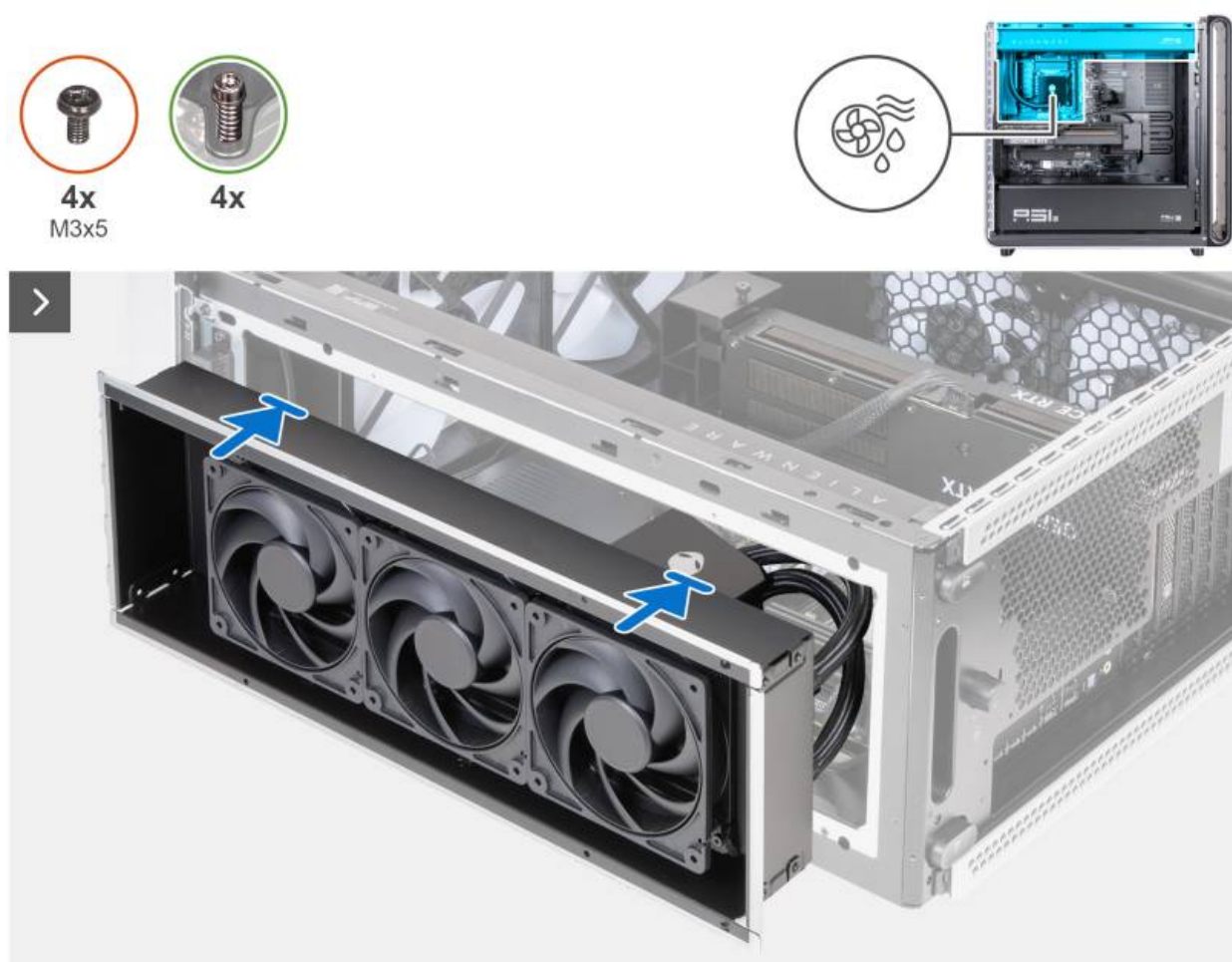


Figure 76. Installing the processor liquid-cooling assembly

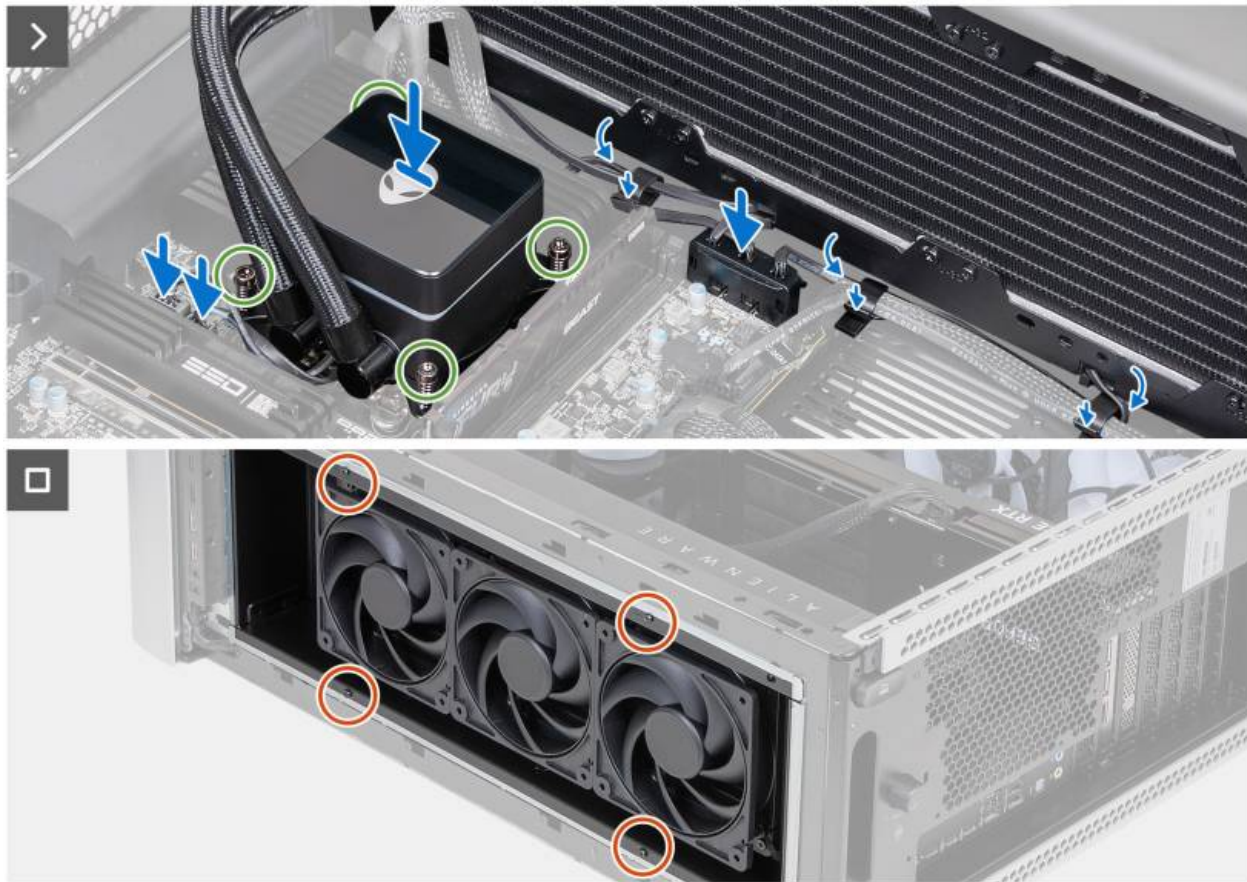


Figure 77. Installing the processor liquid-cooling assembly

Steps

1. Insert the top-fan assembly, along with the processor liquid-cooling assembly and cables, into the chassis.
2. Align the screw hole on the top-fan assembly with the screw hole on the chassis.
3. Align the screw holes on the processor liquid-cooling assembly with the screw holes on the system board.
4. In the sequential order, tighten the four captive screws that secure the processor liquid-cooling assembly to the system board.
5. Connect the processor liquid-cooling assembly cables to the connectors (LED PUMP and PWR PUMP) on the system board.
6. Insert the top-fan assembly cables into the securing clip to secure the cable.
7. Connect the top-fan assembly cables to the fan connectors (FAN1, FAN2, and FAN3) on the system board.

NOTE: Depending on the configuration ordered, the number of fan connectors may vary.

8. Replace the four screws (M3x5) that secures the top-fan assembly to the chassis.

Next steps

1. Install the [top cover](#).
2. Install the [top fan filter](#).
3. Install the [left cover](#).
4. Follow the procedure in [After working inside your computer](#).

Top fan

Removing the top fan

 **CAUTION:** The information in this removal section is intended for authorized service technicians only.

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [left cover](#).
3. Remove the [top fan filter](#).
4. Remove the [top cover](#).

