OptiPlex Micro Plus 7010

Owner's Manual

Regulatory Model: D15U
Regulatory Type: D15U001
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DELL Technologies

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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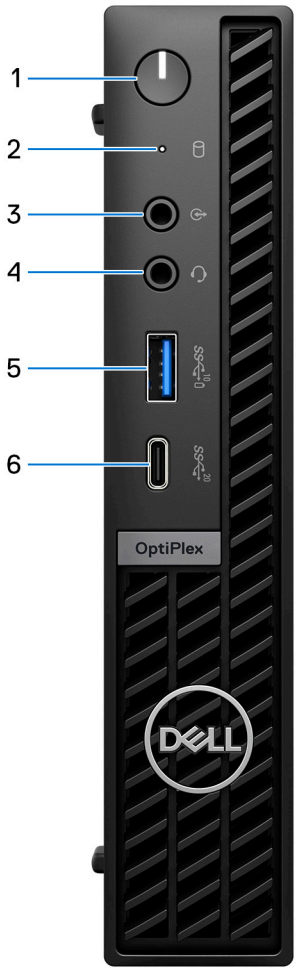
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1

Views of OptiPlex Micro Plus 7010

Front



1. **Power button**

   Press to turn on the computer if it 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 sleep state; press and hold the power button for 10 seconds to force shut-down the computer.

   NOTE: You can customize the power-button behavior in Windows.

2. **Storage drive activity light**

   The activity light turns on when the computer reads from or writes to storage drives.

3. **Re-tasking line out/line in audio port**

   Connect an audio device.

4. **Universal audio jack**

Connect headphones or a headset (headphone and microphone combo).

5. **USB 3.2 Gen 2 port with PowerShare**

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

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

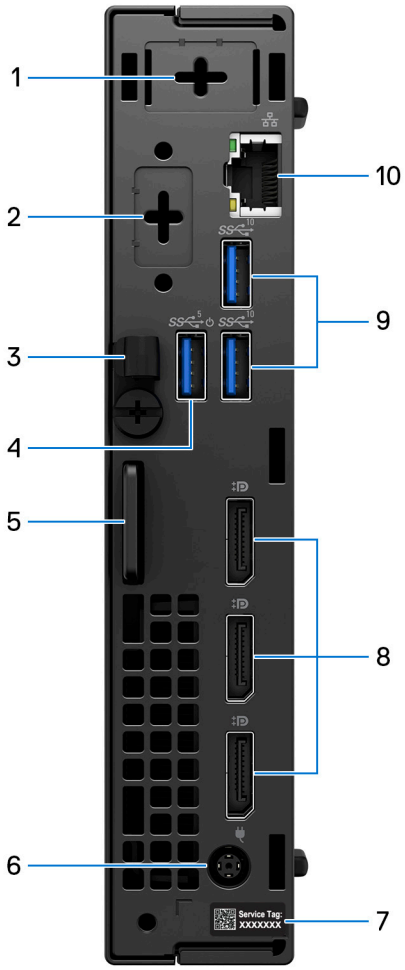
   NOTE: PowerShare enables you to charge your USB devices even when your computer is turned off.

   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.

6. **USB 3.2 Gen 2x2 Type C port**

   Connect devices such as external storage devices, printers, and external displays. Provides data transfer rate of up to 20 Gbps.

Back



1. **One optional external antenna port**

   Supports an optional external antenna module.

2. **One optional video module port**

   Supports an optional module for (HDMI 2.1/Displayport 1.4a (HBR3)/VGA/PS2/serial/USB Type-C with DisplayPort Alt mode).

3. **DC-in cable clip**

   For power-adapter cable routing.

4. **USB 3.2 Gen 1 port with Smart Power on**

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

   NOTE: When USB wake is enabled in the BIOS the computer will power on or wake from hibernation when a USB mouse or keyboard that is connected to this port is used.

5. **Kensington security-cable slot and padlock ring**

   Connect a security cable to prevent unauthorized movement of your computer and/or attach a standard padlock to prevent unauthorized access to the interior of your computer.

6. **Power-adapter port**

   Connect a power adapter to provide power to your computer.

7. **Service Tag 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.

8. **Three DisplayPorts 1.4a**

   Connect an external display or a projector. Can support video output of up to 5120 x 3200 at 60 Hz.

9. **Two USB 3.2 Gen 2 ports**

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

10. **Network port**

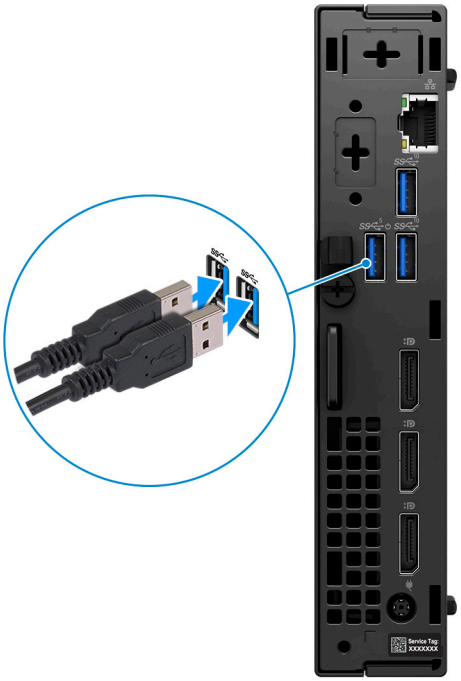
    Connect an Ethernet (RJ45) cable from a router or a broadband modem for network or Internet access.

2

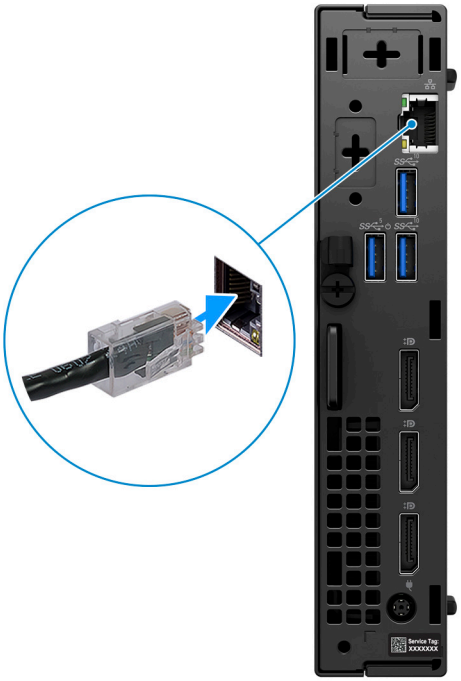
Set up your computer

Steps

1. Connect the keyboard and mouse.



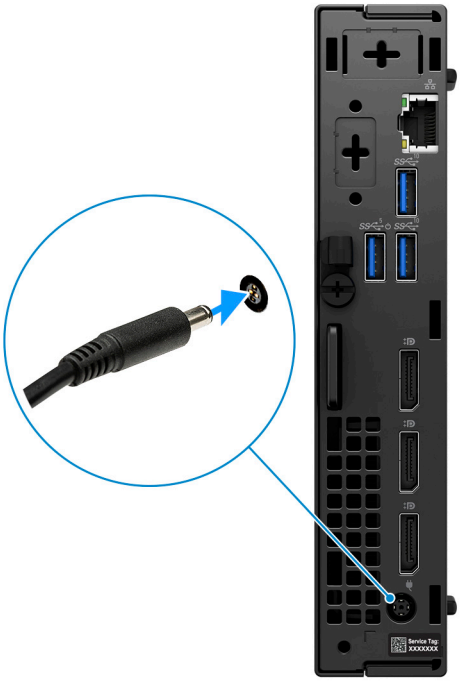
2. Connect to your network using a cable, or connect to a wireless network.



3. Connect the display.



4. Connect the power cable.



5. Press the power button.



6. Finish operating system setup.

   For Ubuntu:

   Follow the on-screen instructions to complete the setup. For more information about installing and configuring Ubuntu, search in the Knowledge Base Resource at www.dell.com/support.

   For Windows:

   Follow the on-screen instructions to complete the setup. When setting up, Dell recommends that you:

   - Connect to a network for Windows updates.

NOTE: If connecting to a secured wireless network, enter the password for the wireless network access when prompted.

- If connected to the internet, sign-in with or create a Microsoft account. If not connected to the internet, create an offline account.
- On the **Support and Protection** screen, enter your contact details.

7. Locate and use Dell apps from the Windows Start menu—Recommended

Table 1. Locate Dell apps

Resources	Description
	**My Dell** Centralized location for key Dell applications, help articles, and other important information about your computer. It also notifies you about the warranty status, recommended accessories, and software updates if available.
	**SupportAssist** SupportAssist proactively and predictively identifies hardware and software issues on your computer and automates the engagement process with Dell Technical support. It addresses performance and stabilization issues, prevents security threats, monitors, and detects hardware failures. For more information, see *SupportAssist for Home PCs User's Guide* at www.dell.com/serviceabilitytools. Click **SupportAssist** and then, click **SupportAssist for Home PCs**. **NOTE:** In SupportAssist, click the warranty expiry date to renew or upgrade your warranty.
	**Dell Update** Updates your computer with critical fixes and latest device drivers as they become available. For more information on using Dell Update, search in the Knowledge Base Resource at www.dell.com/support.
	**Dell Digital Delivery** Download software applications, which are purchased but not preinstalled on your computer. For more information on using Dell Digital Delivery, search in the Knowledge Base Resource at www.dell.com/support.

3

Specifications of OptiPlex Micro Plus 7010

Dimensions and weight

The following table lists the height, width, depth, and weight of your OptiPlex Micro Plus 7010.

Table 2. Dimensions and weight

Description	Values
Height	182 mm (7.17 in.)
Width	36 mm (1.42 in.)
Depth	178 mm (7.01 in.)
Weight **NOTE:** The weight of your computer depends on the configuration ordered and manufacturing variability.	• Minimum:1.07 kg (2.36 lb) • Maximum: 1.31 kg (2.89 lb)

Processor

The following table lists the details of the processors supported by your OptiPlex Micro Plus 7010.

Table 3. Processor

Description	Option one	Option two	Option three	Option four
Processor type	13th Generation Intel Core i3-13100	13th Generation Intel Core i3-13100T	13th Generation Intel Core i5-13400	13th Generation Intel Core i5-13400T
Processor wattage	60 W	35 W	65 W	35 W
Processor total core count	4	4	10	10
Performance-cores	4	4	6	6
Efficient-cores	0	0	4	4
Processor total thread counts **NOTE:** Intel® Hyper-Threading Technology is only available on Performance-cores.	8	8	16	16
Processor speed	Up to 4.50 GHz	Up to 4.20 GHz	Up to 4.60 GHz	Up to 4.40 GHz
Performance-cores frequency				
Processor base frequency	3.40 GHz	2.50 GHz	2.50 GHz	1.30 GHz
Maximum turbo frequency	4.50 GHz	4.20 GHz	4.60 GHz	4.40 GHz
Efficient-cores frequency				
Processor base frequency	Not applicable	Not applicable	1.80 GHz	1 GHz
Maximum turbo frequency	Not applicable	Not applicable	3.30 GHz	3 GHz
	NOTE: Processor clock speeds and thermal design power differ according to the thermal mode selected in the My Dell app on your computer.			
Processor cache	12 MB	12 MB	20 MB	20 MB
Integrated graphics	Intel UHD Graphics 730	Intel UHD Graphics 730	Intel UHD Graphics 730	Intel UHD Graphics 730

Table 4. Processor

Description	Option five	Option six	Option seven	Option eight
Processor type	13th Generation Intel Core i5-13500	13th Generation Intel Core i5-13500T	13th Generation Intel Core i5-13600	13th Generation Intel Core i5-13600T
Processor wattage	65 W	35 W	65 W	35 W
Processor total core count	14	14	14	14
Performance-cores	6	6	6	6
Efficient-cores	8	8	8	8
Processor total thread counts **NOTE:** Intel® Hyper-Threading Technology is only available on Performance-cores.	20	20	20	20
Processor speed	Up to 4.80 GHz	Up to 4.60 GHz	Up to 5 GHz	Up to 4.80 GHz
Performance-cores frequency				
Processor base frequency	2.50 GHz	1.60 GHz	2.70 GHz	1.80 GHz
Maximum turbo frequency	4.80 GHz	4.60 GHz	5 GHz	4.80 GHz
Efficient-cores frequency				
Processor base frequency	1.80 GHz	1.20 GHz	2 GHz	1.30 GHz
Maximum turbo frequency	3.50 GHz	3.20 GHz	3.70 GHz	3.40 GHz
	NOTE: Processor clock speeds and thermal design power differ according to the thermal mode selected in the My Dell app on your computer.			
Processor cache	24 MB	24 MB	24 MB	24 MB
Integrated graphics	Intel UHD Graphics 770	Intel UHD Graphics 770	Intel UHD Graphics 770	Intel UHD Graphics 770

Table 5. Processor

Description	Option nine	Option ten	Option eleven	Option twelve
Processor type	13th Generation Intel Core i7-13700	13th Generation Intel Core i7-13700T	13th Generation Intel Core i9-13900	13th Generation Intel Core i9-13900T
Processor wattage	65 W	35 W	65 W	35 W
Processor total core count	16	16	24	24
Performance-cores	8	8	8	8
Efficient-cores	8	8	16	16
Processor total thread counts **NOTE:** Intel® Hyper-Threading Technology is only available on Performance-cores.	24	24	32	32
Processor speed	2.10 GHz to 5.20 GHz	Up to 4.80 GHz	Up to 5.20 GHz	Up to 5.10 GHz
Performance-cores frequency				
Processor base frequency	2.10 GHz	1.40 GHz	2 GHz	1.10 GHz
Maximum turbo frequency	5.20 GHz	4.80 GHz	5.20 GHz	5.10 GHz
Efficient-cores frequency				
Processor base frequency	2.10 GHz	1 GHz	1.50 GHz	0.80 GHz
Maximum turbo frequency	4.20 GHz	3.60 GHz	4.20 GHz	3.90 GHz
	NOTE: Processor clock speeds and thermal design power differ according to the thermal mode selected in the My Dell app on your computer.			
Processor cache	30 MB	30 MB	36 MB	36 MB
Integrated graphics	Intel UHD Graphics 770	Intel UHD Graphics 770	Intel UHD Graphics 770	Intel UHD Graphics 770

Chipset

The following table lists the details of the chipset supported by your OptiPlex Micro Plus 7010.

Table 6. Chipset

Description	Values
Chipset	Intel Q670
Processor	Intel Core i3/i5/i7/i9
DRAM bus width	64/128-bit
Flash EPROM	32 MB RPMC+16 MB nRPMC

Table 6. Chipset (continued)

Description	Values
PCIe bus	Up to Gen4

Operating system

Your OptiPlex Micro Plus 7010 supports the following operating systems:

- Windows 11 Home, 64-bit
- Windows 11 Pro, 64-bit
- Windows 11 Downgrade (Windows 10 image)
- Windows 11 Pro National Education, 64-bit
- Windows 11 CMIT Government Edition, 64-bit (China only)
- Ubuntu Linux 22.04, 64-bit
- Windows 10 Pro, 64 bit

Memory

The following table lists the memory specifications of your OptiPlex Micro Plus 7010.

Table 7. Memory specifications

Description	Values
Memory slots	Two SODIMM slots
Memory type	DDR5
Memory speed	4800 MT/s
Maximum memory configuration	64 GB
Minimum memory configuration	8 GB
Memory size per slot	8GB, 16 GB, 32 GB, 64 GB
Memory configurations supported	• 8 GB, 1 x 8 GB, DDR5, 4800 MT/s, single-channel • 16 GB, 1 x 16 GB, DDR5, 4800 MT/s, single-channel • 16 GB, 2 x 8 GB, DDR5, 4800 MT/s, dual-channel • 32 GB, 1 x 32 GB, DDR5, 4800 MT/s, single-channel • 32 GB, 2 x 16 GB, DDR5, 4800 MT/s, dual-channel • 64 GB, 2 x 32 GB, DDR5, 4800 MT/s, dual-channel

Memory matrix

The following table lists the memory configurations supported on your OptiPlex Micro Plus 7010.

Table 8. Memory matrix

Configuration	Slot	
	SO-DIMM1	SO-DIMM2
8 GB DDR5	8 GB	
16 GB DDR5	16 GB	

Table 8. Memory matrix (continued)

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

External ports

The following table lists the external ports of your OptiPlex Micro Plus 7010.

Table 9. External ports

Description	Values
Network port	One RJ45 Ethernet port 10/100/1000 Mbps
USB ports	• One USB 3.2 Gen 2 port with PowerShare (Front) • One USB 3.2 Gen 2x2 Type-C port (Front) • Two USB 3.2 Gen 2 ports (Rear) • One USB 3.2 Gen 1 port with Smart Power On (Rear)
Audio port	• One Universal audio jack (Front) • One Re-tasking line-out/line-in audio port (Front)
Video port	• One optional video port (HDMI 2.1/Displayport 1.4a (HBR3)/VGA/PS2/serial/USB Type-C with DisplayPort Alt mode) (Rear) • Three DisplayPort 1.4a (HBR2) (Rear)
Media-card reader	Not supported
Power-adapter port	One DC-in port with 7.40 mm barrel
Security-cable slot	• One Kensington lock slot • One padlock ring

Internal slots

The following table lists the internal slots of your OptiPlex Micro Plus 7010.

Table 10. Internal slots

Description	Values
M.2	• One M.2 2230 slot for WiFi and Bluetooth card • Two M.2 2230/2280 slots for SSD **NOTE:** To learn more about the features of different types of M.2 cards, search in the Knowledge Base Resource at www.dell.com/support.

Ethernet

The following table lists the wired Ethernet Local Area Network (LAN) specifications of your OptiPlex Micro Plus 7010.

Table 11. Ethernet specifications

Description	Values
Model number	Intel WGI219LM
Transfer rate	10/100/1000 Mbps

Wireless module

The following table lists the Wireless Local Area Network (WLAN) modules supported on your OptiPlex Micro Plus 7010.

Table 12. Wireless module specifications

Description	Option one	Option two
Model number	Realtek RTL8852BE	Intel AX211
Transfer rate	Up to 1201 Mbps	Up to 2400 Mbps
Frequency bands supported	2.4 GHz/5 GHz	2.4 GHz/5 GHz/6 GHz
Wireless standards	• WiFi 802.11a/b/g • Wi-Fi 4 (WiFi 802.11n) • Wi-Fi 5 (WiFi 802.11ac) • Wi-Fi 6 (WiFi 802.11ax)	• WiFi 802.11a/b/g • Wi-Fi 4 (WiFi 802.11n) • Wi-Fi 5 (WiFi 802.11ac) • Wi-Fi 6E (WiFi 802.11ax)
Encryption	• 64-bit/128-bit WEP • AES-CCMP • TKIP	• 64-bit/128-bit WEP • AES-CCMP • TKIP
Bluetooth	Bluetooth wireless card	Bluetooth wireless card

Audio

The following table lists the audio specifications of your OptiPlex Micro Plus 7010.

Table 13. Audio specifications

Description	Values
Audio controller	Realtek ALC3246-CG
Stereo conversion	Supported
Internal audio interface	High definition audio interface
External audio interface	• Universal audio jack • One re-tasking line out/line in audio port (front)
Number of speakers	One
Internal-speaker amplifier	Supported (audio codec integrated)

Table 13. Audio specifications (continued)

Description		Values
External volume controls		Keyboard shortcut controls
Speaker output:		
	Average speaker output	2 W
	Peak speaker output	2.5 W
Subwoofer output		Not supported
Microphone		Not supported

Storage

This section lists the storage options on your OptiPlex Micro Plus 7010.

Table 14. Storage matrix

Storage	1st M.2 socket	2nd M.2 socket	1st Bootable Device
M.2 solid-state drive	Yes		1st M.2 solid-state drive
Dual M.2 solid-state drive	Yes	Yes	1st M.2 solid-state drive

Table 15. Storage specifications

Storage type	Interface type	Capacity
M.2 2230, Class 25 solid-state drive	PCIe NVMe	Up to 1 TB
M.2 2230, Class 35 solid-state drive	PCIe NVMe	Up to 1 TB
M.2 2230, Class 35, Opal Self-Encrypting solid-state drive	PCIe NVMe	Up to 256 GB
M.2 2230, Class 40 solid-state drive	PCIe NVMe	Up to 2 TB
M.2 2280, Class 40, Opal Self-Encrypting solid-state drive	PCIe NVMe	Up to 1 TB

Power adapter

The following table lists the power adapter specifications of your OptiPlex Micro Plus 7010.

Table 16. Power adapter specifications

Description		Option one	Option two
Type		130 W	180 W
Connector dimensions:			
	External diameter	7.40 mm	7.40 mm
	Internal diameter	5.10 mm	5.10 mm

Table 16. Power adapter specifications (continued)

Description		Option one	Option two
Power-adapter dimensions:			
	Height	25 mm (0.98 in.)	30 mm (1.18 in.)
	Width	76 mm (2.99 in.)	76 mm (2.99 in.)
	Depth	155 mm (6.10 in.)	155 mm (6.10 in.)
Input voltage		100 VAC x 240 VAC	100 VAC x 240 VAC
Input frequency		50 Hz x 60 Hz	50 Hz x 60 Hz
Input current (maximum)		2.34 A	2.50 A
Output current (continuous)		6.70 A	9.23 A
Rated output voltage		19.50 VDC	19.50 VDC
Temperature range:			
	Operating	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)
	Storage	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)
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.			

GPU—Integrated

The following table lists the specifications of the integrated Graphics Processing Unit (GPU) supported by your OptiPlex Micro Plus 7010.

Table 17. GPU—Integrated

Controller	Memory size	Processor
Intel UHD Graphics 730	Shared system memory	13th Generation Intel Core i3-13100/ i3-13100T and i5-13400/i5-13400T processors
Intel UHD Graphics 770	Shared system memory	13th Generation Intel Core i5-13500/i5-13500T,i5-13600/ i5-13600T,i7-13700/i7-13700T and i9-13900/i9-13900T processors

Video port resolution (GPU—Integrated)

Table 18. Video port resolution (GPU—Integrated)

Graphics card	Video ports	Maximum supported resolution
Intel UHD Graphics 730/770	Three DisplayPort 1.4a	4096 x 2304 at 60 Hz

External display support (GPU—Integrated)

Table 19. External display support (GPU—Integrated)

Integrated graphics card	Number of supported external display
Three DisplayPort 1.4a	• 3 • 4, with MST
Three DisplayPort 1.4a + Optional video port module	4

Hardware security

The following table lists the hardware security of your OptiPlex Micro Plus 7010.

Table 20. Hardware security

Hardware security
Kensington security-cable slot
Padlock ring
Chasis lock slot support
Chassis intrusion switch
Supply chain tamper alerts
SafeID including Trusted Platform Module (TPM) 2.0
Smart card keyboard (FIPS)
Microsoft 10 Device Guard and Credential Guard (Enterprise SKU)
Microsoft Windows Bitlocker
Local hard drive data wipe through BIOS (Secure Erase)
Self-encrypting storage drives (Opal, FIPS)
Trusted Platform Module TPM 2.0
China TPM
Intel Secure Boot
Intel Authenticate

Environmental

The following table lists the environmental specifications of your OptiPlex Micro Plus 7010.

Table 21. Environmental

Feature	Values
Recyclable packaging	Yes
BFR/PVC—free chassis	Yes
Vertical orientation packaging support	No
Multi-Pack packaging	Yes
Energy-Efficient Power Supply	Standard
ENV0424 compliant	Yes

NOTE: Wood-based fiber packaging contains a minimum of 35% recycled content by total weight of wood-based fiber. Packaging that contains without wood-based fiber can be claimed as Not Applicable. The anticipated required criteria for EPEAT 2018.

Regulatory compliance

The following table lists the regulatory compliance of your OptiPlex Micro Plus 7010.

Table 22. Regulatory compliance

Regulatory compliance
Product Safety, EMC and Environmental Datasheets
Dell Regulatory Compliance Home page
Dell and the Environment

Operating and storage environment

This table lists the operating and storage specifications of your OptiPlex Micro Plus 7010.

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

Table 23. Computer environment

Description	Operating	Storage
Temperature range	10°C to 35°C (50°F to 95°F)	-40°C to 65°C (-40°F to 149°F)
Relative humidity (maximum)	20% to 80% (non-condensing, Max dew point temperature = 26°C)	5% to 95% (non-condensing, Max dew point temperature = 33°C)
Vibration (maximum)*	0.26 GRMS random at 5 Hz to 350 Hz	1.37 GRMS random at 5 Hz to 350 Hz
Shock (maximum)	Bottom half-sine pulse with a change in velocity of 50.80 cm/sec (20 in./sec)	105G half-sine pulse with a change in velocity of 133 cm/sec (52.5 in./sec)
Altitude range	-15.2 m to 3048 m (-49.87 ft to 10000 ft)	-15.2 m to 10668 m (-49.87 ft to 35000 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 user environment.

† Measured using a 2 ms half-sine pulse.

4

Working inside your computer

Safety instructions

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

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

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.

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

CAUTION: To avoid damaging the components and cards, handle them by their edges, and avoid touching the pins and the contacts.

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

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

CAUTION: When you disconnect a cable, pull 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 ports and the connectors are correctly oriented and aligned.

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

CAUTION: Exercise caution when handling rechargeable Li-ion batteries in laptops. Swollen batteries should not be used and should be replaced and disposed properly.

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

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. Disconnect your computer and all attached devices from their electrical outlets.
4. Disconnect all attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.

CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.

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

Safety precautions

The safety precautions chapter details the primary steps to be taken before performing any disassembly instructions.

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

- Turn off the system and all attached peripherals.
- Disconnect the system and all attached peripherals from AC power.
- Disconnect all network cables, telephone, and telecommunications lines from the system.
- Use an ESD field service kit when working inside any to avoid electrostatic discharge (ESD) damage.
- After removing any system component, carefully place the removed component on an anti-static mat.
- Wear shoes with non-conductive rubber soles to reduce the chance of getting electrocuted.

