Dell Pro Max Tower T2

FCT2250

Owner's Manual

Regulatory Model: D33M
Regulatory Type: D33M001
March 2025
Rev. A00

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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1

Views of Dell Pro Max Tower T2 FCT2250

Front

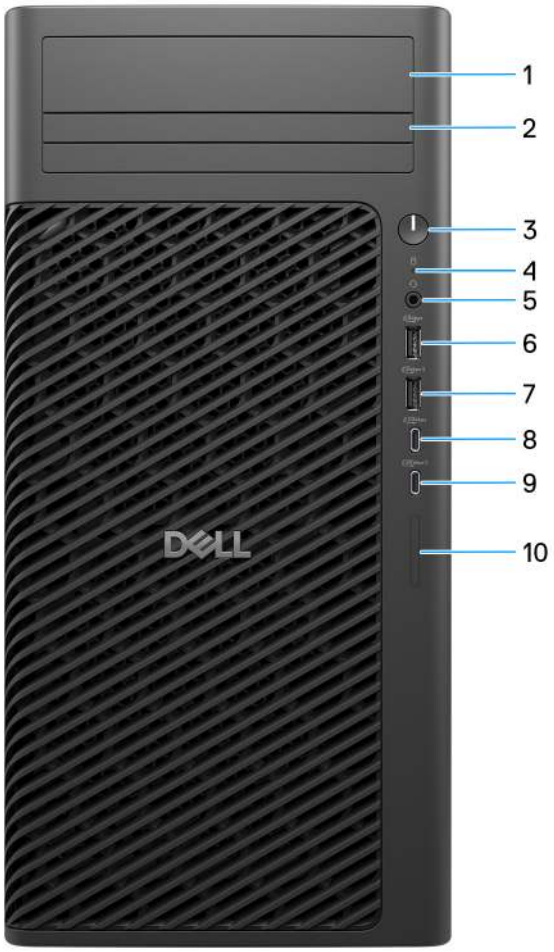


Figure 1. Front view of Dell Pro Max Tower T2 FCT2250

1. **3.5" Hard-drive bay (optional)**

   Slot to install the 3.5-inch hard drive.

2. **Slim optical-drive bay (optional)**

   Slot to install the Slim optical drive.

3. **Power button with diagnostic LED**

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

4. **Hard-drive activity light**

   Turns on when the computer reads from or writes to the hard drive.

   NOTE: Hard-drive activity light is supported only on computers that are shipped with hard drive.

5. **Global headset jack**

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

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

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

7. **USB 3.2 Gen 1 (5 Gbps) port with PowerShare**

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

   PowerShare enables you to charge connected USB devices.

   NOTE: Connected USB devices will not charge when the computer is turned off or in a sleep state. To start charging connected devices, turn on the computer.

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

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

9. **USB 3.2 Gen 2x2 (20 Gbps) Type-C port with PowerShare**

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

   PowerShare enables you to charge connected USB devices.

   NOTE: Connected USB devices will not charge when the computer is turned off or in a sleep state. To start charging connected devices, turn on the computer.

10. **SD Express 7.0-card slot (optional)**

    Reads from and writes to the SD card.

Back

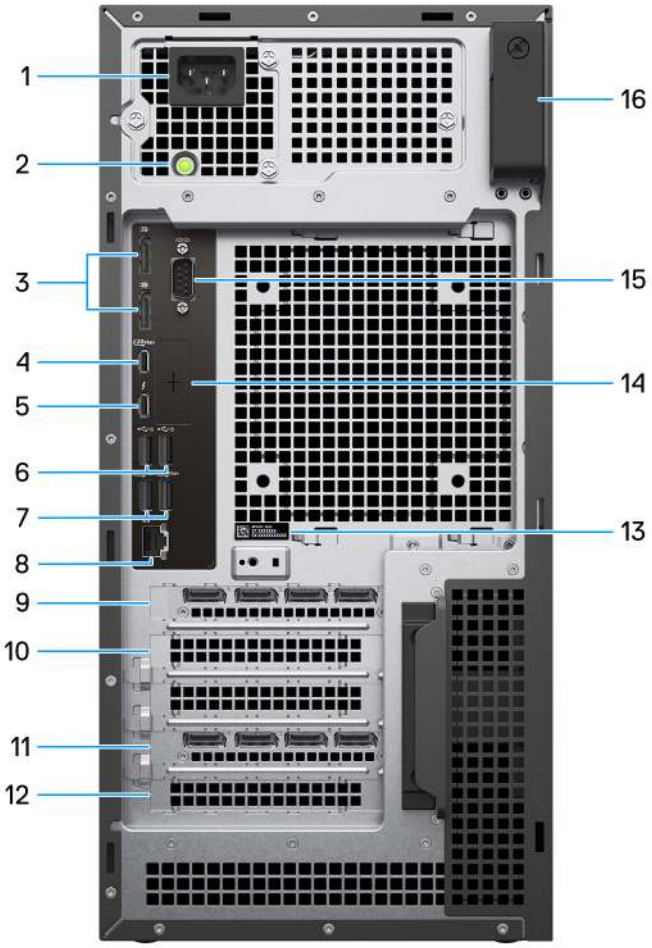


Figure 2. Back view of Dell Pro Max Tower T2 FCT2250

1. **Power-cord connector**

   Connect a power cable to provide power to your computer.

2. **Power-supply diagnostics light**

   Indicates the power-supply state.

3. **DisplayPort 1.4a HBR3 ports**

   Connect an external display or a projector.

4. **USB 3.2 Gen 2x2 (20 Gbps) capable Type-C port**

   Connect devices such as external storage devices and printers. Provides data transfer speeds up to 20 Gbps.

5. **Thunderbolt4 port**

   Connect devices that support thunderbolt Connectivity.

6. **USB 2.0 (480 Mbps) ports with SmartPower**

   Connect devices such as external storage devices and printers. Provides data transfer speeds up to 480 Mbps. Wake from standby with the keyboard or mouse that is connected to this port.

7. **USB 3.2 Gen 2 (10 Gbps) ports**

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

8. **RJ45 ethernet port (1 Gbps)**

   Connect an Ethernet (RJ45) cable from a router or a broadband modem for network or Internet access, with a transfer rate of 10/100/1000 Mbps.

9. **Full-height, half-length Gen3 x4 PCIe closed-end slot**

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

10. **PEG full-height Gen5 PCIe x16 slot**

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

11. **Full-height, full-length Gen4 x4 PCIe open-end slot**

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

12. **Full-height, full-length Gen3 x4 PCIe open-end slot**

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

13. **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.

14. **Optional port**

    The port or ports available at this location may vary depending on the optional-port module that is installed on your computer.

    NOTE: Only one of these options can be installed at the location that is shown on your computer.

    - **VGA port**

      Connect an external display or a projector. The maximum resolution that is supported by this port is up to 1920 x 1200 at 60 Hz.

    - **HDMI 2.1 (FRL) port**

      Connect to a TV, external display, or another HDMI-in enabled device. The maximum resolution that is supported by this port is up to 5120 x 3200 at 60 Hz.

    - **DisplayPort 2.1 (UHBR20) port**

      Connect an external display or a projector. The maximum resolution that is supported by this port is up to 7680 x 4320 at 60 Hz.

    - **Two USB 3.2 Gen 2 (10 Gbps) ports**

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

    - **USB 3.2 Gen 2 (10 Gbps) Type-C with DisplayPort alt mode port**

      Connect devices such as external storage devices and printers. Provides data transfer speeds of up to 10 Gbps. The maximum resolution that is supported by this port is up to 5120 x 3200 at 60 Hz with a Type-C to DisplayPort adapter.

    - **One Thunderbolt 4 port + One USB 3.2 Gen 2 (10 Gbps) Type-C port**

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

    - **RJ45 ethernet port (5 Gbps)**

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

    - **Fiber optic port (5 Gbps, peer-to-peer)**

      Connect a fiber optic cable from a router or a broadband modem for network or Internet access.

      NOTE: Supports up to 5 Gbps connectivity on peer-to-peer transmission. Actual speed on the network depends on equipment compatibility, requiring both transceiver and switch at the same maximum speed.

15. **Legacy serial port**

    Connect a peripheral or device to the RS-232 serial port.

16. **Side-cover release latch**

Release to open the side cover and access the internal components of your computer.

2

Set up your computer

Steps

1. Connect the keyboard and mouse.

   NOTE: For setup instructions, see the documentation that is shipped with the keyboard and mouse.

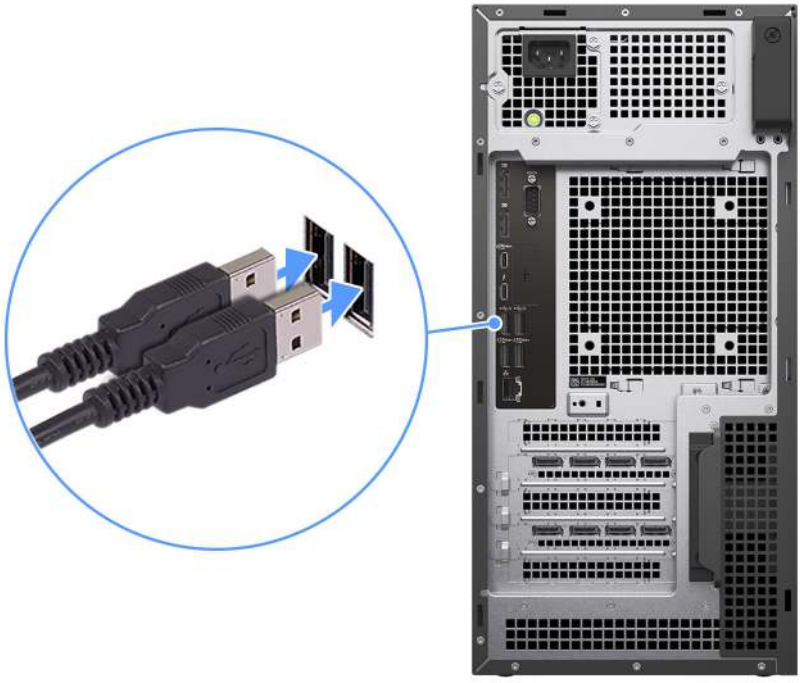


Figure 3. Connecting the keyboard and mouse

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

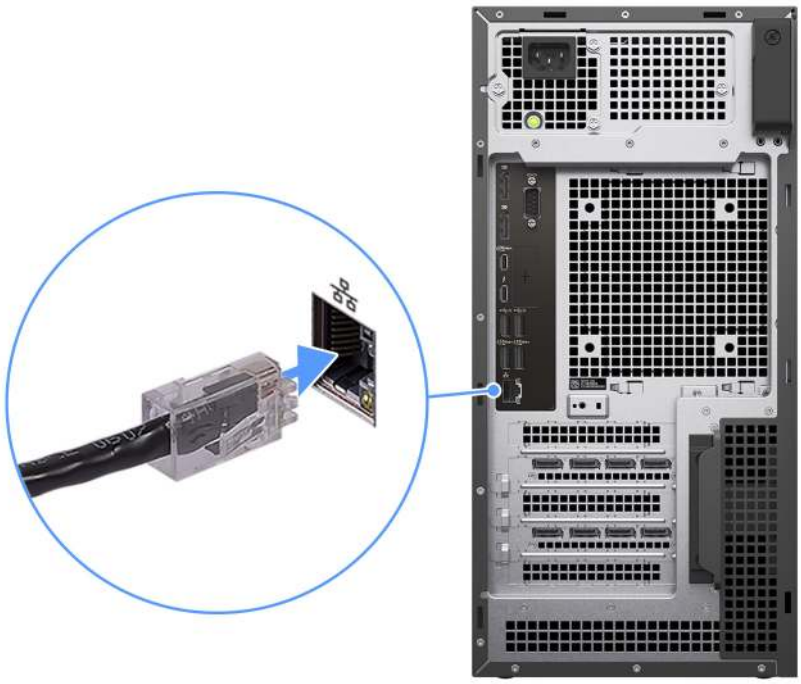


Figure 4. Connecting the network cable

3. Connect the display.

   NOTE: For improved graphical performance, connect the display to the display ports on the discrete graphics processing unit.

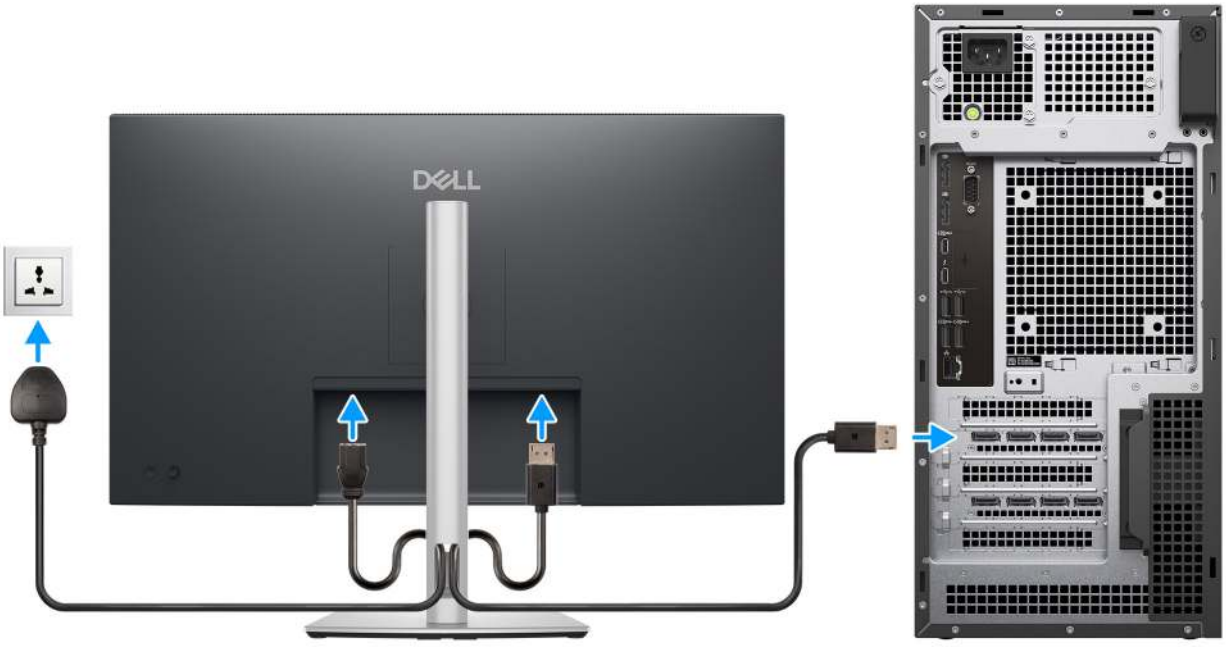


Figure 5. Connecting the display

4. Connect the power cable.

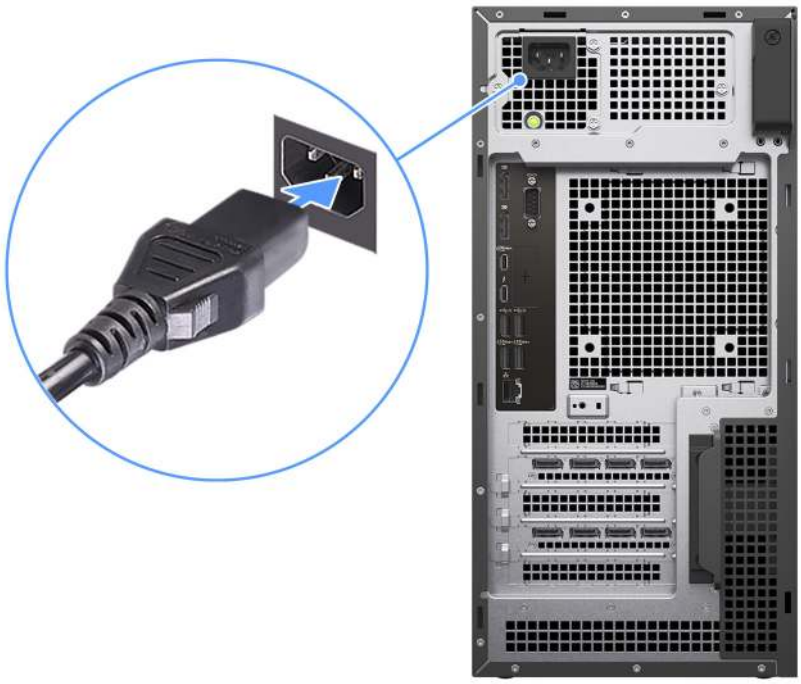


Figure 6. Connecting the power cable

5. Press the power button.



Figure 7. Pressing the power button

German GS statement

The device is not intended for use in the immediate field of vision at a computer workstation. To avoid annoying reflections at the computer workstation, this product must not be placed in the immediate field of vision.

Das Gerät ist nicht für die Benutzung im unmittelbaren Gesichtsfeld am Bildschirmarbeitsplatz vorgesehen. Um störende Reflexionen am Bildschirmarbeitsplatz zu vermeiden, darf dieses Produkt nicht im unmittelbaren Gesichtsfeld platziert werden.

6. Finish the 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 Dell Support Site.

   For Windows:

   Follow the on-screen instructions to complete the setup. When setting up, Dell Technologies 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
	Dell Optimizer is an application is designed to enhance computer performance and productivity by optimizing settings for power, battery, display, collaboration touchpad, and presence detection. It also provides access to applications purchased with your new computer. For more information, see Dell Optimizer User's Guide at Dell Support Site.
	**Dell Product Registration** Register your computer with Dell.
	**Dell Help & Support** Access help and support for your computer.
	**SupportAssist** SupportAssist is a proactive and predictive technology that offers automated technical support for Dell computers. It proactively monitors both hardware and software, addressing performance issues, preventing security threats, and automating engagement with Dell Technical Support. . For more information, see SupportAssist documentation at Dell Support Site. **NOTE:** In SupportAssist, click the warranty expiry date to renew or upgrade your warranty.

3

Specifications of Dell Pro Max Tower T2 FCT2250

Dimensions and weight

The following table lists the height, width, depth, and weight of your Dell Pro Max Tower T2 FCT2250.

Table 2. Dimensions and weight

Description	Values
Height	387.00 mm (15.24 in.)
Width	187.70 mm (7.40 in.)
Depth	438.00 mm (17.24 in.)
Weight **NOTE:** The weight of your computer depends on the configuration ordered and manufacturing variability.	• Minimum: 9.70 kg (21.38 lbs.) • Maximum: 20.40 kg (44.97 lbs.)

Processor

The following table lists the details of the processors that are supported in your Dell Pro Max Tower T2 FCT2250.

Table 3. Processor

Description	Option one	Option two	Option three	Option four	Option five	Option six	Option seven
Processor type	Intel Core Ultra 5 235	Intel Core Ultra 5 245	Intel Core Ultra 5 245K	Intel Core Ultra 7 265	Intel Core Ultra 7 265K	Intel Core Ultra 9 285	Intel Core Ultra 9 285K
Processor wattage	65 W	65 W	125 W	65 W	125 W	65 W	125 W
Processor core count	14	14	14	20	20	24	24
Processor thread count	14	14	14	20	20	24	24
Processor speed	Up to 5 GHz	Up to 5.10 GHz	Up to 5.20 GHz	Up to 5.30 GHz	Up to 5.50 GHz	Up to 5.60 GHz	Up to 5.70 GHz
Processor cache	24 MB	24 MB	24 MB	30 MB	30 MB	36 MB	36 MB
Integrated graphics	Intel Graphics	Intel Graphics	Intel Graphics	Intel Graphics	Intel Graphics	Intel Graphics	Intel Graphics

Chipset

The following table lists the details of the chipset that is supported by your Dell Pro Max Tower T2 FCT2250.

Table 4. Chipset

Description	Values
Chipset	Intel W880
Processor	Intel Core Ultra 5/7/9
DRAM bus width	64-bit
Flash EPROM	32 MB + 32 MB
PCIe bus	Up to Gen5

Operating system

Your Dell Pro Max Tower T2 FCT2250 supports the following operating systems:

- Windows 11 Home
- Windows 11 Pro
- Windows 11 Pro National Academic
- Windows 11 IoT Enterprise 2024 LTSC
- Ubuntu Linux 24.04 LTS

For more information about Dell operating system Recovery image, see *How to Download and Use the Dell OS Recovery Image in Microsoft Windows*, at Dell support site.

Commercial platform Windows 11 N-2 and 5-year operating system supportability:

All newly introduced 2019 and later commercial platforms (Dell, Dell Pro, and Dell Pro Max) will qualify and ship with the most current factory installed Semi-Annual Channel Windows 11 version (N) and qualify (but not ship) the previous two versions (N-1, N-2). The Dell Pro Max Tower T2 FCT2250 will RTS with Windows 11 version v23H2 at the time of launch, and this version will determine the N-2 versions that are initially qualified for this platform.

For future versions of Windows 11, Dell continues to test the commercial platform with coming Windows 11 releases during device production and for five years post-production, including both fall and spring releases from Microsoft.

For additional information about N-2 and 5-year Windows operating system supportability, see the Dell Windows as a Service (WaaS), at Dell support site.

EOML 411

The Dell Pro Max Tower T2 FCT2250 continues to test the coming Semi-Annual Channel Windows 11 version releases for five years post-production, including both fall and spring releases from Microsoft.

Memory

The following table lists the memory specifications that are supported by your Dell Pro Max Tower T2 FCT2250.