About this task

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

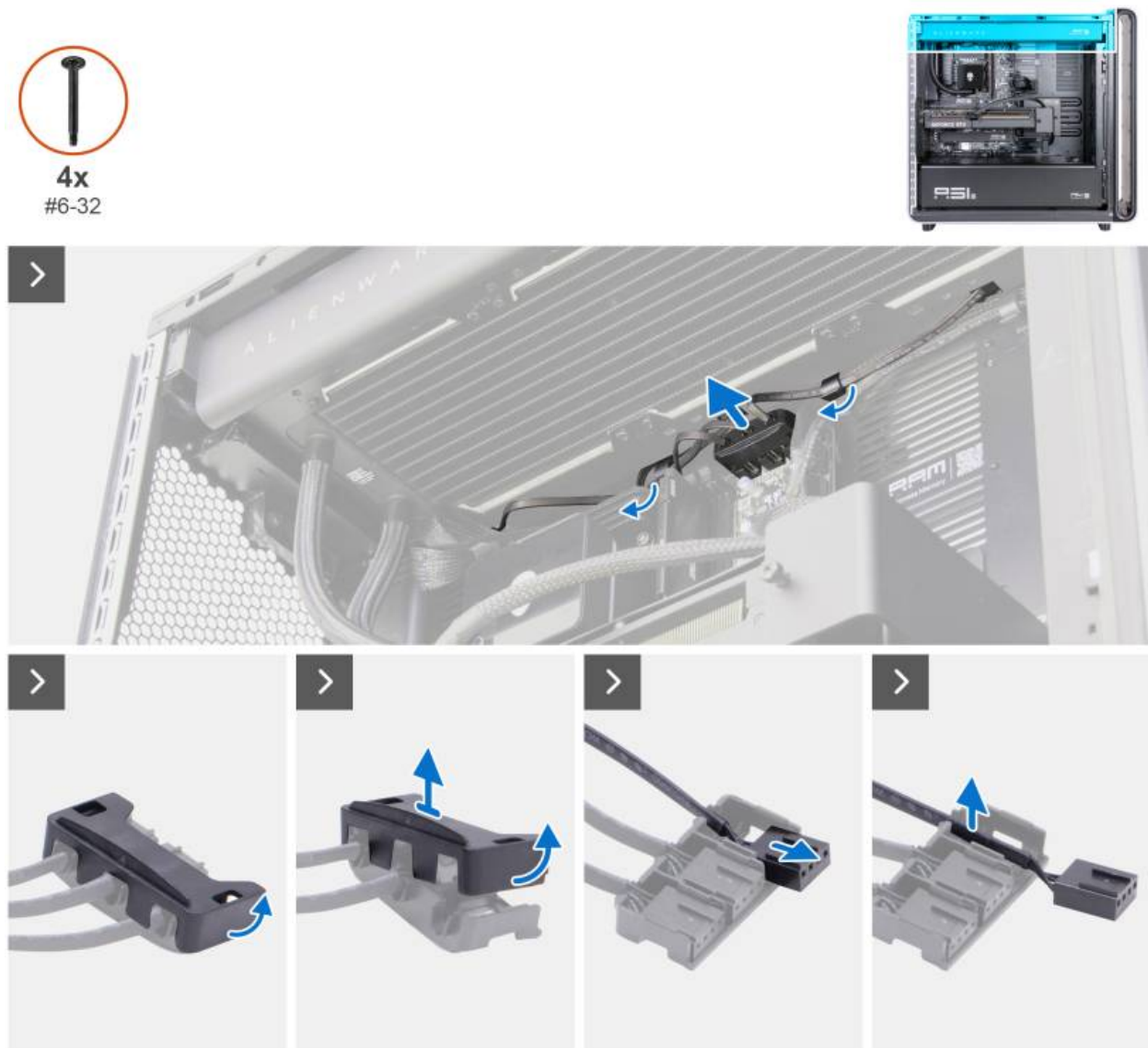


Figure 78. Removing the top fan

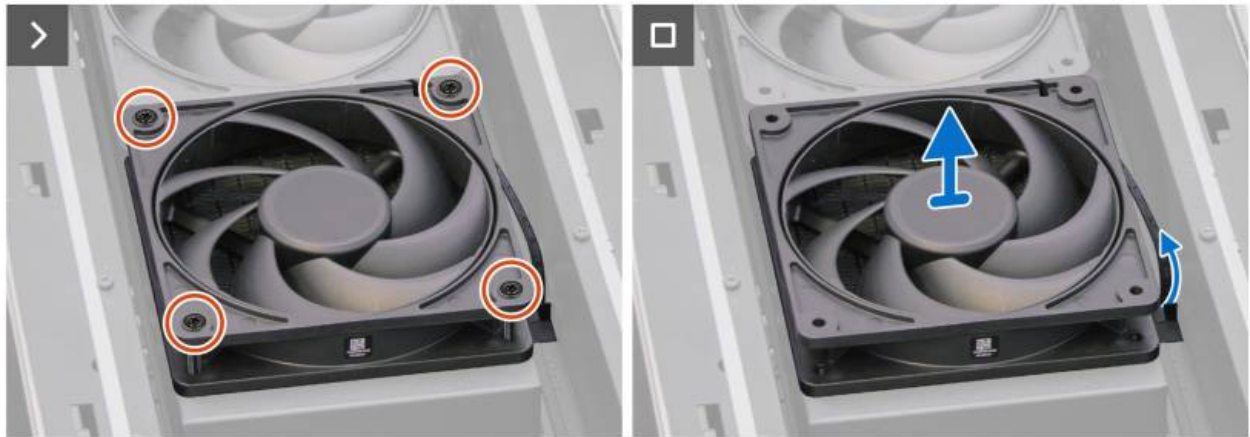


Figure 79. Removing the top fan

Steps

1. Disconnect the top fan cable from the top fan cable connector (FAN1, FAN2, and FAN3) system board.
2. Lift the top fan cable cover from one edge and lift the top fan cable cover off the cables.
3. Slide out the cable from the cable bracket.
4. Remove the screw (#6-32) that secures the top fan to the chassis.
5. Slide and lift the top fan off the chassis.

Installing the top fan

CAUTION: The information in this installation section is intended for authorized service technicians only.

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 fan and provide a visual representation of the installation procedure.



Figure 80. Installing the top fan



Figure 81. Installing the top fan

Steps

1. Align and place the top fan on the fan bracket.

2. Replace the screw (#6-32) that secures the top fan to the fan bracket.
3. Align and place the cable onto the cable bracket.
4. Align and lock the cable cover so that it secures the cable in place.
5. Connect the top fan cable to the top fan cable connector (FAN1, FAN2, and FAN3) on the system board.

Next steps

1. Install the [top cover](#).
2. Install the [top fan filter](#).
3. Install the [left cover](#).
4. Follow the procedure in [After working inside your computer](#).

Front fan

Removing the front fan

 **CAUTION:** The information in this removal section is intended for authorized service technicians only.

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [left cover](#).
3. Remove the [right cover](#).

About this task

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

Steps

1. Lay the computer on the left side.
2. Disconnect the front fan LED cables from the connectors (FAN4_LED and FAN5_LED) on the AlienFX board.
3. Unlock the securing clips and remove the front fan LED cables from the securing clips.
4. Remove the front fan LED cables from the opening on the chassis.
5. Lay the computer on the right side.
6. Disconnect the front fan cables from the connectors (FAN4 and FAN5) on the system board.
7. Remove the front fan cables from the respective securing clips on the chassis.
8. Remove the two screws (M3x5) that secures the front fan to the chassis.
9. Push the tab to release the front-fan assembly from the chassis.
10. Slide and lift the front-fan assembly off the chassis.

Installing the front fan

 **CAUTION:** The information in this installation section is intended for authorized service technicians only.

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 fan and provide a visual representation of the installation procedure.

Steps

1. Slide and push the front fan until the releasing clip snaps into position on the chassis.

2. Replace the two screws (M3x5) that secure the front fan to the chassis.
3. Insert the front fan cables into the respective securing clips on the chassis.
4. Connect the front fan cables to the connectors (FAN4 and FAN5) on the system board.
5. Lay the computer in the upright position.
6. Route the front fan LED cables through the opening on the chassis.
7. Insert the front fan LED cables into the securing clip and lock the securing clip to secure the front fan LED cables.
8. Connect the front fan LED cables to the connectors (FAN4_LED and FAN5_LED) on the AlienFX board.

Next steps

1. Install the [right cover](#).
2. Install the [left cover](#).
3. Follow the procedure in [After working inside your computer](#).

Bottom fan

Removing the bottom fan

 **CAUTION:** The information in this removal section is intended for authorized service technicians only.

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [left cover](#).
3. Remove the [right cover](#).
4. Remove the [power-supply unit cover](#).

About this task

The following images indicate the location of the bottom fan and provide a visual representation of the removal procedure.



Figure 82. Removing the bottom fan



Figure 83. Removing the bottom fan

Steps

1. Lay the computer on the left side.

2. Disconnect the bottom fan LED cables from the connectors (FAN6 LED and FAN7 LED) on the AlienFX board.
3. Unlock the securing clip and remove the bottom fan LED cables from the securing clip.
4. Route the bottom fan LED cables (FAN6 LED and FAN7 LED) from the opening on the chassis.
5. Lay the computer on the right side.
6. Disconnect the bottom fan cables from the connectors (FAN6 and FAN7) on the system board.
7. Remove the two screws (M3x5) that secure the bottom fan to the chassis.
8. Push the tabs to release the bottom-fan assembly from the chassis.
9. Slide and lift the bottom-fan assembly off the chassis.
10. Place the bottom-fan assembly on a flat surface.
11. Remove the cables from the routing guides on the fan bracket.
12. Slide and release the fan grommets from the slots on the fan bracket.
13. Lift the fan bracket off the fans.

Installing the bottom fan

 **CAUTION:** The information in this installation section is intended for authorized service technicians only.

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 fan and provide a visual representation of the installation procedure.