Standby power

Dell products with standby power must be unplugged before you open the case. Systems that incorporate standby power are essentially powered while turned off. The internal power enables the system to be remotely turned on (wake on LAN) and suspended into a sleep mode and has other advanced power management features.

Unplugging, pressing, and holding the power button for 15 seconds should discharge 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 through the use of 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 non-metal surface. The wrist strap should be secure and in full contact with your skin, and ensure that you remove all jewelry such as watches, bracelets, or rings prior to bonding 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 DIMMs, and system boards. Very slight charges can damage circuits in ways that may not be obvious, such as intermittent problems or a shortened product life span. As the industry pushes for lower power requirements and increased density, ESD protection is an increasing concern.

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

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

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

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

Perform the following steps to prevent ESD damage:

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

ESD field service kit

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

Components of an ESD field service kit

The components of an ESD field service kit are:

- **Anti-Static Mat** – The anti-static mat is dissipative and parts can be placed on it during service procedures. When using an anti-static mat, your wrist strap should be snug and the bonding wire should be connected to the mat and to any bare metal on the system being worked on. Once deployed properly, service parts can be removed from the ESD bag and placed directly on the mat. ESD-sensitive items are safe in your hand, on the ESD mat, in the system, or inside a bag.
- **Wrist Strap and Bonding Wire** – The wrist strap and bonding wire can be either directly connected between your wrist and bare metal on the hardware if the ESD mat is not required, or connected to the anti-static mat to protect hardware that is temporarily placed on the mat. The physical connection of the wrist strap and bonding wire between your skin, the ESD mat, and the hardware is known as bonding. Use only Field Service kits with a wrist strap, mat, and bonding wire. Never use wireless wrist straps. Always be aware that the internal wires of a wrist strap are prone to damage from normal wear and tear, and must be checked regularly with a wrist strap tester in order to avoid accidental ESD hardware damage. It is recommended to test the wrist strap and bonding wire at least once per week.
- **ESD Wrist Strap Tester** – The wires inside of an ESD strap are prone to damage over time. When using an unmonitored kit, it is a best practice to regularly test the strap prior to each service call, and at a minimum, test once per week. A wrist strap tester is the best method for doing this test. If you do not have your own wrist strap tester, check with your regional office to find out if they have one. To perform the test, plug the wrist-strap's bonding-wire into the tester while it is strapped to your wrist and push the button to test. A green LED is lit if the test is successful; a red LED is lit and an alarm sounds if the test fails.
- **Insulator Elements** – It is critical to keep ESD sensitive devices, such as plastic heat sink casings, away from internal parts that are insulators and often highly charged.
- **Working Environment** – Before deploying the ESD Field Service kit, assess the situation at the customer location. For example, deploying the kit for a server environment is different than for a desktop or portable environment. Servers are typically installed in a rack within a data center; desktops or portables are typically placed on office desks or cubicles. Always look for a large open flat work area that is free of clutter and large enough to deploy the ESD kit with additional space to accommodate the type of system that is being repaired. The workspace should also be free of insulators that can cause an ESD event. On the work area, insulators such as Styrofoam and other plastics should always be moved at least 12 inches or 30 centimeters away from sensitive parts before physically handling any hardware components
- **ESD Packaging** – All ESD-sensitive devices must be shipped and received in static-safe packaging. Metal, static-shielded bags are preferred. However, you should always return the damaged part using the same ESD bag and packaging that the new part arrived in. The ESD bag should be folded over and taped shut and all the same foam packing material should be used in the original box that the new part arrived in. ESD-sensitive devices should be removed from packaging only at an ESD-protected work surface, and parts should never be placed on top of the ESD bag because only the inside of the bag is shielded. Always place parts in your hand, on the ESD mat, in the system, or inside an anti-static bag.
- **Transporting Sensitive Components** – When transporting ESD sensitive components such as replacement parts or parts to be returned to Dell, it is critical to place these parts in anti-static bags for safe transport.

ESD protection summary

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

Transporting sensitive components

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

Lifting equipment

Adhere to the following guidelines when lifting heavy weight equipment:

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

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

After working inside your computer

About this task

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

Steps

1. Replace all screws and ensure that no stray screws remain inside your computer.
2. Connect any external devices, peripherals, or cables you removed before working on your computer.
3. Replace any media cards, discs, or any other parts that you removed before working on your computer.
4. Connect your computer and all attached devices to their electrical outlets.
5. Turn on your computer.

BitLocker

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress, and the system will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system reinstall. For more information about this subject, see Knowledge Article: updating the BIOS on Dell systems with BitLocker enabled.

The installation of the following components triggers BitLocker:

- Hard disk drive or solid state drive
- System board

Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver #0
- Phillips screwdriver #1
- Plastic scribe

Screw list

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

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

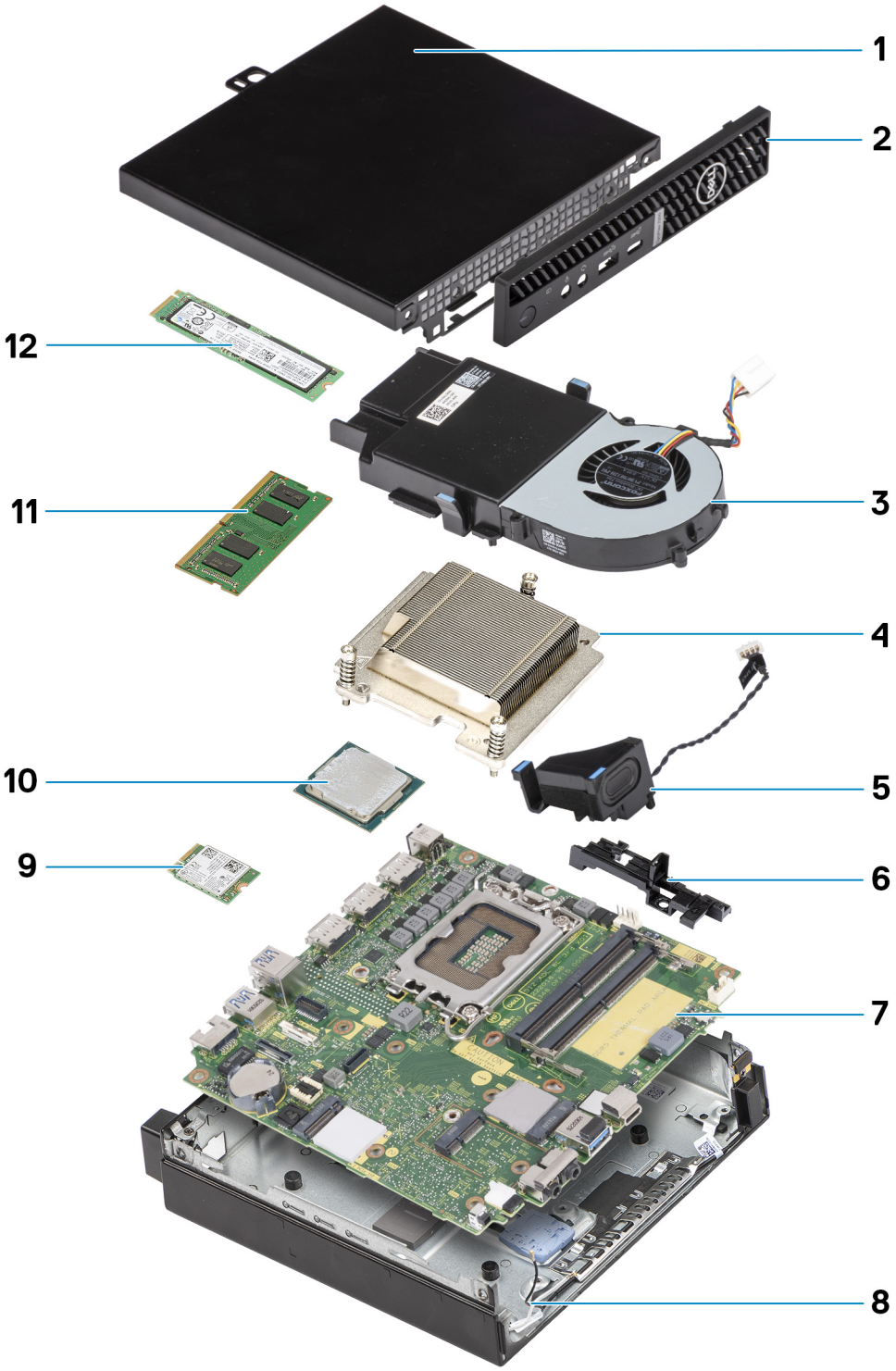
NOTE: Screw color may vary with the configuration ordered.

Table 24. Screw list

Component	Screw type	Quantity
Side cover	#6-32 (Captive screws)	1
System board	M3x5 M3x4	5 3
Wireless card	M2x3.5	1
M.2 2230/2280 solid-state drive	M2x3.5	1
Internal antenna	M3x3	3
I/O module	M3x3 or M2x5, cross type	2
Type-C module	M3x3	2

Major components of OptiPlex Micro Plus 7010

The following image shows the major components of OptiPlex Micro Plus 7010.



1. Side cover
2. Front bezel
3. Fan assembly
4. Heat sink
5. Speaker
6. Speaker holder
7. System board
8. Chassis
9. Wireless card
10. Processor
11. Memory module
12. M.2 2280 solid-state drive

NOTE: Dell provides a list of components and their part numbers for the original system configuration purchased. These parts are available according to warranty coverages purchased by the customer. Contact your Dell sales representative for purchase options.

5

Side cover

Removing the side cover

Prerequisites

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

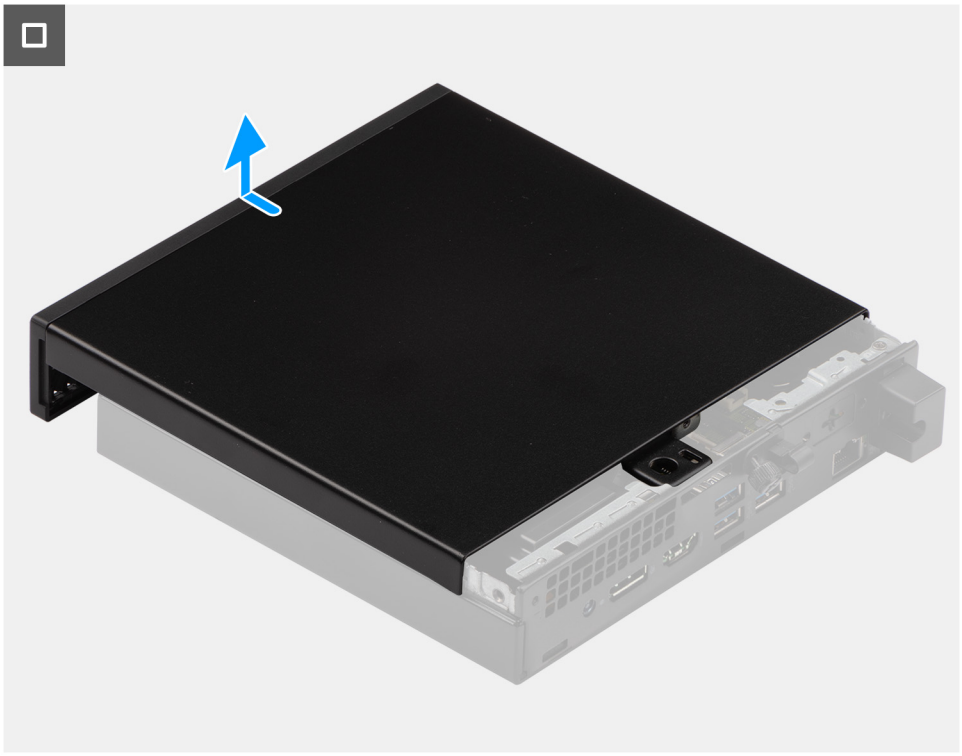
About this task

The following image(s) indicate the location of the side cover and provides a visual representation of the removal procedure.



1x
6x32





Steps

1. Place your computer on its side with the side cover facing up.
2. Loosen the thumb-screw (6x32) that secures the side cover to the chassis.
3. Slide and lift the side cover off the chassis.

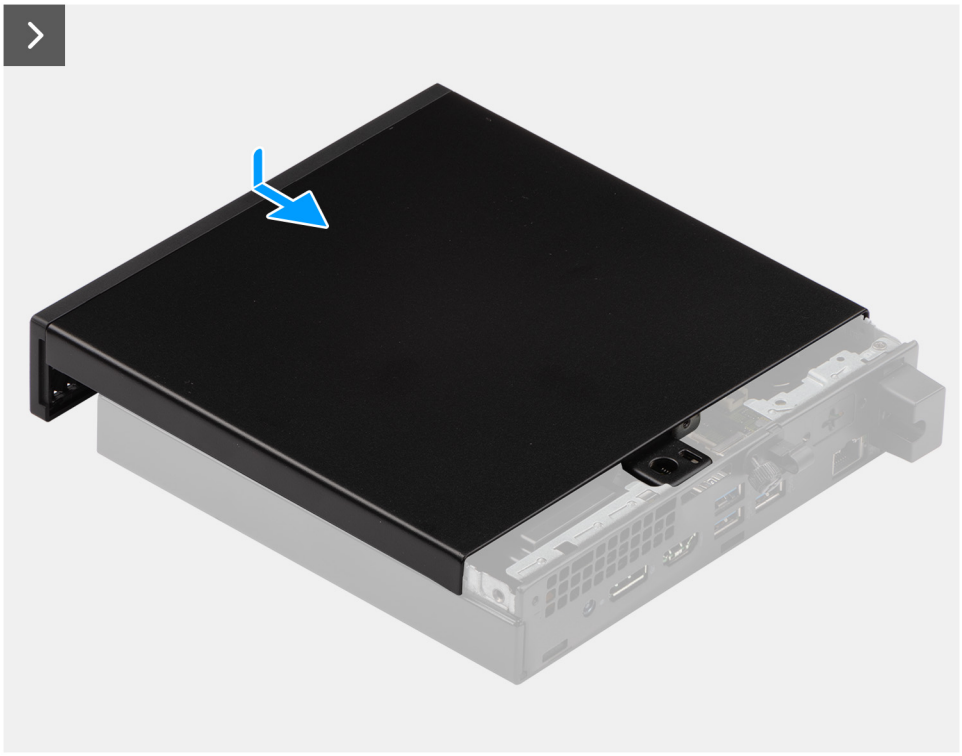
Installing the side cover

Prerequisites

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

About this task

The following image(s) indicate the location of the side cover and provides a visual representation of the installation procedure.





1x
6x32



Steps

1. Place the side cover on the chassis.

2. Align the tabs on the side cover with the slots on the chassis.
3. Slide the side cover into place towards the front of the computer.
4. Tighten the thumb-screw (6x32) that secure the side cover to the chassis.

Next steps

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

6

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.

Front bezel

Removing the front bezel

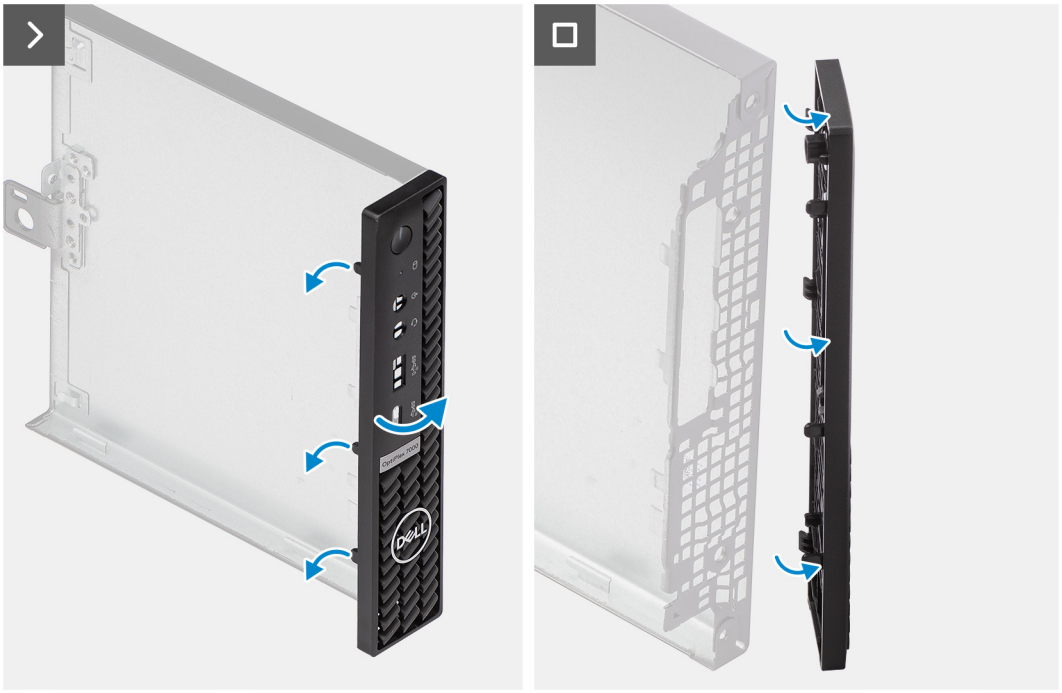
Prerequisites

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

About this task

The following image(s) indicate the location of the front bezel and provides a visual representation of the removal procedure.





Steps

1. Gently pry and release the front-cover tabs from the top-right, working down sequentially to the bottom-right tab.
2. Swing the front bezel outwards, away from the side cover.
3. Lift the front bezel off the side cover.

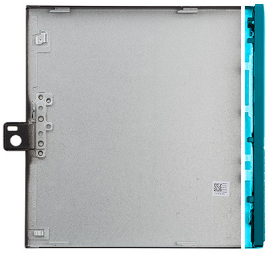
Installing the front bezel

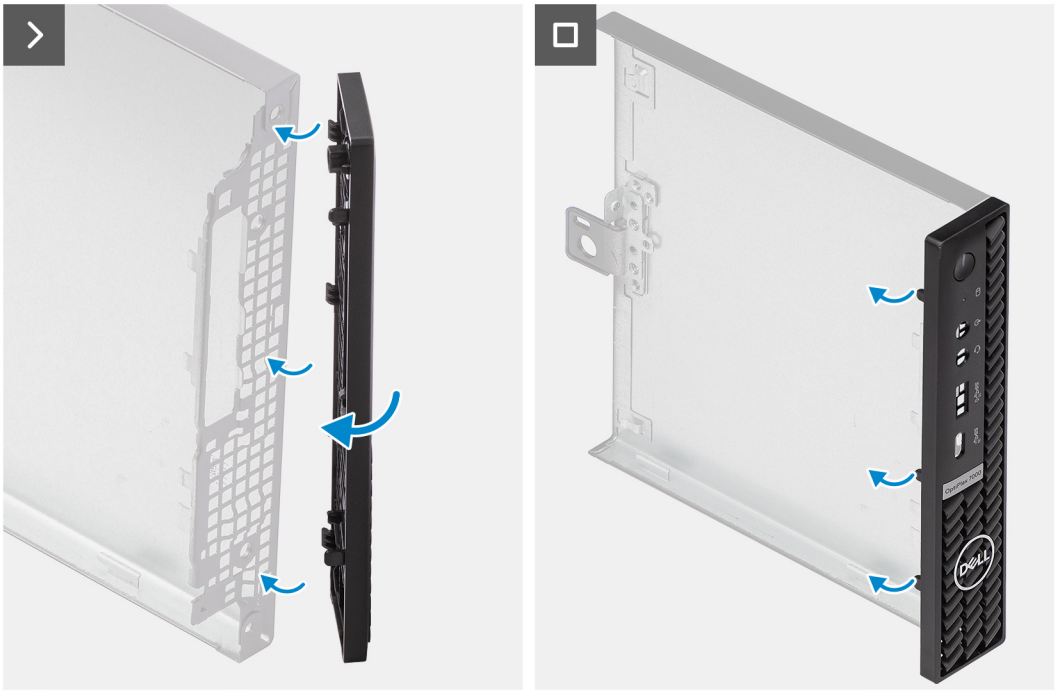
Prerequisites

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

About this task

The following image(s) indicate the location of the front bezel and provides a visual representation of the installation procedure.





Steps

1. Insert the right-side front-bezel tabs into the corresponding slots on the side cover.
2. Push the left-side of the front bezel towards the side cover, snapping the tabs into position.

Next steps

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

Solid-state drive

Removing the M.2 2230 solid-state drive from slot 0

Prerequisites

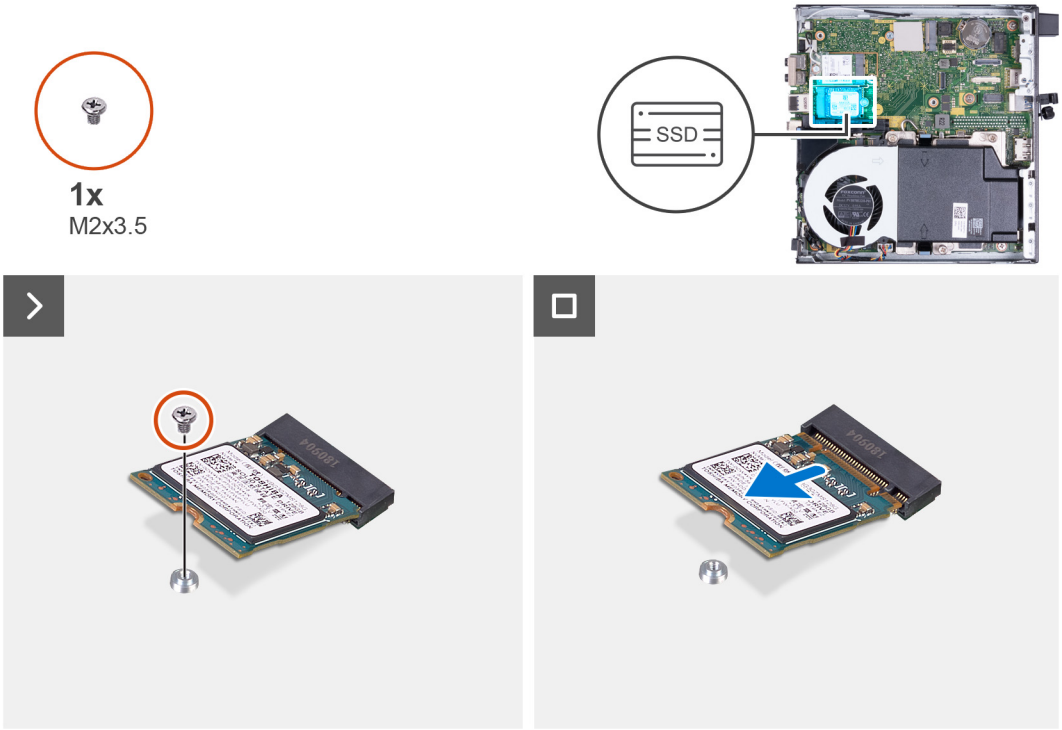
1. Follow the procedure in Before working inside your computer.
2. Remove the side cover.

About this task

NOTE: Depending on the configuration ordered, your computer may have an M.2 2230 or an M.2 2280 solid-state drive installed in solid-state drive slot 0 (M.2 PCIe SSD 0) on the system board.

NOTE: This procedure is applicable for computers where an M.2 2230 solid-state drive is installed in solid-state drive slot 0 (M.2 PCIe SSD 0) on the system board.

The following image(s) indicate the location of the M.2 2230 solid-state drive in slot 0 and provides a visual representation of the removal procedure.



Steps

1. Remove the screw (M2x3.5) that secures the M.2 2230 solid-state drive to the system board
2. Slide and lift the M.2 2230 solid-state drive off the solid-state drive slot 0 (M.2 PCIe SSD 0) on the system board.

Installing the M.2 2230 solid-state drive in slot 0

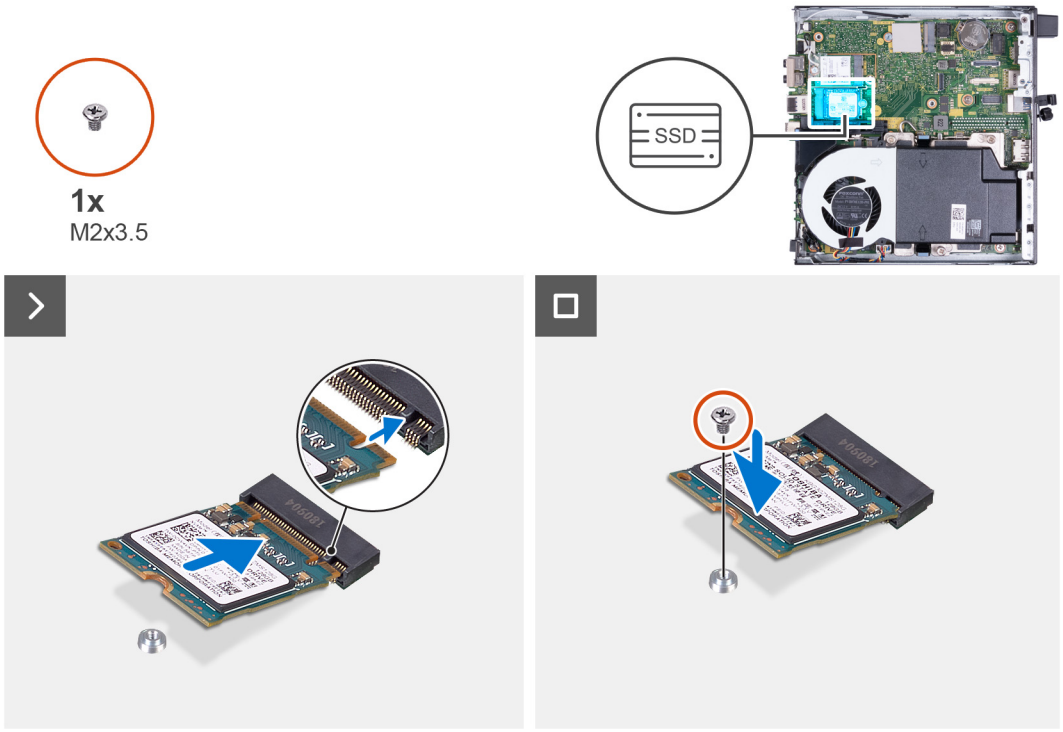
Prerequisites

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

About this task

NOTE: This procedure is only applicable if you are installing an M.2 2230 solid-state drive into solid-state drive slot 0 (M.2 PCIe SSD 0) on the system board.