Table 5. Memory specifications

Description	Values
Memory slots	Four UDIMM slots
Memory type	DDR5
Memory speed	• 4400 MT/s : 2 DIMM-2R

Table 5. Memory specifications (continued)

Description	Values
	• 4800 MT/s : 2 DIMM-1R • 5600 MT/s : 1 DIMM-1R/2R
Maximum memory configuration	128 GB
Minimum memory configuration	8 GB
Memory size per slot	8 GB, 16 GB, 32 GB
Memory configurations supported	• 8 GB: 1 x 8 GB, DDR5, 5600 MT/s, UDIMM, Non-ECC, single-channel • 16 GB: 2 x 8 GB, DDR5, 5600 MT/s, UDIMM, Non-ECC, dual-channel • 16 GB: 1 x 16 GB, DDR5, 5600 MT/s, UDIMM, Non-ECC, single-channel • 32 GB: 2 x 16 GB, DDR5, 5600 MT/s, UDIMM, Non-ECC, dual-channel • 32 GB: 4 x 8 GB, DDR5, 4800 MT/s, UDIMM, Non-ECC, dual-channel • 64 GB: 2 x 32 GB, DDR5, 5600 MT/s, UDIMM, Non-ECC, dual-channel • 64 GB: 4 x 16 GB, DDR5, 4800 MT/s, UDIMM, Non-ECC, dual-channel • 128 GB: 4 x 32 GB, DDR5, 4400 MT/s, UDIMM, Non-ECC, dual-channel • 16 GB: 1 x 16 GB, DDR5, 5600 MT/s, UDIMM, ECC, single-channel • 32 GB: 2 x 16 GB, DDR5, 5600 MT/s, UDIMM, ECC, dual-channel • 64 GB: 2 x 32 GB, DDR5, 5600 MT/s, UDIMM, ECC, dual-channel • 64 GB: 4 x 16 GB, DDR5, 4800 MT/s, UDIMM, ECC, dual-channel • 128 GB: 4 x 32 GB, DDR5, 4400 MT/s, UDIMM, ECC, dual-channel

Memory matrix

The following table lists the memory configurations supported on your Dell Pro Max Tower T2 FCT2250.

Table 6. Memory matrix

Configuration	Slot			
	UDIMM1	UDIMM2	UDIMM3	UDIMM4
8 GB DDR5	8 GB			
16 GB DDR5	8 GB	8 GB		
16 GB DDR5	16 GB			
32 GB DDR5	8 GB	8 GB	8 GB	8 GB
32 GB DDR5	16 GB	16 GB		
32 GB DDR5	32 GB			
64 GB DDR5	16 GB	16 GB	16 GB	16 GB

Table 6. Memory matrix (continued)

Configuration	Slot			
	UDIMM1	UDIMM2	UDIMM3	UDIMM4
64 GB DDR5	32 GB	32 GB		
128 GB DDR5	32 GB	32 GB	32 GB	32 GB

External ports and slots

The following table lists the external ports and slots on your Dell Pro Max Tower T2 FCT2250.

Table 7. External ports and slots

Description	Values
Network port	One RJ45 ethernet port (1 Gbps)
USB ports	• One USB 3.2 Gen 1 (5 Gbps) port • One USB 3.2 Gen 1 (5 Gbps) port with PowerShare • One USB 3.2 Gen 2 (10 Gbps) Type-C port • One USB 3.2 Gen 2x2 (20 Gbps) Type-C port with PowerShare • Two USB 2.0 (480 Mbps) ports with SmartPower • Two USB 3.2 Gen 2 (10 Gbps) ports • One Thunderbolt4 port • One USB 3.2 Gen 2x2 (20 Gbps) Type-C port
Audio port	One global headset jack
Video port(s)	Two DisplayPort 1.4a HBR3 ports
Media-card reader	One SD 7.0 Express-card slot (optional)
Power-adapter port	One power-cable connector
Security-cable slot	One Kensington security-cable slot

Internal slots

The following table lists the internal slots on your Dell Pro Max Tower T2 FCT2250.

Table 8. Internal slots

Description	Values
M.2	• One M.2 2230 slot for WiFi and Bluetooth combo card • Three M.2 2230/2280 slots for solid-state drive **NOTE:** To learn more about the features of different types of M.2 cards, search in the Knowledge Base Resource at Dell Support Site.
SATA	• Three SATA 3.0 slot for 3.5-inch hard-disk drive • One SATA 3.0 slot for slimline optical drive
PCIe	• One PEG full-height Gen5 PCIe x16 slot • One full-height, half-length Gen3 x4 PCIe closed-end slot

Table 8. Internal slots (continued)

Description	Values
	• One full-height, full-length Gen4 x4 PCIe open-end slot • One full-height, full-length Gen3 x4 PCIe open-end slot

Ethernet

The following table lists the wired ethernet Local Area Network (LAN) specifications of your Dell Pro Max Tower T2 FCT2250.

Table 9. Ethernet specifications

Description	Values
Model	Intel i219-LM
Transfer rate	10/100/1000 Mbps

Wireless module

The following table lists the Wireless Local Area Network (WLAN) modules that are supported on your Dell Pro Max Tower T2 FCT2250.

Table 10. Wireless module specifications

Description	Option one	Option two
Model number	Intel Wi-Fi 7 BE200	Qualcomm Wi-Fi 7 DBS WCN7851
Transfer rate	Up to 5760 Mbps	Up to 5760 Mbps
Frequency bands supported	2.4 GHz/5 GHz/6 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 6E (WiFi 802.11ax) • Wi-Fi 7 (WiFi 802.11be)	• WiFi 802.11a/b/g • Wi-Fi 4 (WiFi 802.11n) • Wi-Fi 5 (WiFi 802.11ac) • Wi-Fi 6 (WiFi 802.11ax) • Wi-Fi 7 (WiFi 802.11be)
Encryption	• 64-bit/128-bit WEP • AES-CCMP • TKIP	• 64-bit/128-bit WEP • AES-CCMP • TKIP
Bluetooth wireless card **NOTE:** The functionality of the Bluetooth wireless card may vary based on the operating system.	Bluetooth 5.4 wireless card	Bluetooth 5.4 wireless card

Audio

The following table lists the audio specifications of your Dell Pro Max Tower T2 FCT2250.

Table 11. Audio specifications

Description	Values
Audio type	High Definition Audio
Audio controller	Realtek ALC3204
Internal audio interface	High Definition Audio (HDA) interface
External audio interface	One global headset jack

Storage

This section lists the storage options on your Dell Pro Max Tower T2 FCT2250.

Table 12. Storage specifications

Storage type	Interface type	Capacity
3.5-inch, 5400 RPM, hard drive	SATA AHCI, up to 6 Gbps	4 TB
3.5-inch, 7200 RPM, hard drive	SATA AHCI, up to 6 Gbps	1 TB
3.5-inch, 7200 RPM, hard drive	SATA AHCI, up to 6 Gbps	2 TB
3.5-inch, 7200 RPM, hard drive, SAS, Enterprise hard drive	SATA AHCI, up to 6 Gbps	4 TB
3.5-inch, 7200 RPM hard drive, SAS, Enterprise hard drive	SATA AHCI, up to 6 Gbps	8 TB
M.2 2230 solid-state drive, Class 35	PCIe Gen4 x4 NVMe, up to 64 GT/s	256 GB
M.2 2280 self-encrypting Opal 2.0 solid-state drive, Class 40	PCIe Gen4 x4 NVMe, up to 64 GT/s	512 GB
M.2 2280 self-encrypting Opal 2.0 solid-state drive, Class 40	PCIe Gen4 x4 NVMe, up to 64 GT/s	1 TB
M.2 2280 self-encrypting Opal 2.0 solid-state drive, Class 40	PCIe Gen4 x4 NVMe, up to 64 GT/s	2 TB
M.2 2280 self-encrypting Opal 2.0 solid-state drive, Class 40	PCIe Gen4 x4 NVMe, up to 64 GT/s	4 TB
M.2 2280 self-encrypting Opal 2.0 solid-state drive, Class 40	PCIe Gen5 x4 NVMe, up to 128 GT/s	1 TB

Storage matrix

The following table lists the storage configurations supported on your Dell Pro Max Tower T2 FCT2250.

Your Dell Pro Tower FCT2250 supports a combination of the following storage configurations:

- One 3.5-inch hard drive in 5.25 bay as front I/O option + one slim optical drive in 5.25 bay as front I/O option + two internal 3.5-inch hard drive or one half-height 5.25-inch device in 5.25 bay as front I/O option + two internal 3.5-inch hard drive
- Up to three M.2 2230/2280 solid-state drives

The primary drive of your Dell Pro Tower FCT2250 varies with the storage configuration. For computers:

- with a M.2 drive, the M.2 drive is the primary drive
- without a M.2 drive, the 3.5-inch hard drive is the primary drive

Media-card reader

The following table provides the specification of media cards that are supported by your Dell Pro Max Tower T2 FCT2250.

Table 13. Media-card reader specifications

Description	Values
Media-card slot type	One SD Express 7.0 slot
Media-cards supported	• Secure Digital (SD) • Secure Digital High Capacity (SDHC) • Secure Digital Extended Capacity (SDXC)
NOTE: The maximum capacity of the media-card reader varies depending on the standard of the media card that is inserted in your computer.	

RAID (Redundant Array of Independent Disks)

For optimal performance when configuring drives as a RAID volume, Dell Technologies recommends drive models that are identical.

NOTE: RAID is not supported on Intel Optane configurations.

RAID 0 (Striped, Performance) volumes benefit from higher performance when drives are matched because the data is split across multiple drives: any I/O operations with block sizes larger than the stripe size splits the I/O and become constrained by the slowest of the drives. For RAID 0 I/O operations where block sizes are smaller than the stripe size, whichever drive the I/O operation targets determine the performance, which increases variability and results in inconsistent latencies. This variability is particularly pronounced for write operations, and it can be problematic for applications that are latency sensitive. One such example of this is any application that performs thousands of random writes per second in small block sizes.

RAID 1 (Mirrored, Data Protection) volumes benefit from higher performance when drives are matched because the data is mirrored across multiple drives: all I/O operations must be performed identically to both drives, thus variations in drive performance when the models are different, results in the I/O operations completing only as fast as the slowest drive. While this does not suffer the variable latency issue in small random I/O operations as with RAID 0 across heterogeneous drives, the impact is nonetheless large because the higher performing drive becomes limited in all I/O types. One of the worst examples of constrained performance here is when using unbuffered I/O. To ensure that writes are fully committed to nonvolatile regions of the RAID volume, unbuffered I/O bypasses cache (for example by using the Force Unit Access bit in the NVMe protocol) and the I/O operation will not complete until all the drives in the RAID volume have completed the request to commit the data. This kind of I/O operation completely negates any advantage of a higher performing drive in the volume.

RAID 5 provides better performance by using data striping and protection through parity. The disadvantage of RAID 5 is that rebuilding a large RAID 5 volume requires a longer period of time. The following are the key features of RAID 5:

- Requires at least three drives.
- Data is available even if ones of the drives present in the volume fails. The failed drive must be replaced, and the volume must be rebuilt for the data to be accessible.
- The total capacity is N-1, where N is the total capacity of the drives in the array. For example, if you use three 1 TB drives in a RAID 5 array, the total volume size is 2 TB.

Care must be taken to match not only the drive vendor, capacity, and class, but also the specific model. Drives from the same vendor, with the same capacity, and even within the same class, can have different performance characteristics for certain types of I/O operations. Thus, matching by model ensures that the RAID volume is comprised of a homogeneous array of drives that deliver all the benefits of a RAID volume without incurring the additional penalties when one or more drives in the volume are lower performing.

Dell Pro Max Tower T2 FCT2250 supports RAID with more than one hard drive configuration.

Power ratings

The following table lists the power rating specifications of Dell Pro Max Tower T2 FCT2250.

Table 14. Power ratings

Description	Option one	Option two	Option three
Type	360 W, Platinum	500 W, Platinum	1500 W, Platinum
Input voltage	90 VAC–264 VAC	90 VAC–264 VAC	90 VAC–264 VAC
Input frequency	47 Hz–63 Hz	47 Hz–63 Hz	47 Hz–63 Hz
Input current (maximum)	5 A	7 A	13.5 A
Output current (continuous)	Operating: • 12 VA: 18 A • 12 VB: 18 A • 12 VC: 13 A Storage: • 12 VA: 1.50 A • 12 VB: 3.30 A • 12 VC: 0 A	Operating: • 12 VA: 18 A • 12 VB: 18 A • 12 VC: 18 A Storage: • 12 VA: 1.50 A • 12 VB: 3.30 A • 12 VC: 0 A	Operating: • 12 VA: 44 A • 12 VB: 36 A • 12 VC: 86 A Storage: • 12 VA: 1.50 A • 12 VB: 5.0 A • 12 VC: 0 A
Rated output voltage	• 12 VA • 12 VB • 12 VC	• 12 VA • 12 VB • 12 VC	• 12 VA • 12 VB • 12 VC
Temperature range:			
Operating	5°C to 45°C (41°F to 113°F)	5°C to 45°C (41°F to 113°F)	5°C to 45°C (41°F to 113°F)
Storage	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)

Power supply connector

The following table lists the Power supply connector specifications of your Dell Pro Max Tower T2 FCT2250.

Table 15. Power supply connector

Power supply	Connectors
360 W internal power supply unit (PSU), 80 Plus Platinum	• Two 4-pin connectors for the processor • One 8-pin connector for the system board • One 8-pin header for graphic card
500 W internal power supply unit (PSU), 80 Plus Platinum	• One 12-pin header for the processor • One 14-pin header for the system board • One 8-pin header for graphic card
1500 W internal power supply unit (PSU),(80 PLUS Platinum)	• One 12-pin header for the processor • One 14-pin header for the system board • Two 6-pin and two 8-pin headers for the graphic card

GPU—Integrated

The following table lists the specifications of the integrated Graphics Processing Unit (GPU) supported by your Dell Pro Max Tower T2 FCT2250.

Table 16. GPU—Integrated

Controller	Memory size	Processor
Intel Graphics	Shared system memory	Intel Core Ultra 5/7/9

GPU—Discrete

The following table lists the specifications of the discrete graphics processing unit (GPU) supported by your Dell Pro Max Tower T2 FCT2250.

Table 17. GPU—Discrete

Controller	Memory size	Memory type
NVIDIA RTX A400	4 GB	GDDR6
NVIDIA RTX A1000	8 GB	GDDR6
NVIDIA RTX 2000 Ada	16 GB	GDDR6
NVIDIA RTX 4000 Ada	20 GB	GDDR6
NVIDIA RTX 4500 Ada	24 GB	GDDR6
NVIDIA RTX 5000 Ada	32 GB	GDDR6
NVIDIA RTX 6000 Ada	48 GB	GDDR6
AMD Radeon Pro W7500	8 GB	GDDR6
AMD Radeon PRO W7600	8 GB	GDDR6

Video port resolution

The following table lists the video port resolution for your Dell Pro Max Tower T2 FCT2250.

Table 18. Video port resolution

Graphics card	Video ports	Maximum supported resolution
NVIDIA RTX A400	• Four mini DisplayPort 1.4a	• 4096 x 2160 @ 120 Hz • 5120 x 2880 @ 60 Hz
NVIDIA RTX A1000	• Three mini DisplayPort 1.4a	• 4096 x 2160 @ 120 Hz • 5120 x 2880 @ 60 Hz • 7680 x 4320 @ 30 Hz
NVIDIA RTX 2000 Ada	• Four mini DisplayPort 1.4a	• 4096 x 2160 @ 120 Hz • 5120 x 2880 @ 60 Hz • 7680 x 4320 @ 60 Hz
NVIDIA RTX 4000 Ada	• Four DisplayPort 1.4a	• 4096 x 2160 @ 120 Hz

Table 18. Video port resolution (continued)

Graphics card	Video ports	Maximum supported resolution
		• 5120 x 2880 @ 60 Hz • 7680 x 4320 @ 60 Hz
NVIDIA RTX 4500 Ada	• Four DisplayPort 1.4a	• 4096 x 2160 @ 120 Hz • 5120 x 2880 @ 60 Hz • 7680 x 4320 @ 60 Hz
NVIDIA RTX 5000 Ada	• Four DisplayPort 1.4a	• 4096 x 2160 @ 120 Hz • 5120 x 2880 @ 60 Hz • 7680 x 4320 @ 60 Hz
NVIDIA RTX 6000 Ada	• Four DisplayPort 1.4a	• 4096 x 2160 @ 120 Hz • 5120 x 2880 @ 60 Hz • 7680 x 4320 @ 60 Hz
AMD Radeon Pro W7500	• Four DisplayPort 2.1	• 3840 x 2160 @ 120 Hz • 5120 x 2880 @ 60 Hz • 7680 x 4320 @ 60 Hz
AMD Radeon Pro W7600	• Four DisplayPort 2.1	• 3840 x 2160 @ 120 Hz • 5120 x 2880 @ 60 Hz • 7680 x 4320 @ 60 Hz

Hardware security

The following table lists the hardware security of your Dell Pro Max Tower T2 FCT2250.

Table 19. Hardware security

Hardware security
Chassis intrusion switch
Chassis lock slot support
Intel Authenticate
Intel Secure Boot
Security-cable slot (Kensington lock)
Local hard drive data wipe through BIOS (Secure Erase)
Lockable cable covers
Microsoft 10 Device Guard and Credential Guard (Enterprise SKU)
Microsoft Windows BitLocker
SafeBIOS: includes Dell Off-host BIOS Verification, BIOS Resilience, BIOS Recovery, and additional BIOS Controls
SafeID including Trusted Platform Module (TPM) 2.0
Self-encrypting storage drives (Opal, FIPS)
Smart card keyboard (FIPS)
Supply chain tamper alerts
Trusted Platform Module TPM 2.0

Environmental

The following table lists the environmental specifications of your Dell Pro Max Tower T2 FCT2250.

Table 20. Environmental

Feature	Values
Recyclable packaging	Yes
BFR/PVC—free chassis	Yes
Vertical orientation packaging support	Yes
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 Dell Pro Max Tower T2 FCT2250.

Table 21. Regulatory compliance

Regulatory compliance
Product Safety, EMC and Environmental Datasheets
Dell Regulatory Compliance Home page
Responsible Business Alliance policy

Operating and storage environment

This table lists the operating and storage specifications of your Dell Pro Max Tower T2 FCT2250.

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

Table 22. Computer environment

Description	Operating	Storage
Temperature range	0°C to 35°C (32°F to 95°F)	-40°C to 65°C (-40°F to 149°F)
Relative humidity (maximum)	10% to 90% (non-condensing)	0% to 95% (non-condensing)
Vibration (maximum)*	0.66 GRMS	1.30 GRMS
Shock (maximum)	110 G†	160 G†
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 the user environment.

† Measured using a 2 ms half-sine pulse.

Dell support policy

For information about Dell support policy, search in the Knowledge Base Resource at Dell Support Site.

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 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 Dell Regulatory Compliance Home Page.

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

WARNING: For laptop computers, discharge the battery completely before removing it. Disconnect the AC power adapter from the computer and operate the computer solely on battery power—the battery is fully discharged when the computer no longer turns on when the power button is pressed.

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

CAUTION: You should only perform troubleshooting and repairs as authorized or directed by the Dell technical support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

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

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

CAUTION: When you disconnect a cable, pull it by its connector or its pull tab, not the cable itself. Some cables have connectors with locking tabs or thumbscrews that you must disengage before disconnecting the cable. When disconnecting cables, keep them evenly aligned to avoid bending the connector pins. When connecting cables, ensure that the connector on the cable is correctly oriented and aligned with the port.

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

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

Before working inside your computer

About this task

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

Steps

1. Save and close all open files and exit all open applications.
2. Shut down your computer. For Windows operating system, click **Start** > **Power** > **Shut down**.

NOTE: If you are using a different operating system, see the documentation of your operating system for shut-down instructions.

3. Turn off all the attached peripherals.
4. Disconnect your computer and all attached devices from their electrical outlet.
5. Disconnect all attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.

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

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

Safety precautions

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

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

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

Bonding

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

Electrostatic discharge—ESD protection

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

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

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

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

Perform the following steps to prevent ESD damage:

- Use a wired ESD wrist strap that is properly grounded. Wireless anti-static straps do not provide adequate protection. Touching the chassis before handling parts does not ensure adequate ESD protection on parts with increased sensitivity to ESD damage.
- Handle all static-sensitive components in a static-safe area. If possible, use anti-static floor pads and workbench pads.
- When unpacking a static-sensitive component from its shipping carton, do not remove the component from the anti-static packing material until you are ready to install the component. Before unwrapping the anti-static packaging, use the anti-static wrist strap to discharge the static electricity from your body. For more information about the wrist strap and ESD wrist strap tester, see Components of an ESD Field Service Kit.
- Before transporting a static-sensitive component, place it in an anti-static container or packaging.

ESD Field Service kit

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

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

Working Environment

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 laptop environment. Servers are typically installed in a rack within a data center; desktops or laptops are typically placed on office desks or cubicles. Always look for a large open flat work area that is free of clutter and large enough to deploy the ESD kit with additional space to accommodate the type of computer that is being repaired. The workspace should also be free of insulators that can cause an ESD event. On the work area, insulators such as styrofoam and other plastics should always be moved at least 12 inches or 30 centimeters away from sensitive parts before physically handling any hardware components.