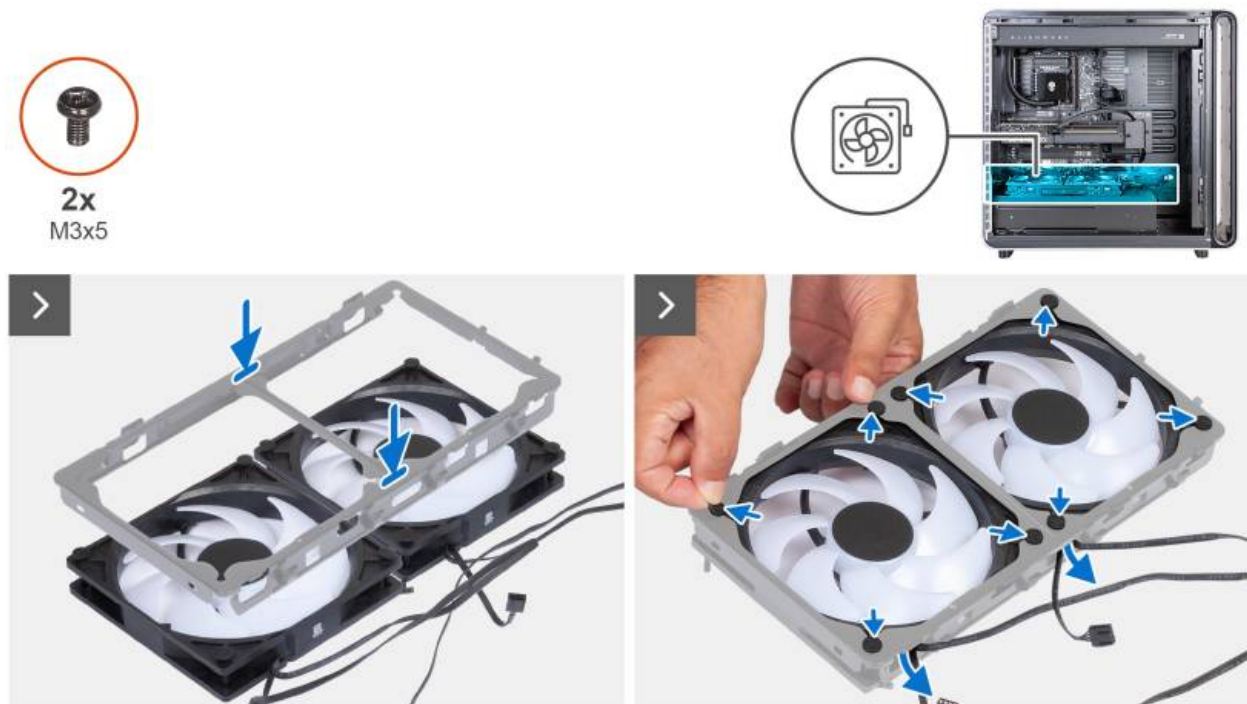


Figure 84. Installing the bottom fan

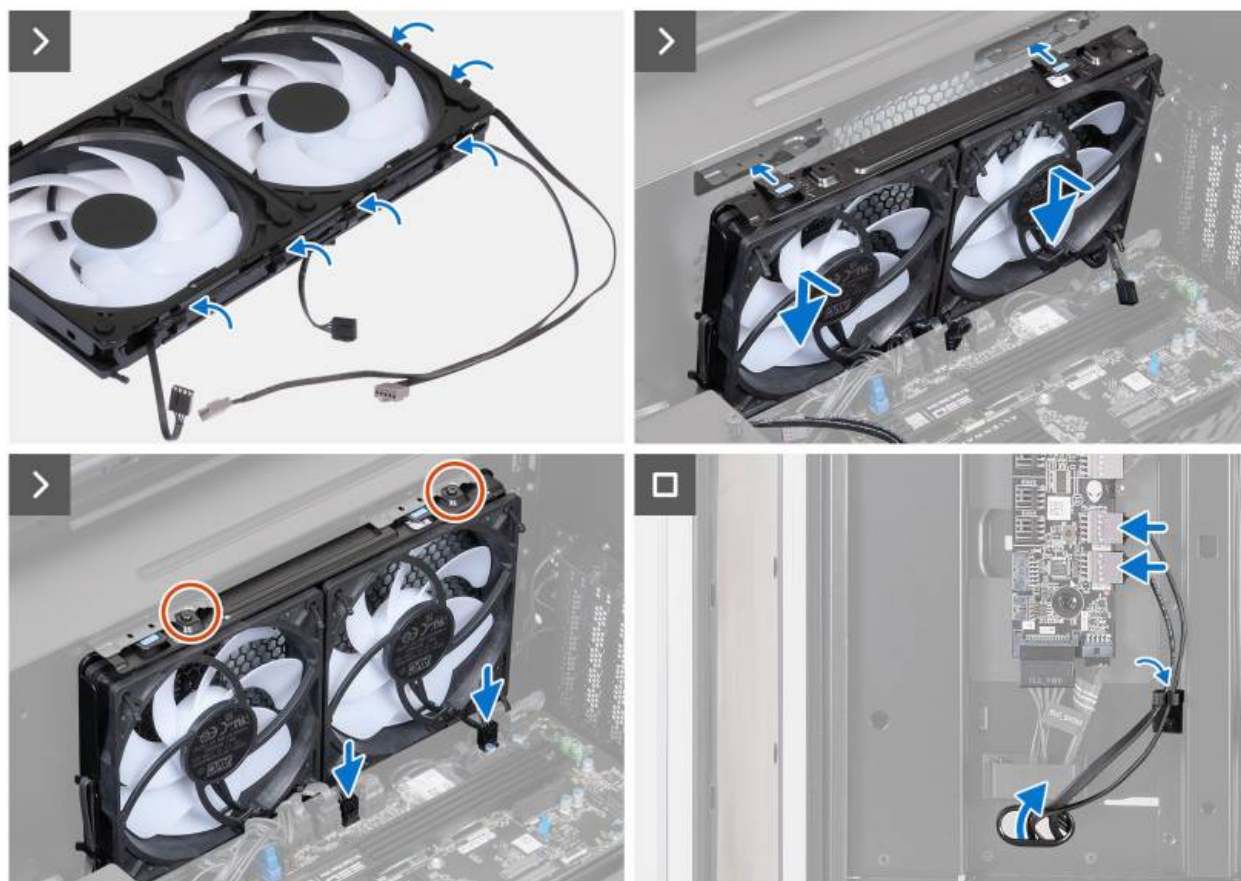


Figure 85. Installing the bottom fan

Steps

1. Place the front fan on a flat surface.
2. Route the cables through the openings on the fan bracket.
3. Align and place the fan bracket on the fans.
4. Slide and insert the fan grommets into the slots on the fan bracket.
5. Route the cables through the routing guides on the fan bracket.
6. Slide and push the bottom fan until the releasing clip snaps into position on the chassis.
7. Replace the two screws (M3x5) that secure the bottom fan to the chassis.
8. Connect the bottom fan cables to the connectors (FAN6 and FAN7) on the system board.
9. Route the bottom fan LED cables (FAN6 LED and FAN7 LED) from the opening on the chassis.
10. Lay the computer on its left side.
11. Insert the bottom fan LED cables into the securing clip and lock the securing clip to secure the bottom fan LED cables.
12. Connect the bottom fan LED cables to the connectors (FAN6 LED and FAN7 LED) on the AlienFX board.

Next steps

1. Install the [power-supply unit cover](#).
2. Install the [right cover](#).
3. Install the [left cover](#).
4. Follow the procedure in [After working inside your computer](#).

Fan grommets

Removing the fan grommets

CAUTION: The information in this removal section is intended for authorized service technicians only.

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).

About this task

The following images indicate the location of the fan grommets and provide a visual representation of the removal procedure.

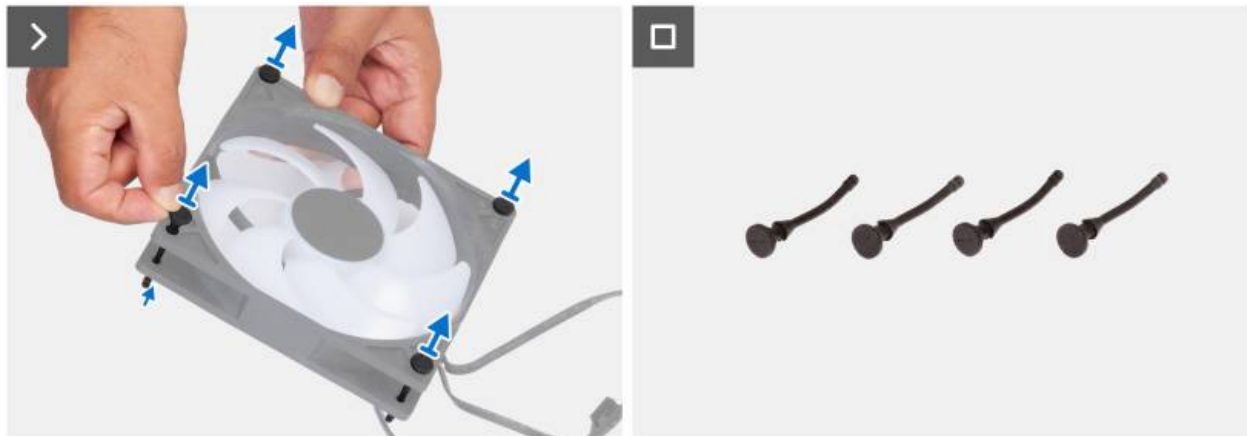


Figure 86. Removing the fan grommets

Steps

1. Remove the [front fan](#) or [bottom fan](#) for which you must replace the fan grommets.
2. Using your fingertips, pull the fan grommets from the top, releasing the fan grommets from the slots on the fan bracket.
3. Lift the fan grommets off the fan bracket.

Installing the fan grommets

CAUTION: The information in this installation section is intended for authorized service technicians only.

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 fan grommets and provide a visual representation of the installation procedure.

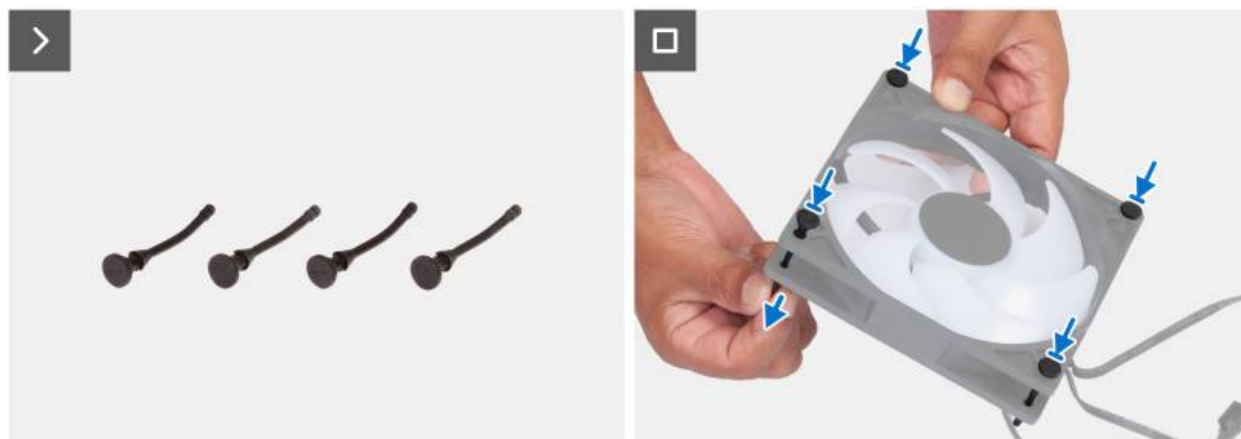


Figure 87. Installing the fan grommets

Steps

1. Hold the fan bracket at an angle, slide, and insert the fan grommet into the slot on the fan bracket.
2. Pull the fan grommet from the bottom onto the slot on the fan bracket until it slides completely and is held in place.
3. Install the [front fan](#) or [bottom fan](#) after replacing the fan grommets.