The following image(s) indicate the location of the M.2 2230 solid-state drive in slot 0 and provides a visual representation of the installation procedure.



Steps

1. Align the notch on the M.2 2230 solid-state drive with the tab on the solid-state drive slot 0 (M.2 PCIe SSD 0).
2. Slide the M.2 2230 solid-state drive into the solid-state drive slot 0 (M.2 PCIe SSD 0) on the system board.
3. Replace the screw (M2x3.5) that secures the M.2 2230 solid-state drive to the system board

Next steps

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

Removing the M.2 2230 solid-state drive from slot 1

Prerequisites

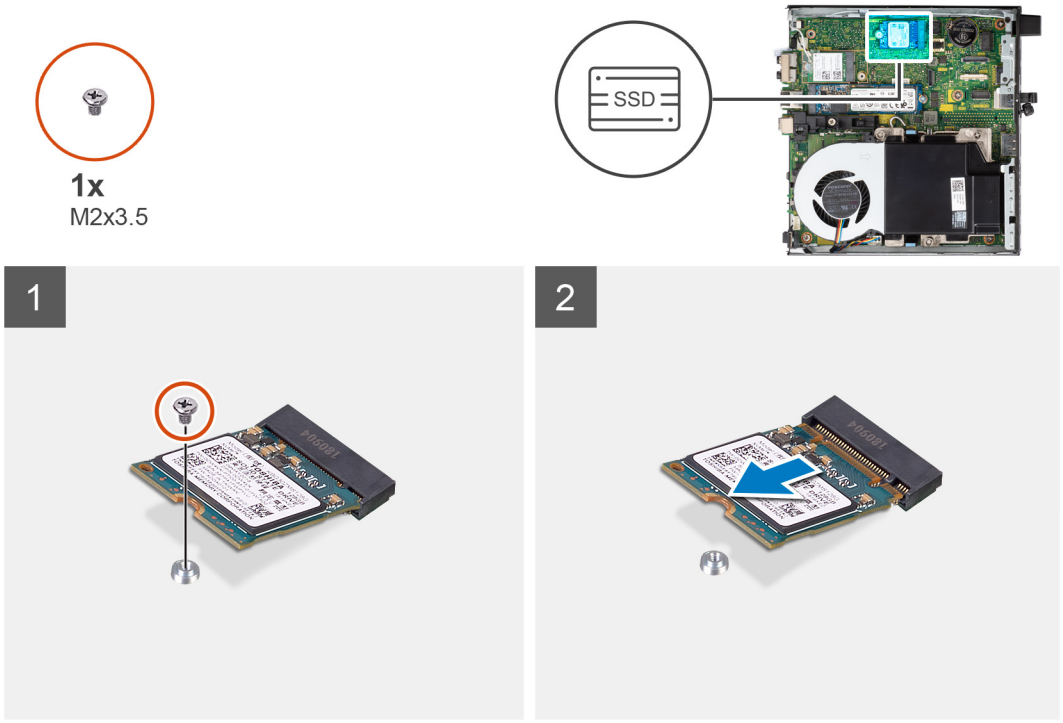
1. Follow the procedure in Before working inside your computer.
2. Remove the side cover.

About this task

NOTE: Depending on the configuration ordered, your computer may have an M.2 2230 or an M.2 2280 solid-state drive installed in the solid-state drive slot 1 (M.2 PCIe SSD 1) on the system board.

NOTE: This procedure is applicable for computers where an M.2 2230 solid-state drive is installed in the solid-state drive slot 1 (M.2 PCIe SSD 1) on the system board.

The following image(s) indicate the location of the M.2 2230 solid-state drive in slot 1 and provides a visual representation of the removal procedure.



Steps

1. Remove the screw (M2x3.5) that secures the M.2 2230 solid-state drive to the system board
2. Slide and lift the M.2 2230 solid-state drive off the solid-state drive slot 1 (M.2 PCIe SSD 1) on the system board.

Installing the M.2 2230 solid-state drive in slot 1

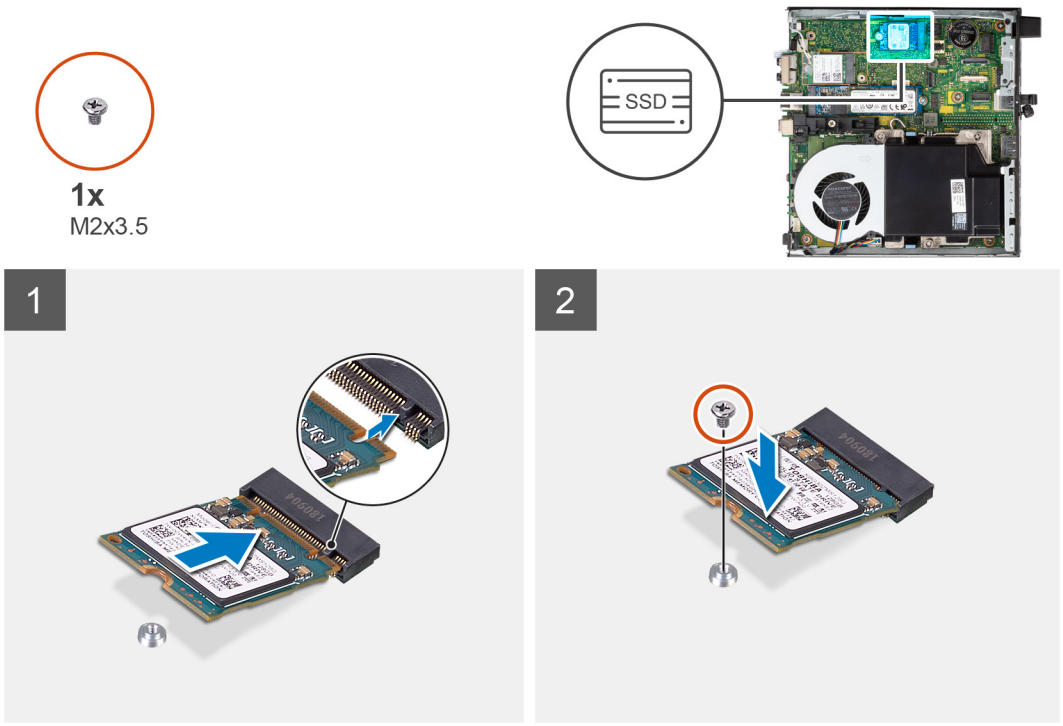
Prerequisites

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

About this task

NOTE: This procedure is only applicable if you are installing an M.2 2230 solid-state drive into the solid-state drive slot 1 (M.2 PCIe SSD 1) on the system board.

The following image(s) indicate the location of the M.2 2230 solid-state drive in slot 1 and provides a visual representation of the installation procedure.



Steps

1. Align the notch on the M.2 2230 solid-state drive with the tab on the solid-state drive slot 1 (M.2 PCIe SSD 1).
2. Slide the M.2 2230 solid-state drive into the solid-state drive slot 1 (M.2 PCIe SSD 1) on the system board.
3. Replace the screw (M2x3.5) that secures the M.2 2230 solid-state drive to the system board

Next steps

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

Removing the M.2 2280 solid-state drive from slot 0

Prerequisites

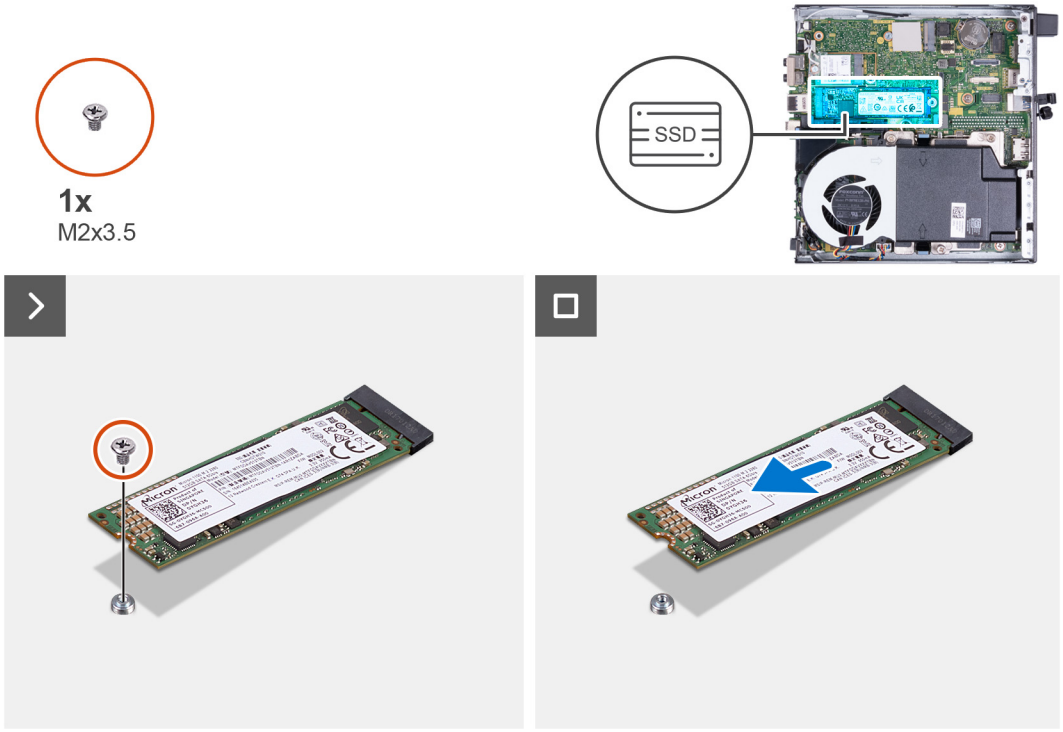
1. Follow the procedure in Before working inside your computer.
2. Remove the side cover.

About this task

NOTE: Depending on the configuration ordered, your computer may have an M.2 2230 or an M.2 2280 solid-state drive installed in solid-state drive slot 0 (M.2 PCIe SSD 0) on the system board.

NOTE: This procedure is applicable for computers where an M.2 2280 solid-state drive is installed in solid-state drive slot 0 (M.2 PCIe SSD 0) on the system board.

The following image(s) indicate the location of the M.2 2280 solid-state drive in slot 0 and provides a visual representation of the removal procedure.



Steps

1. Remove the screw (M2x3.5) that secures the M.2 2280 solid-state drive to the system board
2. Slide and lift the M.2 2280 solid-state drive off the solid-state drive slot 0 (M.2 PCIe SSD 0) on the system board.

Installing the M.2 2280 solid-state drive in slot 0

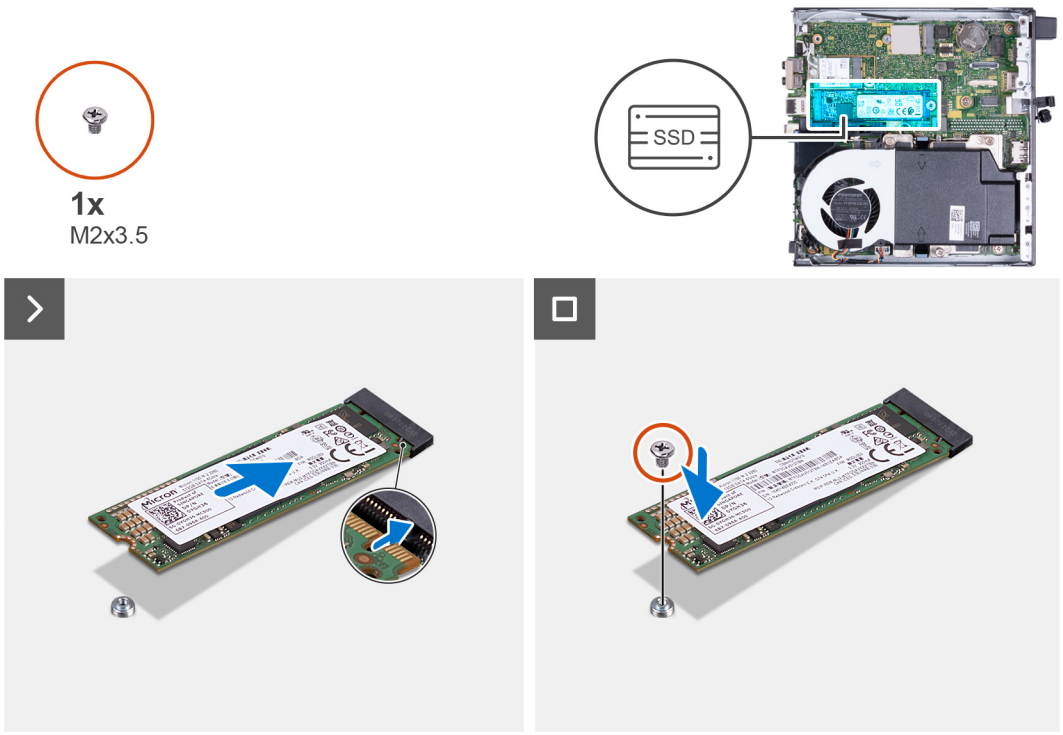
Prerequisites

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

About this task

NOTE: This procedure is only applicable if you are installing an M.2 2280 solid-state drive into solid-state drive slot 0 (M.2 PCIe SSD 0) on the system board.

The following image(s) indicate the location of the M.2 2280 solid-state drive in slot 0 and provides a visual representation of the installation procedure.



Steps

1. Align the notch on the M.2 2280 solid-state drive with the tab on the solid-state drive slot 0 (M.2 PCIe SSD 0).
2. Slide the M.2 2280 solid-state drive into the solid-state drive slot (M.2 PCIe SSD 0) on the system board.
3. Replace the screw (M2x3.5) that secures the M.2 2280 solid-state drive to the system board

Next steps

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

Removing the M.2 2280 solid-state drive from slot 1

Prerequisites

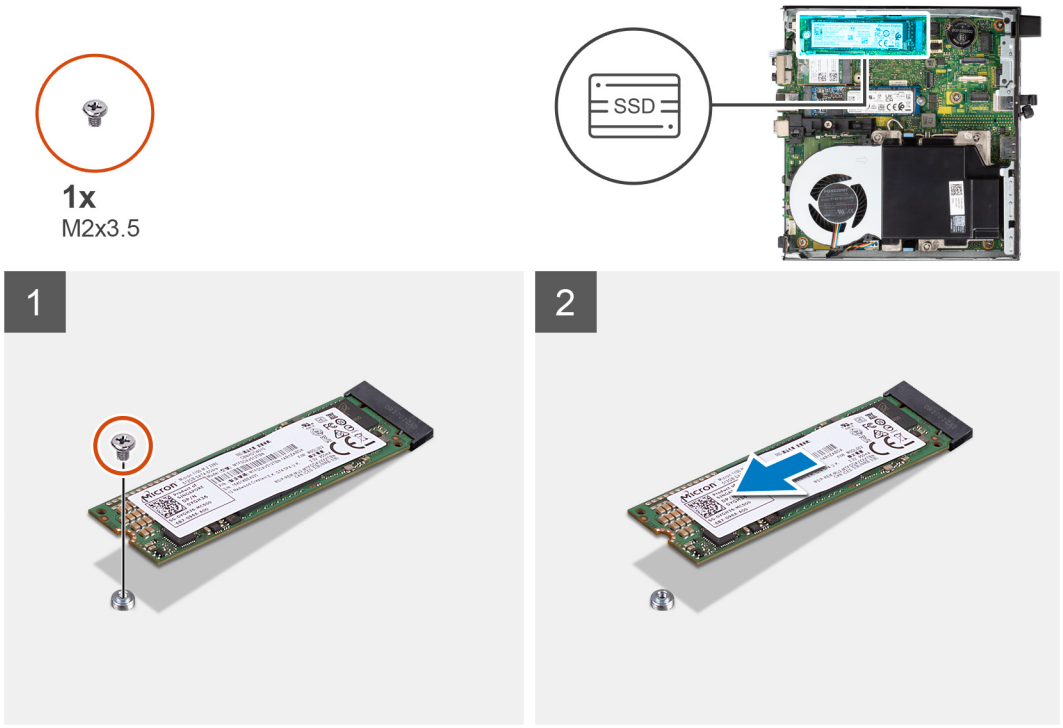
1. Follow the procedure in Before working inside your computer.
2. Remove the side cover.

About this task

NOTE: Depending on the configuration ordered, your computer may have an M.2 2230 or an M.2 2280 solid-state drive installed in solid-state drive slot 1 (M.2 PCIe SSD 1) on the system board.

NOTE: This procedure is applicable for computers where an M.2 2280 solid-state drive is installed in solid-state drive slot 1 (M.2 PCIe SSD 1) on the system board.

The following image(s) indicate the location of the M.2 2280 solid-state drive in slot 1 and provides a visual representation of the removal procedure.



Steps

1. Remove the screw (M2x3.5) that secures the M.2 2280 solid-state drive to the system board
2. Slide and lift the M.2 2280 solid-state drive off the solid-state drive slot 1 (M.2 PCIe SSD 1) on the system board.

Installing the M.2 2280 solid-state drive in slot 1

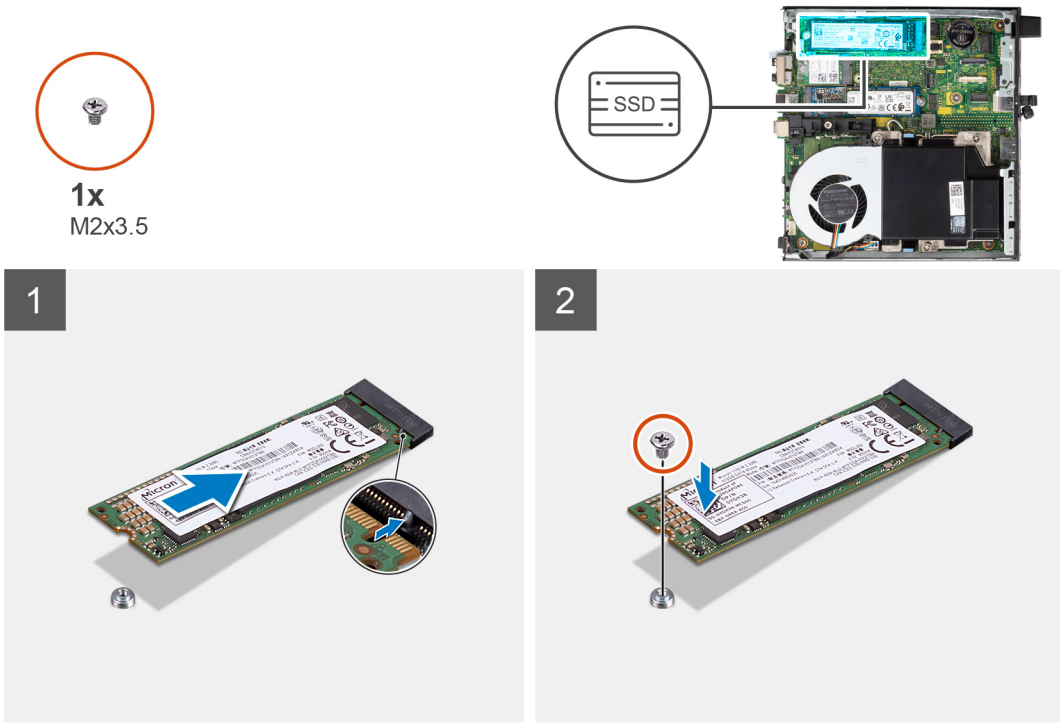
Prerequisites

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

About this task

NOTE: This procedure is only applicable if you are installing an M.2 2280 solid-state drive into solid-state drive slot 1 (M.2 PCIe SSD 1) on the system board.

The following image(s) indicate the location of the M.2 2280 solid-state drive in slot 1 and provides a visual representation of the installation procedure.



Steps

1. Align the notch on the M.2 2280 solid-state drive with the tab on the solid-state drive slot 1 (M.2 PCIe SSD 1).
2. Slide the M.2 2280 solid-state drive into solid-state drive slot 1 (M.2 PCIe SSD 1) on the system board.
3. Replace the screw (M2x3.5) that secures the M.2 2280 solid-state drive to the system board

Next steps

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

Location of the screw mount on the M.2 slot

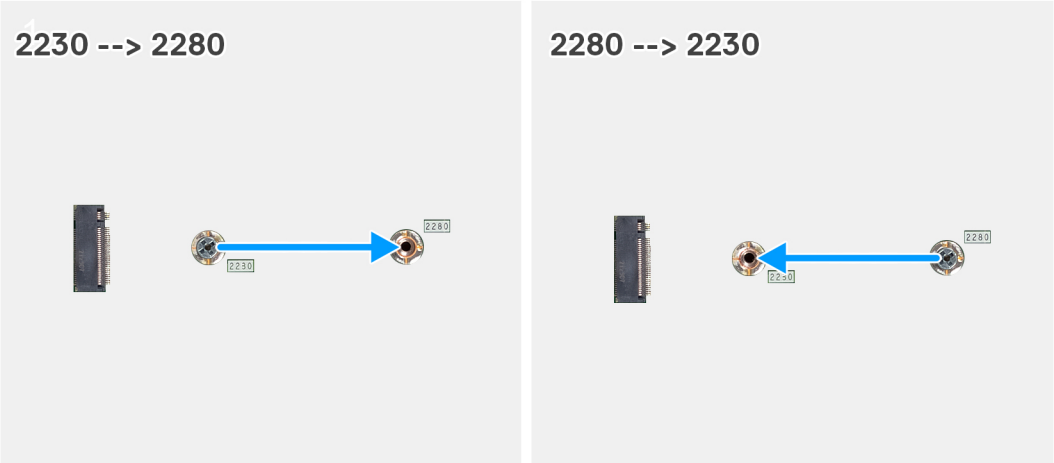
Prerequisites

To install an M.2 solid-state drive of a different form factor on the M.2 slot, the location of the screw mount on the M.2 slot has to be changed in order to install the M.2 solid-state drive of a different form factor.

About this task

NOTE: This procedure only applies to the screw mount located on the M.2 slot for the solid-state drive.

The following image(s) indicate the location of the screw mount on the M.2 slot and provides a visual representation of the procedure to change the position of the screw mount.



Steps

1. Remove the screw mount on the system board.
2. Install the screw mount on the system board.

Wireless card

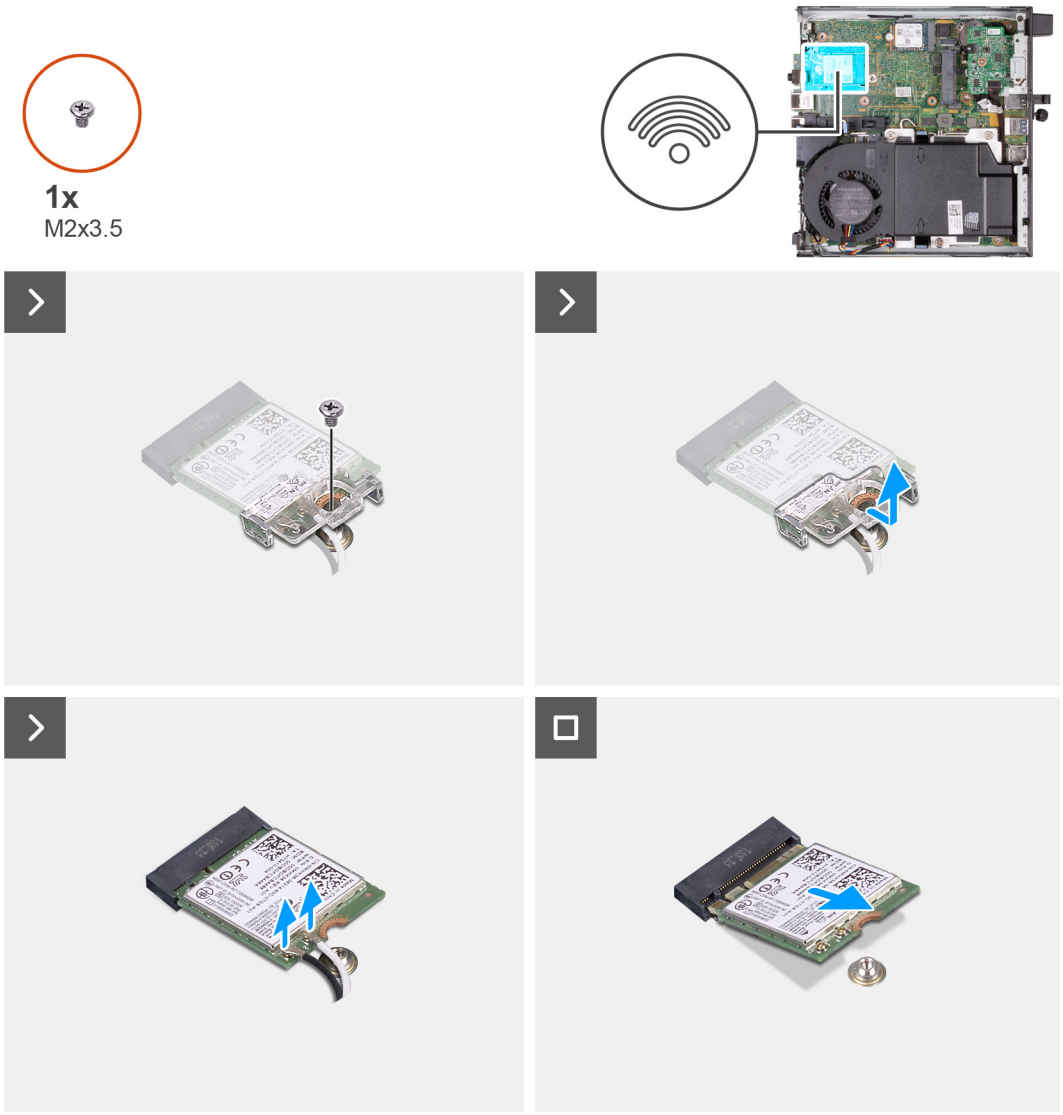
Removing the wireless card

Prerequisites

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

About this task

The following image(s) indicate the location of the wireless card and provides a visual representation of the removal procedure.