ESD Packaging

All ESD-sensitive devices must be shipped and received in static-safe packaging. Metal, static-shielded bags are preferred. However, you should always return the damaged component using the same ESD bag and packaging that the new part arrived in. The ESD bag should be folded over and taped shut and all the same foam packing material should be used in the original box that the new part arrived in. ESD-sensitive devices should be removed from packaging only at an ESD-protected work surface, and parts should never be placed on top of the ESD bag because only the inside of the bag is shielded. Always place parts in your hand, on the anti-static mat, in the computer, or inside an ESD bag.

Components of an ESD Field Service kit

The components of an ESD Field Service kit are:

- **Anti-Static Mat** – The anti-static mat is dissipative and parts can be placed on it during service procedures. When using an anti-static mat, your wrist strap should be snug and the bonding wire should be connected to the anti-static mat and to any bare metal on the computer being worked on. Once deployed properly, service parts can be removed from the ESD bag and placed directly on the anti-static mat. ESD-sensitive items are safe in your hand, on the anti-static mat, in the computer, or inside an ESD bag.
- **Wrist Strap and Bonding Wire** – The wrist strap and bonding wire can be either directly connected between your wrist and bare metal on the hardware if the anti-static mat is not required, or connect 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 anti-static mat, and the hardware is known as bonding. Use only Field Service kits with a wrist strap, anti-static mat, and bonding wire. Never use wireless wrist straps. Always be cautious that the internal wires of a wrist strap are prone to damage from normal wear and tear, and must be checked regularly with a wrist strap tester in order to avoid accidental ESD hardware damage. It is recommended to test the wrist strap and bonding wire at least once per week.
- **ESD Wrist Strap Tester** – The wires inside an ESD strap are prone to damage over time. When using an unmonitored kit, it is a best practice to regularly test the strap before each service, and at a minimum, test once per week. A wrist strap tester is the best method for doing this test. To perform the test, plug the bonding-wire of the wrist-strap 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.

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

Transporting sensitive components

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

Lifting equipment

Adhere to the following guidelines when lifting heavy equipment:

CAUTION: Do not lift 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 technique in reverse to set the load down.

After working inside your computer

About this task

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

Steps

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

BitLocker

CAUTION: If BitLocker is not suspended before updating the BIOS, the BitLocker key is not recognized the next time that you reboot the computer. You will be prompted to enter the recovery key to progress, and the computer displays a prompt for the recovery key on each reboot. If the recovery key is not known, this can result in data loss or an operating system reinstall. For more information, see Knowledge Article: updating the BIOS on Dell computers 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 #1
- Phillips screwdriver #2
- Plastic scribe

Screw list

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

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

NOTE: Screw color may vary depending on the configuration ordered.

Table 23. Screw list

Component	Screw type	Quantity	Screw image
Side cover	Captive screw	1	
M.2 2230/2280 solid state drive	M2x3.5	1	
WLAN card	M2x3.5	1	
WLAN Internal antenna	M3x3	2	
Power supply unit cover	#6-32	1	
1500 W Power supply unit	#6-32	4	
360 W Power supply unit	#6-32	3	
Processor fan and 125 W heat-sink assembly	Captive screw	4	
Processor fan and 65 W heat-sink assembly	Captive screw	4	
VR heat sink	Captive screw	2	
Front fan 1	M3x5	1	
Front fan 2	M3x5	1	
Rear fan (1500 W PSU)	M3x5	1	
System board	#6-32 M2	10 2	

Table 23. Screw list (continued)

Component	Screw type	Quantity	Screw image
			
Optional modules • DisplayPort • HDMI • LAN • Thunderbolt • USB • VGA	M2x4	2	
Optional 5 GbE Optical module	M2x4	3	

Major components of Dell Pro Max Tower T2 FCT2250

The following image shows the major components of Dell Pro Max Tower T2 FCT2250.

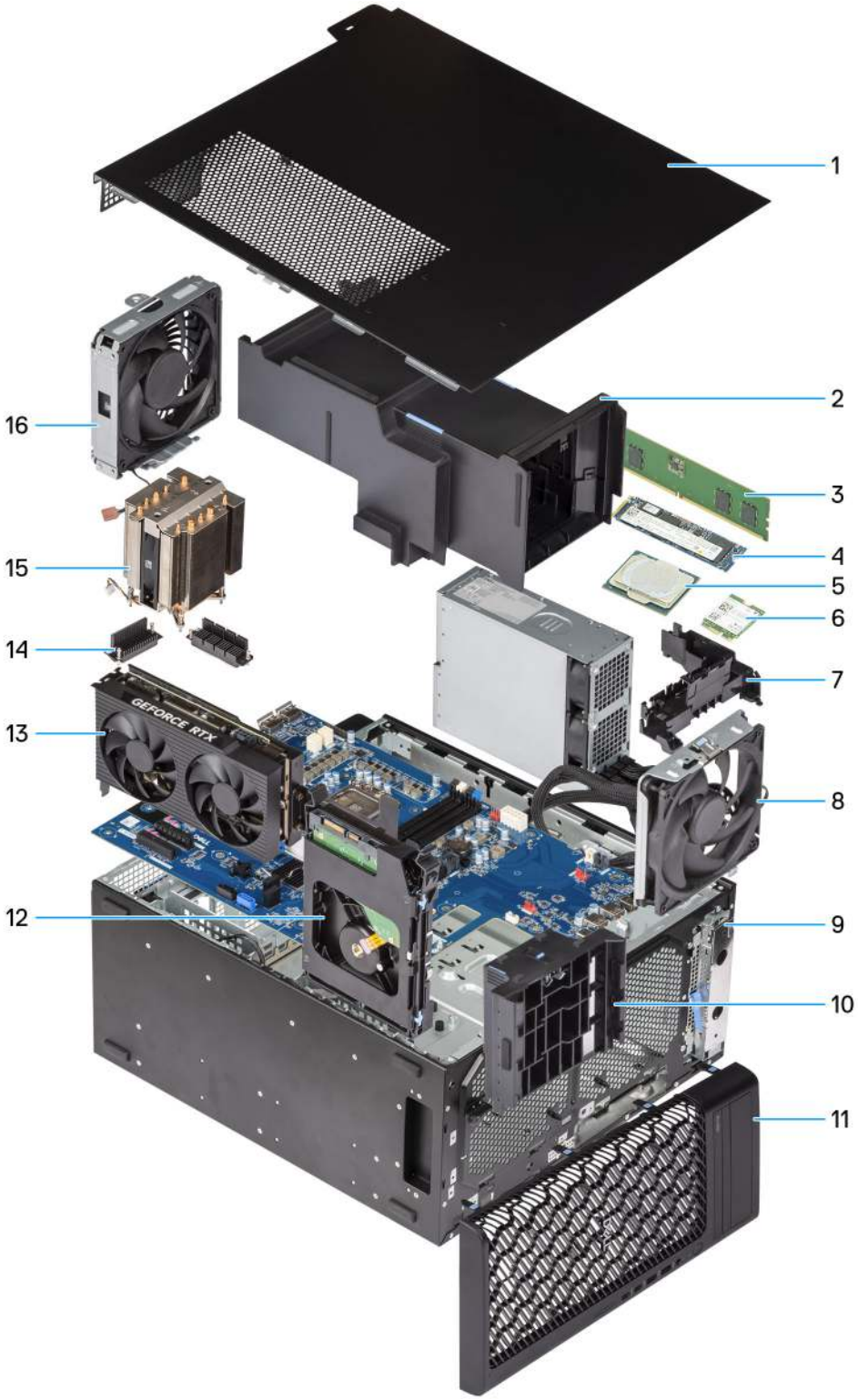


Figure 8. Major Components of Dell Pro Tower Plus FCT2250

1. Side cover
2. Air shroud
3. Memory module
4. M.2 2280 solid state drive
5. Processor
6. WLAN card
7. Cable hub

8. Rear system fan
9. 5.25-inch front flexbay
10. GPU end holder
11. Front bezel
12. 3.5-inch hard drive
13. Powered-graphics card
14. Voltage-regulator heatsink
15. Processor heatsink
16. Front system fan

NOTE: Dell Technologies 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.

   NOTE: Ensure that you remove the security cable from the security-cable slot (if applicable).

About this task

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



Figure 9. Removing the side cover



Figure 10. Removing the side cover

Steps

1. Loosen the single captive screw that secures the side cover release latch to the computer.

   NOTE: Ensure that the captive screw is fully loosened.

2. Pull the release latch away from the back of the chassis to release the cover from the computer.
3. Pull the side cover away from the chassis and remove the side cover.

Installing the side cover

Prerequisites

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

About this task

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



Figure 11. Installing the side cover



Figure 12. Installing the side cover

Steps

1. Align the tabs on the side cover with the slots on the chassis.
2. Press the side cover towards the side of the computer to install it.
3. The release latch automatically locks the side cover to the computer.
4. Tighten the single captive screw to secure the side cover to the computer.

Next steps

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

6

Air shroud

Removing the air shroud

Prerequisites

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

NOTE: Removing the air shroud disconnects the memory fan module as the memory fan module is integrated in the air shroud.

About this task

The following image indicates the location of the air shroud and provides a visual representation of the removal procedure.



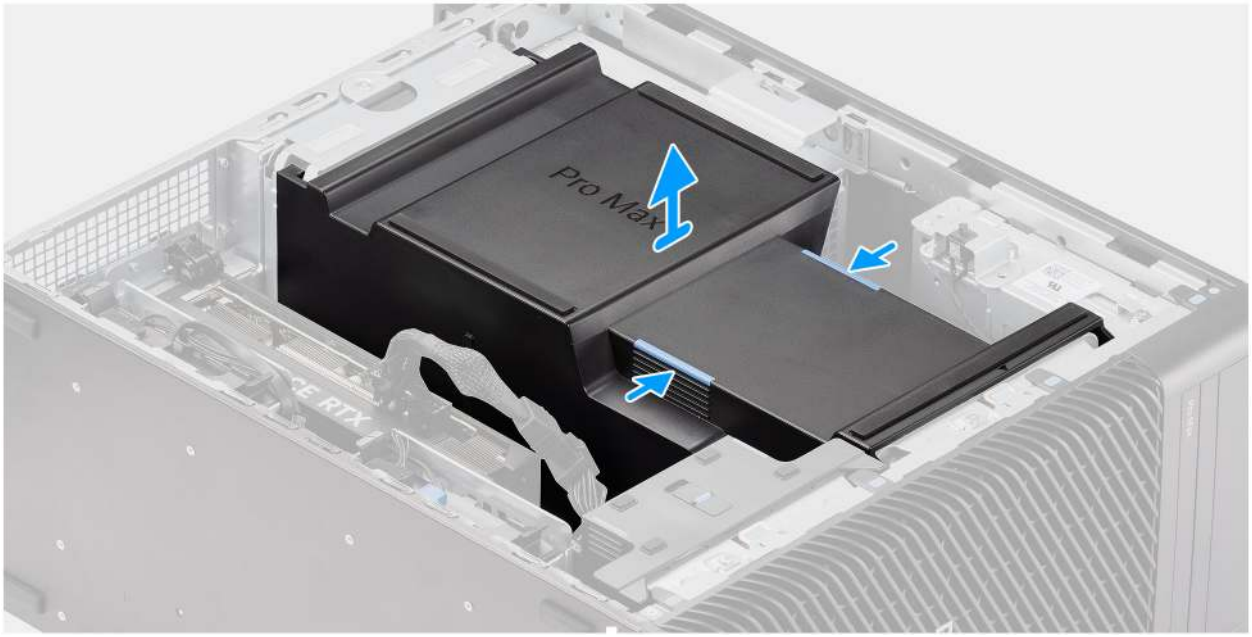


Figure 13. Removing the air shroud

Steps

1. Hold the air shroud at the gripping points.
2. Pull the air shroud upwards and out of the computer.

Installing the air shroud

Prerequisites

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

NOTE: Installing the air shroud connects the memory fan module, as the memory fan module is integrated to the air shroud.

NOTE: Route all the power cables through the bottom air shroud cover to prevent the air shroud installation interference.

About this task

The following image indicates the location of the air shroud and provides a visual representation of the installation procedure.

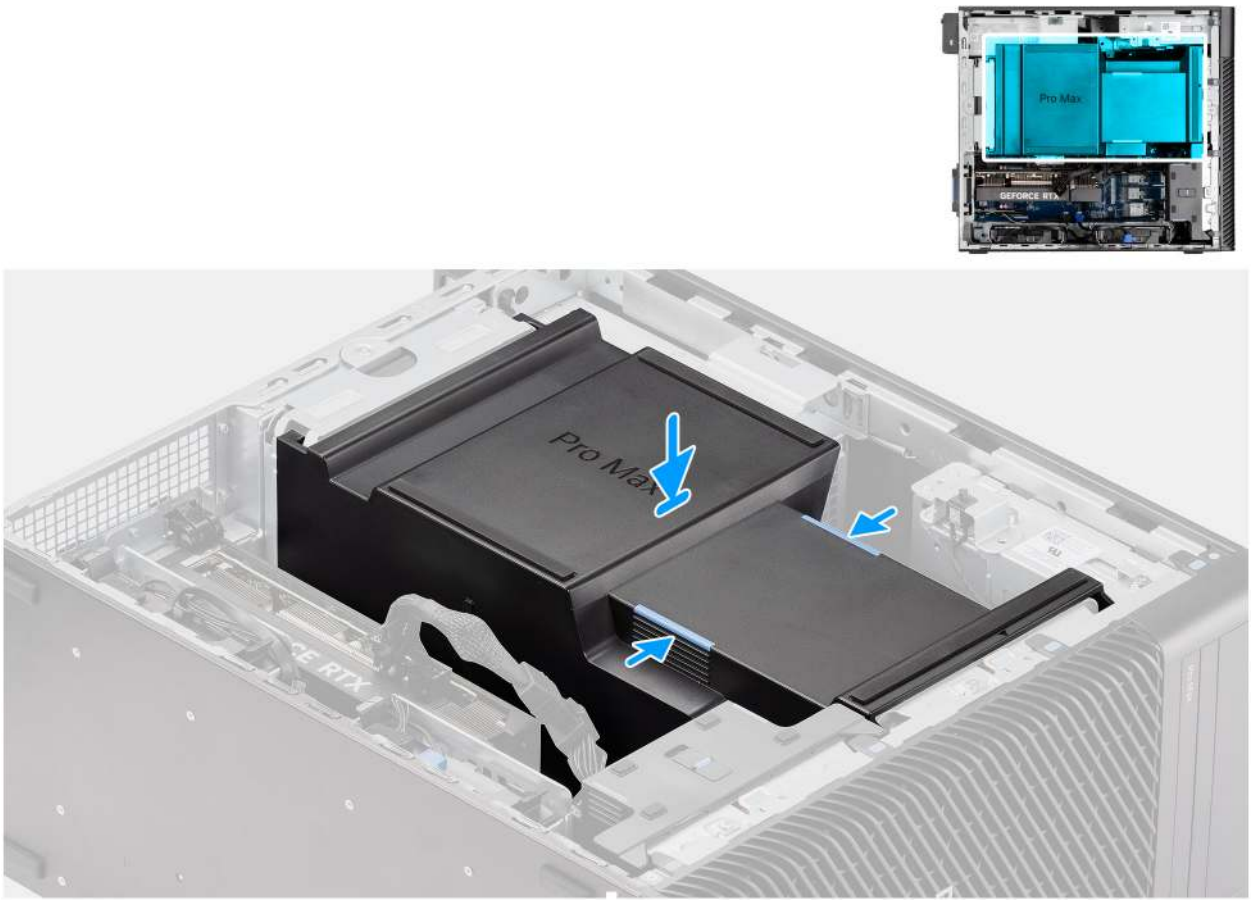


Figure 14. Installing the air shroud

Steps

1. Align the air shroud over the heat-sink and system board holding and place it in the slot.
2. Press the air shroud down until the tabs secure into place.

Next steps

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

7

Coin-cell battery

Removing the coin-cell battery

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

About this task

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

CAUTION: Removing the coin-cell battery clears the CMOS and resets BIOS settings.

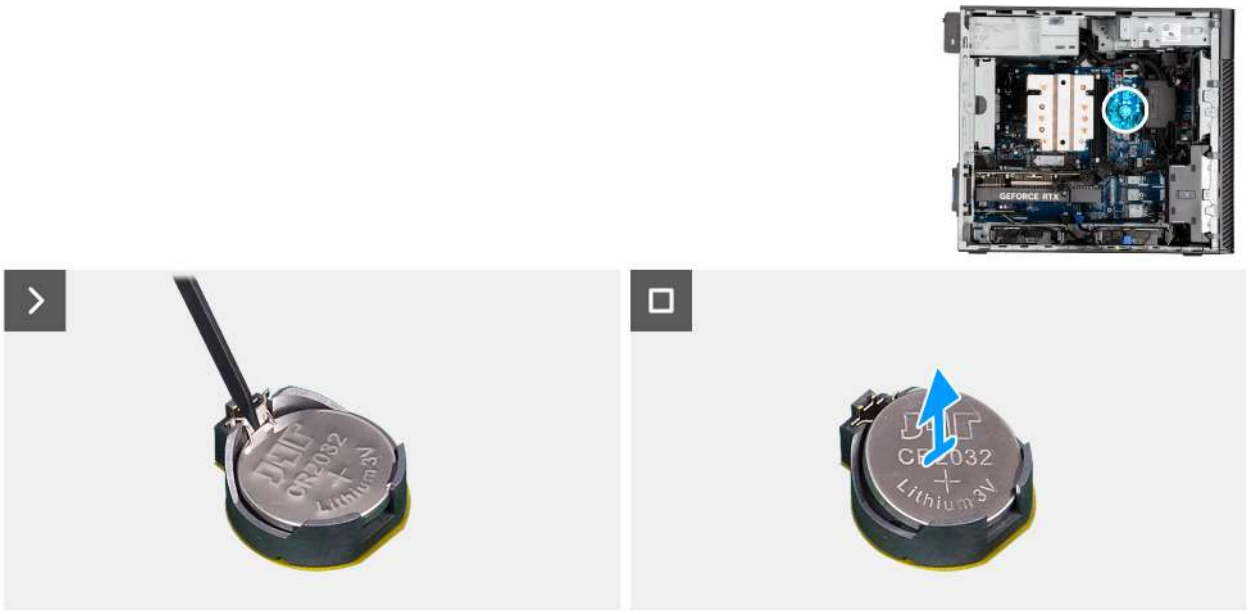


Figure 15. Removing the coin-cell battery

Steps

1. Using a plastic scribe, gently pry the coin-cell battery out of the slot on the system board.
2. Remove the coin-cell battery away from the computer.

Installing the coin-cell battery

Prerequisites

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

About this task

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

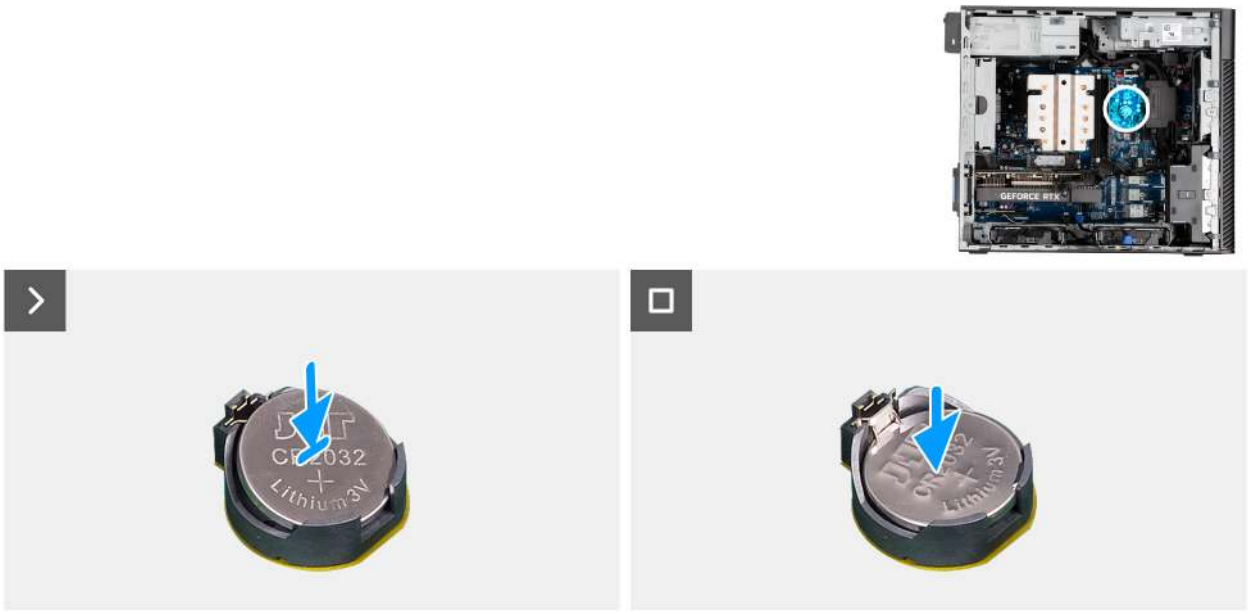


Figure 16. Installing the coin-cell battery

Steps

1. Insert the coin-cell battery with the "+" sign facing up and slide it under the securing tabs at the positive side of the connector.
2. Press the battery into the connector until it locks into place.