Next steps

1. Follow the procedure in [After working inside your computer](#).

SMA cable

Removing the SMA cable

CAUTION: The information in this removal section is intended for authorized service technicians only.

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [left cover](#).
3. Remove the [wireless card](#).
4. Remove the [power-supply unit cover](#).

About this task

The following images indicate the location of an SMA cable and provide a visual representation of the removal procedure.



Figure 88. Removing the SMA cable

Steps

1. Remove the two screws (M3x3) that secure the SMA cable to the chassis.
2. Remove the SMA cable off the chassis and remove the SMA cable from the securing clip on the system board.

Installing the SMA cable

CAUTION: The information in this installation section is intended for authorized service technicians only.

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 SMA cable and provide a visual representation of the installation procedure.

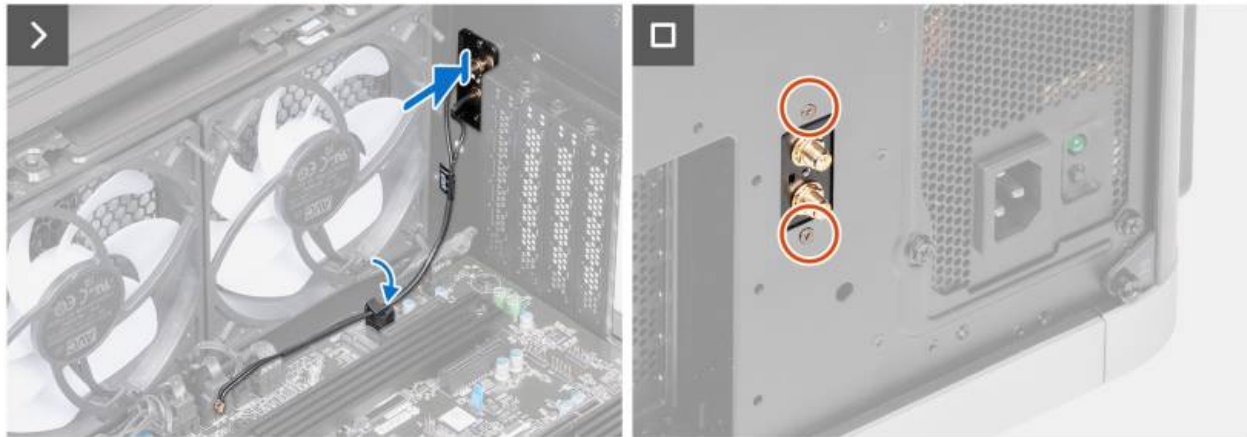


Figure 89. Installing the SMA cable

Steps

1. Align and place the SMA cable connector on the chassis.
2. Replace the two screws (M3x3) that secure the SMA cable connector to the chassis.
3. Insert the SMA cable into the securing clip on the system board.

Next steps

1. Install the [power-supply unit cover](#).
2. Install the [wireless card](#).
3. Install the [left cover](#).
4. Follow the procedure in [After working inside your computer](#).

Processor

Removing the processor

CAUTION: The information in this removal section is intended for authorized service technicians only.

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [left cover](#).
3. Remove the [top fan filter](#).
4. Remove the [top cover](#).
5. Remove the [processor liquid-cooling assembly](#).

About this task

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

Steps

1. Lay the computer on the right side.
2. Press the release lever down and then push it away from the processor to release it from the tab.
3. Extend the release lever completely and open the processor cover.
4. Lift the processor off the processor socket.

Installing the processor

 **CAUTION:** The information in this installation section is intended for authorized service technicians only.

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 provide 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. Push the release lever down and place it under the tab on the processor cover.

Next steps

1. Install the [processor liquid-cooling assembly](#).
2. Install the [top cover](#).
3. Install the [top fan filter](#).
4. Install the [left cover](#).
5. Follow the procedure in [After working inside your computer](#).

System board

Removing the system board

 **CAUTION:** The information in this removal section is intended for authorized service technicians only.

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 that 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 cover](#).
3. Remove the [memory module](#).
4. Remove the [single-graphics card](#).
5. Remove the [M.2 2230 SSD](#) or [M.2 2280 SSD](#), as applicable.
6. Remove the [wireless card](#).
7. Remove the [top fan filter](#).
8. Remove the [top cover](#).
9. Remove the [processor liquid-cooling assembly](#).
10. Remove the [processor](#).

About this task

The following image indicates the connectors on your system board.

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

Steps

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

 **NOTE:** Note the routing of all cables as you remove them so that you can route them correctly when replacing the system board. For information about system-board connectors, see "[system-board components](#)".

2. Remove the nine screws (#6-32) that secure the system board to the chassis.
3. Slide and lift the system board off the chassis at an angle and remove the system board off the chassis.

Installing the system board

 **CAUTION:** The information in this installation section is intended for authorized service technicians only.

Prerequisites

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

About this task

The following image indicates the connectors on your system board.

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

Steps

1. Slide and align the screw holes on the system board along with the screw holes on the chassis and place the system board on the chassis.

 **NOTE:** While installing the system board, exercise caution to prevent the system board from coming into contact with the chassis or any other component. Ensure that the rear-I/O port connectors are correctly aligned with the opening on the rear-I/O bracket of the chassis.

2. Replace the nine screws (#6-32) that secures the system board to the chassis.
3. Connect all the cables that were disconnected from the system board.

 **NOTE:** For information about system-board connectors, see "[system-board components](#)".

Next steps

1. Install the [processor](#).
2. Install the [processor liquid-cooling assembly](#).
3. Install the [top cover](#).

4. Install the [top fan filter](#).
5. Install the [wireless card](#).
6. Install the [M.2 2230 SSD](#) or [M.2 2280 SSD](#), as applicable.
7. Install the [single-graphics card](#).
8. Install the [memory module](#).
9. Install the [left cover](#).
10. Follow the procedure in [After working inside your computer](#).

Setting the Dust Filter Maintenance interval in the BIOS

You can setup the dust filter maintenance reminder in the BIOS. This setting enables or disables BIOS messages for maintaining the optional dust filter that is installed in your computer. Based on the interval that is set, the BIOS generates a preboot reminder to clean or replace the dust filter. To set dust filter maintenance in the BIOS:

1. Turn on the computer and press F2 to enter the BIOS Setup menu.
2. Go to **Integrated Devices > Dust Filter Maintenance**.

 **NOTE:** By default, the value is **Disabled**.

3. Select the interval from the available options **15 days**, **30 days**, **60 days**, **90 days**, **120 days**, **150 days**, and **180 days**.

 **NOTE:** The date count starts from the day the setting is changed from disabled to any of internals. If you change the interval from one option to another option, the start date remains unchanged.

To reset the maintenance interval for the dust filter, you need to first select **Disabled** and then save the settings. After that, you can choose the interval from the available options again.

Alienware Command Center

Alienware Command Center (AWCC) provides a single interface to customize and enhance the gaming experience. The AWCC dashboard displays most recently played or added games, and provides game-specific information, themes, profiles, and access to computer settings. You can quickly access settings such as game-specific profiles and themes, lighting, macros, and audio that are critical to the gaming experience.

AWCC also supports AlienFX 2.0. AlienFX enables you to create, assign, and share game-specific lighting maps to enhance the gaming experience. It also enables you to create your own customized lighting effects and apply them to the computer or attached peripherals. AWCC embeds Peripheral Controls to ensure a unified experience and the ability to link these settings to your computer or game.

This computer features the following AlienFX lighting zones:

- Alienware wordmark
- RGB ambient chassis lighting
- Alien head power button
- Left side stadium light
- Front fans (2)
- Bottom fans (2)
- Liquid cooler pump cap

 **NOTE:** Information about the location of AlienFX lighting zones on your computer is available in AWCC.

AWCC supports the following features:

- FX: Create and manage the AlienFX zones.
- Fusion: Fusion includes the ability to adjust game-specific Power Management, Sound Management, and Thermal Management features.
- Peripheral Management: Peripheral Management enables peripherals to appear in and be managed in Alienware Command Center. Supports key peripheral settings and associates with other functions such as profiles, macros, AlienFX, and game library.

AWCC also supports Sound Management, Thermal Controls, CPU, GPU, and Memory (RAM) monitoring. For more information about AWCC, see the *Alienware Command Center Online Help* or search in the Knowledge Base Resource at [Dell Support Site](#).