Steps

1. Remove the screw (M2x3.5) that secures the wireless-card bracket to the wireless card.
2. Lift the wireless-card bracket off the wireless card.
3. Disconnect the antenna cables from the wireless card.
4. Slide and remove the wireless card from the wireless-card slot (M.2 WLAN).

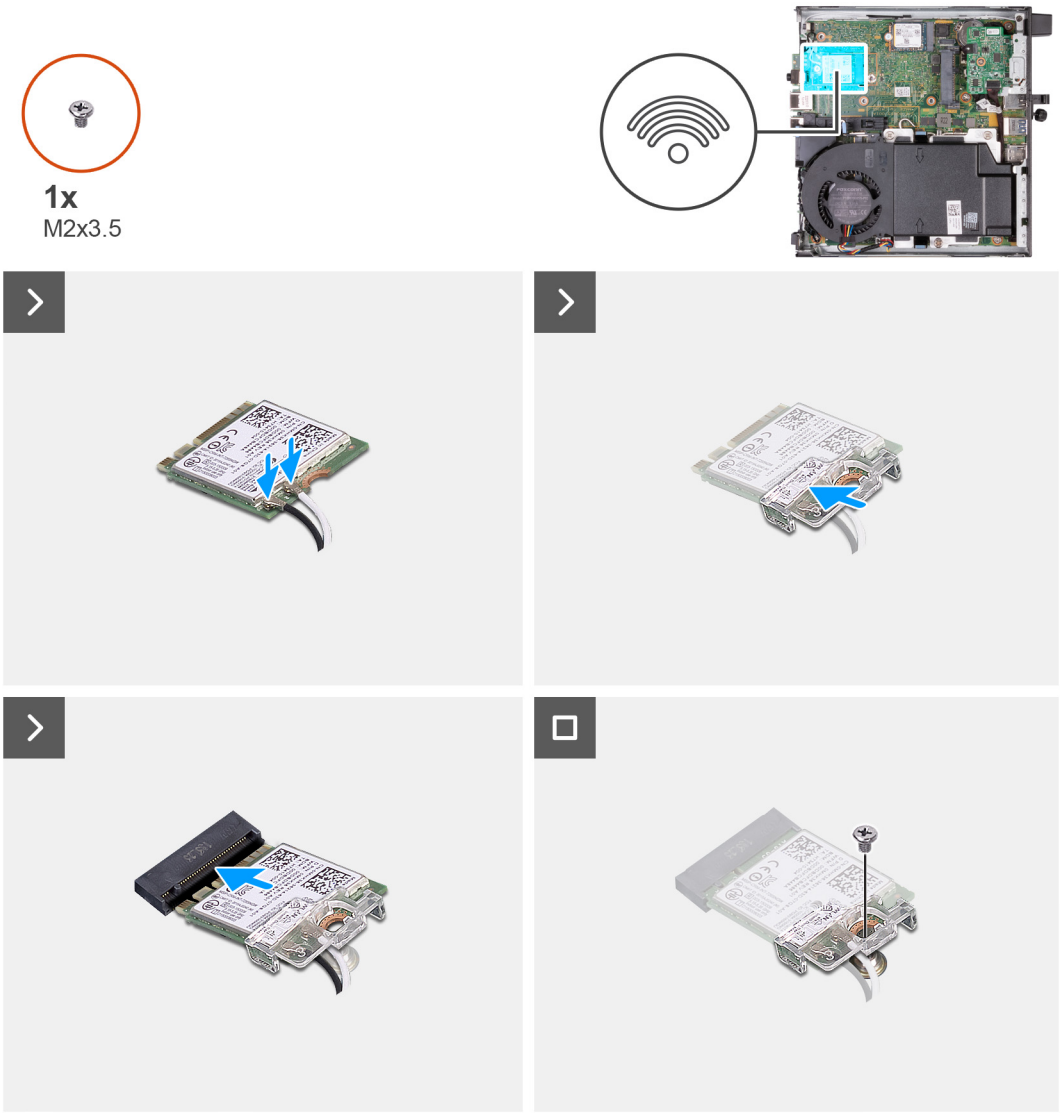
Installing the wireless card

Prerequisites

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

About this task

The following image(s) indicate the location of the wireless card and provides a visual representation of the installation procedure.



Steps

1. Connect the antenna cables to the wireless card.

Table 25. Antenna-cable color scheme

Connectors on the wireless card	Antenna-cable color	Silkscreen marking	
Main	White	MAIN	▵ (white triangle)
Auxiliary	Black	AUX	▲ (black triangle)

2. Place the wireless-card bracket on the wireless card
3. Align the notch on the wireless card with the tab on the wireless-card slot (M.2 WLAN).
4. Slide the wireless card at an angle into the wireless-card slot (M.2 WLAN).
5. Replace the screw (M2x3.5) that secures the wireless-card bracket to the wireless card.

Next steps

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

Speaker

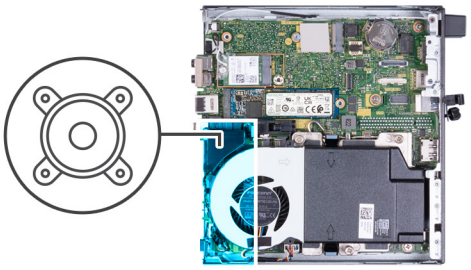
Removing the speaker

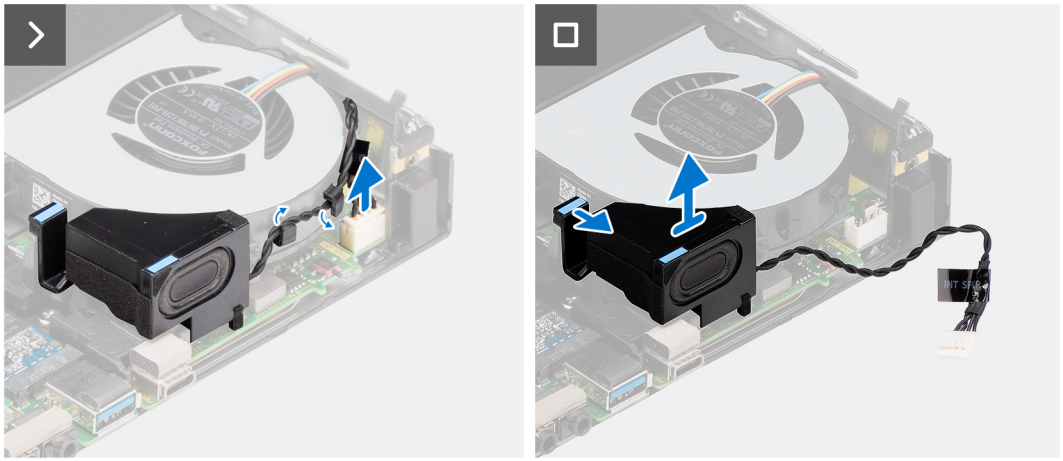
Prerequisites

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

About this task

The following image(s) indicate the location of the speaker and provides a visual representation of the removal procedure.





Steps

1. Disconnect the speaker cable from the system board.
2. Press on the tab that secures the speaker to the system board.
3. Lift the speaker off the system board.

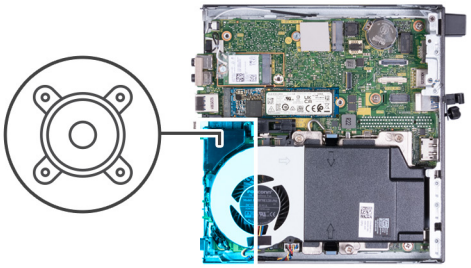
Installing the speaker

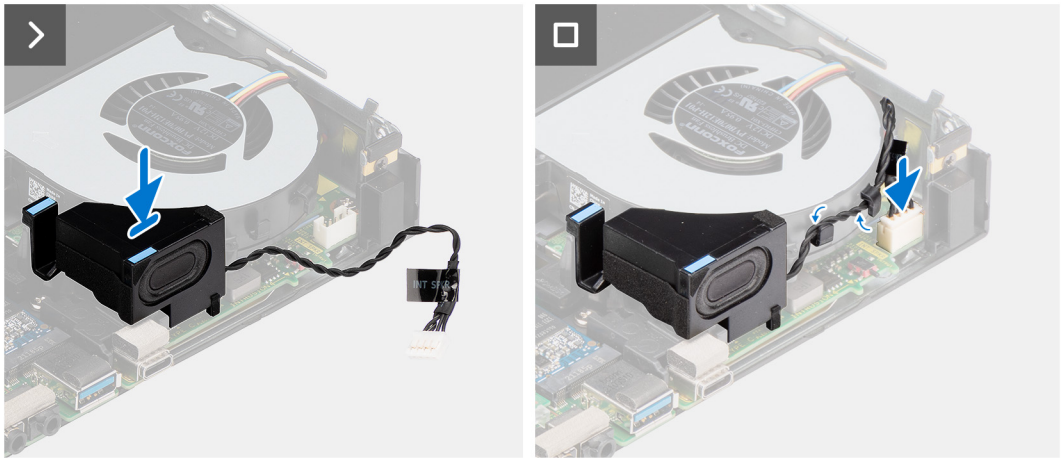
Prerequisites

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

About this task

The following image(s) indicate the location of the speaker and provides a visual representation of the installation procedure.





Steps

1. Connect the speaker cable to the system board.
2. Press and hold on the tab that secures the speaker to the system board.
3. Place the speaker on the system board.
4. Release the tab that secures the speaker to the system board.

Next steps

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

Fan

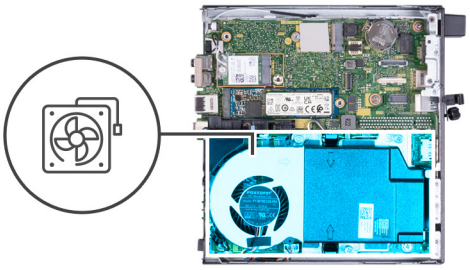
Removing the fan

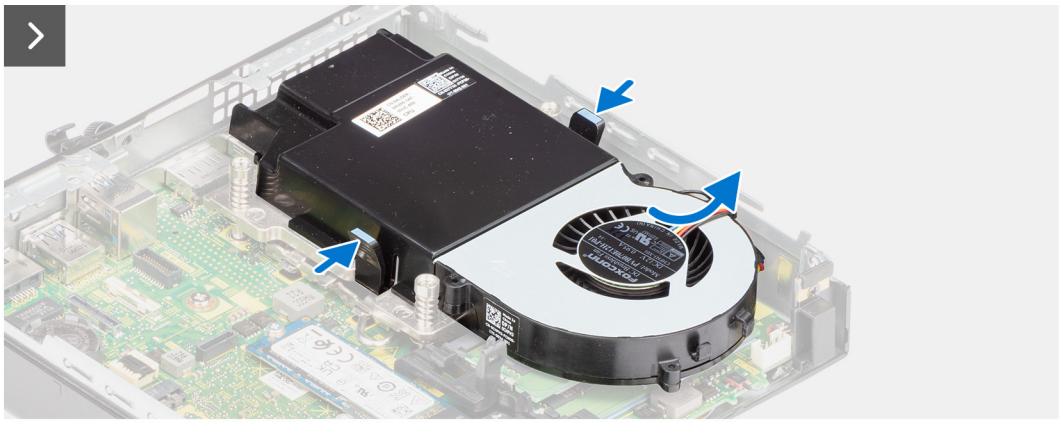
Prerequisites

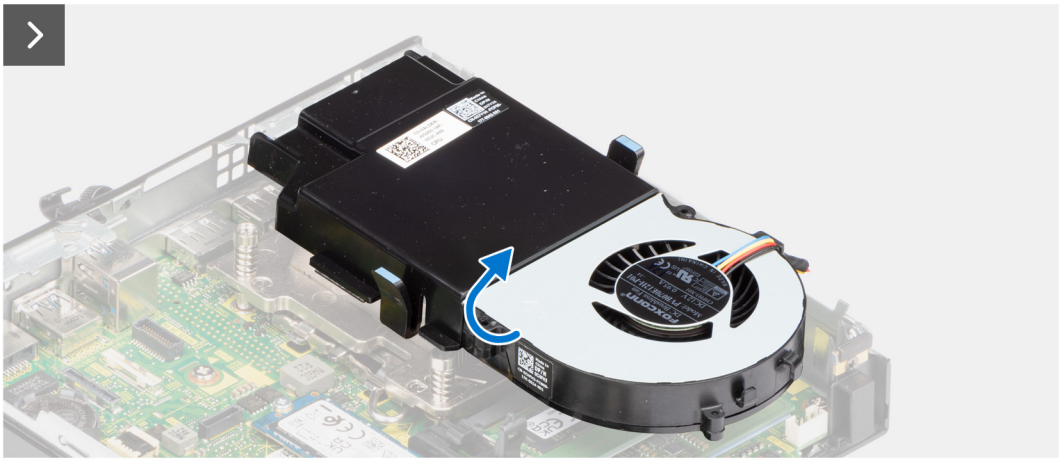
1. Follow the procedure in Before working inside your computer.
2. Remove the side cover.
3. Remove the speaker.

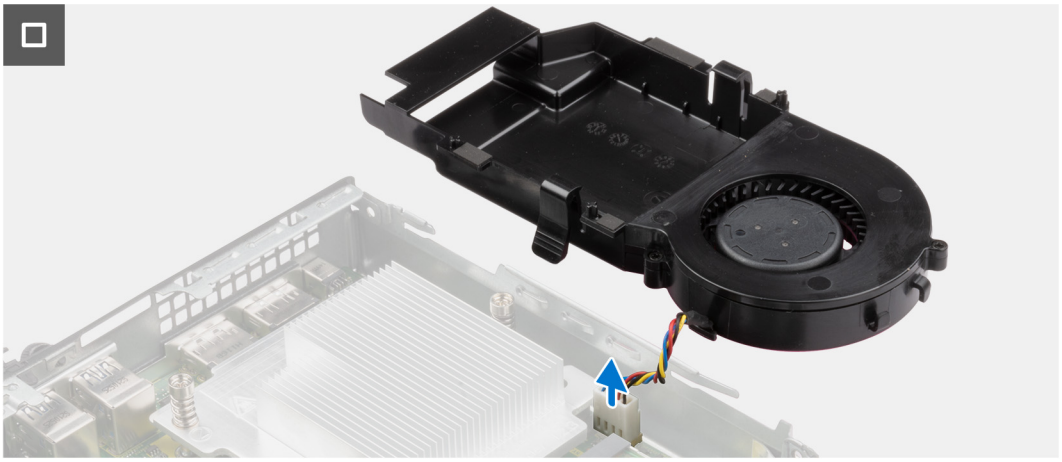
About this task

The following image(s) indicate the location of the fan and provides a visual representation of the removal procedure.









Steps

1. Press and hold the tabs that secures the fan assembly to the system board.
2. Lift the fan assembly off the system board and hold it in place.
3. Flip over the fan assembly.

4. Disconnect the fan cable from the system board.
5. Lift the fan off the fan shroud.

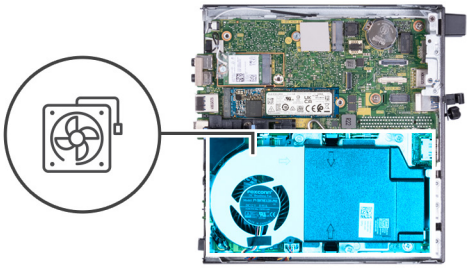
Installing the fan

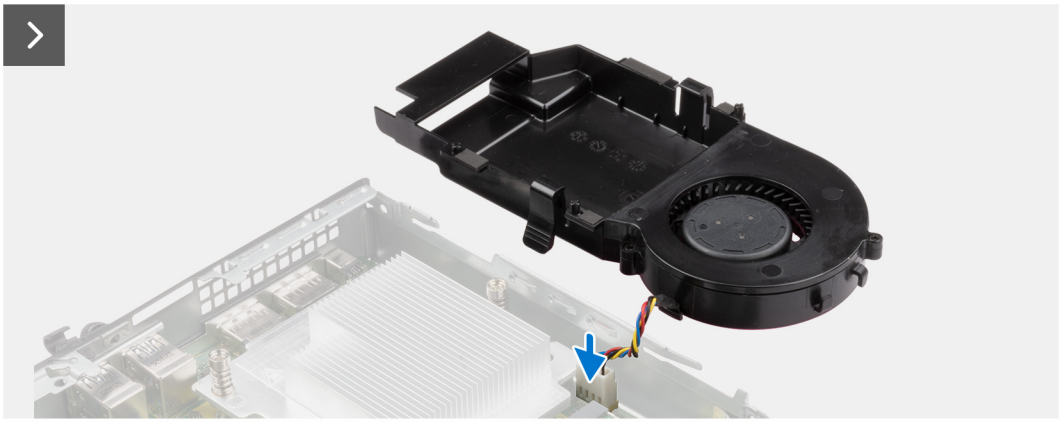
Prerequisites

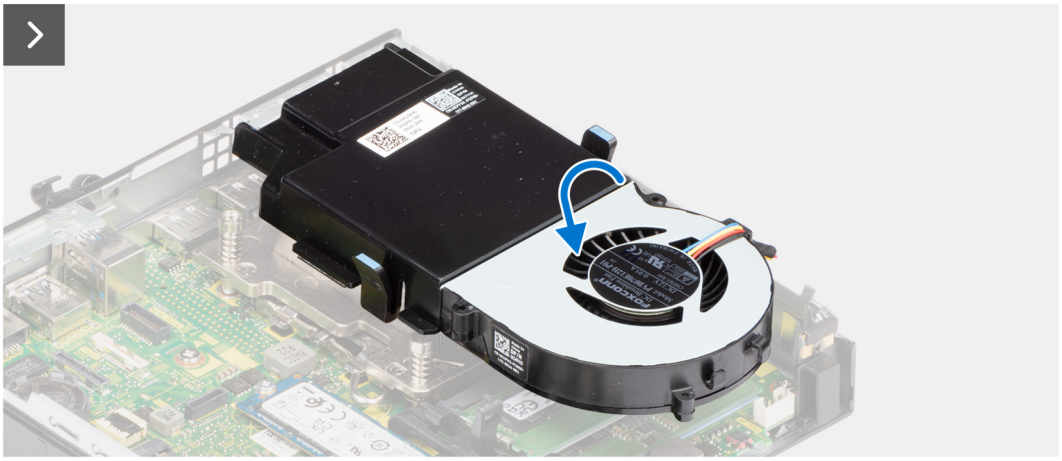
If you are replacing a component, remove the existing component before performing the installation process.

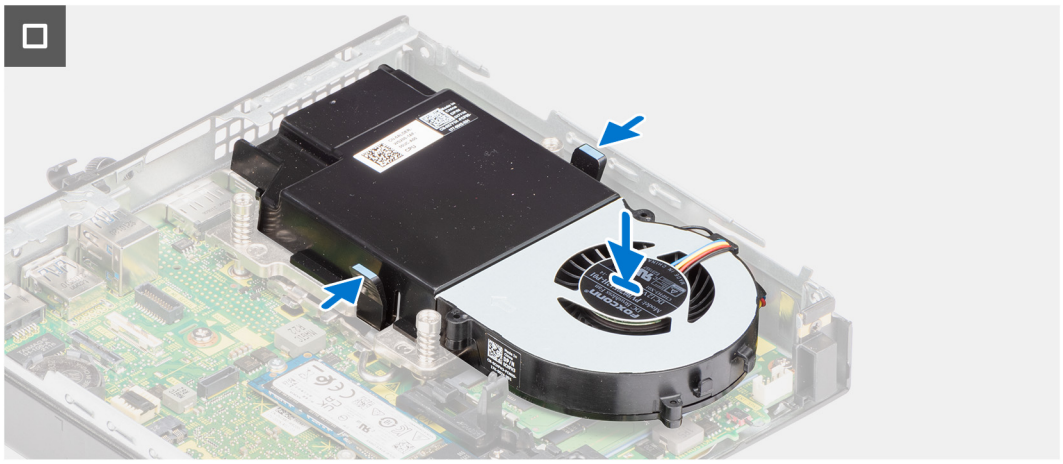
About this task

The following image(s) indicate the location of the fan and provides a visual representation of the installation procedure.









Steps

1. Place the fan on the fan shroud.
2. Align the tabs on the fan with the slots on the fan shroud.
3. Snap the fan into place on the fan shroud.
4. Connect the fan cable to the system board.
5. Flip over the fan assembly.
6. Press and hold the tabs on the fan assembly.
7. Place the fan assembly into the slot on the system board and release the tabs.
8. Press and hold on the tab that secures the speaker to the system board.
9. Place the speaker on the system board.
10. Release the tab that secures the speaker to the system board.

Next steps

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

Coin-cell battery

Removing the coin-cell battery

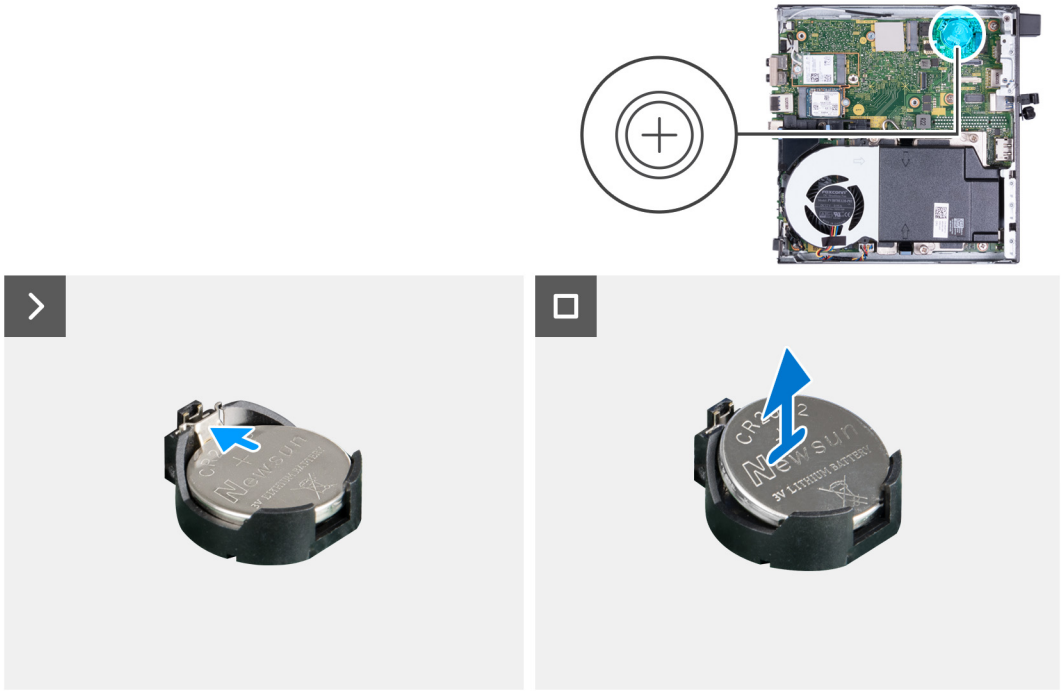
Prerequisites

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

About this task

NOTE: Removing the coin-cell battery resets the BIOS settings to default. It is recommended that you note the BIOS settings before removing the coin-cell battery.

The following image(s) indicate the location of the coin-cell battery and provides a visual representation of the removal procedure.



Steps

1. Push the coin-cell battery-release lever on the coin-cell battery socket to release the coin-cell battery out of the socket.
2. Lift the coin-cell battery from the coin-cell battery socket.

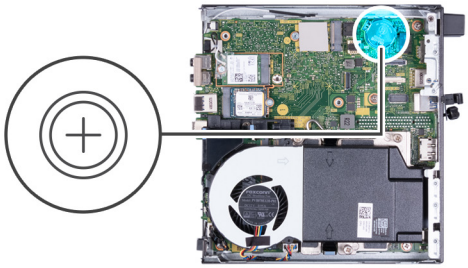
Installing the coin-cell battery

Prerequisites

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

About this task

The following image(s) indicate the location of the coin-cell battery and provides a visual representation of the installation procedure.







Steps

With the positive side (+) facing up, insert the coin-cell battery into the battery socket on the system board and snap the battery into place.