Next steps

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

8

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



Figure 17. Removing the front bezel

Steps

1. Pry the retention tabs to release the front bezel from the computer.
2. Slightly pull the front bezel and gently rotate it to release the other tabs on the bezel from the slots in the computer chassis.
3. Remove the front bezel from the computer.

Installing the front bezel

Prerequisites

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

About this task

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



Figure 18. Installing the front bezel

Steps

1. Position the front bezel to align the tabs on the bezel with the slots on the chassis.
2. Press the bezel until the tabs clicks into place.

Next steps

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

Front I/O bracket

Removing the front I/O bracket

Prerequisites

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

About this task

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



Figure 19. Removing the front I/O bracket

Steps

1. Remove the screw (#6-32) that secures the front I/O bracket to the chassis.
2. Slide and remove the front I/O bracket out of the chassis.

Installing the front I/O bracket

Prerequisites

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

About this task

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

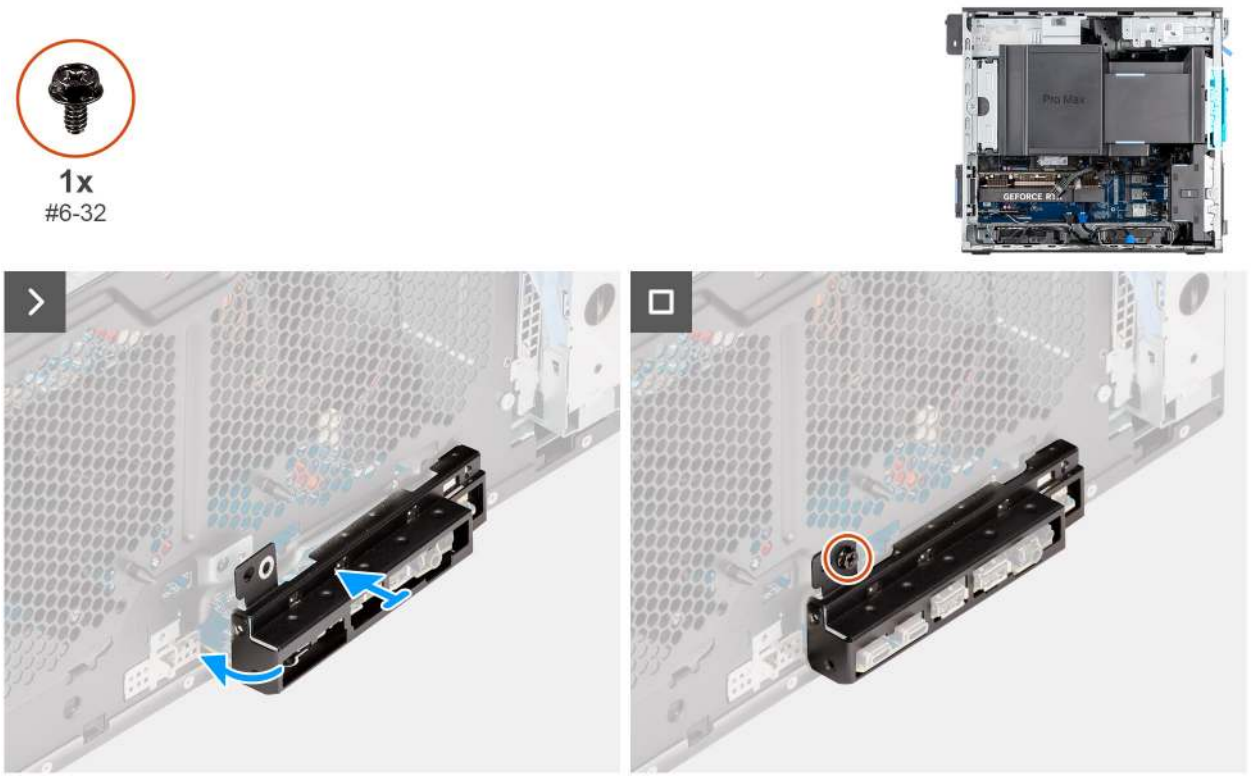


Figure 20. Installing the front I/O bracket

Steps

1. Align and slide the front I/O bracket into its slot on the chassis.
2. Replace the screw (#6-32) to secure the front I/O bracket to the chassis.

Next steps

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

Internal speaker

Removing the internal speaker

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

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

NOTE: For computers with 1500 W PSU only.

About this task

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

Figure 21. Removing the internal speaker

Steps

1. Disconnect the internal speaker cable from the connector on the system board.
2. Unroute the internal speaker cable through the recess on the chassis.
3. Slide and remove the internal speaker from the chassis.

Installing the internal speaker

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

Prerequisites

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

About this task

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

Figure 22. Installing the internal speaker

Steps

1. Align the holes on the internal speaker with the alignment post on the chassis.
2. Insert the internal speaker into its slot.
3. Route the internal speaker cable through the recess on the front of the chassis.
4. Connect the internal speaker cable to the connector on the system board.

Next steps

1. Install the air shroud.

   NOTE: For computers with 1500 W PSU only.

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

Memory

Removing the memory module

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

   NOTE: For computers with 1500 W PSU only.

About this task

The following image indicates the location of the memory module and provides a visual representation of the removal procedure.

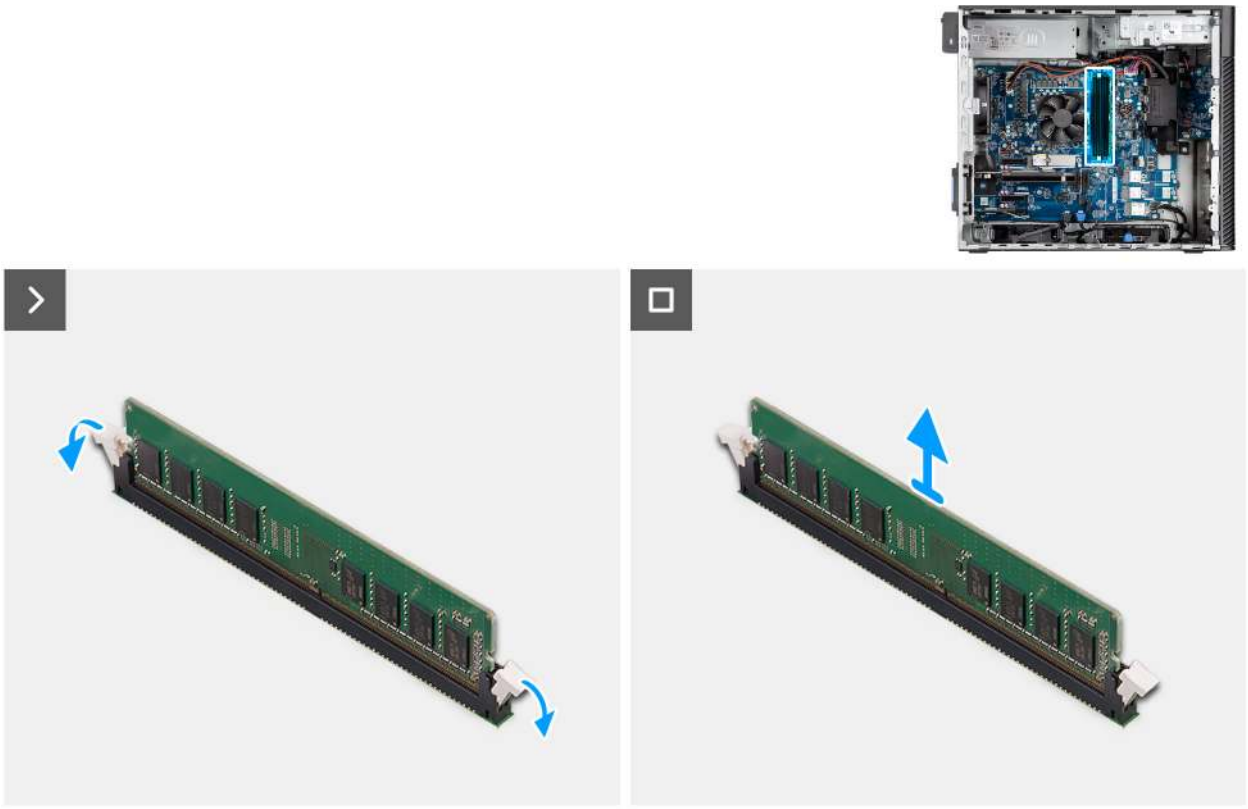


Figure 23. Removing the memory module

Steps

1. Pull the securing clips from both sides of the memory module until the memory module pops up.
2. Slide and remove the memory module from the memory-module slot.

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

Installing the memory module

Prerequisites

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

About this task

The following image indicates the location of the memory module and provides a visual representation of the installation procedure.

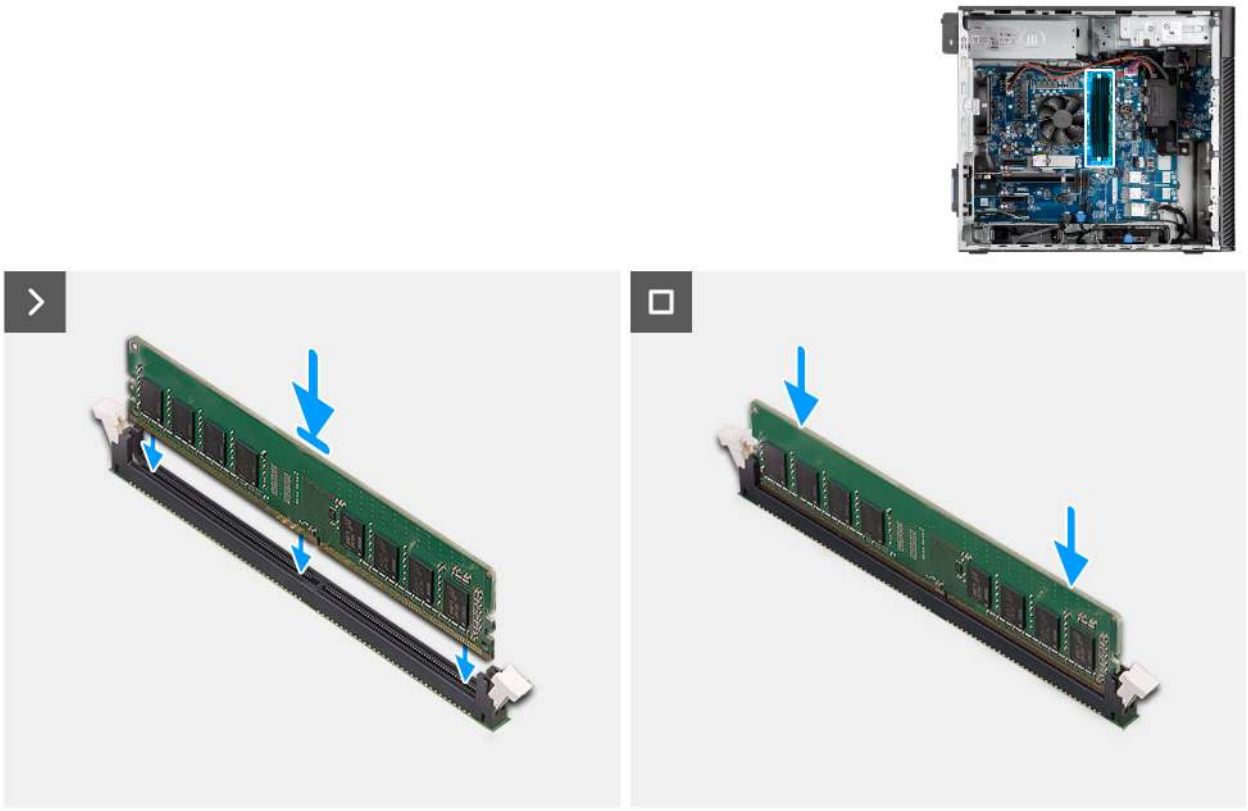


Figure 24. Installing the memory module

Steps

1. Align the notch on the memory module with the tab on the memory-module slot.
2. Slide the memory module firmly into the slot at an angle and press the memory module down until it secures into place.

NOTE: If the memory module is not secure, then remove the memory module and reinstall it.

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

Next steps

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

Hard drive

Removing the 3.5-inch hard drive assembly (Bay-1)

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the front bezel.

About this task

The following images indicate the location of the 3.5-inch hard drive assembly (Bay-1) and provide a visual representation of the removal procedure.



Figure 25. Removing the 3.5-inch hard drive assembly from Bay 1

Steps

1. Disconnect the data and power cables from the 3.5-inch hard drive module.
2. Press the securing tabs to release the hard drive assembly from the chassis.
3. Slide the hard drive assembly away from the chassis.

Removing the 3.5-inch hard drive assembly (Bay-2)

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the front bezel.

About this task

The following images indicate the location of the 3.5-inch hard drive assembly (Bay-2) and provide a visual representation of the removal procedure.



Figure 26. Removing the 3.5-inch hard drive assembly (Bay-2)

Steps

1. Disconnect the data and power cables from the 3.5-inch hard drive module.
2. Press the securing tabs to release the hard drive assembly from the chassis.
3. Slide the hard drive assembly away from the chassis.

Removing the 3.5-inch hard drive bracket

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the 3.5-inch hard drive assembly (Bay-1) or 3.5-inch hard drive assembly (Bay-2).

About this task

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



Figure 27. Removing the 3.5-inch hard-disk drive bracket

Steps

1. Pry both sides of the hard drive bracket edge to release the tabs on the bracket from the slots on the hard drive.
2. Lift and remove the hard drive off the hard drive bracket.

Installing the 3.5-inch hard drive bracket

Prerequisites

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

About this task

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



Figure 28. Installing the 3.5-inch hard drive bracket

Steps

1. Place the hard drive into the hard drive bracket and align the tabs on the bracket with the slots on the hard drive.
2. Snap the hard drive into the hard drive bracket.

Next steps

1. Install the 3.5-inch hard drive assembly (Bay-1) or 3.5-inch hard drive assembly (Bay-2).
2. Install the side cover.
3. Follow the procedure in after working inside your computer.

Installing the 3.5-inch hard drive assembly (Bay-2)

Prerequisites

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

About this task

The following images indicate the location of the 3.5-inch hard drive assembly (Bay-2) and provide a visual representation of the installation procedure.

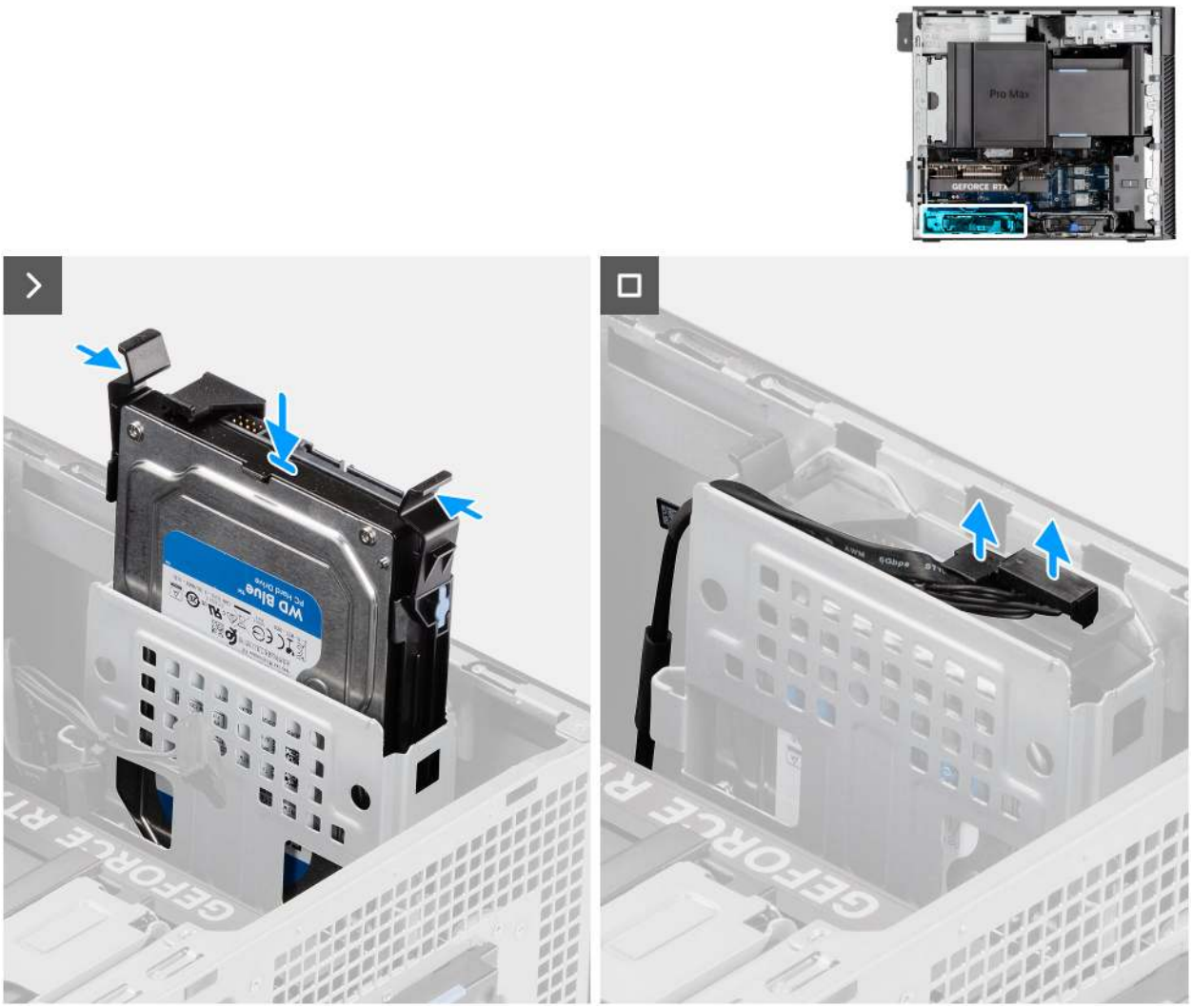


Figure 29. Installing the 3.5-inch hard drive assembly (Bay-2)

Steps

1. Slide and insert the 3.5-inch hard drive assembly into the hard drive slot.
2. Route the power cable and the data cable through the routing guides on the hard drive assembly and connect the cables to the hard drive.

Next steps

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

Installing the 3.5-inch hard drive assembly (Bay-1)

Prerequisites

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

About this task

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

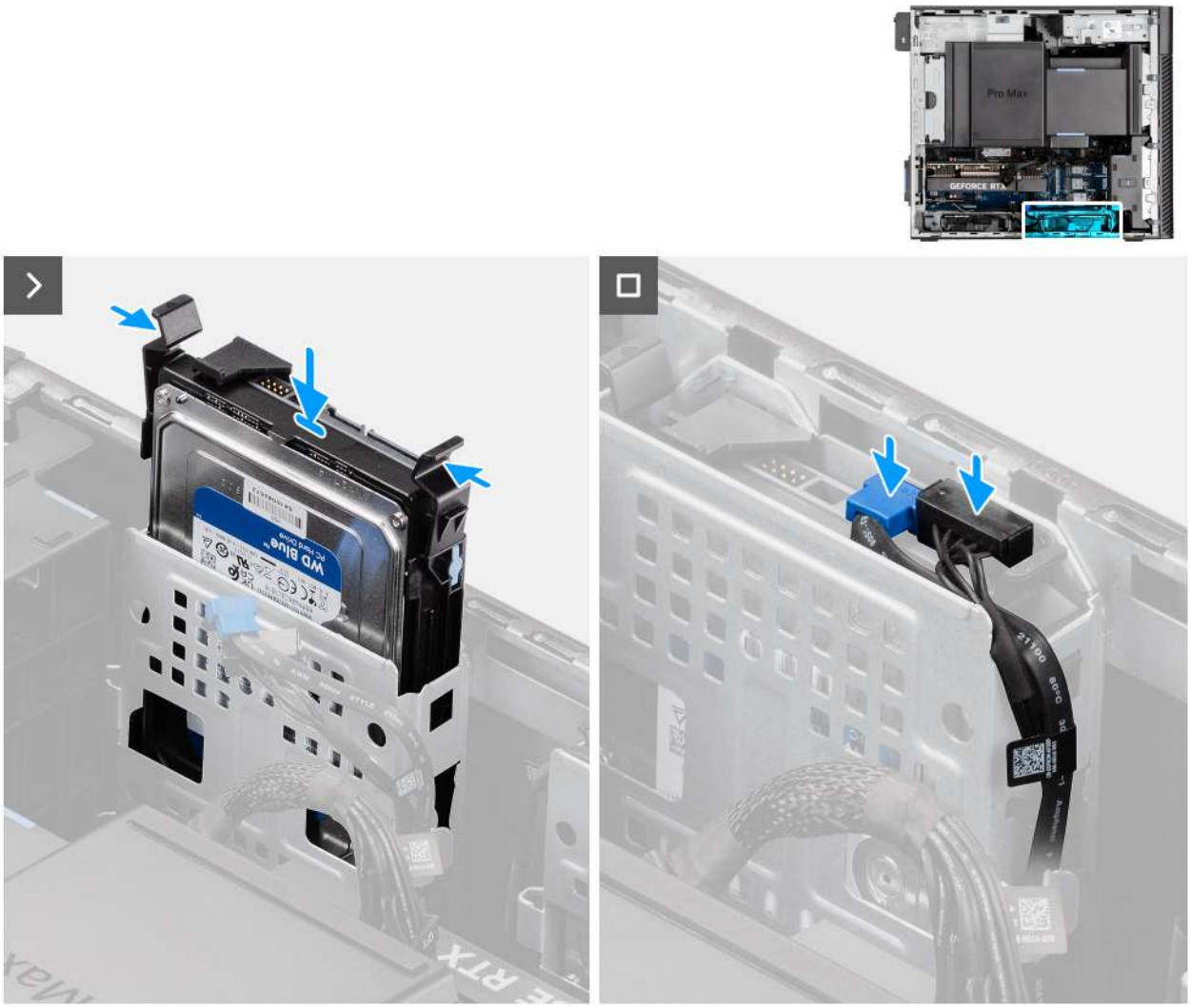


Figure 30. Installing the 3.5-inch hard drive assembly from Bay 1

Steps

1. Slide and insert the 3.5-inch hard drive assembly into the hard drive slot.
2. Route the power cable and the data cable through the routing guides on the hard drive assembly and connect the cables to the hard drive.