Alienware Area-51 AAT2250 lighting zones

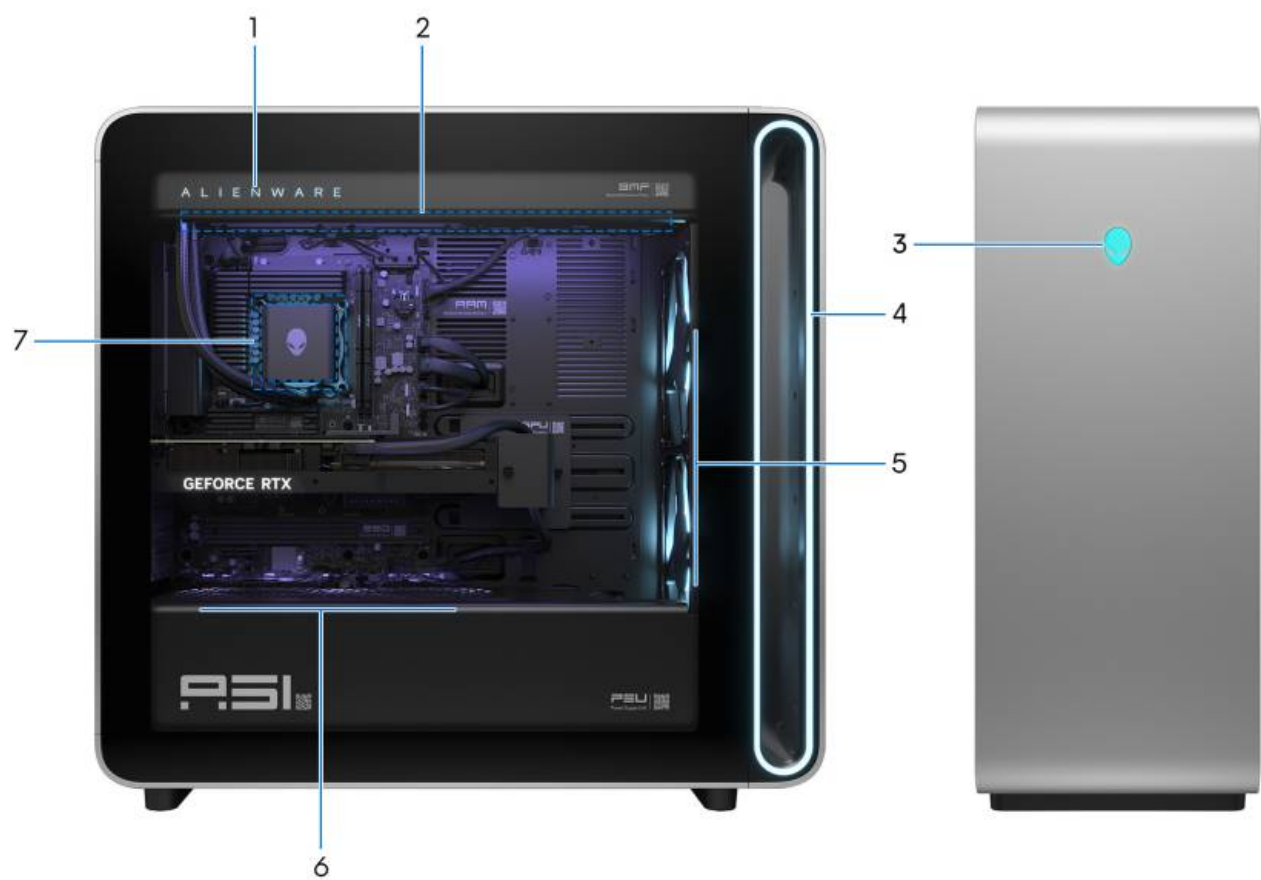


Figure 90. Alienware Area-51 AAT2250 lighting zones

Table 23. Alienware Area-51 AAT2250 lighting zones

Callout	Description
1	Alienware wordmark
2	RGB ambient chassis lighting
3	Alien head power button
4	Left side stadium light
5	Front fans (2)
6	Bottom fans (2)
7	Liquid cooler pump cap

Software

This chapter details the supported operating systems along with instructions on how to install the drivers.

Operating system

Your Alienware Area-51 AAT2250 supports the following operating systems:

- Windows 11 Home
- Windows 11 Pro

Drivers and downloads

When troubleshooting, downloading, or installing drivers, it is recommended that you read the [Dell Knowledge Base article Drivers and Downloads FAQs](#).

BIOS Setup

 **CAUTION:** Certain changes can make your computer work incorrectly. Before you change the settings in BIOS Setup, it is recommended that you note down the original settings for future reference.

 **NOTE:** Depending on the computer and the installed devices, the options that are listed in this section may differ.

Use BIOS Setup for the following purposes:

- Get information about the hardware installed in your computer, such as the amount of RAM and the capacity of the storage device.
- Change the system configuration information.
- Set or change user-selectable options such as the user password, enabling or disabling base devices, and configuring hard drive settings.

Entering BIOS Setup program

About this task

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

Navigation keys

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

Table 24. Navigation keys

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 follows 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 restart the computer.

F12 One Time Boot menu

To enter the One Time Boot menu, turn on or restart your computer, and then press F12 immediately.

 **NOTE:** If you are unable to enter the One Time Boot menu, repeat the above action.

The One Time Boot menu displays the devices that you can boot from and also display the options to start diagnostics. The boot menu options are:

- Removable Drive (if available)

- STXXXX Drive (if available)

 **NOTE:** XXXX denotes the SATA drive number.

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

The One Time Boot menu screen also displays the option to access BIOS Setup.

View Advanced Setup options

About this task

Some BIOS Setup options are only visible by enabling **Advanced Setup** mode, which is disabled by default.

 **NOTE:** BIOS Setup options, including **Advanced Setup** options, are described in [System Setup options](#).

To enable **Advanced Setup**:

Steps

1. Enter BIOS Setup.
The **Overview** menu appears.
2. Click the **Advanced Setup** option to move it to the **ON** mode.
Advanced BIOS Setup options are visible.

View Service options

About this task

Service options are hidden by default and only visible by entering a hotkey command.

 **NOTE:** Service options are described in [System Setup options](#).

To view Service options:

Steps

1. Enter BIOS Setup.
The **Overview** menu appears.
2. Enter the hotkey combination **Ctrl +Alt + s** to view the **Service** options.
Service options are visible.

System Setup options

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

 **NOTE:** Depending on your computer and its installed devices, the items that are listed in this section may differ.

Table 25. System Setup options—Overview menu

Overview	
Alienware Area-51 AAT2250	
BIOS Version	Displays the BIOS version number.
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Displays the Asset Tag of the computer.

Table 25. System Setup options—Overview menu (continued)

Overview	
Manufacture Date	Displays the manufacture date of the computer.
Ownership Date	Displays the ownership date of the computer.
Express Service Code	Displays the Express Service Code of the computer.
Ownership Tag	Displays the Ownership Tag of the computer.
Signed Firmware Update	Displays whether the Signed Firmware Update is enabled on your computer. By default, the Signed Firmware Update option is enabled.  NOTE: To view this option, enable Service options as described in View Service options.
PROCESSOR	
Processor Type	Displays the processor type.
Maximum Clock Speed	Displays the maximum processor clock speed.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Minimum Clock Speed	Displays the minimum processor clock speed.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Current Clock Speed	Displays the current processor clock speed.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Core Count	Displays the number of cores on the processor.
Processor ID	Displays the processor identification code.
Processor L2 Cache	Displays the processor L2 cache value.
Processor L3 Cache	Displays the processor L3 cache value.
Microcode Version	Displays the microcode version.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Intel Hyper-Threading Capable	Displays whether the processor is Hyper-Threading (HT) capable.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
64-Bit Technology	Displays whether 64-bit technology is used.
Intel vPro Technology	Displays whether Intel vPro technology is used.
MEMORY	
Memory Installed	Displays the total memory installed on the computer.
Memory Available	Displays the total memory available on the computer.
Memory Speed	Displays the memory speed.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Memory Channel Mode	Displays single or dual channel mode.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Memory Technology	Displays the technology that is used for the memory.

Table 25. System Setup options—Overview menu (continued)

Overview	
DIMM 1 Size	Displays the size of DIMM 1.
DIMM 2 Size	Displays the size of DIMM 2.
DEVICES	
Video Controller	Displays the type of video controller available on the computer.
Video Memory	Displays the video memory information of the computer.
Wi-Fi Device	Displays the wireless device information of the computer.
Native Resolution	Displays the native resolution of the computer.
Video BIOS Version	Displays the video BIOS version of the computer. i NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Audio Controller	Displays the audio controller information of the computer.
Bluetooth Device	Displays the Bluetooth device information of the computer.
LOM MAC Address	Displays the MAC address of the LOM.
dGPU Video Controller	Displays the dGPU video controller.
Slot 1	Displays the PCIe slot 1 information.
Slot 2	Displays the PCIe slot 2 information.
Slot 3	Displays the PCIe slot 3 information.

Table 26. System Setup options—Boot Configuration menu

Boot Configuration	
Boot Sequence	
Boot Mode: UEFI only	Displays the boot mode of the computer. i NOTE: To view this option, enable Service options as described in View Service options .
Boot Sequence	Displays the boot sequence.
Enable PXE Boot Priority	Enables or disables the new PXE boot option. By default, the Enable PXE Boot Priority option is off. i NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Secure Boot	
Enable Secure Boot	Secure Boot is a method of guaranteeing the integrity of the boot path by performing additional validation of the operating system and PCI add-in cards. The computer stops booting to the operating system when a component is not authenticated during the boot process. Secure Boot can be enabled in BIOS setup or using management interfaces like Dell Command Configure, but can only be disabled from BIOS setup. Enables the computer to boot using only validated boot software. By default, this Enable Secure Boot option is disabled. For additional security, Dell Technologies recommends keeping the Secure Boot option enabled to ensure that the UEFI firmware validates the operating system during the boot process. i NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .

Table 26. System Setup options—Boot Configuration menu (continued)

Boot Configuration	
	 NOTE: To enable Secure Boot, the computer is required to be in UEFI boot mode, and the Enable Legacy Option ROMs option is required to be turned off.
Enable Microsoft UEFI CA	When disabled, the UEFI CA is removed from the BIOS UEFI Secure Boot database.  CAUTION: When disabled, the Microsoft UEFI CA can cause your computer to not boot, computer graphics may not function, some devices may not function properly, and the computer could become unrecoverable. By default, the Enable Microsoft UEFI CA option is enabled. For additional security, Dell Technologies recommends keeping the Enable Microsoft UEFI CA option enabled to ensure the broadest compatibility with devices and operating systems.
Secure Boot Mode	Enables or disables the Secure Boot operation mode. By default, the Deployed Mode is selected. Deployed Mode should be selected for normal operation of Secure Boot.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Expert Key Management	
Enable Custom Mode	Enables or disables the keys in the PK, KEK, db, and dbx security key databases to be modified. By default, the Enable Custom Mode option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Custom Mode Key Management	Selects the custom values for expert key management. By default, the PK option is selected.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 27. System Setup options—Integrated Devices menu

Integrated Devices	
Date/Time	
Date	Sets the computer date in MM/DD/YYYY format. Changes to the date format take effect immediately.
Time	Sets the computer time in HH/MM/SS 24-hour format. You can switch between a 12-hour or 24-hour clock. Changes to the time format take effect immediately.
Audio	
Enable Audio	Enables all integrated audio controller. By default, all the options are enabled.
Enable Microphone	Enables the microphone. By default, the Enable Microphone option is enabled.  NOTE: Depending on the configuration ordered, the microphone setup option may not be available.