Next steps

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

Memory

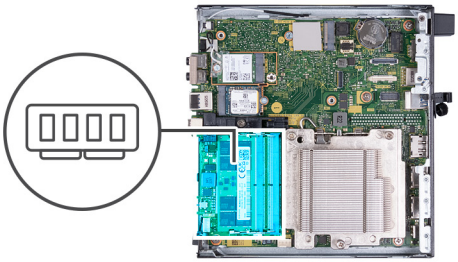
Removing the memory

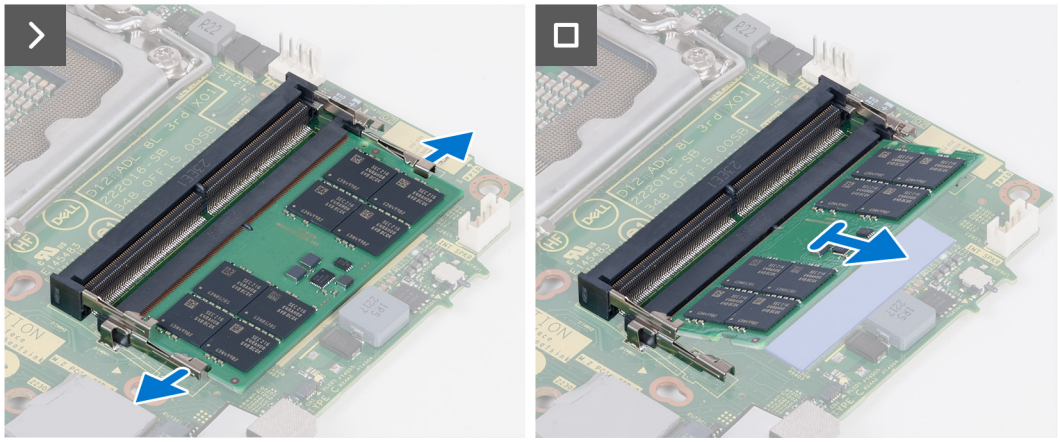
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the side cover.
3. Remove the speaker.
4. Remove the fan.

About this task

The following image(s) indicate the location of the memory and provides a visual representation of the removal procedure.





Steps

1. Carefully spread apart the securing-clips on each end of the memory-module slot.
2. Grasp the memory module near the securing clip, and then gently ease the memory module out of the memory-module slot.

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

   NOTE: Repeat step 1 to step 2 to remove any other memory modules installed in your computer.

   NOTE: Note the slot and the orientation of the memory module in order to replace it in the correct slot.

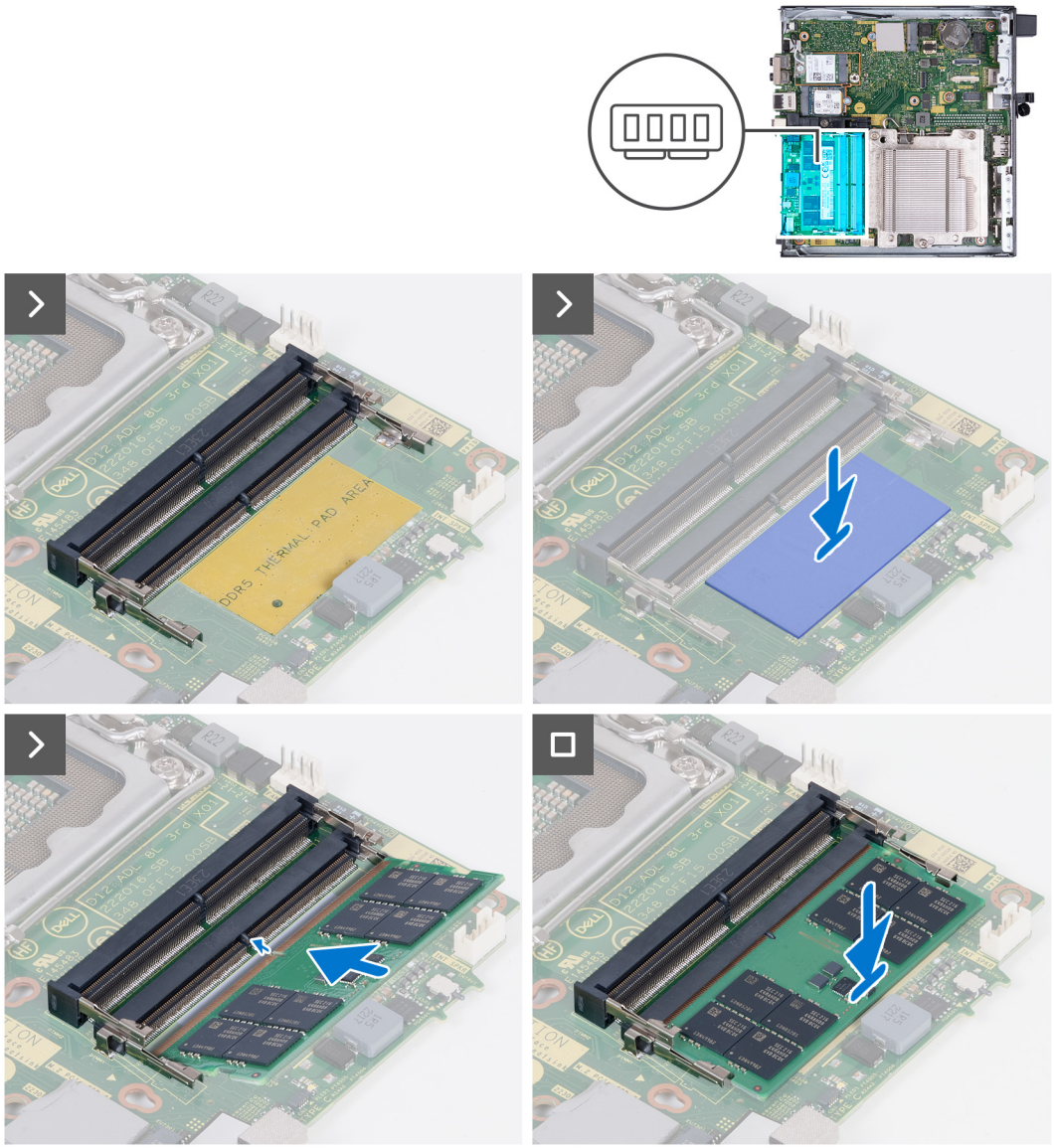
Installing the memory

Prerequisites

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

About this task

The following image(s) indicate the location of the memory and provides a visual representation of the installation procedure.



Steps

1. Ensure that the securing clips are in an open position
2. Align the notch on the memory module with the tab on the memory-module slot.
3. Press down on the memory module until the memory module snaps into position and the securing clip locks in place

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

NOTE: Repeat step 1 to step 3 when installing more than one memory module in your computer.

Next steps

1. Install the fan.
2. Install the speaker.
3. Install the side cover.
4. Follow the procedure in After working inside your computer.

7

Removing and installing Field Replaceable Units (FRUs)

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

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

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

CAUTION: Dell Technologies recommends that this set of repairs, if needed, to be conducted by trained technical repair specialists.

CAUTION: As a reminder, your warranty does not cover damages that may occur during the courses of 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.

Heat sink

Removing the heat sink

Prerequisites

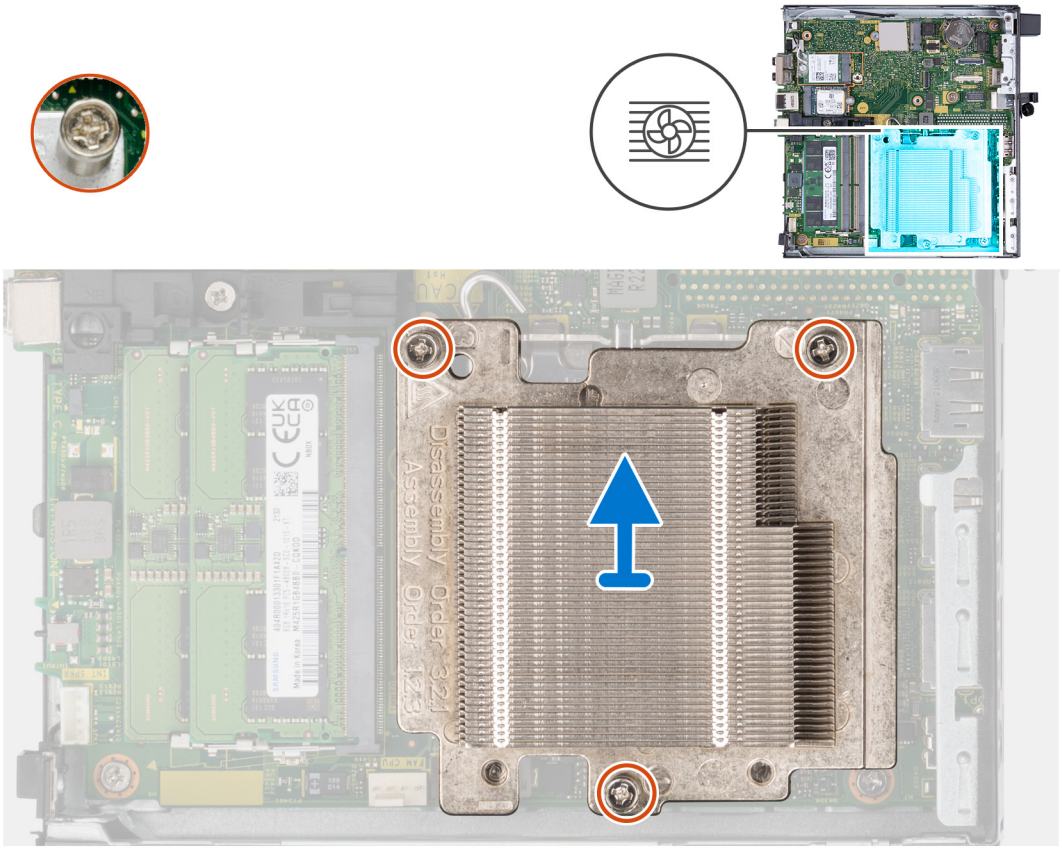
1. Follow the procedure in Before working inside your computer.
2. Remove the side cover.
3. Remove the speaker.
4. Remove the fan.

About this task

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

NOTE: 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.

The following image(s) indicate the location of the heat sink and provides a visual representation of the removal procedure.



Steps

1. In reverse sequential order (3>2>1) loosen the three captive screws that secure the heat sink to the system board.
2. Lift the heat sink off the system board.

Installing the heat sink

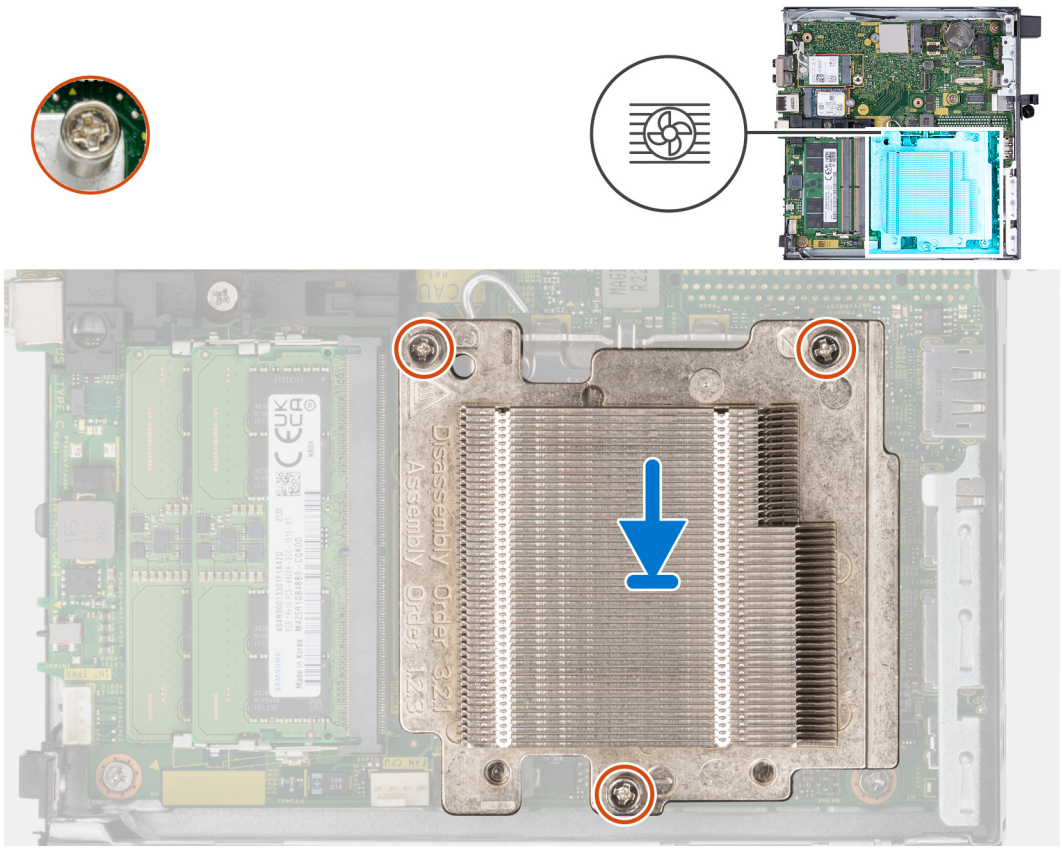
Prerequisites

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

About this task

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

The following image(s) indicate the location of the heat sink and provides a visual representation of the installation procedure.



Steps

1. Place the heat sink on the system board and the system board.
2. Align the screw holes on the heat sink with the screw holes on the system board.
3. In sequential order (1>2>3) tighten the three captive screws that secure the heat sink to the system board.

Next steps

1. Install the fan.
2. Install the speaker.
3. Install the side cover.
4. Follow the procedure in After working inside your computer.

Optional I/O modules (HDMI/VGA/DP/Serial)

Removing the optional I/O module (HDMI/VGA/DP/Serial/PS2)

Prerequisites

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

About this task

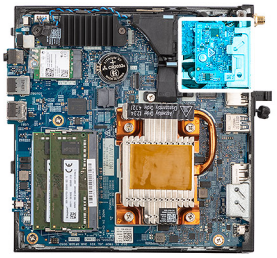
NOTE: The optional PS2 module comes with a custom Dell adapter cable that is required to access the PS2 I/O ports. Plug in the adapter cable to access the PS2 I/O and COM ports of your computer.

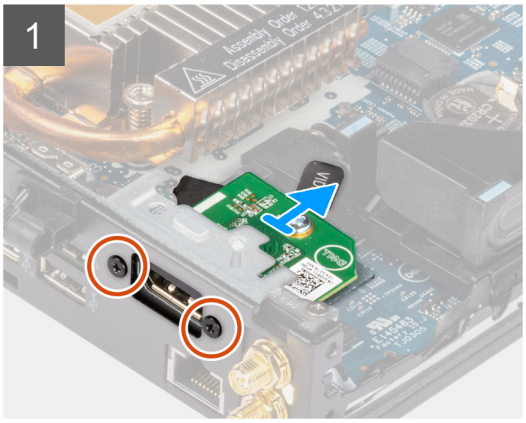
NOTE: This is an example of the procedure and removal steps are applicable for optional I/O module (HDMI/VGA/DP/Serial/PS2).

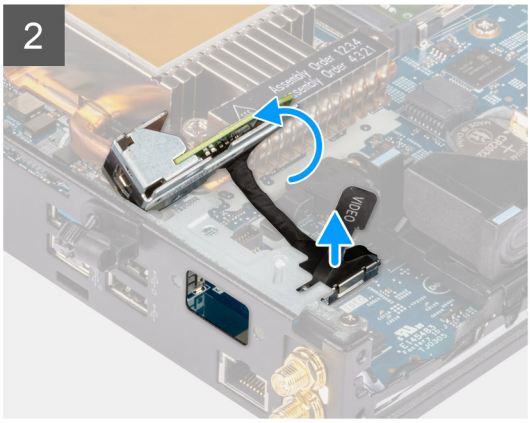
The following images indicate the location of the optional I/O module and provide a visual representation of the removal procedure.



2x
M3x3

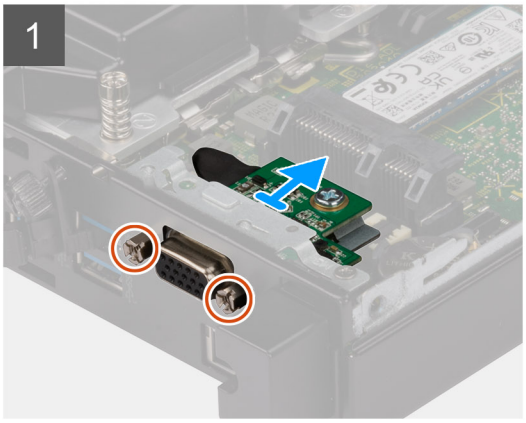


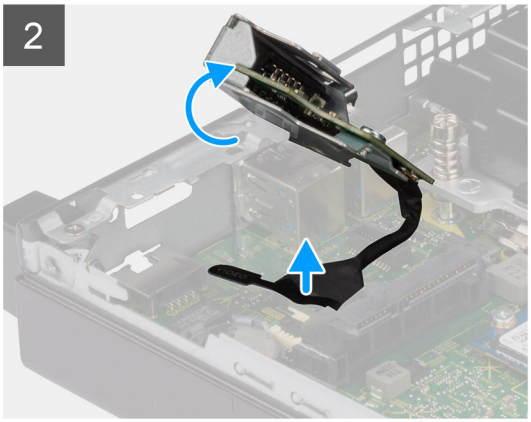






2x
M2x5





Steps

1. Remove the two (M3x3) screws that secure the optional I/O module (HDMI/DP/PS2) or two (M2x5) cross type screws that secure the optional I/O module (VGA/Serial) to the computer chassis.
2. Disconnect the I/O-module cable from the connector on the system board.
3. Remove the optional I/O module from the computer.

Installing the optional I/O module (HDMI/VGA/DP/Serial/PS2)

Prerequisites

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

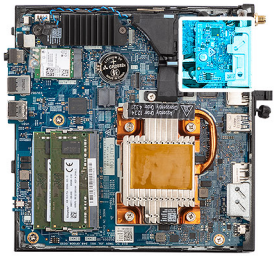
About this task

NOTE: The optional PS2 module comes with a custom Dell adapter cable that is required to access the PS2 I/O ports. Plug in the adapter cable to access the PS2 I/O and COM ports of your computer.

NOTE: This is an example of the procedure and installation steps are applicable for optional I/O module (HDMI/VGA/DP/Serial/PS2).

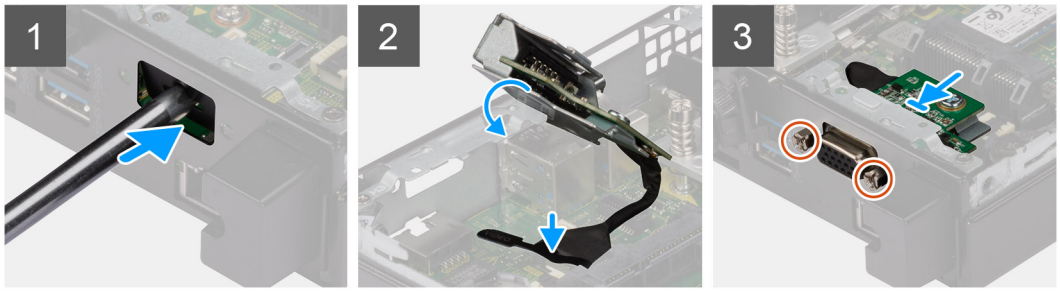
The following images indicate the location of the optional I/O module and provide a visual representation of the installation procedure.











Steps

1. To remove the dummy metal bracket, insert a flat-head screwdriver in the hole of the bracket. Push the bracket to release the bracket, and then lift the bracket out from the system.

   NOTE: This step applies if you are upgrading the system with no existing I/O module.

2. Insert the optional I/O module into its slot from the inside of your computer.
3. Connect the I/O cable to the connector on the system board.
4. Replace the two (M3x3) screws that secure the optional I/O module (HDMI/DP/PS2) or two (M2x5) cross type screws that secure the optional I/O module (VGA/Serial) to the computer chassis.

Next steps

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

Optional Type-C module

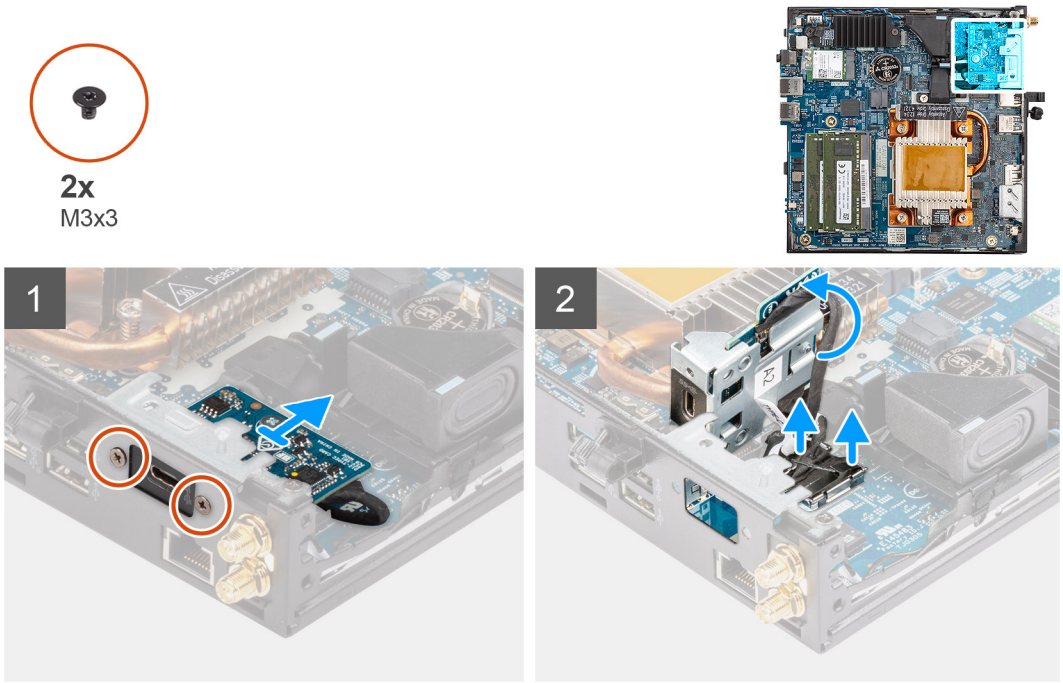
Removing the optional Type-C module

Prerequisites

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

About this task

The following images indicate the location of the optional Type-C module and provide a visual representation of the removal procedure.



Steps

1. Remove the two (M3x3) screws that secure the optional Type-C module.
2. Remove the optional Type-C module from its slot on the chassis.
3. Lift and hold the optional Type-C module in place above the system board.
4. Disconnect the Type-C DisplayPort cable from the system board.
5. Disconnect the Type-C USB cable from the system board.
6. Remove the optional Type-C module from the computer.

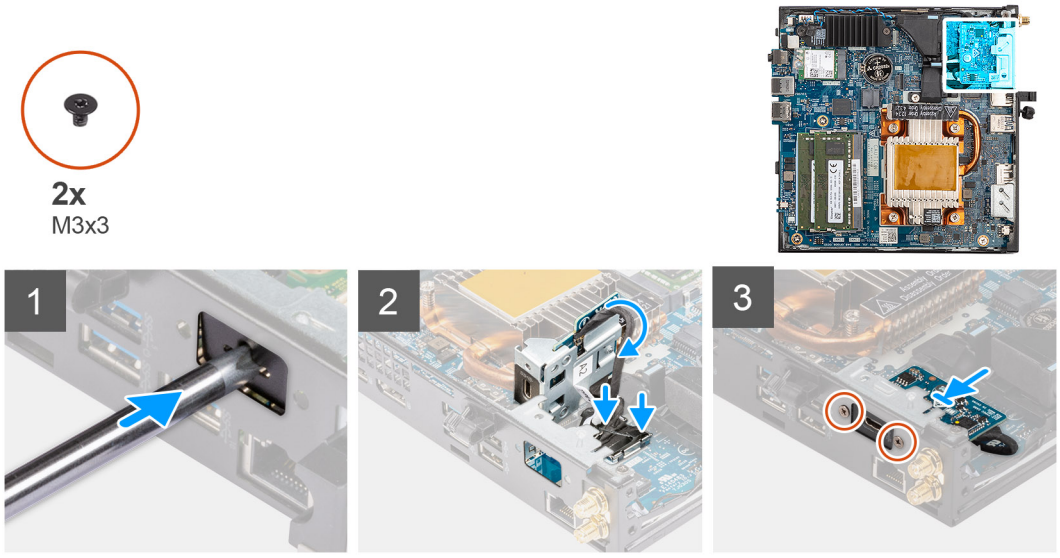
Installing the optional Type-C module

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 optional Type-C module and provide a visual representation of the installation procedure.



Steps

1. To remove the dummy metal bracket, insert a flat-head screwdriver in the hole of the bracket. Push the bracket to release the bracket, and then lift the bracket out from the system.

   NOTE: This step applies if you are upgrading the system with no existing I/O module.

2. Connect the Type-C DisplayPort cable to the system board.
3. Connect the Type-C USB cable to the system board.
4. Insert the optional Type-C module into its slot from the inside of your computer.
5. Replace the two (M3x3) screws that secure the optional Type-C module.