Next steps

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

Solid state drive

Removing the M.2 2230 PCIe solid state drive

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

NOTE: For computers with 1500 W PSU only.

About this task

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

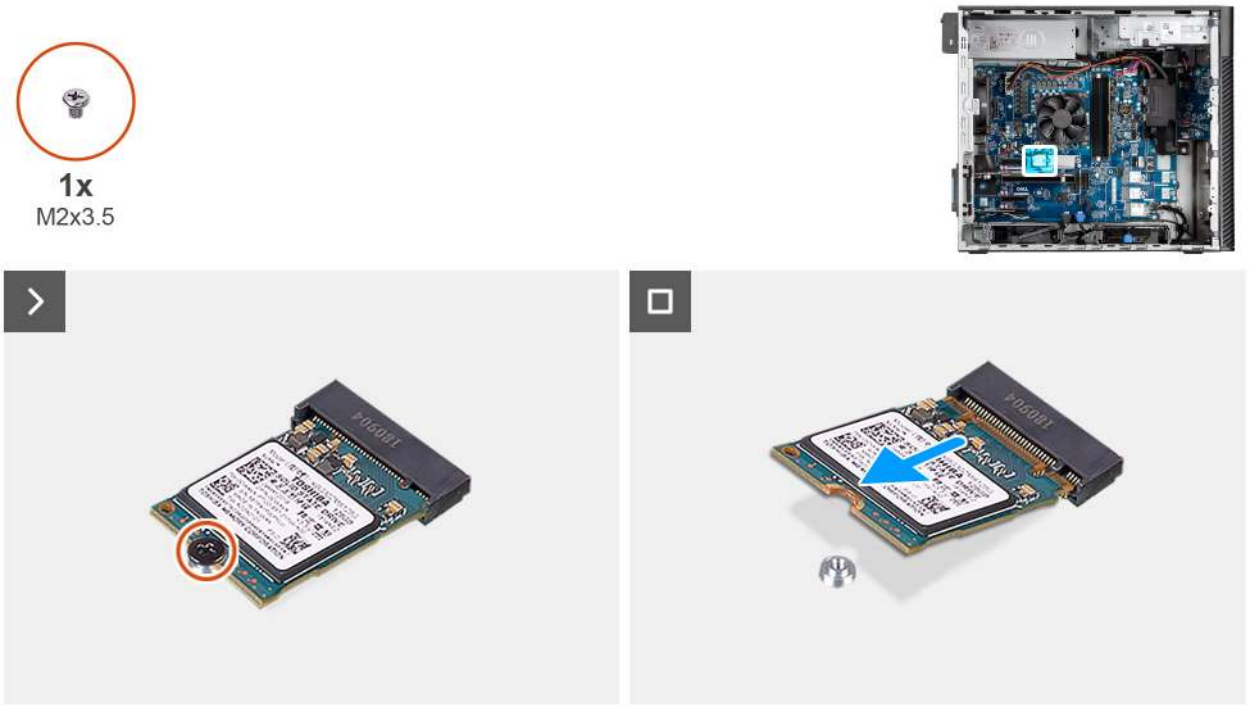


Figure 31. Removing the M.2 2230 PCIe solid state drive

Steps

1. Remove the screw (M2x3.5) that secures the solid state drive to the system board.
2. Slide and lift the solid state drive off the system board.

Installing the M.2 2230 PCIe solid state drive

Prerequisites

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

About this task

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

NOTE: For computers shipped with 360 W power-supply unit, SSD-2 must be installed with a front chassis fan. Customers must call Dell sales to purchase the SSD CUS kit and additional front chassis fan. Follow the procedures for installing front chassis fan.

NOTE: Solid state drive installation on slot-1 requires a thermal heat sink to be installed.

NOTE: Follow the below procedures for installing solid state drive on SSD-1 and SSD-2 slots.

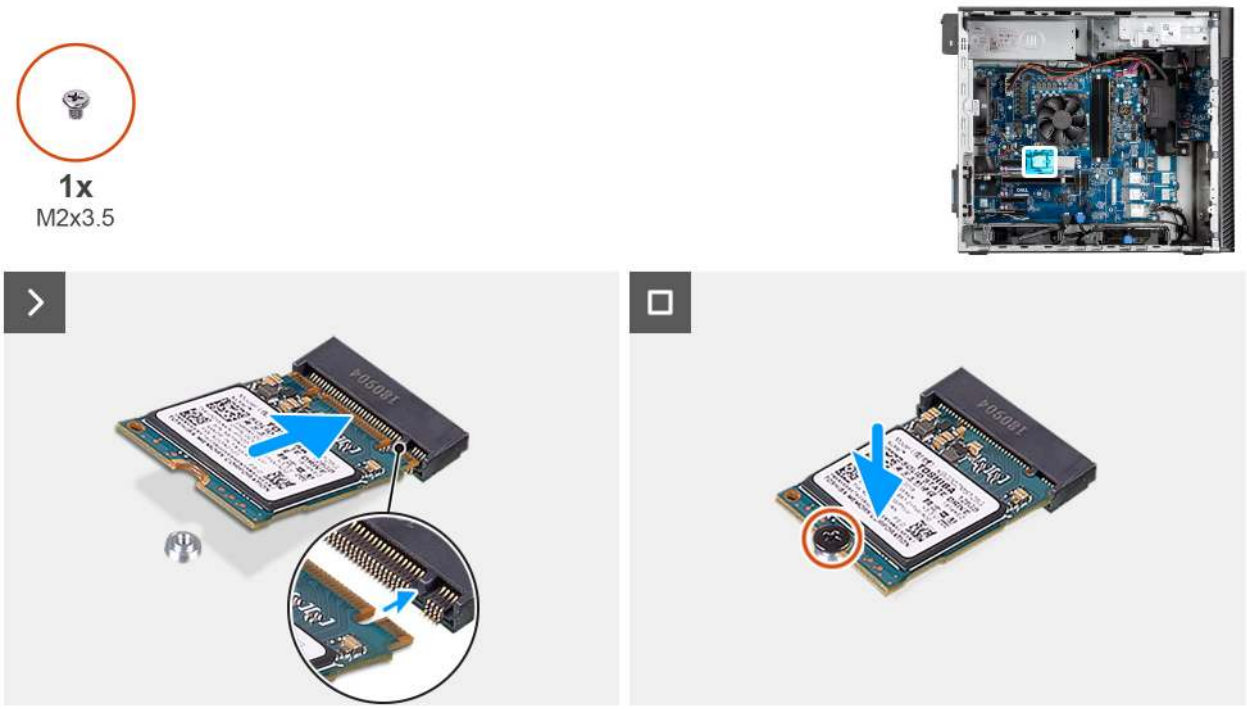


Figure 32. Installing the M.2 2230 PCIe solid state drive

Steps

1. Align the notch on the solid state drive with the tab on the solid state drive connector.
2. Insert the solid state drive at an angle into the slot on the system board.

   NOTE: When replacing a M.2 2280 solid state drive from a M.2 2230 solid state drive, ensure to move the standoff nut to the M.2 2230 solid state drive slot position.

3. Replace the screw (M2x3.5) to secure the M.2 2230 solid state drive to the system board.

Next steps

1. Install the air shroud.

   NOTE: For computers with 1500 W PSU only.

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

Removing the M.2 2280 PCIe solid state drive

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

About this task

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

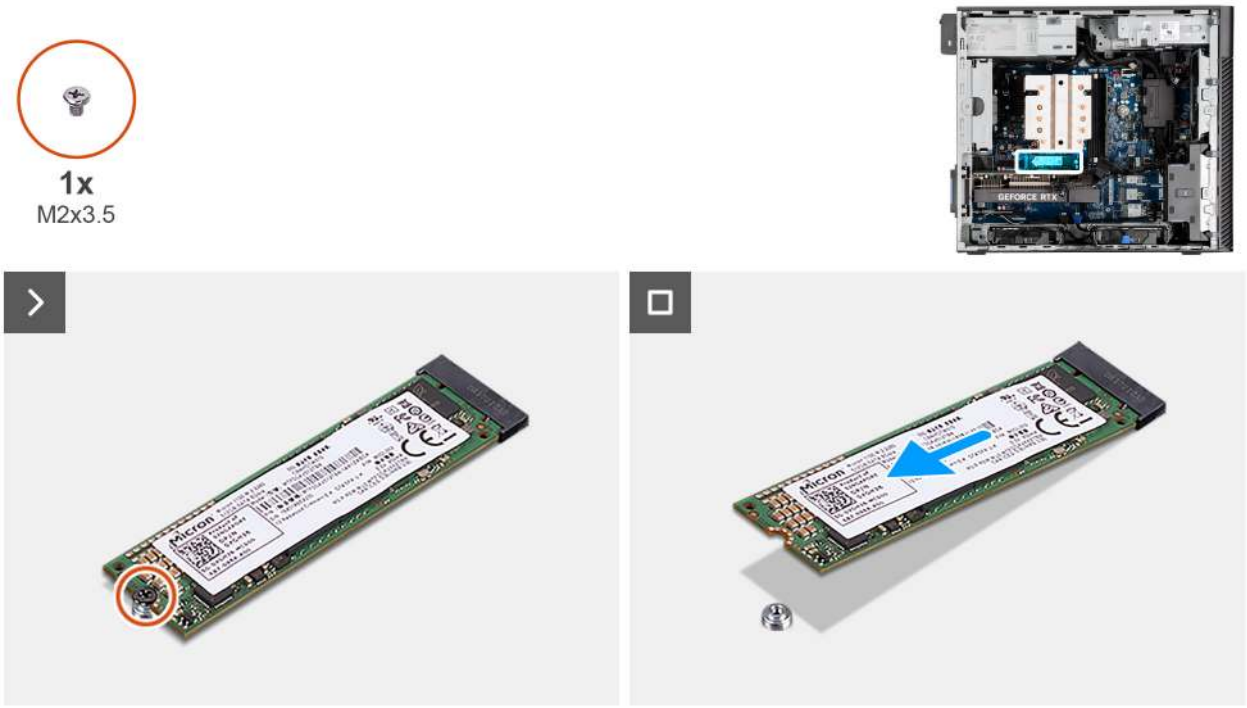


Figure 33. Removing the M.2 2280 PCIe solid state drive

Steps

1. Remove the screw (M2x3.5) that secures the solid state drive to the system board.
2. Slide and lift the solid state drive off the system board.

Installing the M.2 2280 PCIe solid state drive

Prerequisites

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

About this task

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

NOTE: For computers shipped with 360 W power-supply unit, SSD2 must be installed with a front chassis fan. Customers must call Dell sales to purchase the SSD CUS kit and additional front chassis fan. Follow the procedures for installing front chassis fan.

NOTE: Solid state drive installation on slot-1 requires a thermal heat sink to be installed.

NOTE: Follow the below procedures for installing solid state drive on SSD-2 and SSD-3 slots.

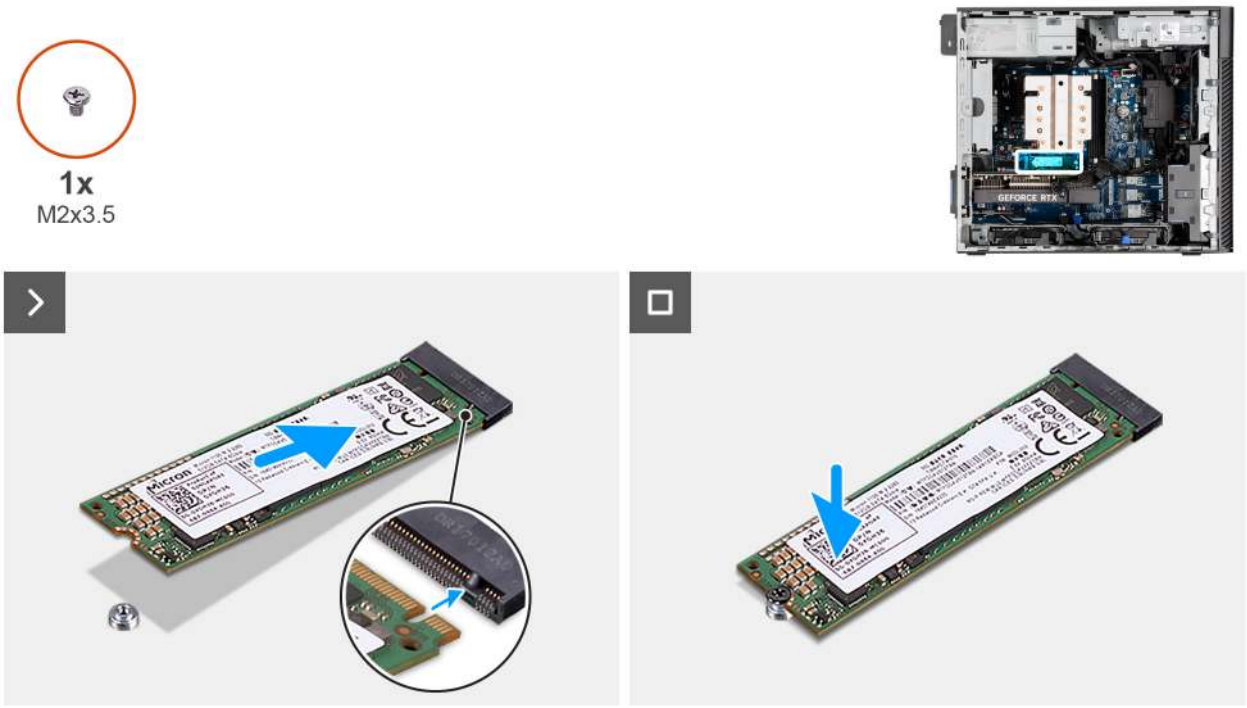


Figure 34. Installing the M.2 2280 PCIe solid state drive

Steps

1. Align the notch on the solid state drive with the tab on the solid state drive connector.
2. Insert the solid state drive into the slot on the system board.

   NOTE: When replacing a M.2 2230 solid state drive with a M.2 2280 solid state drive, ensure to move the standoff nut to the M.2 2280 solid state drive slot position.

3. Replace the screw (M2x3.5) to secure the M.2 2280 solid state drive to the system board.

   NOTE: Repeat the above procedure for installing the other solid state drives.

Next steps

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

GPU end holder

Removing GPU end holder

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

NOTE: For computers with 1500 W PSU only.

NOTE: The GPU end holder is an optional component that comes with certain discrete GPU configurations. It does not come with integrated GPU configurations.

About this task

The following images indicate the location of the GPU end holder and provide a visual representation of the removal procedure.

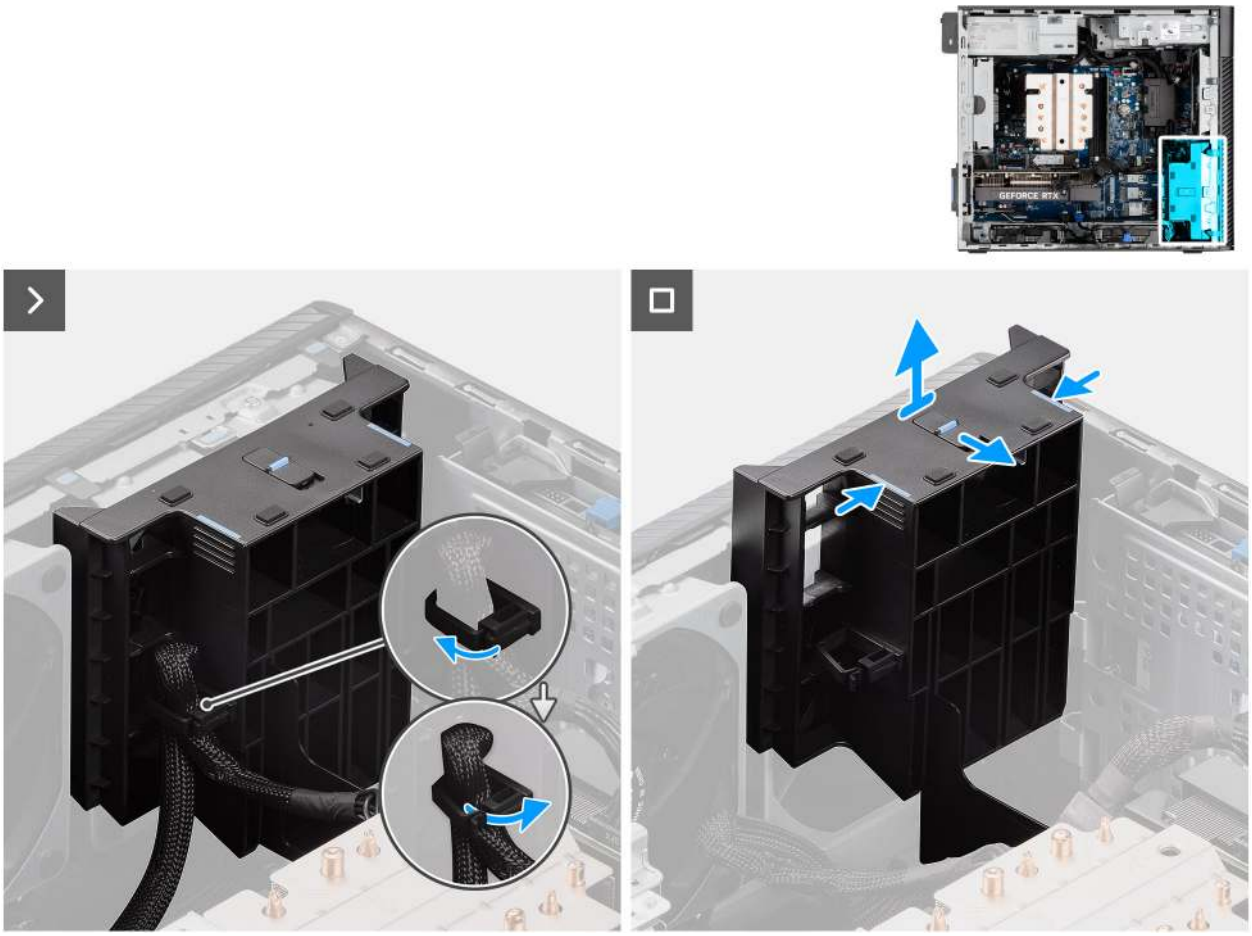


Figure 35. Removing the GPU end holder

Steps

1. Unroute the graphics card power cable from the retention clip on the GPU end holder.
2. Slide the latch to unlock position on the GPU end holder.
3. Press the retention tabs on both sides of the GPU end holder to release it.
4. Lift and remove the GPU end holder from the computer.

Installing the GPU end holder

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 GPU end holder and provide a visual representation of the installation procedure.