Table 27. System Setup options—Integrated Devices menu (continued)

Integrated Devices	
USB/Thunderbolt Configuration	
Enable Front USB Ports	Enables the front USB ports. By default, the Enable Front USB Ports option is enabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable Rear USB Ports	Enables the rear USB ports. By default, the Enable Rear USB Ports option is enabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable USB Boot Support	Enables booting from USB mass storage devices that are connected to external USB ports. By default, the Enable USB Boot Support option is enabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable Thunderbolt Technology Support	
Enable Thunderbolt Technology Support	Enables the associated ports and adapters for Thunderbolt Technology support. By default, the Enable Thunderbolt Technology Support option is enabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable Thunderbolt Boot Support	
Enable Thunderbolt Boot Support	Enables the Thunderbolt adapter-peripheral device and USB devices that are connected to the Thunderbolt adapter to be used during BIOS Preboot. By default, the Enable Thunderbolt Boot Support option is disabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Dust Filter Maintenance	
Dust Filter Maintenance	Enables or disables BIOS messages for maintaining the optional dustfilter that is installed in your computer. BIOS generates a pre-boot reminder to clean or replace the dust filter based on the interval set. By default, the Dust Filter Maintenance option is disabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 28. System Setup options—Storage menu

Storage	
SATA/NVMe Operation	
SATA/NVMe Operation	Sets the operating mode of the integrated SATA hard drive controller. By default, the RAID On option is selected.
Storage Interface	
Port Enablement	Enables or disables the M.2 PCIe SSD option.
SMART Reporting	Enables or disables the SMART Reporting option.

Table 28. System Setup options—Storage menu (continued)

Storage	
	By default, the Enable SMART Reporting option is disabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Drive Information	Displays the information of onboard drives.

Table 29. System Setup options—Display menu

Display	
Primary Display	
Primary Display	Determines which video controller becomes the primary display when multiple controllers are available in the computer. By default, the Auto option is enabled. NOTE: When Auto is not selected, the onboard graphics device is present and enabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Full Screen Logo	Enables or disables the computer to display a full screen logo, if the image matches screen resolution. By default, the Full Screen Logo option is disabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 30. System Setup options—Connection menu

Connection	
Network Controller Configuration	
Integrated NIC	Controls the on-board LAN Controller. By default, the Enabled with PXE option is enabled.
Wireless Device Enable	
WLAN/WiGig	Enables or disables the internal WLAN device. By default, the WLAN/WiGig option is enabled.
Bluetooth	Enables or disables the internal Bluetooth device. By default, the Bluetooth option is enabled.
Enable UEFI Network Stack	Enables or disables the UEFI networking protocols, allowing pre-OS and early OS networking features to use any enabled NICs. By default, the Auto Enabled option is enabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
HTTPS(s) Boot Feature	
HTTP(s) Boot	When enabled, supports HTTP(s) boot on the client BIOS, which offers wired or wireless and HTTP/HTTPS connection options. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 30. System Setup options—Connection menu (continued)

Connection	
HTTP(s) Boot Modes	In Auto Mode, the boot URL is obtained from the DHCP response; the boot URL specifies the HTTP Boot Server and location of the Network Boot Program (NBP) file. In Manual mode, the user enters the URL in the text box, which must start with <code>http://</code> or <code>https://</code> and end with the NBP file name. By default, Auto Mode is selected. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
CA Certificate	Upload or delete the CA certificate. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 31. System Setup options—Power menu

Power	
USB PowerShare	
Enable USB PowerShare	Enables external devices to be powered or charged using the stored computer battery. Devices must be connected through the designated USB PowerShare port on the computer. By default, the Enable USB PowerShare option is off. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
USB Wake Support	
Enable USB Wake Support	Enables or disables USB devices like a mouse or keyboard to wake the computer from Standby, Hibernation, or Power Off. NOTE: This feature requires Deep Sleep Control to be disabled. By default, the Enable USB Wake Support option is on. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
AC Behavior	
AC Recovery	Sets what action the computer takes when power is restored after an unexpected loss of power. By default, the AC Recovery option is set to Power Off. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Block Sleep	
	Enables or disables the computer from entering Sleep (S3) mode in the operating system. By default, the Block Sleep option is disabled. NOTE: When enabled, the computer does not go to Sleep, Intel Rapid Start is disabled automatically, and the operating system power option is blank if it was set to Sleep. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Deep Sleep Control	
Deep Sleep Control	Allows you to define the controls when Deep Sleep is enabled. By default, the Deep Sleep Control option is Enabled in S4 and S5.

Table 31. System Setup options—Power menu (continued)

Power	
Intel Speed Shift Technology	Enables or disables the Intel Speed Shift Technology support. When enabled, the operating system selects the appropriate processor performance automatically. By default, the Intel Speed Shift Technology option is enabled.  NOTE: To view this option, enable Service options as described in View Service options.

Table 32. System Setup options—Security menu

Security	
Intel Platform Trust Technology	Intel Platform Trust Technology On Enables or disables the TPM. By default, the Intel Platform Trust Technology On option is enabled. For additional security, Dell Technologies recommends keeping TPM enabled to allow these security technologies to fully function.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
PPI Bypass for Clear Commands	The PPI Bypass for Clear Commands option allows the operating system to manage certain aspects of PTT. When enabled, you are not prompted to confirm changes to the PTT configuration. By default, the PPI Bypass for Clear Commands option is disabled. For additional security, Dell Technologies recommends keeping the PPI Bypass for Clear Commands option disabled.
SMM Security Mitigation	Enables or disables additional UEFI SMM Security Mitigation protections. This option uses the Windows SMM Security Mitigations Table (WSMT) to confirm to the operating system that security best practices have been implemented by the UEFI firmware. By default, the SMM Security Mitigation option is enabled. For additional security, Dell Technologies recommends keeping the SMM Security Mitigation option enabled unless you have a specific application which is not compatible.  NOTE: This feature may cause compatibility issues or loss of functionality with some legacy tools and applications.  NOTE: To view this option, enable Service options as described in View Service options.
Data Wipe on Next Boot	
Start Data Wipe	Data Wipe is a secure wipe operation that deletes information from a storage device.  CAUTION: The secure Data Wipe operation deletes information in a way that it cannot be reconstructed. Commands such as delete and format in the operating system may remove files from showing up in the file system. However, they can be reconstructed through forensic means as they are still represented on the physical media. Data Wipe prevents this reconstruction and the data can no longer be recovered. When enabled, the data wipe option provides prompts to wipe any storage devices that are connected to the computer on the next boot. By default, the Start Data Wipe option is disabled.

Table 32. System Setup options—Security menu (continued)

Security	
	 NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
HDD Security	
SED Block SID Authentication	Enables or disables the SED Block SID Authentication setting controls used by the BIOS to block entities from taking ownership of the Self-Encrypting Drive (SED) when the drive does not have a password set. By default, the SED Block SID Authentication option is enabled.
PPI Bypass for SED Block SID Command	Enables or disables the SED Block SID Physical Presence Interface (PPI). By default, the PPI Bypass for SED Block SID Command option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Absolute	
Absolute	Absolute Software provides various cyber security solutions, some requiring software preloaded on Dell computers and integrated into the BIOS. To use these features, you must enable the Absolute BIOS setting and contact Absolute for configuration and activation. By default, the Enable Absolute option is enabled. For additional security, Dell Technologies recommends keeping the Absolute option enabled.  WARNING: The Disable Absolute option can only be selected once. When Disable Absolute is selected, Absolute Persistence cannot be reenabled. No further changes to the Enable/Disable states are allowed.  NOTE: The Enable/Disable options are unavailable while the computer is in the activated state.  NOTE: When the Absolute features are activated, the Absolute integration cannot be disabled from the BIOS Setup screen.
UEFI Boot Path Security	Enables or disables the computer to prompt the user to enter the Administrator password (if set) when booting to a UEFI boot path device from the F12 boot menu. By default, the Always Except Internal HDD option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .

Table 33. System Setup options—Passwords menu

Passwords	
Admin Password	The Admin Password prevents unauthorized access to the BIOS Setup options. Once the administrator password is set, the BIOS Setup options can only be modified after providing the correct password. The following rules and dependencies apply to the Admin Password - • The administrator password cannot be set if computer and/or internal hard drive passwords are previously set. • The administrator password can be used in place of the computer and/or internal hard drive passwords. • When set, the administrator password must be provided during a firmware update.

Table 33. System Setup options—Passwords menu (continued)

Passwords	
	Clearing the administrator password also clears the computer password (if set). Dell Technologies recommends using an administrator password to prevent unauthorized changes to BIOS Setup options.
System Password	The System Password prevents the computer from booting to an operating system without entering the correct password. The following rules and dependencies apply when the System Password is used - - The computer shuts down when idle for approximately 10 minutes at the system password prompt. - The computer shuts down after three incorrect attempts to enter the system password. - The computer shuts down when the Esc key is pressed at the System Password prompt. - The system password is not prompted when the computer resumes from standby mode. Dell Technologies recommends using the system password in situations where it is likely that a computer may be lost or stolen.
Password Configuration	The Password configuration page includes several options for changing the requirements of BIOS passwords. You can modify the minimum and maximum length of the passwords as well as require passwords to contain certain character classes (upper case, lower case, digit, special character). When the Upper Case Letter option is enabled, the password requires at least one upper case letter. When the Lower Case Letter option is enabled, the password requires at least one lower case letter. When the Digit option is enabled, the password requires at least one numeric digit. When the Special Character option is enabled, the password requires at least one special character from the set: !"#%&'()*+,-./:;<=>?@[\\]^_`{ }~. When setting Minimum Characters for password length, Dell Technologies recommends setting the minimum password length to at least eight characters.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Password Bypass	The Password Bypass option allows the computer to reboot from the operating system without entering the system or hard drive password. If the computer has already booted to the operating system, it is presumed that the user has already entered the correct system or hard drive password.  NOTE: This option does not remove the requirement to enter the password after shutting down. By default, the Password Bypass option is disabled. For additional security, Dell Technologies recommends keeping the Password Bypass option enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Password Changes	
Allow Non-Admin Password Changes	The Allow Non-Admin Password Changes option in BIOS Setup enables you to set or change the system or hard drive passwords without entering the administrator password. This gives an administrator control over the BIOS settings but enables an end user to provide their own password.