Next steps

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

Processor

Removing the processor

Prerequisites

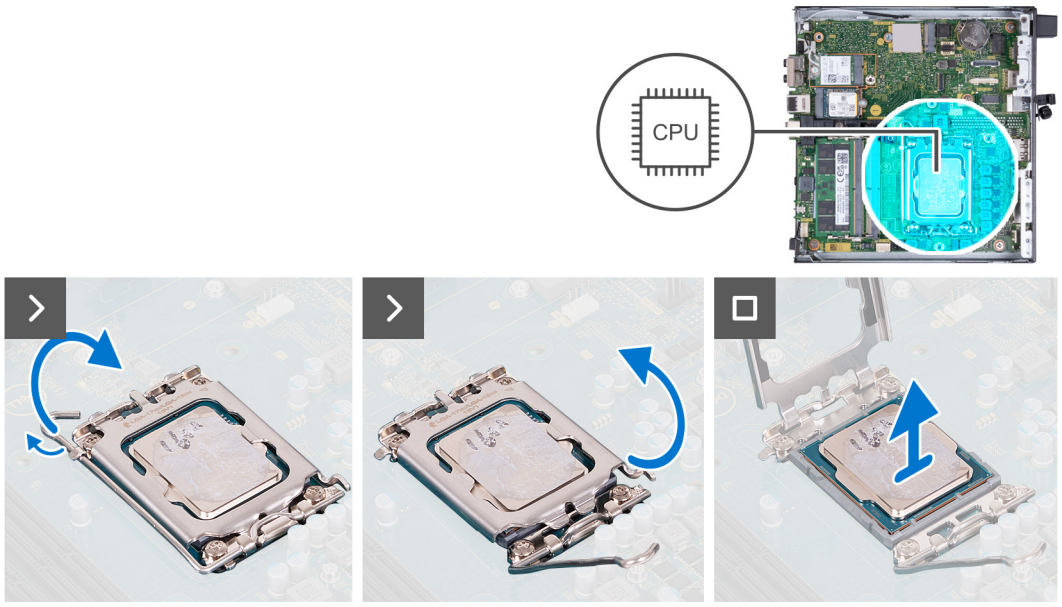
1. Follow the procedure in Before working inside your computer.
2. Remove the side cover.
3. Remove the speaker.
4. Remove the fan.
5. Remove the heat sink.

About this task

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

NOTE: 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.

The following image(s) indicate the location of the processor and provides a visual representation of the removal procedure.



Steps

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

   CAUTION: When removing the processor, do not touch any of the pins inside the socket or allow any objects to fall on the pins in the socket.

3. Gently lift the processor from the processor socket.

Installing the processor

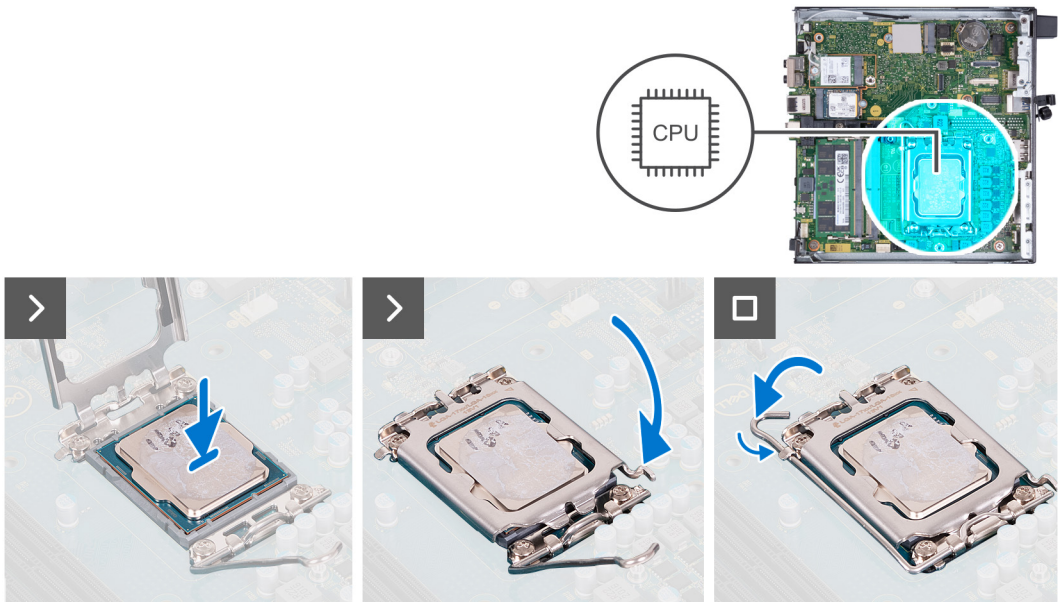
Prerequisites

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

About this task

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

The following image(s) indicate the location of the processor and provides a visual representation of the installation procedure.



Steps

1. Ensure that the release lever on the processor socket is fully extended in the open position.

   NOTE: The pin-1 corner of the processor has a triangle that aligns with the triangle on the pin-1 corner on the processor socket. When the processor is properly seated, all four corners are aligned at the same height. If one or more corners of the processor are higher than the others, the processor is not seated properly.

2. Align the notches on the processor with the tabs on the processor socket and place the processor in the processor socket.

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

3. When the processor is fully seated in the socket, pivot the release-lever down and place it under the tab on the processor cover.

Next steps

1. Install the heat sink.
2. Install the fan.
3. Install the speaker.
4. Install the side cover.
5. Follow the procedure in After working inside your computer.

System board

Removing the system board

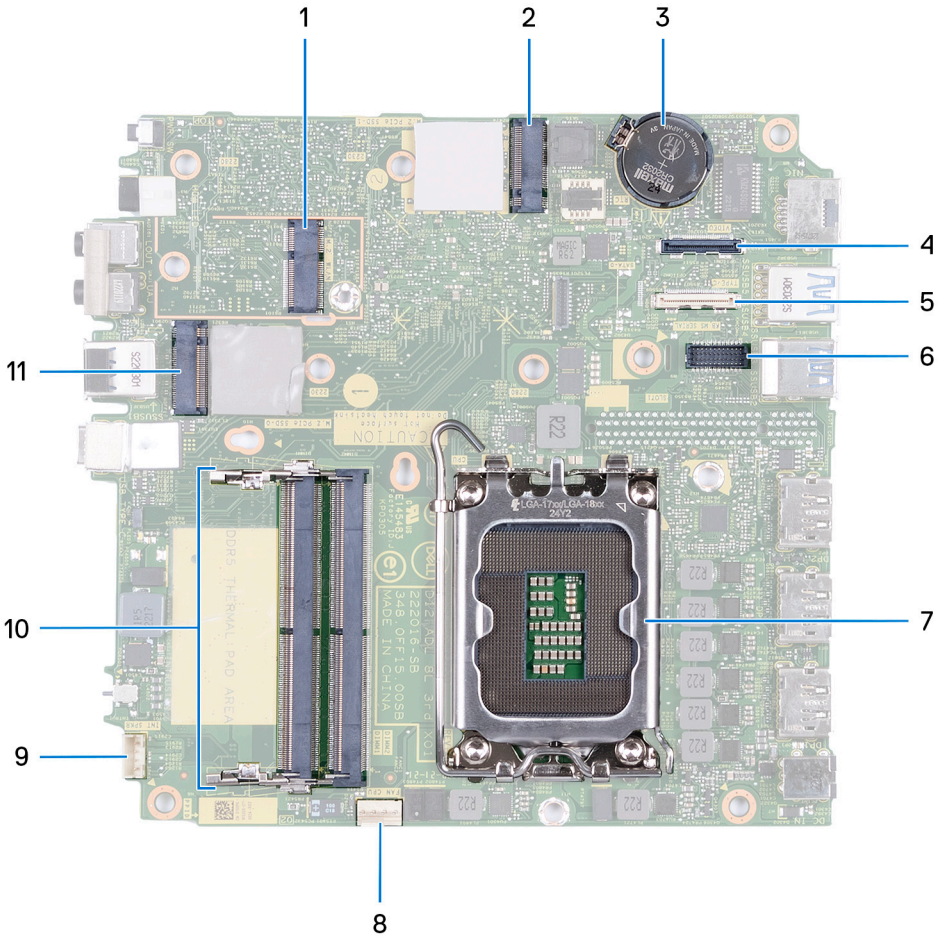
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the side cover.
3. Remove the coin-cell battery.
4. Remove the M.2 2230 solid-state drive or M.2 2280 solid-state drive, whichever applicable.
5. Remove the wireless card.
6. Remove the speaker.
7. Remove the fan.
8. Remove the memory.
9. Remove the heat sink.

10. Remove the processor.
11. Remove the optional I/O module (VGA/HDMI/DP/Serial)or the optional Type-C module, whichever applicable.

About this task

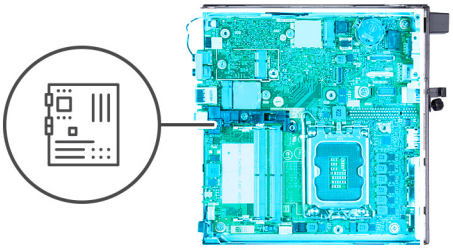
The following images indicate the system board connectors.

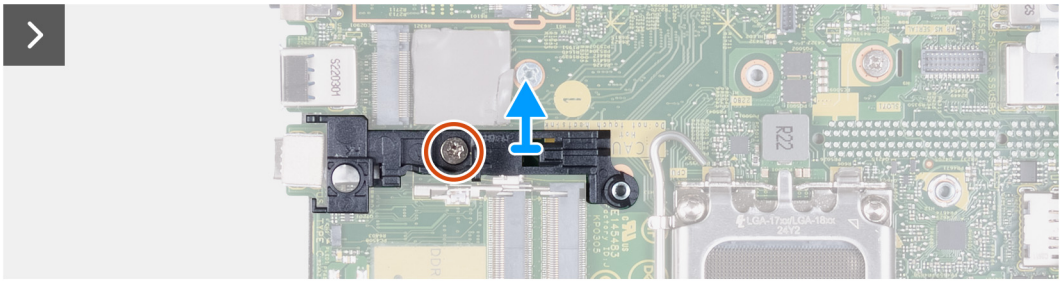


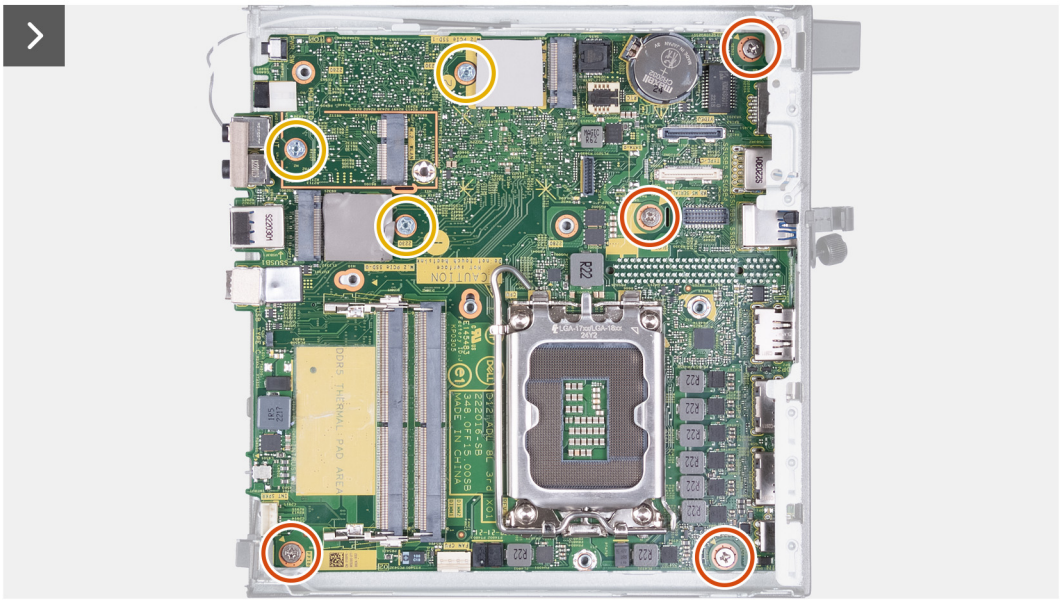
1. M.2 WLAN connector
2. M.2 SSD PCIe connector (2230/2280)
3. Coin-cell battery
4. Optional video connector (VGA Port/DisplayPort 1.4a (HBR3)/HDMI 2.1 Port)
5. Optional connector (USB 3.2 Gen 2 Type-C Port)
6. Optional PS/2, serial port connector
7. Processor socket
8. Fan connector
9. Internal speaker connector
10. Memory-module slots
11. M.2 SSD PCIe connector (2230/2280)

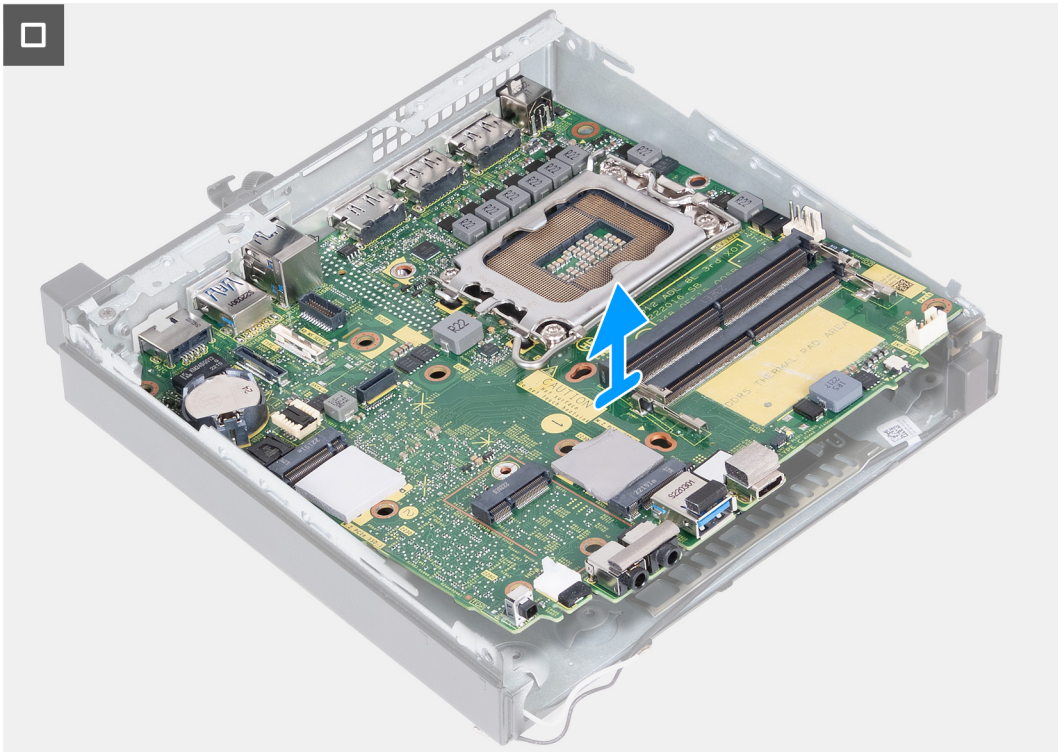
The following image(s) indicate the location of the system board and provides a visual representation of the removal procedure.


5x
M3x5
3x
M3x4









Steps

1. Remove the screw (M3x5) that secures the speaker-support bracket to the system board.
2. Lift the speaker-support bracket off the system board.
3. Remove the four screws (M3x5) that secures the system board to the chassis.
4. Remove the three screws (M3x4) that secures the system board to the chassis.
5. Lift the system board at an angle and remove it from the chassis.

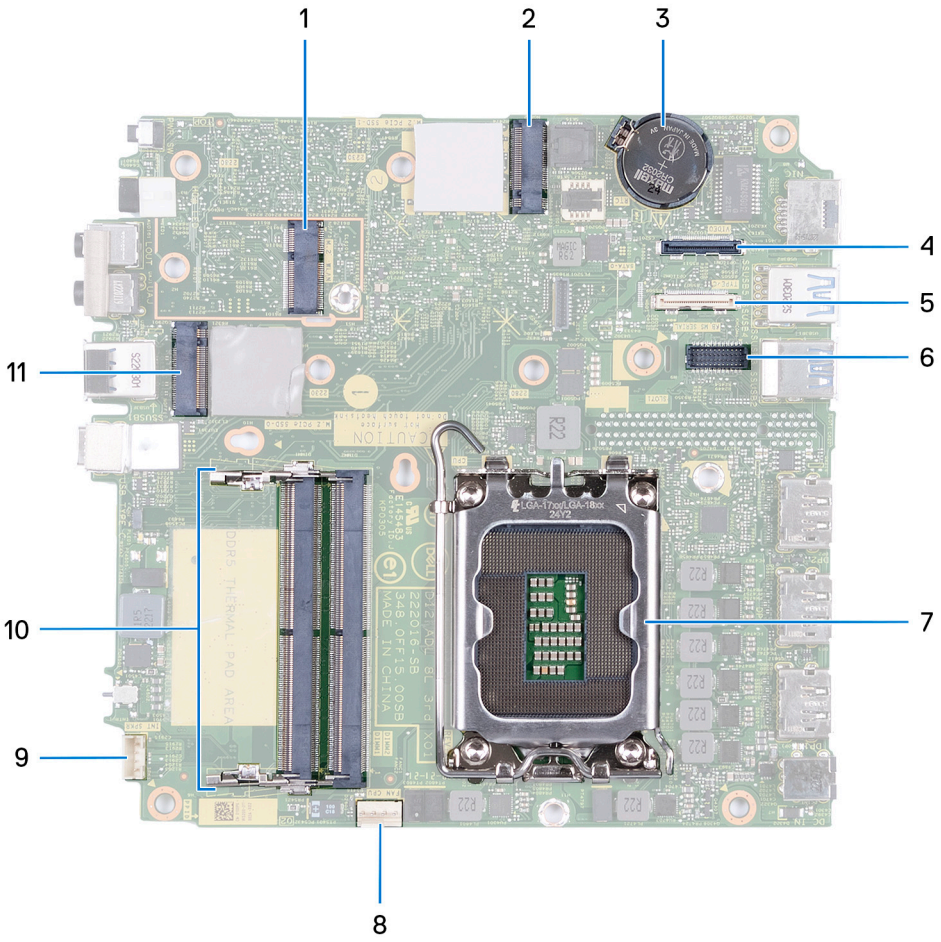
Installing the system board

Prerequisites

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

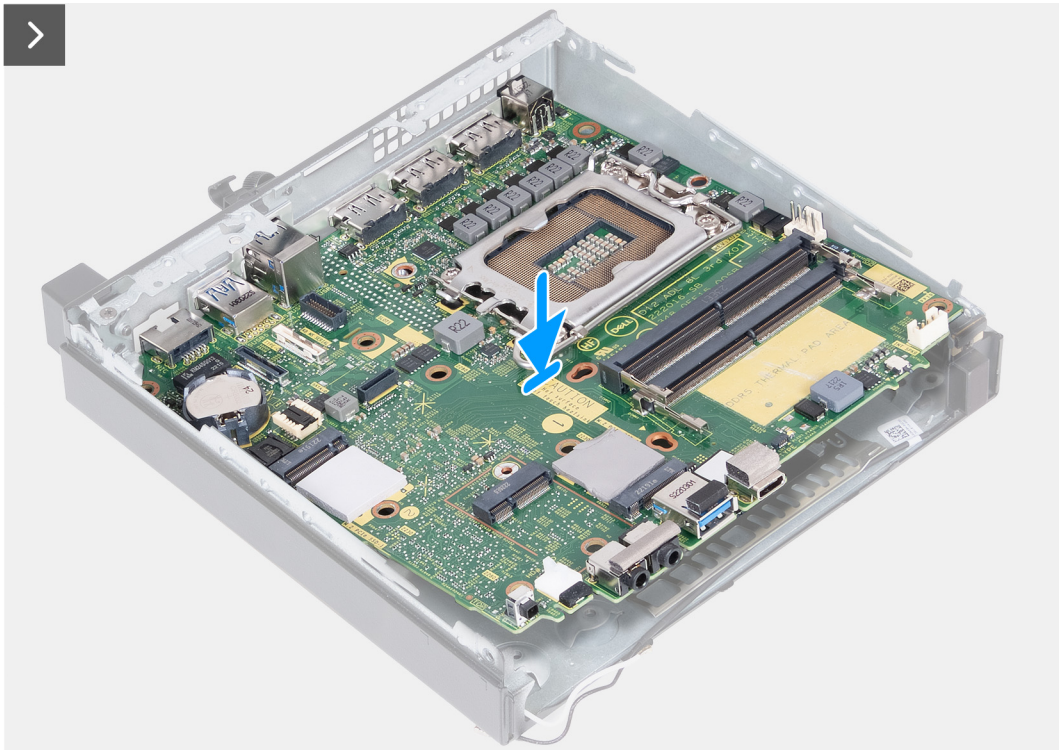
About this task

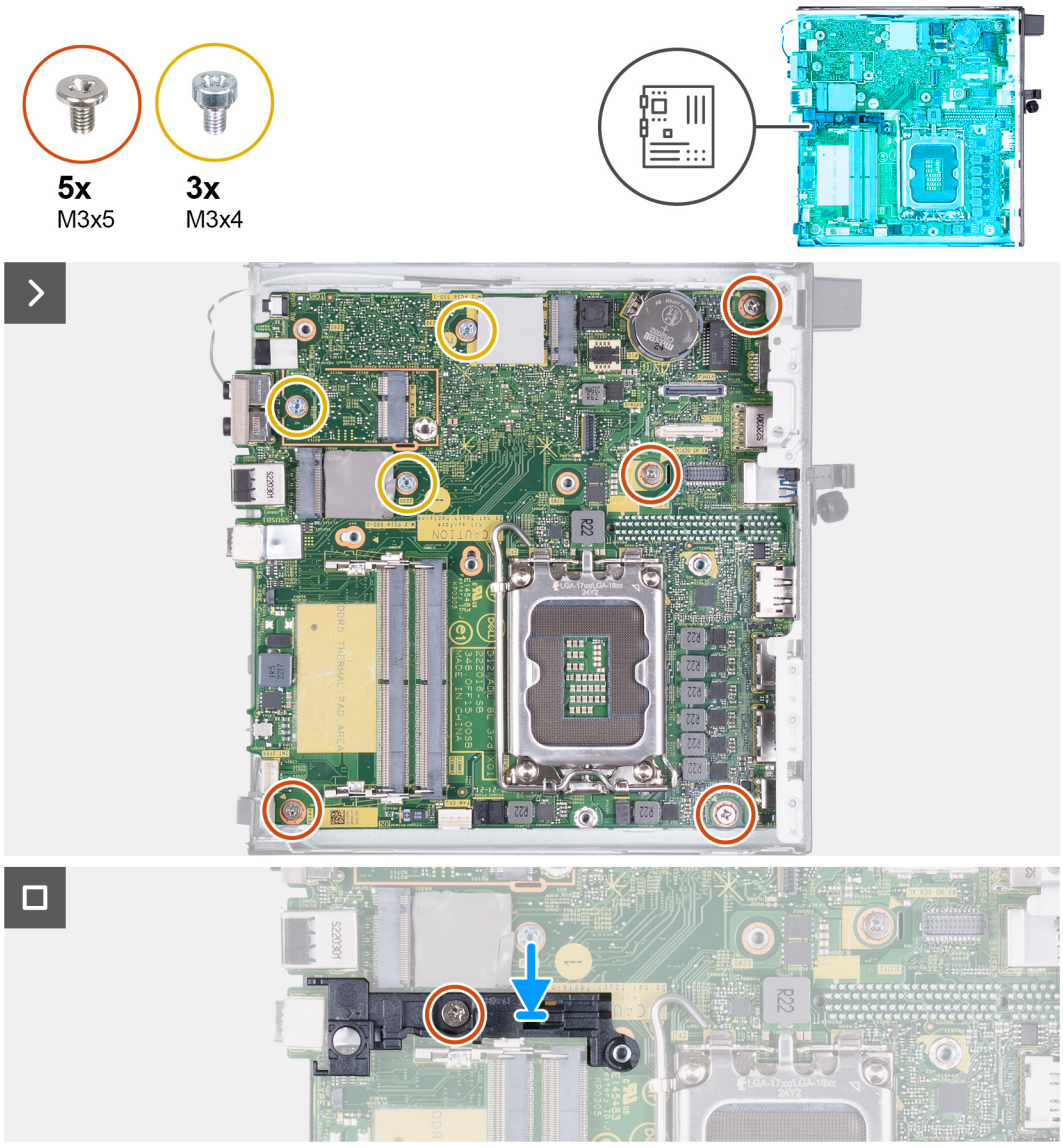
The following images indicate the system board connectors.



1. M.2 WLAN connector
2. M.2 SSD PCIe connector (2230/2280)
3. Coin-cell battery
4. Optional video connector (VGA Port/DisplayPort 1.4a (HBR3)/HDMI 2.1 Port)
5. Optional connector (USB 3.2 Gen 2 Type-C Port)
6. Optional PS/2, serial port connector
7. Processor socket
8. Fan connector
9. Internal speaker connector
10. Memory-module slots
11. M.2 SSD PCIe connector (2230/2280)

The following image(s) indicate the location of the system board and provides a visual representation of the installation procedure.





Steps

1. At an angle, insert the front of the system board through the front of the chassis.
2. Place the system board on the chassis.
3. Align the screw holes on the system board to the screw holes on the chassis.
4. Replace the four screws (M3x5) that secures the system board to the chassis.
5. Replace the three screws (M3x4) that secures the system board to the chassis.
6. Place the speaker-support bracket on the system board.
7. Align the screw holes on the speaker-support bracket to the screw holes on the system board.
8. Replace the screw (M3x5) that secures the speaker-support bracket to the system board.

Next steps

1. Install the optional I/O module (VGA/HDMI/DP/Serial) or the optional Type-C module, whichever applicable.
2. Install the processor.
3. Install the heat sink.
4. Install the memory.
5. Install the fan.
6. Install the speaker.
7. Install the wireless card.
8. Install the M.2 2230 solid-state drive or M.2 2280 solid-state drive, whichever applicable.

9. Install the coin-cell battery.
10. Install the side cover.
11. Follow the procedure in After working inside your computer.