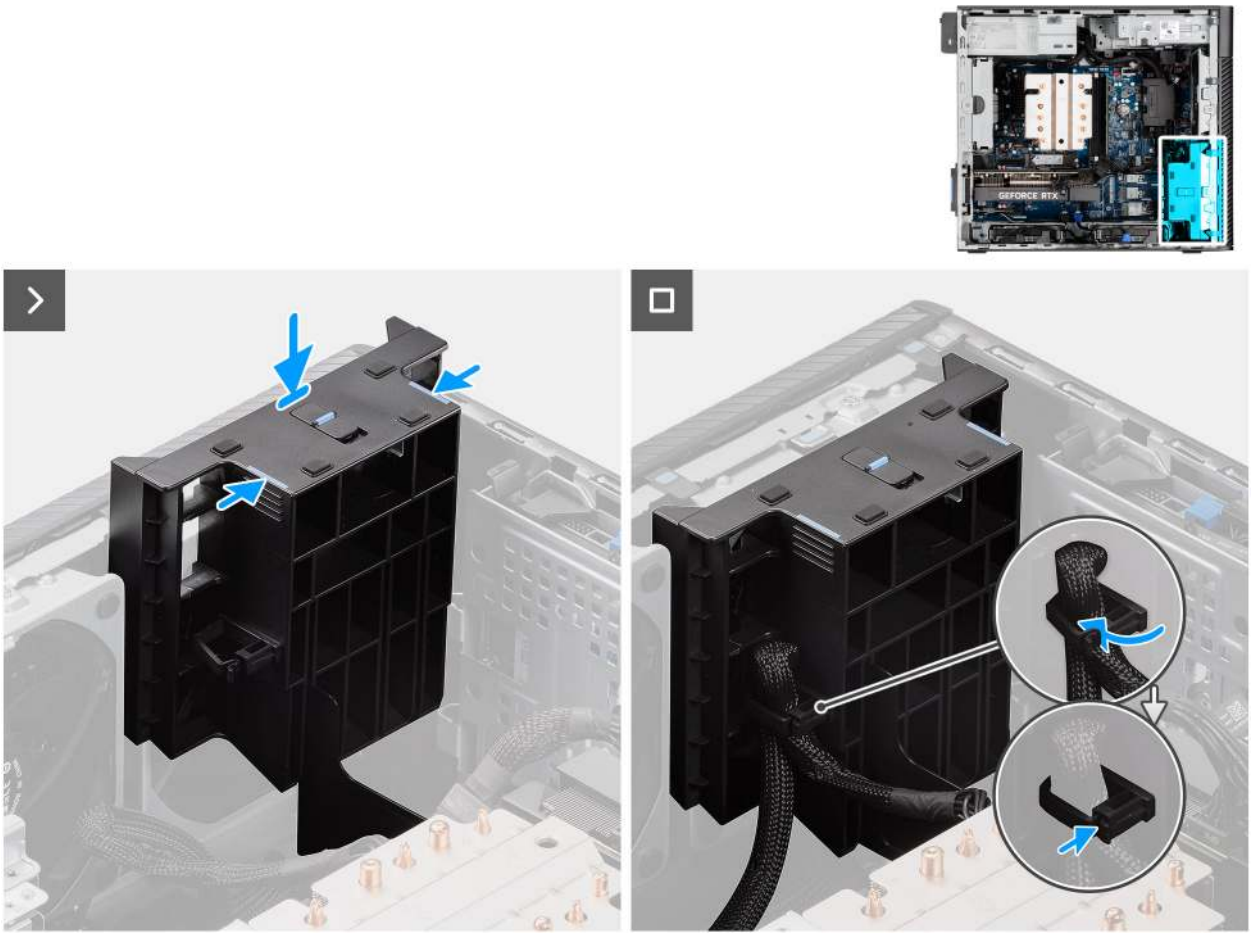


Figure 36. Installing the GPU end holder

Steps

1. Position the GPU end holder to align it with the slots on the computer chassis.
2. Press the GPU end holder down until it secures into place.
3. Slide the latch to lock position on the GPU end holder.
4. Route the graphics card power cable through the retention clip on the GPU end holder.
5. Press and lock the retention clip to secure the graphics card power cable.

Next steps

1. Install the air shroud.

   NOTE: For computers with 1500 W PSU only.

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

Graphics card

Removing the graphics card

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 graphics card and provide a visual representation of the removal procedure.



Figure 37. Removing the graphics card

Steps

1. Press the pull tab down to open the PCIe door.
2. Remove the screw (M3x5) that secures the graphics card to the PCIe slot.
3. Push and hold the securing tab on the graphics-card slot and lift the graphics card from the graphics-card slot.
4. Insert the blank filler.
5. Lift the pull tab to close the PCIe door.

Installing the graphics card

Prerequisites

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

About this task

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



Figure 38. Installing the graphics card

Steps

1. Press the pull tab down to open the PCIe door.
2. Remove the blank filler.
3. Align the graphics card with the PCI-express card connector on the system board.
4. Using the alignment post, connect the graphics card to the connector and press down firmly. Ensure that the card is firmly seated.
5. Replace the screw (M3x5) to secure the graphics card to the PCIe slot.
6. Lift the pull tab to close the PCIe door.

Next steps

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

Removing the powered graphics card

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the GPU end holder

About this task

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



Figure 39. Removing the powered graphics card

Steps

1. Press the pull tab down to open the PCIe door.
2. Disconnect the power cable from the connector on the powered graphics card.
3. Remove the screw (M3x5) that secures the graphics card to the PCIe slot.

4. Push and hold the securing tab on the graphics-card slot and lift the powered graphics card from the graphics-card slot.
5. Lift the pull tab to close the PCIe door.

Installing the powered graphics card

Prerequisites

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

About this task

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



Figure 40. Installing the powered graphics card

Steps

1. Align the graphics card with the PCI-express card connector on the system board.

2. Using the alignment post, connect the graphics card to the connector and press down firmly. Ensure that the card is firmly seated.
3. Replace the screw (M3x5) to secure the graphics card to the PCIe slot.
4. Connect the power cable to the connector on the powered graphics card.
5. Lift the pull tab to close the PCIe door.

Next steps

1. Install the GPU end holder
2. Install the side cover.
3. Follow the procedure in after working inside your computer.

Wireless card

Removing the wireless card

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

NOTE: For computers with 1500 W PSU only.

About this task

The following image indicates the location of the wireless card and provides a visual representation of the removal procedure.

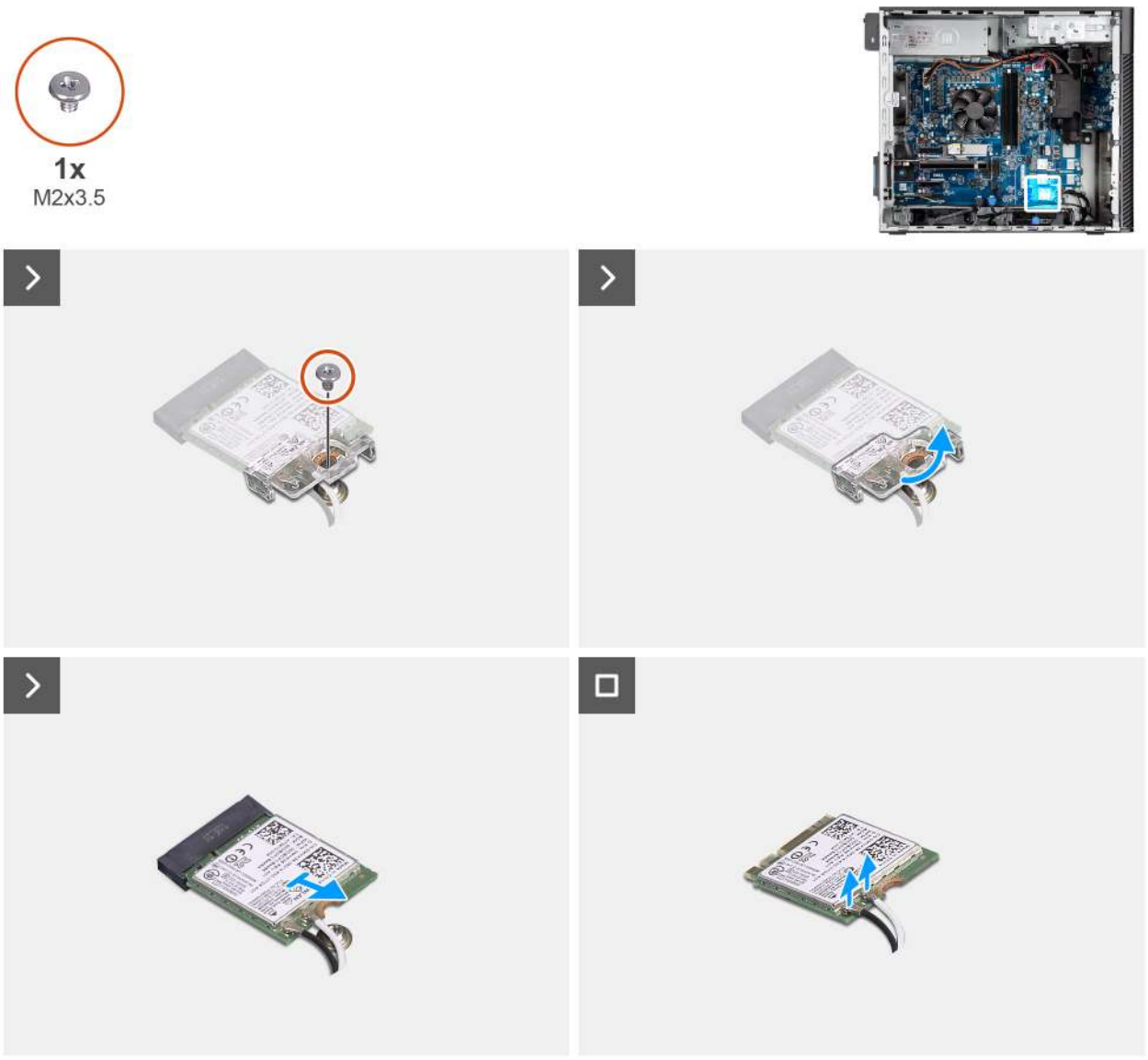


Figure 41. Removing the wireless card

Steps

1. Remove the screw (M2x3.5) that secures the wireless card to the system board.
2. Slide and 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 at an angle 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 indicates the location of the wireless card and provides a visual representation of the installation procedure.

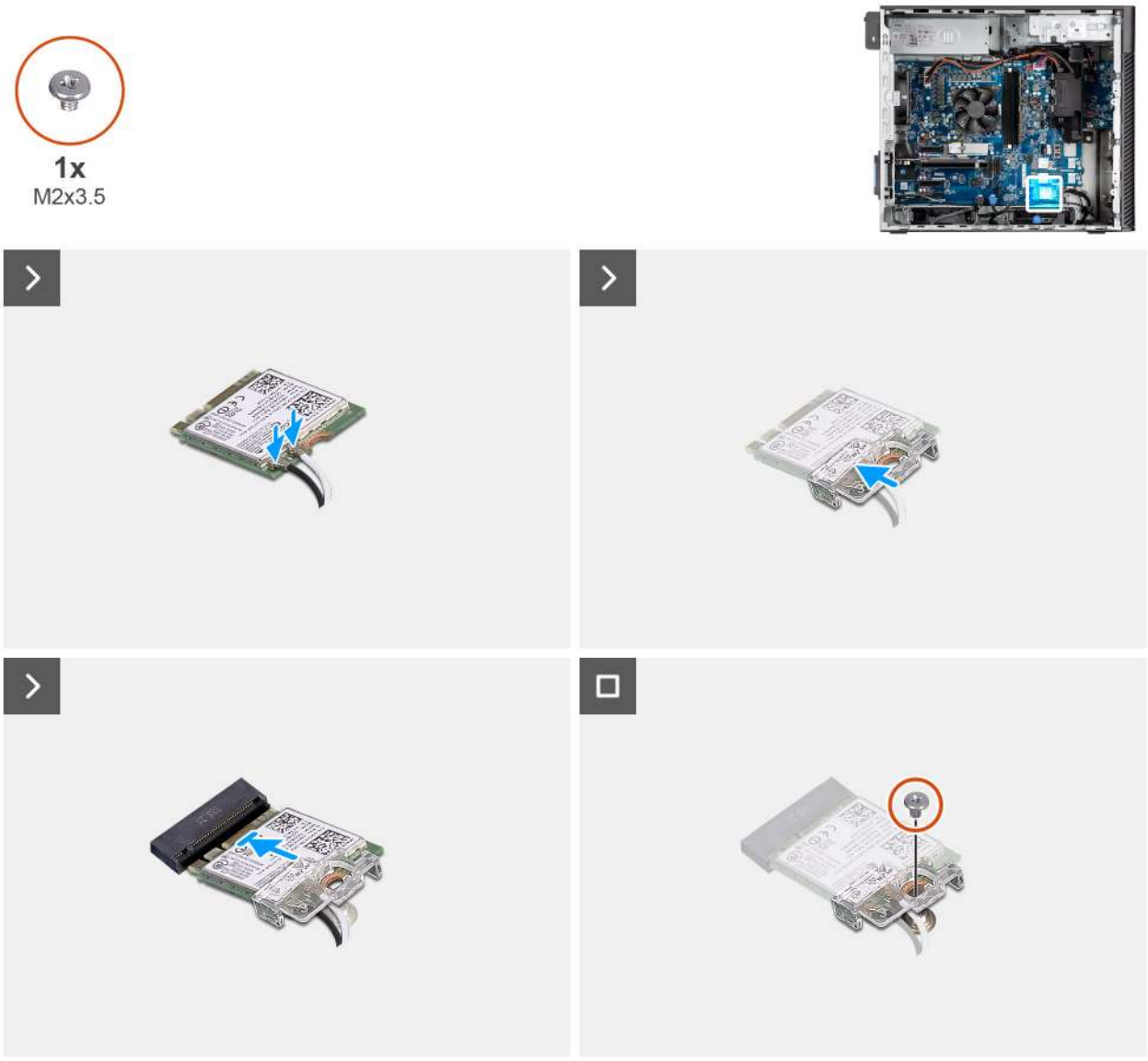


Figure 42. Installing the wireless card

Steps

1. Connect the antenna cables to the wireless card.

Table 24. Antenna-cable color scheme

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

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

Next steps

1. Install the air shroud.

NOTE: For computers with 1500 W PSU only.

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

Intrusion switch

Removing the intrusion switch

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

NOTE: For computers with 1500 W PSU only.

About this task

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



Figure 43. Removing the intrusion switch

Steps

1. Disconnect the intruder switch cable from the connector on the system board and unroute the cable from the routing guide.
2. Slide and remove the intrusion switch from the chassis.

Installing the intrusion switch

Prerequisites

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

About this task

The following image indicates the location of the intrusion switch and provides a visual representation of the installation procedure.



Figure 44. Installing the intrusion switch

Steps

1. Insert the intrusion switch into its slot and slide the switch to secure it into the slot.
2. Route the intruder switch cable through the routing guide and connect the intruder cable to the connector on the system board.

Next steps

1. Install the air shroud.

   NOTE: For computers with 1500 W PSU only.

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

Fan

Removing the front fan

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

NOTE: For computers with 1500 W PSU only.

About this task

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

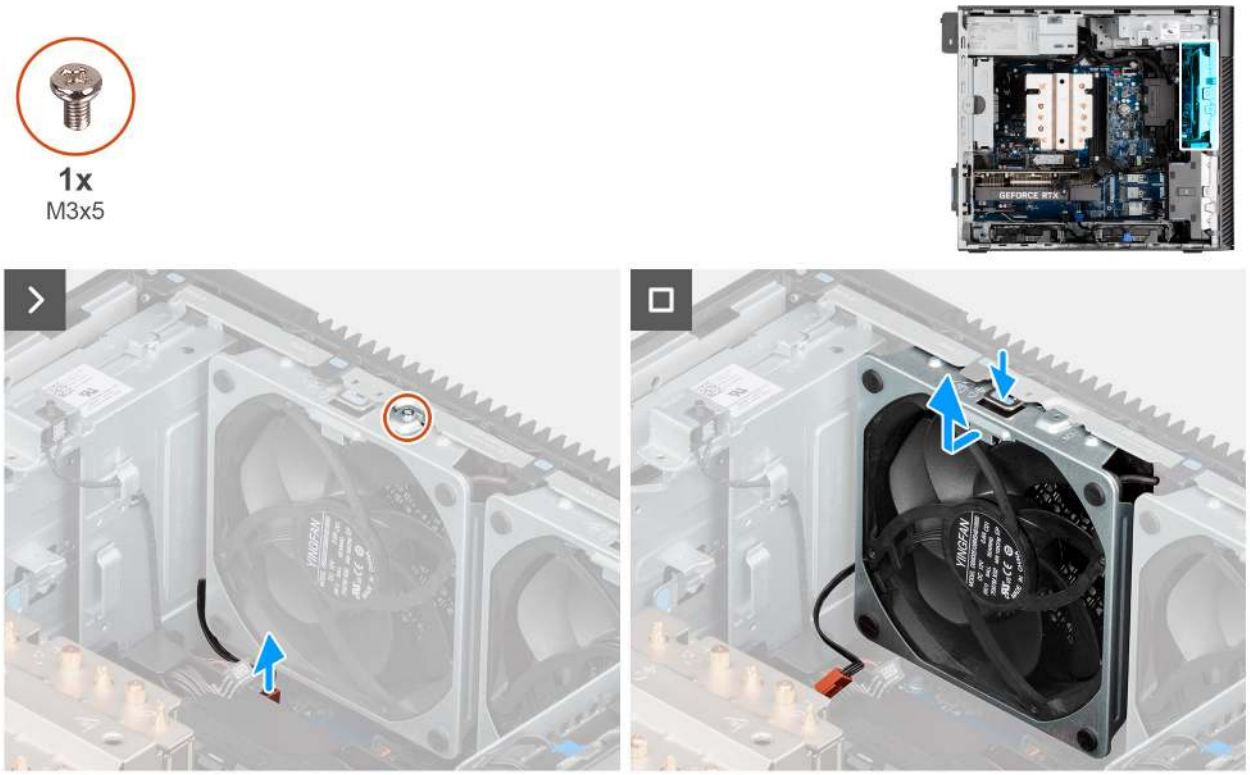


Figure 45. Front fan 1



Figure 46. Front fan 2

Steps

1. Remove the screw (M3x5) that secures the fan 1 to the chassis.
2. Disconnect the fan cable from the connector on the system board.
3. Press the tab to release the chassis fan from the slot.
4. At an angle, lift the chassis fan and remove it from the chassis.

NOTE: Follow the procedure from step 1 to 4 for fan 2.

Installing the front fan

Prerequisites

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

About this task

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



Figure 47. Front fan 1



Figure 48. Front fan 2

Steps

1. Align the tabs on the fan with the slots on the chassis.
2. Insert the chassis fan at an angle into the slot in the chassis.

3. Press the chassis fan into the slot until the release tab locks into place.
4. Connect the fan cable to the connector on the system board.
5. Replace the screw (M3x5) to secure the fan 1 to the chassis.

NOTE: Follow the procedure from step 1 to 5 for fan 2.

Next steps

1. Install the air shroud.

NOTE: For computers with 1500 W PSU only.

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

Removing the rear fan for 360 W PSU computers

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 rear fan and provide a visual representation of the removal procedure.



Figure 49. Removing the rear fan for 360 W PSU computers

Steps

1. Disconnect the fan cable from the connector on the system board.
2. Locate the position of rubber grommets.
3. Gently pull the rubber grommets to release the fan from the chassis.
4. Remove the fan from the chassis.

Installing the rear fan for 360 W PSU computers

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



Figure 50. Installing the rear fan for 360 W PSU computers

Steps

1. Insert the rubber grommets on the chassis.
2. Align the slots on the fan with the rubber grommets on the chassis.
3. Route the rubber grommets through the slots on the fan and pull the rubber grommets until the fan snaps into position.
4. Connect the fan cable to the connector on the system board.

Next steps

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

Removing the rear fan for 1500 W PSU computers

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

NOTE: For computers with 1500 W PSU only.

About this task

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

Figure 51. Removing the rear fan for 1500 W PSU computers

Steps

1. Remove the (M3x5) screw that secures the computer fan to the chassis.
2. Disconnect the fan cable from the connector on the system board.
3. Remove the fan from the chassis.

Installing the rear fan for 1500 W PSU computers

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

Figure 52. Installing the rear fan for 1500 W PSU computers

Steps

1. Align and place the fan into the chassis.
2. Connect the fan cable to the connector on the system board.
3. Replace the (M3x5) screw to secure the fan to the chassis.

Next steps

1. Install the air shroud.

   NOTE: For computers with 1500 W PSU only.

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

Power-supply unit

Removing the 1500 W power-supply unit

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.
4. Remove the 125 W heat-sink assembly or 65 W heat-sink assembly.