Table 33. System Setup options—Passwords menu (continued)

Passwords	
	By default, the Allow Non-Admin Password Changes option is enabled. For additional security, Dell Technologies recommends keeping the Allow Non-Admin Password Changes option disabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable Admin Setup Lockout	The Admin Setup Lockout option prevents an end user from even viewing the BIOS Setup configuration without first entering the administrator password (if set). By default, the Enable Admin Setup Lockout option is disabled. For additional security, Dell Technologies recommends keeping the Admin Setup Lockout option disabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable Master Password Lockout	The Master Password Lockout option allows you to disable the Recovery Password feature. If the system, administrator, or hard drive password is forgotten, the computer becomes unusable. NOTE: When the owner password is set, the Master Password Lockout option is not available. NOTE: When an internal hard drive password is set, it must first be cleared before Master Password Lockout can be changed. By default, the Enable Master Password Lockout option is disabled. Dell Technologies does not recommend enabling the Master Password Lockout unless you have implemented your own password recovery system. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 34. System Setup options—Update, Recovery menu

Update, Recovery	
UEFI Capsule Firmware Updates	
Enable UEFI Capsule Firmware Updates	Enables or disables BIOS updates through UEFI capsule update packages. NOTE: Disabling this option blocks the BIOS updates from services such as Microsoft Windows Update and Linux Vendor Firmware Service (LVFS). By default, the Enable UEFI Capsule Firmware Updates option is enabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
BIOS Recovery from Hard Drive	Enables or disables the user to recover from certain corrupted BIOS conditions from a recovery file on the user primary hard drive or an external USB drive. By default, the BIOS Recovery from Hard Drive option is enabled. NOTE: BIOS Recovery from Hard Drive is not available for self-encrypting drives (SED). NOTE: BIOS recovery is designed to fix the main BIOS block and cannot work if the Boot Block is damaged. In addition, this feature cannot work in the event of EC corruption, ME corruption, or a hardware issue. The recovery image must exist on an unencrypted partition on the drive.

Table 34. System Setup options—Update, Recovery menu (continued)

Update, Recovery	
	 NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
BIOS Downgrade	
Allow BIOS Downgrade	Allows downgrading of the computer firmware to previous revisions. By default, the Allow BIOS Downgrade option is enabled.
SupportAssist OS Recovery	Enables or disables the boot flow for SupportAssist OS Recovery tool if certain system errors occur. By default, the SupportAssist OS Recovery option is enabled.
BIOSConnect	Enables or disables cloud service operating system recovery if the main operating system fails to boot with the number of failures equal to or greater than the value specified by the Auto OS Recovery Threshold setup option and local service operating system does not boot or is not installed. By default, the BIOSConnect option is enabled.
Dell Auto OS Recovery Threshold	Allows the control of the automatic boot flow for the SupportAssist System Resolution Console and the Dell OS Recovery Tool. By default, the Dell Auto OS Recovery Threshold value is set to 2.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 35. System Setup options—System Management menu

System Management	
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Creates a computer Asset Tag that an IT administrator can use to uniquely identify a particular computer.  NOTE: Once set in the BIOS, the Asset Tag cannot be changed.
Wake on LAN/WLAN	Enables or disables the computer to turn on by a special LAN signal. By default, the Wake on LAN/WLAN option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Auto On Time	Enable to set the computer to turn on automatically every day or on a preselected date and time. This option can be configured only if the Auto On Time is set to Everyday, Weekdays, or Selected Days. By default, the Auto On Time option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
SERR Messages	
Enable SERR Messages	Enables or disables the SERR message mechanism. By default, the Enable SERR Messages option is enabled.  NOTE: Some graphics card requires that the SERR message mechanism is disabled.
First Power On Date	
Set Ownership Date	Allows to set the Ownership date.

Table 35. System Setup options—System Management menu (continued)

System Management	
By default, the Set Ownership Date option is disabled.	
Diagnostics	
OS Agent Requests	Enables or disables the capability of scheduling onboard diagnostics on a subsequent boot. By default, the OS Agent Requests option is enabled.
Power-On-Self-Test Automatic Recovery	Enable or disable the automatic recovery of the computer from no power or no-POST failure by applying mitigation steps. By default, the Power-On-Self-Test Automatic Recovery option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 36. System Setup options—Keyboard menu

Keyboard	
Keyboard Errors	
Enable Keyboard Error Detection	Enabling this option allows keyboard-related errors to be reported when the computer boots. By default, the Enable Keyboard Error Detection option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Numlock LED	
Enable Numlock LED	Enables or disables the Numlock LED when the computer boots. By default, the Enable Numlock LED option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 37. System Setup options—Pre-boot Behavior menu

Pre-boot Behavior	
Warnings and Errors	Enables or disables the action to be taken when a warning or error is encountered. By default, the Prompt on Warnings and Errors option is selected.  NOTE: Errors deemed critical to the operation of the computer hardware stop the functioning of the computer.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Extend BIOS POST Time	Sets the BIOS POST (Power-On Self-Test) load time. By default, the 0 seconds option is selected.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 38. System Setup options—Virtualization Support menu

Virtualization Support	
Intel Virtualization Technology	

Table 38. System Setup options—Virtualization Support menu (continued)

Virtualization Support	
Enable Intel Virtualization Technology (VT)	When enabled, the computer can run a Virtual Machine Monitor (VMM). By default, the Enable Intel Virtualization Technology (VT) option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
VT for Direct I/O	
Enable Intel VT for Direct I/O	When enabled, the computer can perform Virtualization Technology for Direct I/O (VT-d). VT-d is an Intel method that provides virtualization for memory map I/O. By default, the Enable Intel VT for Direct I/O option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
DMA Protection	
Enable Pre-Boot DMA Support	Allows you to control the Pre-Boot DMA protection for both internal and external ports. This option does not directly enable DMA protection in the operating system.  NOTE: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi). By default, the Enable Pre-Boot DMA Support option is enabled. For additional security, Dell Technologies recommends keeping the Enable Pre-Boot DMA Support option enabled.  NOTE: This option is provided only for compatibility purposes, since some older hardware is not DMA capable.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable OS Kernel DMA Support	Allows you to control the Kernel DMA protection for both internal and external ports. This option does not directly enable DMA protection in the operating system. For operating systems that support DMA protection, this setting indicates to the operating system that the BIOS supports the feature.  NOTE: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi). By default, the Enable OS Kernel DMA Support option is enabled.  NOTE: This option is provided only for compatibility purposes, since some older hardware is not DMA capable.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Internal Port DMA Compatibility Mode	Allows BIOS to notify the OS that the internal ports are not DMA capable. By default, the Internal Port DMA Compatibility Mode option is disabled.

Table 39. System Setup options—Performance menu

Performance	
Multi-Core Support	
Active Multiple Performance Cores (P-Cores) Select	Allows you to change the number of CPU cores available to the operating system. By default, the All Active option is enabled.

Table 39. System Setup options—Performance menu (continued)

Performance	
Active Efficient Cores (E-Cores) Select	Allows you to change the number of CPU E-Cores available to the operating system. By default, the All Active option is enabled.
Intel SpeedStep	
Enable Intel SpeedStep Technology	Allows the computer to dynamically adjust processor voltage and core frequency, decreasing average power consumption and heat production. By default, the Enable Intel SpeedStep Technology option is enabled.
C-States Control	
Enable C-State Control	Enables the processors ability to enter and exit low power states. By default, the Enable C-State Control option is enabled.
Intel Turbo Boost Technology	
Enable Intel Turbo Boost Technology	Enables or disables the Intel TurboBoost mode of the processor. When enabled, the Intel TurboBoost driver increases the performance of the CPU or graphics processor. By default, the Enable Intel Turbo Boost Technology option is enabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
OverClocking feature	
OverClocking feature	Enables or disables global overclocking functions. When this option is enabled, overclocking options are displayed. By default, the OverClocking feature option is disabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
PCIe Resizable Base Address Register (BAR)	
PCIe Resizable Base Address Register (BAR)	Enables or disables PCIe resizable bar support. NOTE: This option is available for development only and is not customer visible. By default, the PCIe Resizable Base Address Register (BAR) option is disabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 40. System Setup options—System Logs menu

System Logs	
BIOS Event Log	
Clear BIOS Event Log	Select the option to keep or clear BIOS events logs. By default, the Keep Log option is selected. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Power Event Log	
Clear Power Event Log	Select the option to keep or clear power events logs. By default, the Keep Log option is selected.

Table 40. System Setup options—System Logs menu (continued)

System Logs	
	 NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .

Updating the BIOS

Updating the BIOS in Windows

About this task

-  **CAUTION:** If BitLocker is not suspended before updating the BIOS, the BitLocker key is not recognized the next time you reboot the computer. You will then be prompted to enter the recovery key to proceed, and the computer displays a prompt for the recovery key on each reboot. Failure to provide the recovery key can result in data loss or an operating system reinstall. For more information, see the Knowledge Base Resource [Updating the BIOS on Dell systems with BitLocker enabled](#).
-  **CAUTION:** Do not turn off the computer during the BIOS flash update process. The computer may not boot if you turn off your computer.

Steps

1. Go to [Dell Support Site](#).
2. Go to **Identify your product or ask support**. In the box, enter the product identifier, model, service request or describe what you are looking for, and then click **Search**.

 **NOTE:** If you do not have the Service Tag, click **Detect This PC**. The site automatically detects your device, and you can then click **Explore Product Support** to go to the support page for your device. You can also use the product ID or manually browse for your computer model.
3. Click **Drivers & Downloads**.
4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. After the download is complete, navigate to the folder where the BIOS update file has been saved.
8. Double-click the BIOS update file and follow the on-screen instructions.
For more information, search in the Knowledge Base Resource at [Dell Support Site](#).

Updating the BIOS using the USB drive in Windows

About this task

-  **CAUTION:** If BitLocker is not suspended before updating the BIOS, the BitLocker key is not recognized the next time you reboot the computer. You will then be prompted to enter the recovery key to proceed, and the computer displays a prompt for the recovery key on each reboot. Failure to provide the recovery key can result in data loss or an operating system reinstall. For more information, see the Knowledge Base Resource [Updating the BIOS on Dell systems with BitLocker enabled](#).
-  **CAUTION:** Do not turn off the computer during the BIOS flash update process. The computer may not boot if you turn off your computer.