Internal antenna

Removing the antenna module (black cable)

Prerequisites

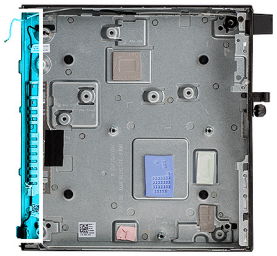
1. Follow the procedure in Before working inside your computer.
2. Remove the side cover.
3. Remove the M.2 2230 solid-state drive or M.2 2280 solid-state drive, whichever applicable.
4. Remove the wireless card.
5. Remove the speaker.
6. Remove the fan.
7. Remove the heat sink.
8. Remove the optional I/O module (VGA/HDMI/DP/Serial) or the optional Type-C module, whichever applicable.
9. Remove the system board

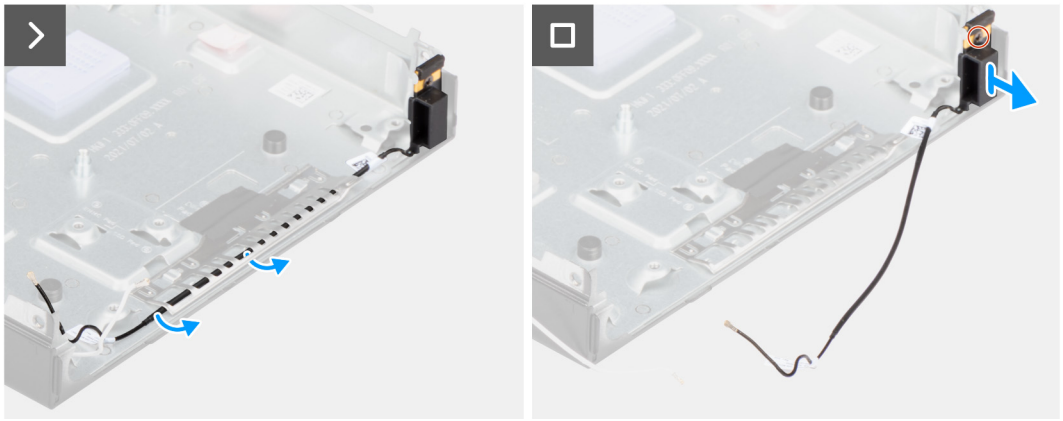
   NOTE: The system board can be removed with the memory, coin-cell battery, and processor attached

   .

About this task

The following image(s) indicate the location of the antenna module (black cable) and provides a visual representation of the removal procedure.





Steps

1. Remove the antenna cable from the routing guides on the chassis.
2. Loosen the captive screw that secures the antenna module (while cable) to the chassis.
3. Lift the antenna module (black cable) from the chassis.

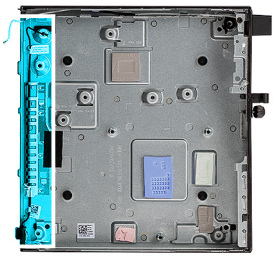
Installing the antenna module (black cable)

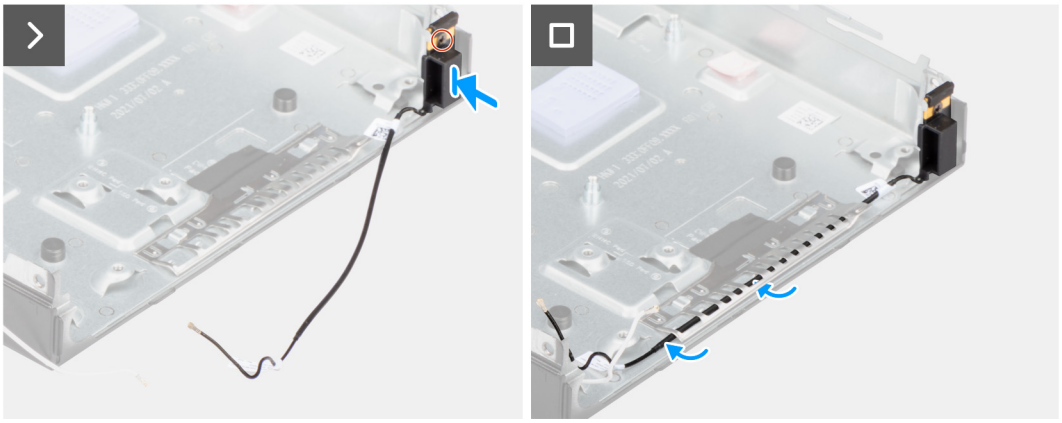
Prerequisites

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

About this task

The following image(s) indicate the location of the antenna module (black cable) and provides a visual representation of the installation procedure.





Steps

1. Place the antenna module (black cable) on the chassis.
2. Align the captive screw on the antenna module (black cable) to the screw hole on the chassis.
3. Tighten the captive screw that secures the antenna module (black cable) to the chassis.
4. Route the antenna cable through the routing guides on the chassis.

Next steps

1. Install the system board

   NOTE: The system board can be installed with the memory, coin-cell battery, and processor preattached.
2. Install the optional I/O module (VGA/HDMI/DP/Serial) or the optional Type-C module, whichever applicable.
3. Install the heat sink.
4. Install the fan.
5. Install the speaker.
6. Install the wireless card.
7. Install the M.2 2230 solid-state drive or M.2 2280 solid-state drive, whichever applicable.
8. Install the side cover.
9. Follow the procedure in After working inside your computer.

Removing the antenna module (white cable)

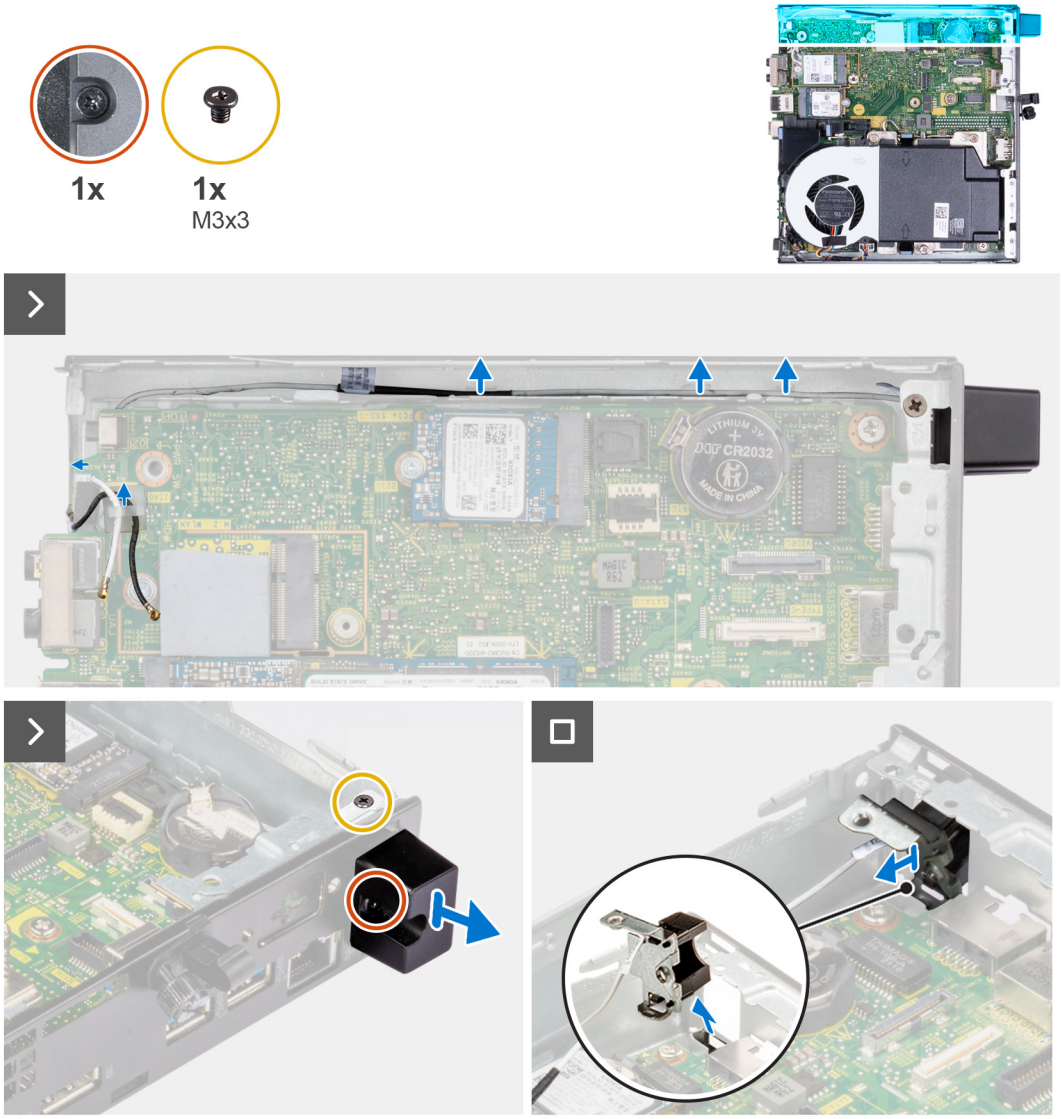
Prerequisites

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

2. Remove the side cover.

About this task

The following image(s) indicate the location of the antenna module (white cable) and provides a visual representation of the removal procedure.



Steps

1. Remove the antenna cable from the routing guides on the chassis and system board.
2. Remove the screw (M3x3) that secures the antenna module (white cable) to the chassis.
3. Listen the captive screw that secures the antenna module (white cable) to the chassis.
4. Push the antenna module (white cable) through the slot on the chassis.
5. Lift the antenna module (white cable) off the chassis.

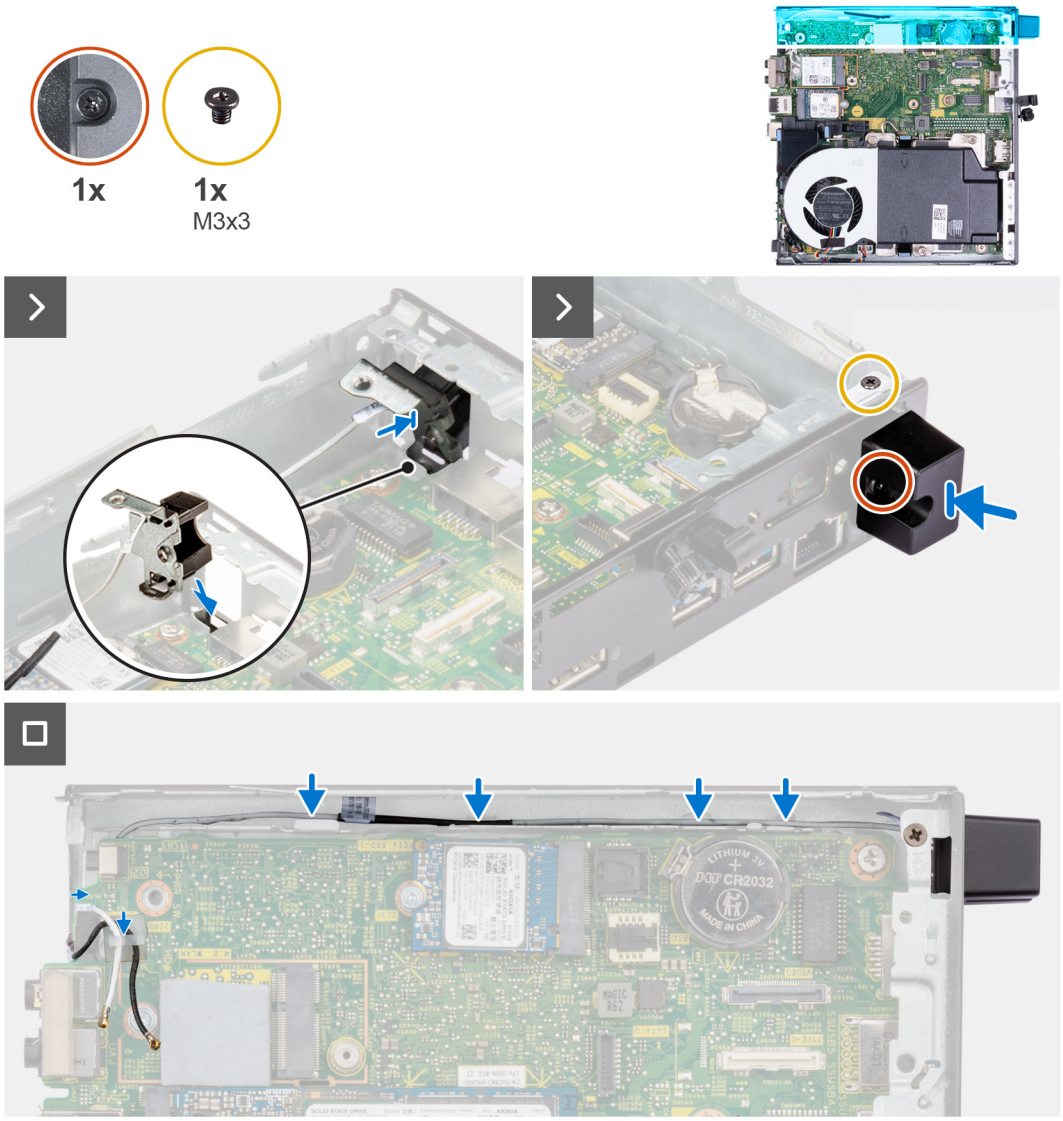
Installing the antenna module (white cable)

Prerequisites

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

About this task

The following image(s) indicate the location of the antenna module (white cable) and provides a visual representation of the installation procedure.



Steps

1. Push the antenna module (white cable) though the slot the chassis.
2. Align the screw hole and captive screw on the antenna module (white cable) to the screw holes on the chassis.
3. Tighten the captive screw that secures the antenna module (white cable) to the chassis.
4. Replace the screw (M3x3) that secures the antenna module (white cable) to the chassis.
5. Route the antenna cable through the routing guides on the chassis and system board.

Next steps

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

Removing SMA antenna assembly

Prerequisites

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

2. Remove the side cover.
3. Remove the wireless card.

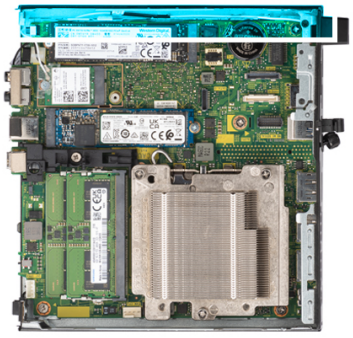
About this task

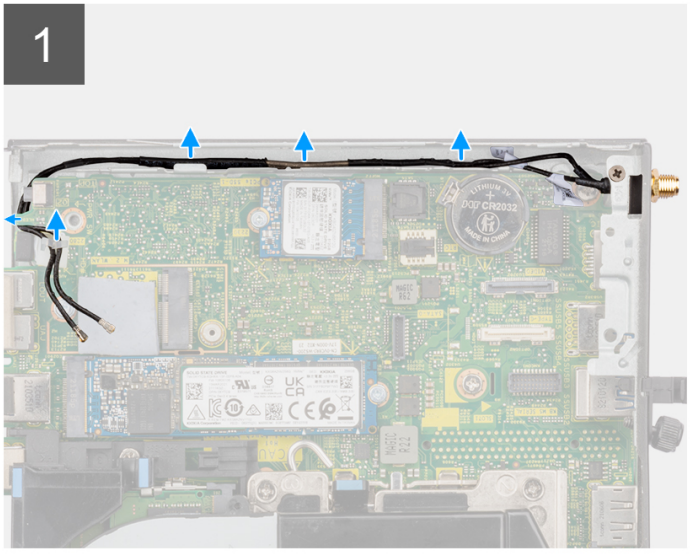
The following images indicate the location of SMA antenna assembly and provide a visual representation of the removal procedure.

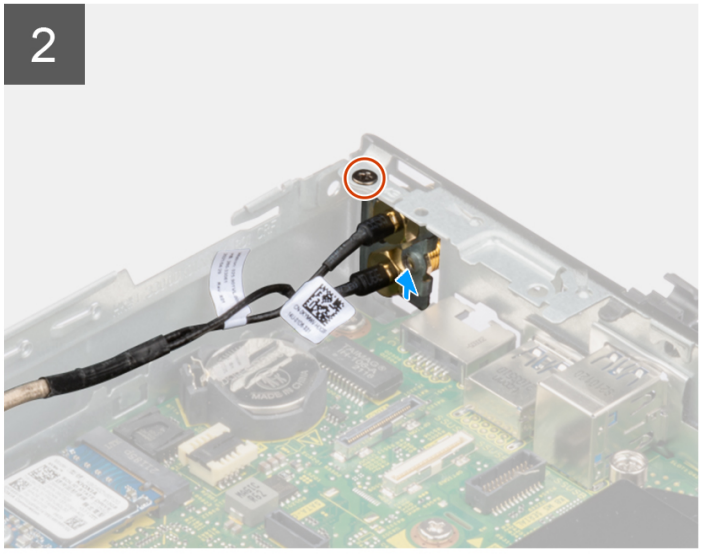
NOTE: To upgrade to SMA antenna, the internal antenna (white cable) needs to be removed.

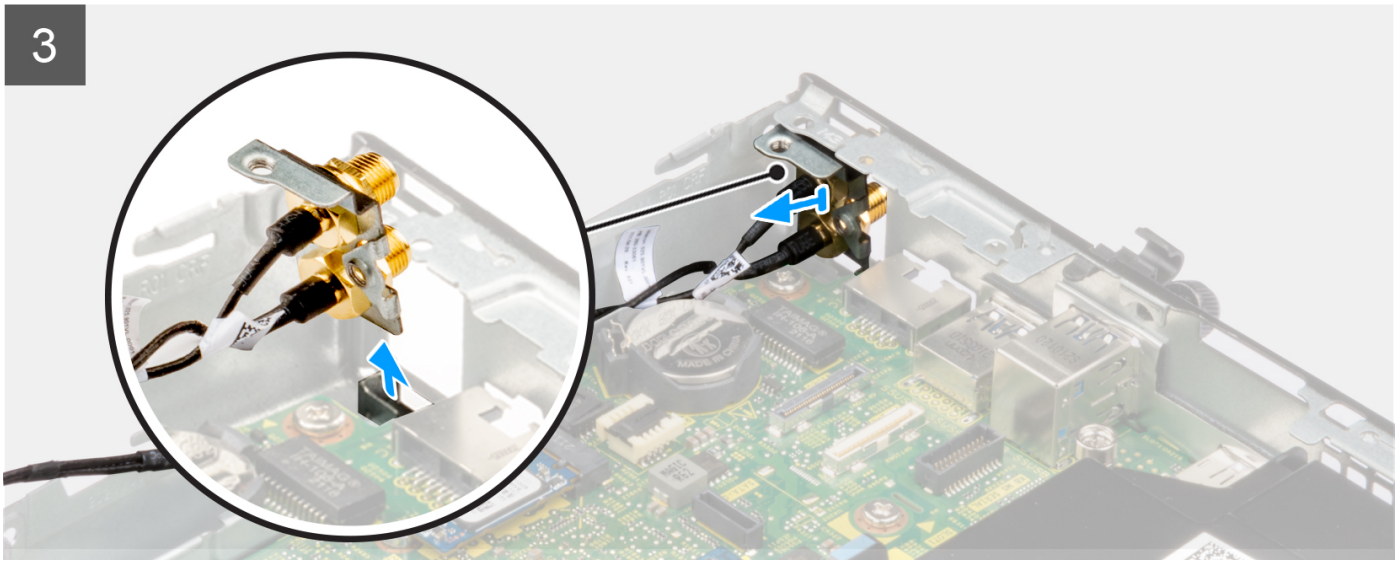


1x
M3x3









Steps

1. Remove the SMA antenna assembly cables from the routing guides on the chassis.
2. Remove the screw (M3x3) that secures the SMA antenna assembly to the chassis.
3. Push the SMA antenna assembly inside from the opening on the back view and lift it away from the chassis.

Installing SMA antenna assembly

Prerequisites

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

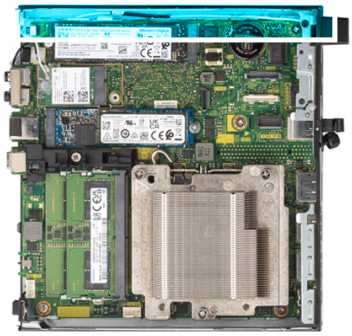
About this task

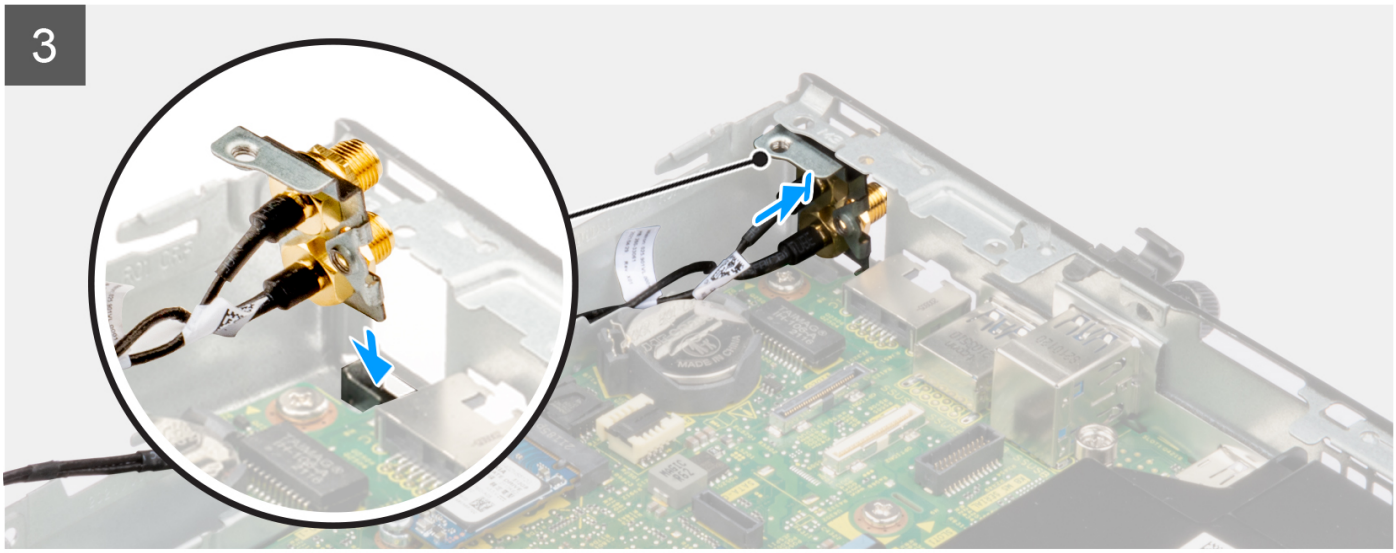
The following images indicate the location of SMA antenna assembly and provide a visual representation of the removal procedure.

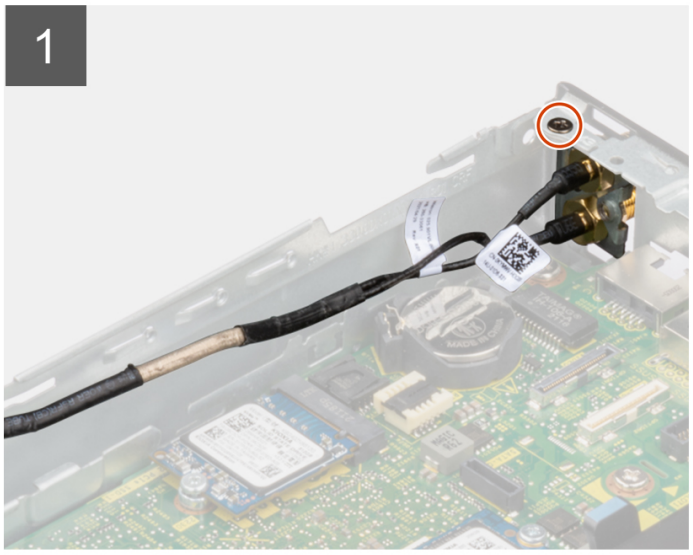
NOTE: To upgrade to SMA antenna, the internal antenna (white cable) needs to be removed.

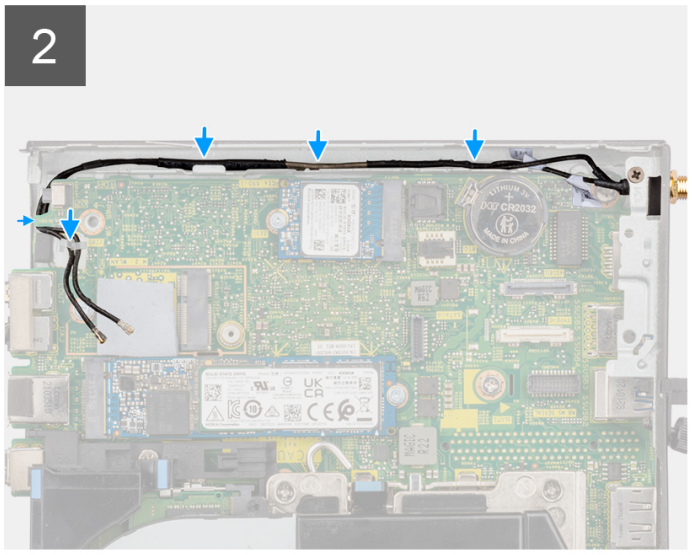


1x
M3x3









Steps

1. Remove the fillers on the side cover.
2. Tilt the SMA antenna assembly.
3. Align and place the antenna bracket on the system board.
4. Insert the SMA antenna assembly in the back view opening.
5. Align the screw hole on the SMA antenna assembly with the screw hole on the back view.
6. Replace the screw (M3x3) that secures the SMA antenna assembly to the chassis.
7. Route the SMA antenna assembly cables through the routing guides on the chassis.

Next steps

1. Install the wireless card.
2. Install the side cover.
3. Follow the procedure in after working inside your computer.

8

Software

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

Operating system

Your OptiPlex Micro Plus 7010 supports the following operating systems:

- Windows 11 Home, 64-bit
- Windows 11 Pro, 64-bit
- Windows 11 Downgrade (Windows 10 image)
- Windows 11 Pro National Education, 64-bit
- Windows 11 CMIT Government Edition, 64-bit (China only)
- Ubuntu Linux 22.04, 64-bit
- Windows 10 Pro, 64 bit

Drivers and downloads

When troubleshooting, downloading or installing drivers it is recommended that you read the Dell Knowledge Base article, Drivers and Downloads FAQ 000123347.