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

About this task

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

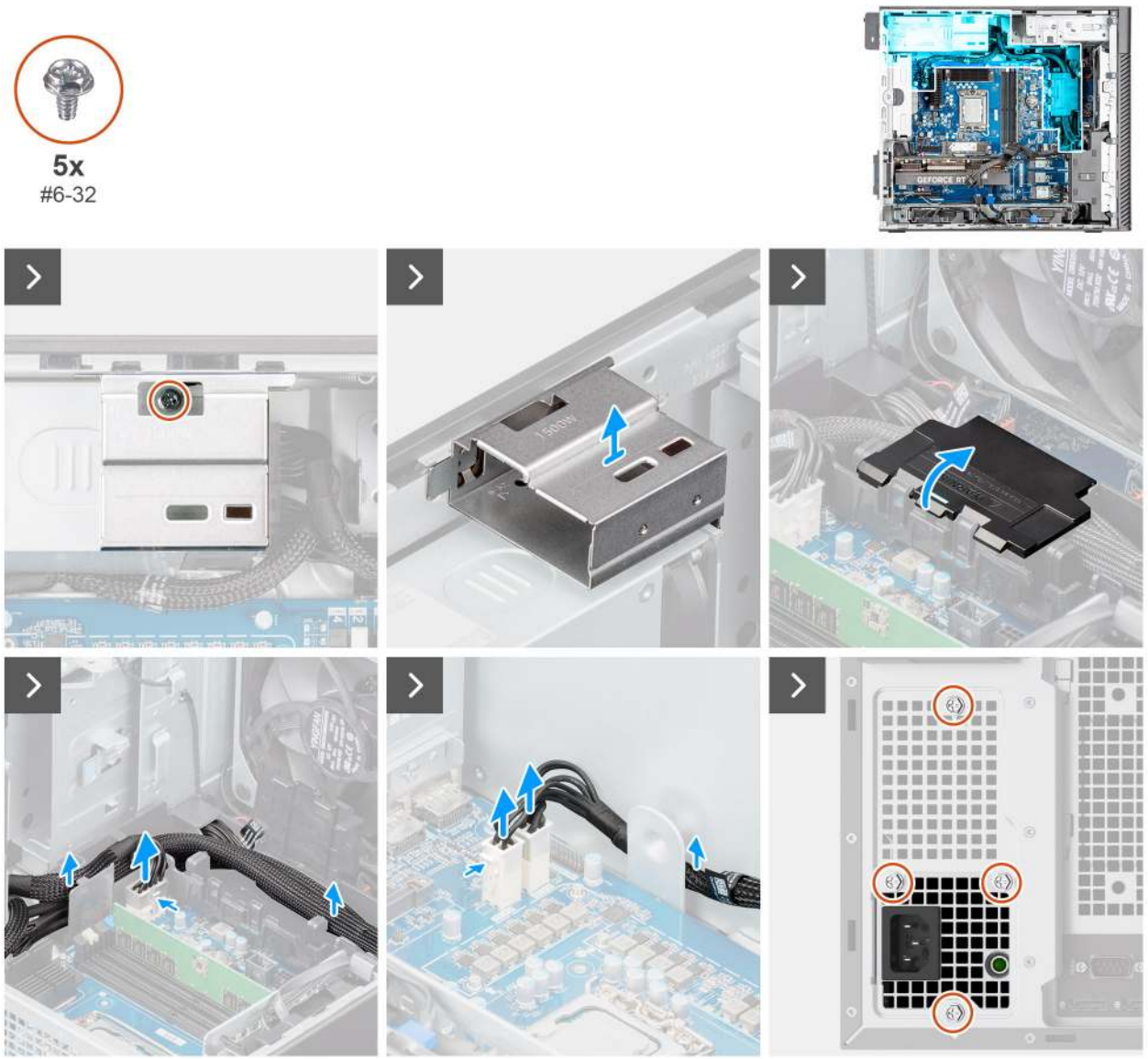


Figure 53. Removing the 1500 W power-supply unit

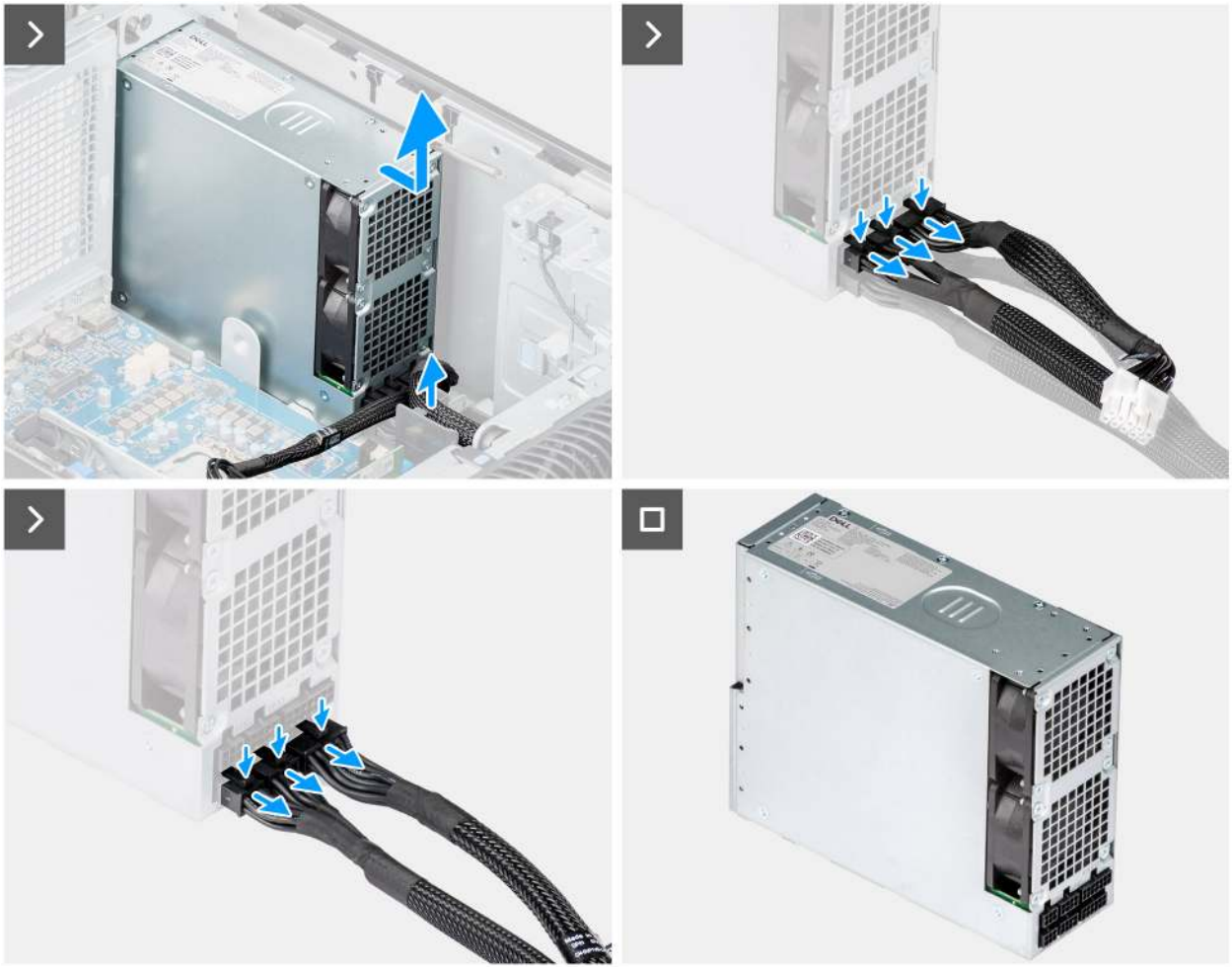


Figure 54. Removing the 1500 W power-supply unit

Steps

1. Remove the screw (#6-32) that secure the power-supply cover to the power-supply unit.
2. Lift the power-supply cover from the chassis.
3. Open the cover of the cable box and carefully unroute the power cables from both the cable box and the routing guides on the chassis.
4. Disconnect the power cables from the connectors on the system board.
5. Remove the four screws (#6x32) that secure the power-supply unit to the chassis.
6. Slide the power-supply unit away from the back of the chassis.
7. Lift the power-supply unit off the chassis.
8. Press down on the release tabs on the power cables and disconnect the power cables from the connector on the power-supply unit.

Installing the 1500 W power-supply unit

Prerequisites

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

About this task

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



Figure 55. Installing the 1500 W power-supply unit



Figure 56. Installing the 1500 W power-supply unit

Steps

1. Connect the power cables to the connectors on the power-supply unit.
2. Slide the power-supply unit into the chassis until the securing tab snaps into position.
3. Replace the four screws (#6x32) to secure the power-supply unit to the chassis.
4. Route the power cable through the cable box and routing guides on the chassis.
5. Connect the power cables to the connectors on the system board and close the cable-box cover.
6. Align and place the power-supply cover in the slot on the chassis.
7. Replace the screw (#6-32) to secure the power-supply cover to the power-supply unit.

Next steps

1. Install the 125 W heat-sink assembly or 65 W heat-sink assembly.
2. Install the air shroud
3. Install the side cover.
4. Follow the procedure in after working inside your computer.

Removing the 360 W power-supply unit

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the 125 W heat-sink assembly or 65 W heat-sink assembly.

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

About this task

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



Figure 57. Removing the 360 W power-supply unit

Steps

1. Open the cover of the cable box and carefully unroute the power cables from both the cable box and the routing guides on the chassis.
2. Disconnect the power cables from the connectors on the system board.
3. Remove the three screws (#6x32) that secure the power-supply unit to the chassis.
4. Slide the power-supply unit away from the back of the chassis.
5. Lift the power-supply unit off the chassis.

Installing the 360 W power-supply unit

Prerequisites

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

About this task

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



Figure 58. Installing the 360 W power-supply unit

Steps

1. Slide the power-supply unit into the chassis until the securing tab snaps into position.
2. Connect the power cables to the connectors on the power-supply unit.
3. Replace the three screws (#6x32) to secure the power-supply unit to the chassis.
4. Route the power cable through the cable box and routing guides on the chassis.
5. Connect the power cables to the connectors on the system board and close the cable-box cover.

Next steps

1. Install the 125 W heat-sink assembly or 65 W heat-sink assembly.
2. Install the side cover.
3. Follow the procedure in after working inside your computer.

9

Removing and installing Field Replaceable Units (FRUs)

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

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

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

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

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

Processor fan and heat-sink assembly

Removing the processor fan and 125 W heat-sink assembly

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

Prerequisites

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

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

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

2. Remove the side cover.
3. Remove the air shroud.

   NOTE: For computers with 1500 W PSU only.

About this task

The following images indicate the location of the processor fan and 125 W heat-sink assembly and provide a visual representation of the removal procedure.

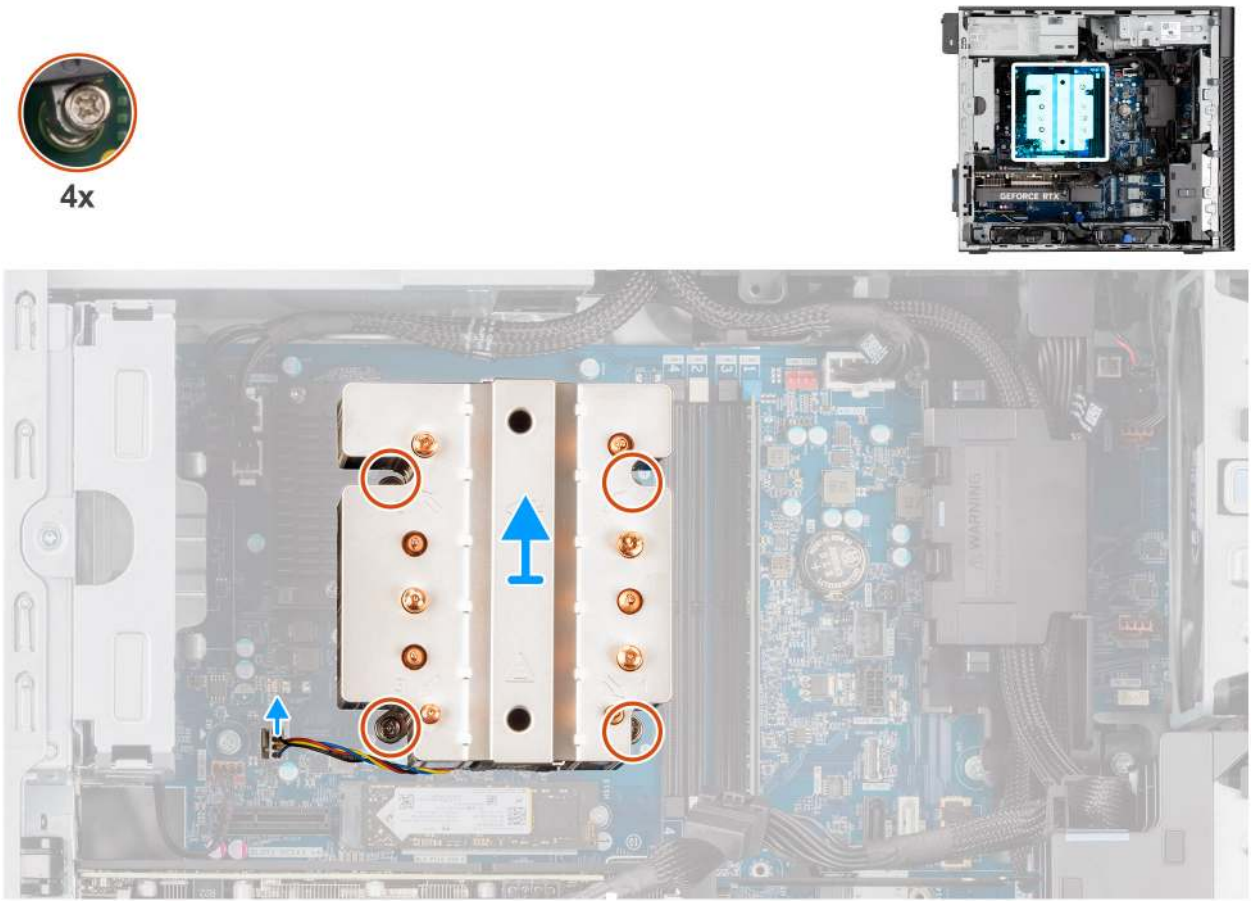


Figure 59. Removing the processor fan and 125 W heat-sink assembly

Steps

1. Disconnect the processor-fan cable from the connector on the system board.
2. In the reverse sequential order (4->3->2->1), loosen the four captive screws that secure the processor fan and heat-sink assembly to the system board.
3. Lift the processor fan and heat-sink assembly from the system board.

Installing the processor fan and 125 W heat-sink assembly

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

Prerequisites

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

NOTE: If you replace the processor or heat sink, use the provided thermal grease to ensure proper thermal conductivity.

About this task

The following images indicate the location of the processor fan and 125 W heat-sink and provide a visual representation of the installation procedure.

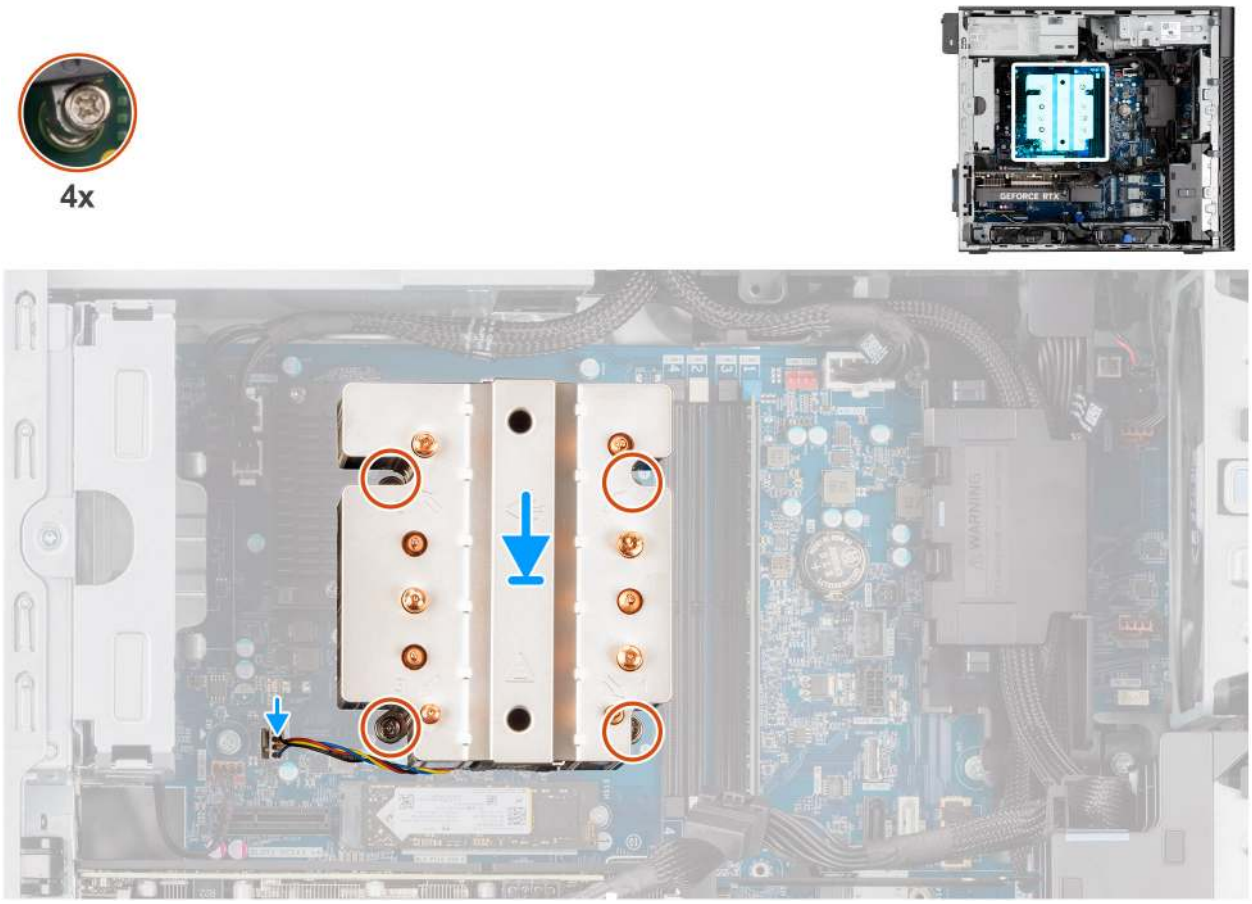


Figure 60. Installing the processor fan and 125 W heat-sink assembly

Steps

1. Align the screws on the processor fan and heat-sink assembly with the screw holders on the system board, then place the assembly on the processor.

   NOTE: Ensure that the triangle mark is directed towards the rear side of the computer.

2. In the sequential order (1->2->3->4), tighten the captive screws to secure the processor fan and heat-sink assembly to the system board.

   NOTE: Tighten the screws in a sequential order (1,2,3,4) as printed on the system board.

3. Connect the processor-fan cable to the connector on the system board.

   NOTE: Ensure to connect the cable to the corresponding connector with the same color on the system board.

Next steps

1. Install the air shroud.

   NOTE: For computers with 1500 W PSU only.

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

Removing the processor fan and 65 W heat-sink assembly

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

Prerequisites

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

WARNING: The heat sink might heat up during regular operation. Allow sufficient time for the heat sink to cool before you touch it.

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

2. Remove the side cover.
3. Remove the air shroud.

NOTE: For computers with 1500 W PSU only.

About this task

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

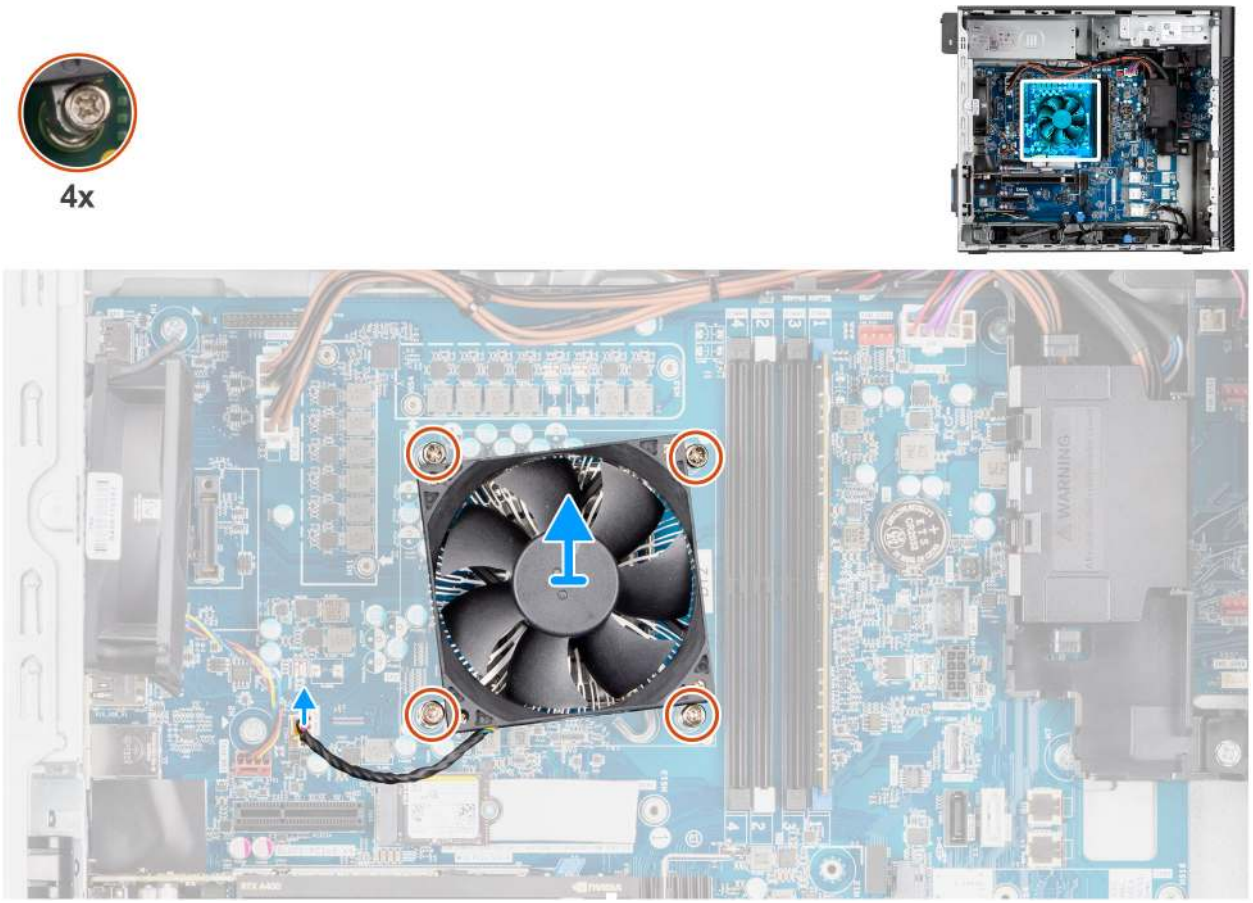


Figure 61. Removing the processor fan and 65 W heat-sink assembly

Steps

1. Disconnect the processor fan cable from the connector on the system board.
2. Loosen the four captive screws that secure the processor fan and heat-sink assembly to the system board.
3. Lift the processor fan and heat-sink assembly off the system board.