Steps

1. Go to [Dell Support Site](#).

2. Go to **Identify your product or ask support**. In the box, enter the product identifier, model, service request or describe what you are looking for, and then click **Search**.

 **NOTE:** If you do not have the Service Tag, click **Detect This PC**. The site automatically detects your device, and you can then click **Explore Product Support** to go to the support page for your device. You can also use the product ID or manually browse for your computer model.

3. Click **Drivers & Downloads**.
4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. Create a bootable USB drive. For more information, search the Knowledge Base Resource at [Dell Support Site](#).
8. Copy the BIOS Setup program file to the bootable USB drive.
9. Connect the bootable USB drive to the computer that needs the BIOS update.
10. Restart the computer and press **F12**.
11. Select the USB drive from the **One Time Boot Menu**.
12. Type the BIOS Setup program filename and press **Enter**.
The **BIOS Update Utility** appears.
13. Follow the on-screen instructions to complete the BIOS update.

Updating the BIOS from the One-Time boot menu

To update the BIOS from the One-Time boot menu, see Knowledge base article [000128928](#) at [Dell Support Site](#).

System and setup password

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

 **CAUTION:** Ensure that your computer is locked when it is not in use. Anyone can access the data that is stored on your computer, when left unattended.

Table 41. System and setup password

Password type	Description
System password	Password that you must enter to boot to your operating system.
Setup password	Password that you must enter to access and change the BIOS settings of your computer.

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

 **NOTE:** The System and setup password feature is disabled by default.

Assigning a System Setup password

Prerequisites

You can assign a new System or Admin Password only when the status is set to **Not Set**. To enter BIOS System Setup, press F2 immediately after a power-on or reboot.

Steps

1. To enter the **System Setup**, press **F2** immediately after a power-on or reboot.
2. In the **System BIOS** or **System Setup** screen, select **Security** and press Enter.
The **Security** screen is displayed.

3. Select **System/Admin Password** and create a password in the **Enter the new password** field.
Use the following guidelines to create the system password:
 - Password can be up to 32 characters.
 - Password must contain at least one special character: "(! " # \$ % & ' * + , - . / : ; < = > ? @ [\] ^ _ ` { | })")"
 - The password can contain numbers from 0 to 9.
 - The password can contain alphabets A to Z and a to z.
4. Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
5. Press Y to save the changes.
The computer restarts.

Deleting or changing an existing system password or setup password

Prerequisites

Ensure that the **Password Status** is Unlocked in the System Setup before attempting to delete or change the existing system password and/or setup password. You cannot delete or change an existing system password or setup password if the **Password Status** is Locked. To enter the System Setup, press F2 immediately after a power-on or reboot.

Steps

1. To enter the **System Setup**, press **F2** immediately after a power-on or reboot.
2. In the **System BIOS** or **System Setup** screen, select **System Security** and press Enter.
The **System Security** screen is displayed.
3. In the **System Security** screen, verify that the **Password Status** is Unlocked.
4. Select **System Password**. Update or delete the existing system password, and press Enter or Tab.
5. Select **Setup Password**. Update or delete the existing setup password, and press Enter or Tab.

 **NOTE:** If you change the system password and/or setup password, reenter the new password when prompted. If you delete the system password and/or setup password, confirm the deletion when prompted.

6. Press Esc. A message prompts you to save the changes.
7. Press Y to save the changes and exit from **System Setup**.
The computer restarts.

Real-Time Clock (RTC Reset)

The Real-Time Clock (RTC) reset function enables you or the service technician to recover Dell computers from No POST/No Power/No Boot situations. The legacy jumper-enabled RTC reset has been retired on these models.

Start the RTC reset with the computer powered off and connected to AC power. Press and hold the power button for 25 seconds. The computer RTC Reset occurs after you release the power button. Another way to reset is to remove the coin-cell battery from the system board.

1. Turn off the computer and disconnect the power cable from the computer.
2. Remove the [left cover](#).
3. Lay the computer on its right side.
4. Remove the [coin-cell battery cover](#).
5. Remove the [coin-cell battery](#).
6. Wait for one minute.
7. Install the [coin-cell battery](#).
8. Install the [coin-cell battery cover](#).
9. Lay the computer in the upright position.
10. Install the [left cover](#).

Clearing BIOS (System Setup) and System passwords

About this task

To clear the computer or BIOS passwords, contact Dell technical support as described at [Contact Support](#). For more information, go to [Dell Support Site](#).

 **NOTE:** For information about how to reset Windows or application passwords, see the documentation accompanying Windows or your application.

Troubleshooting

Dell SupportAssist Pre-boot System Performance Check diagnostics

About this task

SupportAssist diagnostics (also known as system diagnostics) performs a complete check of your hardware. The Dell SupportAssist Pre-boot System Performance Check diagnostics is embedded within the BIOS and launched by the BIOS internally. The embedded system diagnostics provides options for particular devices or device groups allowing you to:

- Run tests automatically or in an interactive mode.
- Repeat the tests.
- Display or save test results.
- Run thorough tests to add more options and obtain details about any failed devices.
- View status messages that inform you when the tests are completed successfully.
- View error messages that inform you of problems encountered during testing.

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

For more information, see [How to Run Dell Preboot Diagnostics and Hardware Tests on Your Dell Computer](#).

Running the SupportAssist Pre-Boot System Performance Check

Steps

1. Turn on your computer.
2. As the computer boots, press the F12 key.
3. On the boot menu screen, select **Diagnostics**.
The diagnostic quick test begins.

 **NOTE:** For more information about running the SupportAssist Pre-Boot System Performance Check on a specific device, see [Dell Support Site](#).

4. If there are any issues, error codes are displayed.
Note the error code and validation number and contact Dell.

System-diagnostic lights

The power-status light indicates the power status of the computer. These are the power states:

Solid white—Computer is in S0 state. This is the normal power state of the computer.

Blinking white—Computer is in a low-power state, S3. This does not indicate a fault.

Solid amber—Computer is experiencing a boot failure, including the power-supply unit.

Blinking amber—Computer is experiencing a boot failure but the power-supply unit is functioning correctly.

Off—Computer is in hibernation mode or turned off.

The power-status light may also blink amber or white according to predefined "beep codes" indicating various failures.

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

The following table shows different power and battery-status light patterns and associated problems.

NOTE: The following diagnostic light codes and recommended solutions are intended for Dell service technicians to troubleshoot problems. You should only perform troubleshooting and repairs as authorized or directed by the Dell technical support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

Table 42. Diagnostic light codes

Diagnostic light codes (Amber, White)	Problem description
1,5	EC unable to program i-Fuse
1,8	Chipset "Catastrophic Error" signal has tripped
2,1	CPU configuration or CPU failure
2,2	System board: BIOS or Read-Only Memory (ROM) failure
2,3	No memory or Random-Access Memory (RAM) detected
2,4	Memory or Random-Access Memory (RAM) failure
2,5	Invalid memory installed
2,6	System board or chipset error
3,1	CMOS battery failure NOTE: Not supported on the system without coin-cell battery.
3,2	PCI of video card or chip failure
3,3	BIOS Recovery 1: BIOS recovery image not found
3,4	BIOS Recovery 2: Recovery image found but invalid
3,5	Power Rail Failure: EC ran into power sequencing failure
3,6	Flash corruption detected by SBIOS
3,7	Timeout waiting on ME to reply to HECI message
4,1	Memory DIMM power rail failure
4,2	CPU Power cable connection issue

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 stand-alone tool that is preinstalled on Dell computers running the Windows 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, and 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 the 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 [Serviceability Tools at the Dell Support Site](#). Click **SupportAssist** and then click **SupportAssist OS Recovery**.

NOTE: Windows 11 IoT Enterprise LTSC 2024 and Dell ThinOS 10 do not support Dell SupportAssist. For more information about recovering ThinOS 10, see [Recovery mode using R-Key](#).

Network power cycle

About this task

If your computer is unable to access the Internet due to network connectivity issues, reset your network devices by performing the following steps:

Steps

1. Turn off the computer.
2. Turn off the modem.
 **NOTE:** Some Internet service providers (ISPs) provide a modem and router combo device.
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 the computer.

Drain residual flea power (perform hard reset)

About this task

Flea power is the residual static electricity that remains in the computer even after it has been powered off and the battery is removed.

For your safety, and to protect the sensitive electronic components in your computer, you are requested to drain residual flea power before removing or replacing any components in your computer.

Draining residual flea power, also known as a performing a "hard reset", is also a common troubleshooting step if your computer does not turn on or boot into the operating system.

To drain residual flea power (perform a hard reset)

Steps

1. Turn off your computer.
2. Disconnect the power adapter from your computer.
3. Press and hold the power button for 20 seconds to drain the flea power.
4. Connect the power adapter to your computer.
5. Turn on your computer.

 **NOTE:** For more information about performing a hard reset, see the knowledge base article [000139016](#) at [Dell Support Site](#).

Getting help and contacting Alienware

Self-help resources

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

Table 43. Alienware products and online self-help resources

Self-help resources	Resource location
Information about Alienware products and services	Alienware Support Site
Contact Support	In Windows search, type Contact Support , and press Enter .
Online help for operating system	Windows Support Site
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals, and documents.	Your Alienware computer is uniquely identified by a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, enter the Service Tag or Express Service Code at Dell Support Site . For more information about how to find the Service Tag for your computer, see Instructions on how to find your Service Tag or Serial Number .
Videos providing step-by-step instructions to service your computer.	Alienware Support Channel

Contacting Alienware

To contact Alienware for sales, technical support, or customer service issues, see [Alienware Support Site](#).

 **NOTE:** Availability of the services may vary depending on the country or region, and product.

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

Revision history

Tracks all updates that are made to the document. It typically includes the date of change, version number, and a brief description of the modification. This log helps maintain transparency, accountability, and a clear timeline of progress.

Revision history

Table 44. Revision history

Revision	Date	Description
A11	October 2026	Updated the top I/O-panel removal and installation topics.
A10	July 2026	Updated Alienfx board installation topic.
A09	March 2026	Added Quebec requirement information.
A08	January 2026	Updated storage specifications.
A07	October 2025	Added a hard-drive activity light callout to the Back Panel view.
A06	September 2025	Added a memory configuration to memory specifications.
A00	February 2025	Original publish date.