9

BIOS setup

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

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

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

Use the BIOS Setup program for the following purposes:

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

Entering BIOS setup program

About this task

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

Navigation keys

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

Table 26. 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 follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
Tab	Moves to the next focus area. **NOTE:** For the standard graphics browser only.
Esc	Moves to the previous page until you view the main screen. Pressing Esc in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.

One Time Boot menu

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

NOTE: It is recommended to shutdown the computer if it is on.

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

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

  NOTE: XXX denotes the SATA drive number.
- Optical Drive (if available)
- SATA Hard Drive (if available)
- Diagnostics

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

System setup options

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

Table 27. System setup options—System information menu

Overview	
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.
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.
Processor Information	
Processor Type	Displays the processor type.
Maximum Clock Speed	Displays the maximum processor clock speed.
Minimum Clock Speed	Displays the minimum processor clock speed.
Current Clock Speed	Displays the current processor clock speed.
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 size.
Processor L3 Cache	Displays the processor L3 Cache size.
Microcode Version	Displays the microcode version.
Intel Hyper-Threading Capable	Displays whether the processor is Hyper-Threading (HT) capable.
64-Bit Technology	Displays whether 64-bit technology is used.
Memory Information	
Memory Installed	Displays the total computer memory installed.
Memory Available	Displays the total computer memory available.
Memory Speed	Displays the memory speed.
Memory Channel Mode	Displays single or dual channel mode.
Memory Technology	Displays the technology that is used for the memory.
DIMM 1 Size	Displays the DIMM 1 memory size.

Table 27. System setup options—System information menu (continued)

Overview	
DIMM 2 Size	Displays the DIMM 2 memory size.
Devices Information	
Video Controller	Displays the video controller type of 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.
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 LAN On Motherboard (LOM) MAC address of the computer.
Slot 1	Displays the SATA hard drive information of the computer.
Slot 2	Displays the SATA hard drive information of the computer.
Slot 3	Displays the SATA hard drive information of the computer.

Table 28. System setup options—Boot Configuration menu

Boot Configuration	
Boot Sequence	
Boot Mode: UEFI only	Displays the boot mode.
Boot Sequence	Displays the boot sequence.
Force PXE On Next Boot	Enables or disables the Force PXE feature on next boot.
Secure Boot	
Enable Secure Boot	Enable or disable the secure boot feature. By default, the option is not enabled.
Enable Microsoft UEFI CA	Enable or disable Microsoft UEFI Certificate Authority. By default, the option is enabled. **CAUTION: Disabling Microsoft UEFI CA could render your system being unable to boot. System graphics may not function, some devices may not function properly and the system may be unrecoverable.**
Secure Boot Mode	Change the secure boot mode options. By default, the **Deployed Mode** is enabled.
Expert Key Management	
Enable Custom Mode	Enable or disable custom mode. By default, the **custom mode** option is not enabled.
Custom Mode Key Management	Select the custom values for expert key management.

Table 29. System setup options—Integrated Devices menu

Integrated Devices	
Date/Time	Displays the current date in MM/DD/YYYY format and current time in HH:MM:SS AM/PM format.
Memory Mapped I/O above 4 Gig	

Table 29. System setup options—Integrated Devices menu (continued)

Integrated Devices	
Memory Mapped I/O above 4 Gig	Allows 64-bit capable PCI devices to be decoded in above 4 GB address space, freeing up memory resources under 4 GB. By default, the this option is enabled.
Audio	
Enable Audio	Enable or disable the integrated audio controller. By default, all the options are enabled.
Serial Port	
Serial Port Configuration	Enable or disable the serial port address. By default, the **COM1: Port is configured at 3F8h with IRQ4** option is enabled.
USB Configuration	• Enable or disable booting from USB mass storage devices through the boot sequence or boot menu. By default, all the options are enabled.
Front USB Configuration	Enable or disable the individual front USB ports. By default, all the options are enabled.
Rear USB Configuration	Enable or disable the individual rear USB ports. By default, all the options are enabled.
Dust Filter Maintenance	Enable or disable the dust filter maintenance. By default, the **Disabled** option is enabled.

Table 30. System setup options—Storage menu

Storage	
SATA Operation	Enable or disable the operating mode of the integrated SATA hard drive controller. By default, the **RAID On**option is enabled.
Storage Interface	
Port Enablement	Enable or disable the onboard drives. By default, all the options are enabled.
SMART Reporting	
Enable SMART Reporting	Enable or disable Self-Monitoring, Analysis, and Reporting Technology (SMART) during computer startup. By default, the **Enable SMART Reporting** option is not enabled.
Drive Information	
SATA-0	
Type	Displays the SATA HDD type information of the computer.
Device	Displays the SATA HDD device information of the computer.
SATA-1	
Type	Displays the SATA HDD type information of the computer.
Device	Displays the SATA HDD device information of the computer.
SATA-2	

Table 30. System setup options—Storage menu (continued)

Storage	
Type	Displays the SATA HDD type information of the computer.
Device	Displays the SATA HDD device information of the computer.
SATA-3	
Type	Displays the SATA HDD type information of the computer.
Device	Displays the SATA HDD device information of the computer.
M.2 PCIe SSD	
Type	Displays the M.2 PCIe SSD-0 type information of the computer.
Device	Displays the M.2 PCIe SSD-0 device information of the computer.

Table 31. System setup options—Display menu

Display	
Multi-Display	
Enable Multi-Display	Enable or disable the Enable Multi-Display buttons on the computer. By default, the option is enabled.
Primary Display	
Video Primary Display	Determines the primary display when multiple controllers are available on the computer By default, the **Auto** option is enabled.
Full Screen Logo	Enable or disable full screen logo. By default, the option is not enabled.

Table 32. 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	Enable or disable the internal WLAN device By default, the option enabled.
Bluetooth	Enable or disable the internal Bluetooth device By default, the option enabled.
Enable UEFI Network Stack	Enable or disable UEFI Network Stack and controls the on-board LAN Controller. By default, the option is enabled.
HTTPs Boot Feature	
HTTPs Boot	Enable or disable the HTTPs Boot feature. By default, the **HTTPs Boot** option is enabled.
HTTPs Boot Mode	With Auto Mode, the HTTPs Boot extracts Boot URL from the DHCP. With Manual Mode, the HTTPs Boot reads Boot URL from the user-provided data. By default, the **Auto Mode** option is enabled.

Table 33. System setup options—Power menu

Power	
USB Wake Support	
Enable USB Wake Support	When enabled, you can use the USB devices like a mouse or keyboard to wake your computer from standby. By default, the option is enabled.
AC Behavior	
AC Recovery	Enables the system to turn on automatically, when AC is inserted. By default, the **Power Off** option is enabled.
Active State Power Management	
Aspm	Enables or disables the Active State Power Management (ASPM) level By default, the **Auto** option is enabled.
Block Sleep	Enables to block entering sleep (S3) mode in the operating system. By default, the **Block Sleep** option is disabled.
Deep Sleep Control	Enable or disable the Deep Sleep mode support. By default, the **Disabled** option is enabled.
Fan Control Override	Enable or disable the fan control override feature. By default, the option is disabled.
Intel Speed Shift Technology	Enable or disable the Intel speed shift technology support. By default, the **Intel Speed Shift Technology** option is enabled.

Table 34. System setup options—Security menu

Security	
TPM 2.0 Security	
TPM 2.0 Security On	Enable or disable TPM 2.0 security options. By default, the **TPM 2.0 Security On** option is enabled.
Attestation Enable	Enables to control whether the Trusted Platform Module (TPM) Endorsement Hierarchy is available to the operating system. By default, the **Attestation Enable** option is enabled.
Key Storage Enable	Enables to control whether the Trusted Platform Module (TPM) Storage Hierarchy is available to the operating system. By default, the **Key Storage Enable** option is enabled.
SHA-256	BIOS and the TPM will use the SHA-256 hash algorithm to extend measurements into the TPM PCRs during BIOS boot. By default, the **SHA-256** option is enabled.
Clear	Enables to clear the TPM owner information and returns the TPM to the default state. By default, the **Clear** option is disabled.
PPI ByPass for Clear Commands	Controls the TPM Physical Presence Interface (PPI). By default, the **PPI ByPass for clear Commands** option is disabled.
Chassis intrusion	Controls the chassis intrusion feature. By default, the option is disabled.

Table 34. System setup options—Security menu (continued)

Security	
SMM Security Mitigation	Enable or disable SMM Security Mitigation. By default, the option is enabled.
Data Wipe on Next Boot	
Start Data Wipe	Enable or disable the data wipe on next boot. By default, the option is disabled.
Absolute	Enable or disable or permanently disable the BIOS module interface of the optional Absolute Persistence Module service from Absolute software. By default, the **Enable Absolute** option is enabled.
UEFI Boot Path Security	Controls whether or not the computer will prompt the user to enter the admin password (if set) when booting to a UEFI boot device from the F12 boot menu. By default, the **Always Except Internal HDD** option is enabled.
Authenticated BIOS Interface	Enable or disables Authenticated BIOS interface. By default, the **Authenticated BIOS interface** option is disabled.
Clear Certificate Store	Clears all certificates in KMS storage By default, the **Clear Certificate Store** option is disabled.
Legacy Manageability Interface Access	Allows the platform administrator to control access via the Legacy Manageability Interface when Authenticated BIOS interface is enabled. This allows for the platform administrator to read and change BIOS settings through the Legacy Manageability Interface. By default, the **Legacy Manageability Interface Access** option is enabled when **Authenticated BIOS Interface** is enabled..

Table 35. System setup options—Passwords menu

Passwords	
Admin Password	Set, change, or delete the administrator password.
System Password	Set, change, or delete the computer password.
Internal HDD-0 Password	Set, change, or delete the Internal HDD-0 password.
NVMe SSD0	Set, change, or delete the NVMe SSD0 password.
Password Configuration	
Upper Case Letter	Reinforces password must have at least one upper case letter. By default, the option is disabled.
Lower Case Letter	Reinforces password must have at least one lower case letter. By default, the option is disabled.
Digit	Reinforces password must have at least one digit. By default, the option is disabled.
Special Character	Reinforces password must have at least one special character. By default, the option is disabled.
Minimum Characters	Set the minimum characters allowed for password.
Password Bypass	When enabled, this always prompts for computer and internal hard drive passwords when powered on from the off state. By default, the **Disabled** option is enabled.

Table 35. System setup options—Passwords menu (continued)

Passwords	
Password Changes	
Enable Non-Admin Password Changes	Enable or disable to change computer and hard drive password without the need for admin password. By default, the option is enabled.
Admin Setup Lockout	
Enable Admin Setup Lockout	Enables administrators control over how their users can or cannot access BIOS setup. By default, the option is disabled.
Master Password Lockout	
Enable Master Password Lockout	When enabled, this will disable the master password support. By default, the option is disabled.
Allow Non-Admin PSID Revert	
Enable Allow Non-Admin PSID Revert	Controls access to the Physical Security ID (PSID) revert of NVMe hard-drives from the Dell Security Manager prompt. By default, the option is disabled.

Table 36. System setup options—Update, Recovery menu

Update, Recovery	
UEFI Capsule Firmware Updates	Enable or disable BIOS updates through UEFI capsule update packages. By default, the option is enabled.
BIOS Recovery from Hard Drive	Enables the user to recover from certain corrupted BIOS conditions from a recovery file on the user primary hard drive or an external USB key. By default, the option is enabled.
BIOS Downgrade	
Allow BIOS Downgrade	Enable or disable the flashing of the computer firmware to previous revision is blocked. By default, the option is enabled.
SupportAssist OS Recovery	Enable or disable the boot flow for SupportAssist OS Recovery tool in the event of certain computer errors. By default, the option is enabled.
BIOSConnect	Enable or disable cloud Service OS 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 OS does not boot or is not installed. By default, the option is enabled.
Dell Auto OS Recovery Threshold	Controls the automatic boot flow for SupportAssist System Resolution Console and for Dell OS Recovery Tool. By default, the threshold value is set to 2.

Table 37. System setup options—System Management menu

System Management	
Service Tag	Display the Service Tag of the computer.
Asset Tag	Create a computer Asset Tag.

Table 37. System setup options—System Management menu (continued)

System Management	
Wake on LAN/WLAN	Enable or disable the computer to power on by special LAN signals when it receives a wakeup signal from the WLAN. By default, the **Disabled** option is selected.
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 option is disabled.
Intel AMT Capability	
Enable Intel AMT Capability	Enable or disable the Intel AMT capabilty. By default, the **Restrict MEBx Access** option is enabled.
MEBx Hotkey	Enable or disable MEBx hotkey. By default, the option is disabled.
USB Provision	
Enable USB Provision	Enable or disable the Intel AMT provisioning using the local provisioning file through a USB storage device. By default, the option is disabled.
SERR Messages	Enable or disable SERR messages. By default, the option is enabled.
First Power On Date	Set ownership date By default, the option is disabled.
Diagnostics	Enables OS agent request to schedule onboard diagnostics. By default, the option is enabled.
Power-On-Self-Test Automatic Recovery	Enables automatic recovery when the computer becomes unresponsibe when performing a BIOS Power-On-Self-Test (POST). This may revert BIOS settings to a recoverable state. By default, the option is enabled.

Table 38. System setup options—Keyboard menu

Keyboard	
Keyboard Errors	
Enable Keyboard Error Detection	Enable or disable the keyboard error detection. By default, the option is enabled.
Numlock LED	
Enable Numlock LED	Enable or disable Numlock LED. By default, the option is enabled.
Device Configuration Hotkey Access	
Device Configuration Hotkey Access	Enable or disable users to access device configuration by using hotkeys. By default, the option is enabled.

Table 39. System setup options—Pre-boot Behavior menu

Pre-boot Behavior	
Adapter Warnings	Enable or disable adapter warnings to display a warning message if a power adapter with too little power capacity is detected. By default, the **Adapter Warnings** option is enabled.
Warning and Errors	Enable or disable the action to be done when a warning or error is encountered. By default, the **Prompt on Warnings and Errors** option is enabled.
Fastboot	Enable to set the speed of the boot process. By default, the **Thorough** option is enabled.
Extend BIOS POST Time	Set the BIOS POST time. By default, the **0 seconds** option is enabled.

Table 40. System setup options—Virtualization menu

Virtualization	
Intel Virtualization Technology	
Enable Intel Virtualization Technology (VT)	Specify whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities that are provided by Intel Virtualization Technology. By default, the option is enabled.
VT for Direct I/O	Specify whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities that are provided by Intel Virtualization Technology for Direct I/O. By default, the option is enabled.
Intel Trusted Execution Technology (TXT)	
Enable Intel Trusted Execution Technology (TXT)	Specifies whether a measured Virtual Machine Monitor (MVMM) can utilize the additional hardware capabilities that are provided by Intel Trusted Execution Technology. By default, the option is disabled.
DMA Protection	
Enable Pre-Boot DMA support.	Controls Pre-Boot DMA protection for both internal and external ports. By default, the option is enabled.
Enable OS Kernel DMA support	If the operating system supports DMA protection this setting will indicate to the operating system that the BIOS supports Kernel DMA protection. By default, the option is enabled.

Table 41. System setup options—Performance menu

Performance	
Multi Core Support	
Active Cores	Enables to change the number of CPU cores available to the operating system. By default, the **All Cores** options are enabled.
Multiple Atom Cores	Allows you to change the number of Atom cores available to the operating system. By default, the **All Cores** options are enabled.
Intel SpeedStep	

Table 41. System setup options—Performance menu (continued)

Performance	
Enable Intel SpeedStep Technology	Enables the computer to dynamically adjust processor voltage and core frequency, decreasing average power consumption and heat production. By default, the option is enabled.
C-States Control	
Enable C-State Control	Enable or disable additional processor sleep states. By default, the option is enabled.
Intel Turbo Boost Technology	
Enable Intel Turbo Boost Technology	Enable or disable Intel TurboBoost mode of the processor. By default, the option is enabled.
Intel Hyper-Threading Technology	
Enable Intel Hyper-Threading Technology	Enable or disable Hyper-Threading in the processor. By default, the option is enabled.
PCIe Resizable Base Address Register (BAR)	
Enable PCIe Resizable Base Address Register (BAR) support	Enable or disable PCIe Resizable BAR in the processor. By default, the option is disabled.

Table 42. System setup options—System Logs menu

System Logs	
BIOS Event Log	
Clear BIOS Event Log	Display BIOS events. By default, the **Keep log** option is enabled.

Updating the BIOS

Updating the BIOS in Windows

About this task

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress and the system will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system re-install. For more information on this subject, search in the Knowledge Base Resource at www.dell.com/support.

Steps

1. Go to www.dell.com/support.
2. Click **Product support**. In the **Search support** box, enter the Service Tag of your computer, and then click **Search**.

   NOTE: If you do not have the Service Tag, use the SupportAssist feature to automatically identify your computer. You can also use the product ID or manually browse for your computer model.

3. Click **Drivers & Downloads**. Expand **Find drivers**.
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, browse the folder where you saved the BIOS update file.
8. Double-click the BIOS update file icon and follow the on-screen instructions.
   For more information, search in the Knowledge Base Resource at www.dell.com/support.

Updating the BIOS in Linux and Ubuntu

To update the system BIOS on a computer that is installed with Linux or Ubuntu, see the knowledge base article 000131486 at www.dell.com/support.

Updating the BIOS using the USB drive in Windows

About this task

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress and the system will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system re-install. For more information on this subject, search in the Knowledge Base Resource at www.dell.com/support.

Steps

1. Follow the procedure from step 1 to step 6 in Updating the BIOS in Windows to download the latest BIOS setup program file.
2. Create a bootable USB drive. For more information, search in the Knowledge Base Resource at www.dell.com/support.
3. Copy the BIOS setup program file to the bootable USB drive.
4. Connect the bootable USB drive to the computer that needs the BIOS update.
5. Restart the computer and press **F12** .
6. Select the USB drive from the **One Time Boot Menu**.
7. Type the BIOS setup program filename and press **Enter**.
   The **BIOS Update Utility** appears.
8. Follow the on-screen instructions to complete the BIOS update.

Updating the BIOS from the F12 One-Time boot menu

Update your computer BIOS using the BIOS update.exe file that is copied to a FAT32 USB drive and booting from the F12 One-Time boot menu.

About this task

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress and the system will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system re-install. For more information on this subject, search in the Knowledge Base Resource at www.dell.com/support.

BIOS Update

You can run the BIOS update file from Windows using a bootable USB drive or you can also update the BIOS from the F12 One-Time boot menu on the computer.

Most of the Dell computers built after 2012 have this capability, and you can confirm by booting your computer to the F12 One-Time Boot Menu to see if BIOS FLASH UPDATE is listed as a boot option for your computer. If the option is listed, then the BIOS supports this BIOS update option.

NOTE: Only computers with BIOS Flash Update option in the F12 One-Time boot menu can use this function.

Updating from the One-Time boot menu

To update your BIOS from the F12 One-Time boot menu, you need the following:

- USB drive formatted to the FAT32 file system (key does not have to be bootable)
- BIOS executable file that you downloaded from the Dell Support website and copied to the root of the USB drive
- AC power adapter that is connected to the computer
- Functional computer battery to flash the BIOS

Perform the following steps to perform the BIOS update flash process from the F12 menu:

CAUTION: Do not turn off the computer during the BIOS update process. The computer may not boot if you turn off your computer.

Steps

1. From a turn off state, insert the USB drive where you copied the flash into a USB port of the computer.
2. Turn on the computer and press F12 to access the One-Time Boot Menu, select BIOS Update using the mouse or arrow keys then press Enter.
   The flash BIOS menu is displayed.
3. Click **Flash from file**.
4. Select external USB device.
5. Select the file and double-click the flash target file, and then click **Submit**.
6. Click **Update BIOS**. The computer restarts to flash the BIOS.
7. The computer will restart after the BIOS update is completed.

System and setup password

Table 43. System and setup password

Password type	Description
System password	Password that you must enter to log in to your system.
Setup password	Password that you must enter to access and make changes to the BIOS settings of your computer.

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

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

CAUTION: Anyone can access the data that is stored on your computer if it is not locked and left unattended.

NOTE: System and setup password feature is disabled.

Assigning a system setup password

Prerequisites

You can assign a new **System or Admin Password** only when the status is in **Not Set**.

About this task

To enter the system setup, press F12 immediately after a power-on or reboot.

Steps

1. In the **System BIOS** or **System Setup** screen, select **Security** and press Enter.
   The **Security** screen is displayed.
2. Select **System/Admin Password** and create a password in the **Enter the new password** field.
   Use the following guidelines to assign the system password:
   - A password can have up to 32 characters.

- At least one special character: ! " # $ % & ' ( ) * + , - . / : ; < = > ? @ [\ ] ^ _ ` { | }
- Numbers 0 through 9.
- Upper case letters from A to Z.
- Lower case letters from a to z.

3. Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
4. Press Esc and save the changes as prompted by the pop-up message.
5. Press Y to save the changes.
   The computer restarts.

Deleting or changing an existing system setup password

Prerequisites

Ensure that the **Password Status** is Unlocked (in the System Setup) before attempting to delete or change the existing System and/or Setup password. You cannot delete or change an existing System or Setup password, if the **Password Status** is Locked.

About this task

To enter the System Setup, press F12 immediately after a power-on or reboot.

Steps

1. In the **System BIOS** or **System Setup** screen, select **System Security** and press Enter.
   The **System Security** screen is displayed.
2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.
3. Select **System Password**, update, or delete the existing system password, and press Enter or Tab.
4. Select **Setup Password**, update, or delete the existing setup password, and press Enter or Tab.

   NOTE: If you change the System and/or Setup password, reenter the new password when prompted. If you delete the System and/or Setup password, confirm the deletion when prompted.

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

Clearing BIOS (System Setup) and System passwords

About this task

To clear the system or BIOS passwords, contact Dell technical support as described at www.dell.com/contactdell.

NOTE: For information on how to reset Windows or application passwords, refer to the documentation accompanying Windows or your application.

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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 with the BIOS and is launched by the BIOS internally. The embedded system diagnostics provides a set of options for particular devices or device groups allowing you to:

- Run tests automatically or in an interactive mode
- Repeat tests
- Display or save test results
- Run thorough tests to introduce additional test options to provide extra information about the failed device(s)
- View status messages that inform you if 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 terminal when the diagnostic tests are performed.

For more information, see https://www.dell.com/support/kbdoc/000180971.

Running the SupportAssist Pre-Boot System Performance Check

Steps

1. Turn on your computer.
2. As the computer boots, press the F12 key as the Dell logo appears.
3. On the boot menu screen, select the **Diagnostics** option.
4. Click the arrow at the bottom left corner.
   Diagnostics front page is displayed.
5. Click the arrow in the lower-right corner to go to the page listing.
   The items detected are listed.
6. To run a diagnostic test on a specific device, press Esc and click **Yes** to stop the diagnostic test.
7. Select the device from the left pane and click **Run Tests**.
8. If there are any issues, error codes are displayed.
   Note the error code and validation number and contact Dell.

Power-Supply Unit Built-in Self-Test

Built-in Self-Test (BIST) helps determine if the power-supply unit is working. To run self-test diagnostics on the power-supply unit of a desktop or all-in-one computer, search in the Knowledge Base Resource at www.dell.com/support.

System-diagnostic lights

Recovering the operating system

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

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

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

For more information about the Dell SupportAssist OS Recovery, see *Dell SupportAssist OS Recovery User's Guide* at www.dell.com/serviceabilitytools. Click **SupportAssist** and then, click **SupportAssist OS Recovery**.

Real Time Clock—RTC reset

The Real Time Clock (RTC) reset function allows you or the service technician to recover the recently launched model Dell Latitude and Precision systems from **No POST/No Boot/No Power** situations. You can initiate the RTC reset on the system from a power-off state only if it is connected to AC power. Press and hold the power button for 25 seconds. The system RTC reset occurs after you release the power button.

NOTE: If AC power is disconnected from the system during the process or the power button is held longer than 40 seconds, the RTC reset process gets aborted.

The RTC reset will reset the BIOS to Defaults, un-provision Intel vPro and reset the system date and time. The following items are unaffected by the RTC reset:

- Service Tag
- Asset Tag
- Ownership Tag
- Admin Password
- System Password
- HDD Password
- Key Databases
- System Logs

NOTE: The IT administrator's vPro account and password on the system will be un-provisioned. The system needs to go through the setup and configuration process again to reconnect it to the vPro server.

The below items may or may not reset based on your custom BIOS setting selections:

- Boot List
- Enable Legacy Option ROMs
- Secure Boot Enable
- Allow BIOS Downgrade

Backup media and recovery options

It is recommended to create a recovery drive to troubleshoot and fix problems that may occur with Windows. Dell proposes multiple options for recovering Windows operating system on your Dell PC. For more information. see Dell Windows Backup Media and Recovery Options.

Wi-Fi power cycle

About this task

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

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

Steps

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

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Getting help and contacting Dell

Self-help resources

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

Table 44. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	www.dell.com
My Dell app	
Tips	
Contact Support	In Windows search, type `Contact Support`, and press Enter.
Online help for operating system	www.dell.com/support/windows www.dell.com/support/linux
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals and documents.	Your Dell 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 www.dell.com/support. For more information on how to find the Service Tag for your computer, see Locate the Service Tag on your computer.
Dell knowledge base articles for a variety of computer concerns	1. Go to www.dell.com/support. 2. On the menu bar at the top of the Support page, select **Support** > **Knowledge Base**. 3. In the Search field on the Knowledge Base page, type the keyword, topic, or model number, and then click or tap the search icon to view the related articles.

Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see www.dell.com/contactdell.

NOTE: Availability varies by country/region and product, and some services may not be available in your country/region.

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