Installing the processor fan and 65 W heat-sink assembly

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

Prerequisites

NOTE: If you replace the processor or heat sink, use the provided thermal grease to ensure proper thermal conductivity.

About this task

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

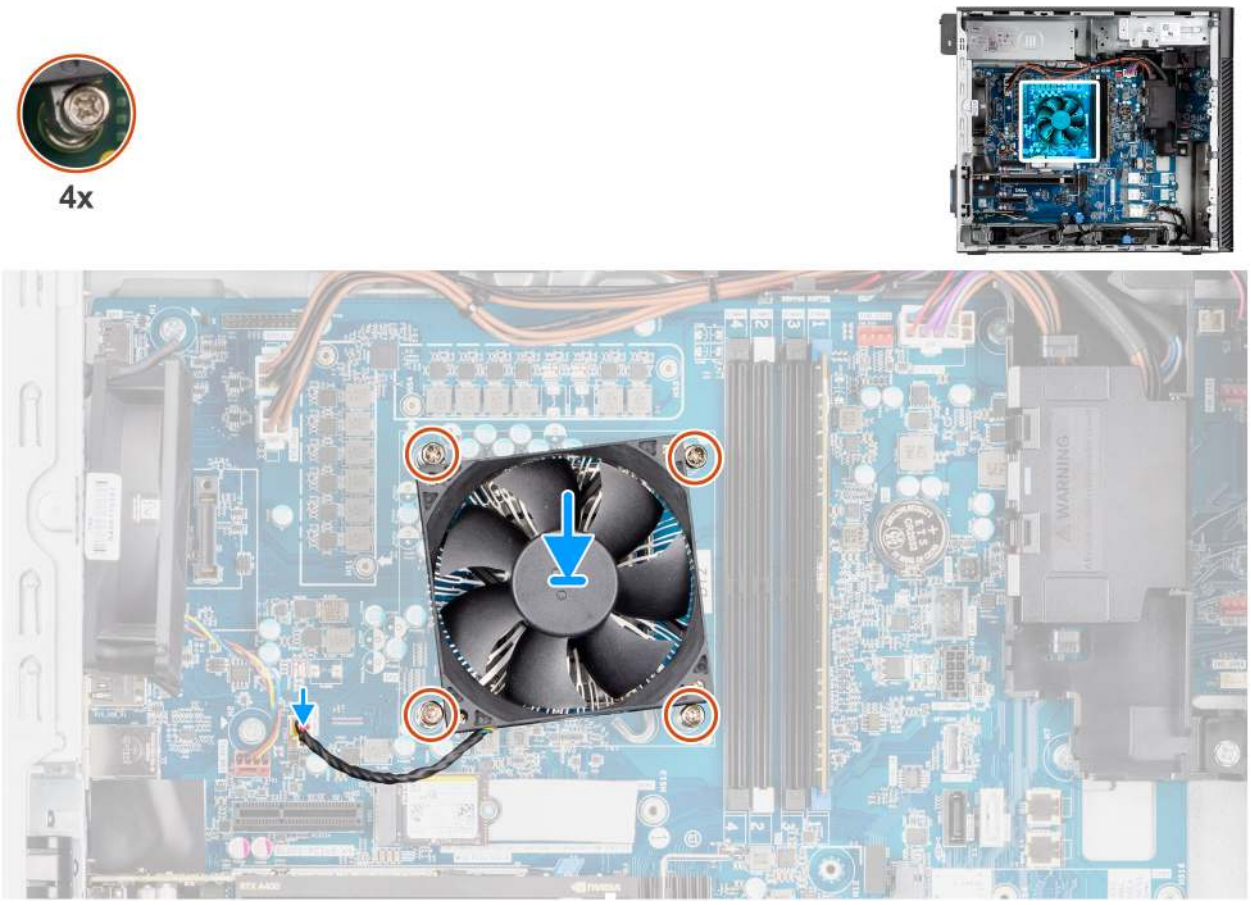


Figure 62. Installing the processor fan and 65 W heat-sink assembly

Steps

1. Align the screw holes on the processor fan and heat-sink assembly with the screw holes on the system board.
2. Tighten the four captive screws that secure the processor fan and heat-sink assembly to the system board.
3. Connect the processor-fan cable to the connector on the system board.

   NOTE: Ensure to connect the cable to the corresponding connector with the same color on the system board.

Next steps

1. Install the air shroud.

   NOTE: For computers with 1500 W PSU only.

2. Install the side cover.

3. Follow the procedure in after working inside your computer.

Processor

Removing the processor

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

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

NOTE: For computers with 1500 W PSU only.

4. Remove the 125 W heat-sink assembly or 65 W heat-sink assembly.

NOTE: The processor might still be hot after the computer is shut down. Allow the processor to cool down before removing it.

About this task

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

Figure 63. Removing the processor

Steps

1. Press down and push the release lever away from the processor to release it from the securing tab.
2. Lift the lever upward to lift 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

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

Prerequisites

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

About this task

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

Figure 64. Installing the processor

Steps

1. Ensure that the release lever on the processor socket is fully extended in the open position.
2. Align the notches on the processor with the tabs on the processor socket, and place the processor in the processor socket.

NOTE: The pin 1 corner of the processor has a triangle that aligns with the triangle on the pin 1 corner of 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 secured properly.

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

Next steps

1. Install the 125 W heat-sink assembly or 65 W heat-sink assembly.
2. Install the air shroud.

NOTE: For computers with 1500 W PSU only.

3. Install the side cover.
4. Follow the procedure in after working inside your computer.

Voltage-regulator (VR) heat sink

Removing the VR heat sink

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

Prerequisites

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

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

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

2. Remove the side cover.
3. Remove the air shroud.

NOTE: For computers with 1500 W PSU only.

4. Remove the 125 W heat-sink assembly or 65 W heat-sink assembly.

About this task

The following image indicates the location of the VR heat sink and provide a visual representation of the removal procedure.

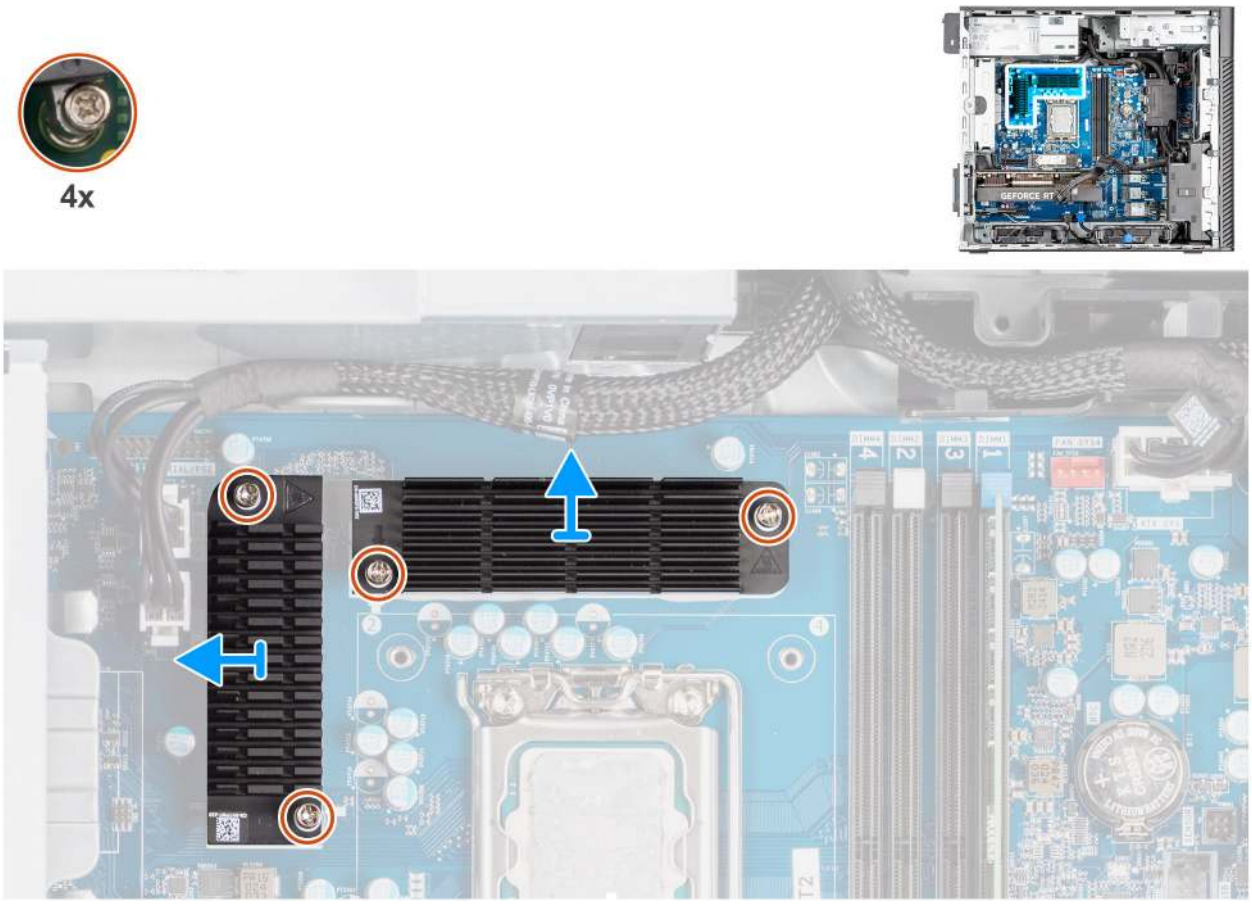


Figure 65. Removing the VR heat sink

Steps

1. Loosen the four captive screws that secure the VR heat sinks to the system board.
2. Lift the VR heat sink off the system board.

Installing the VR heat sink

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

Prerequisites

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

About this task

The following image indicates the location of the VR heat sink and provide a visual representation of the installation procedure.

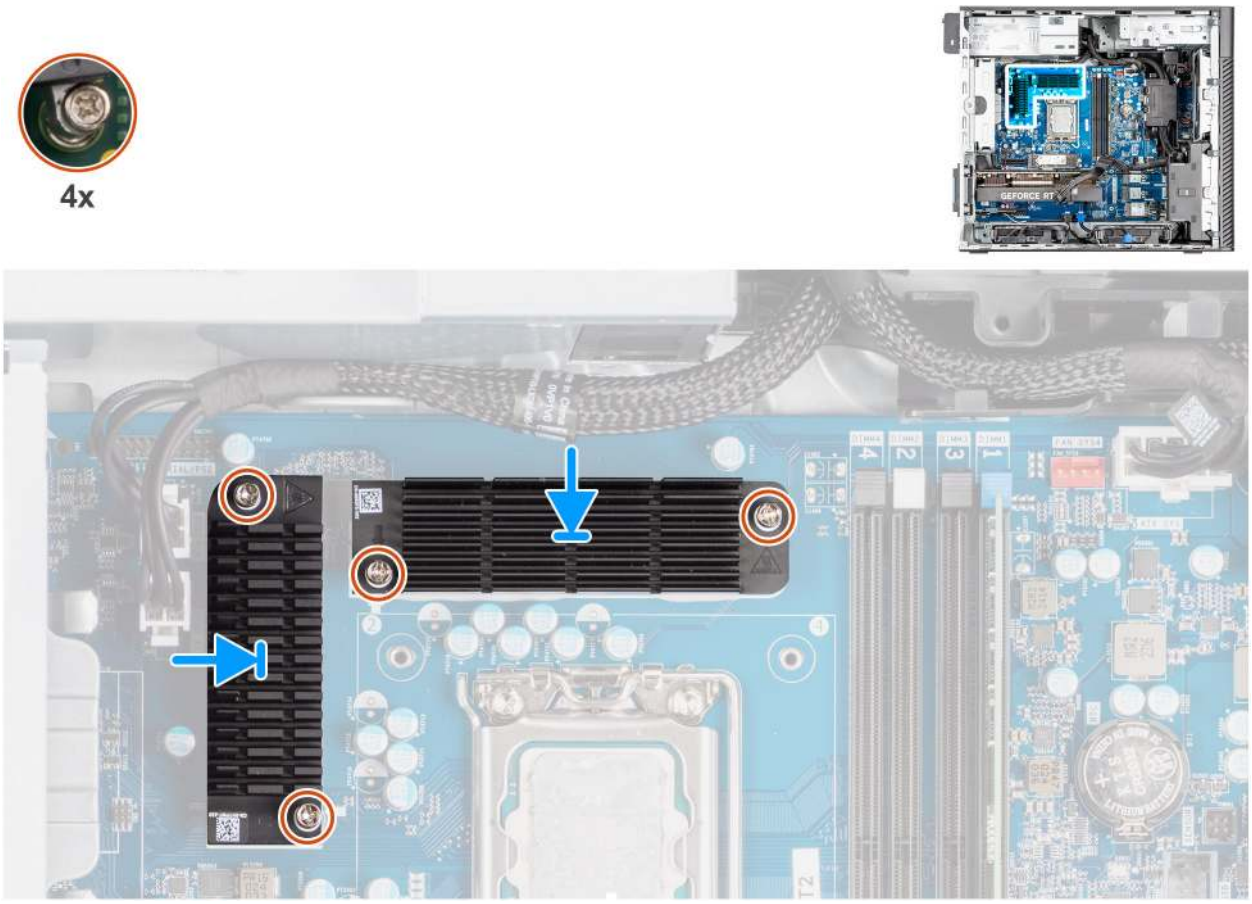


Figure 66. Installing the VR heat sink

Steps

1. Remove the liner behind the VR heat-sink modules.

   NOTE: Step 1 is only applicable for a new installation or an upgrade. For replacing an existing component, follow the procedure from step two.

2. Adhere the VR heatsinks to the system board.
3. Tighten the four captive screws that secure the VR heat sinks to the system board.

Next steps

1. Install the 125 W heat-sink assembly or 65 W heat-sink assembly.
2. Install the air shroud.

   NOTE: For computers with 1500 W PSU only.

3. Install the side cover.
4. Follow the procedure in after working inside your computer.

External port (optional module)

NOTE: For more information about the ports supported by the external port (optional module slot), see Specifications.

Removing the optional DisplayPort module

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

   NOTE: For computers with 1500 W PSU only.

4. Remove the fan.
5. Remove the 125 W heat sink. If applicable.

About this task

The following image indicates the location of the optional DisplayPort module and provides a visual representation of the removal procedure.

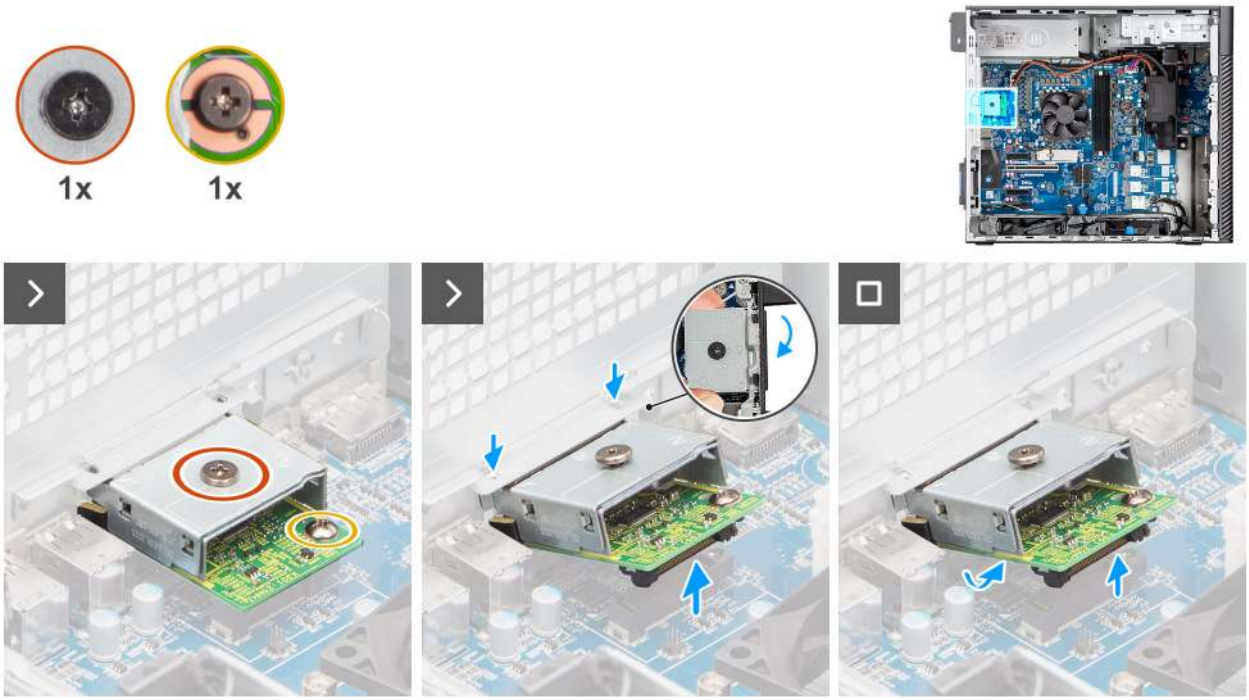


Figure 67. Removing the optional DisplayPort module

Steps

1. Remove the screw (M2x4) that secures the optional DisplayPort cover to the optional DisplayPort module.
2. Remove the screw (M2x4) that secures the optional DisplayPort module to the system board.
3. Lift the optional DisplayPort module at an angle and remove the tabs on the optional DisplayPort module from the slots on the chassis.
4. Remove the optional DisplayPort module off the system board.

Installing the optional DisplayPort module

Prerequisites

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

About this task

NOTE: The optional-port modules are mutually exclusive; only a single module can be installed at a time.

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

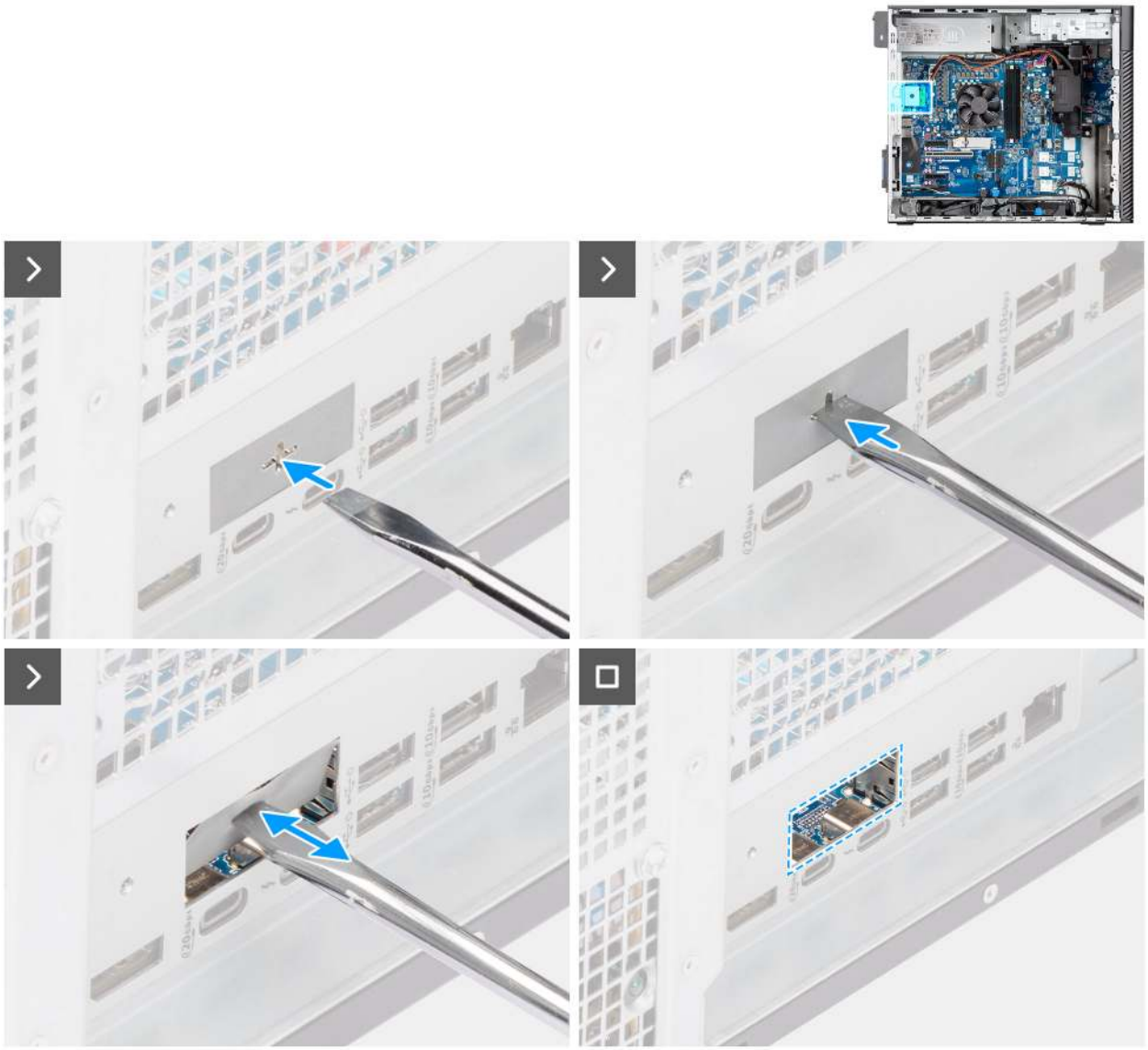


Figure 68. Installing the optional DisplayPort module

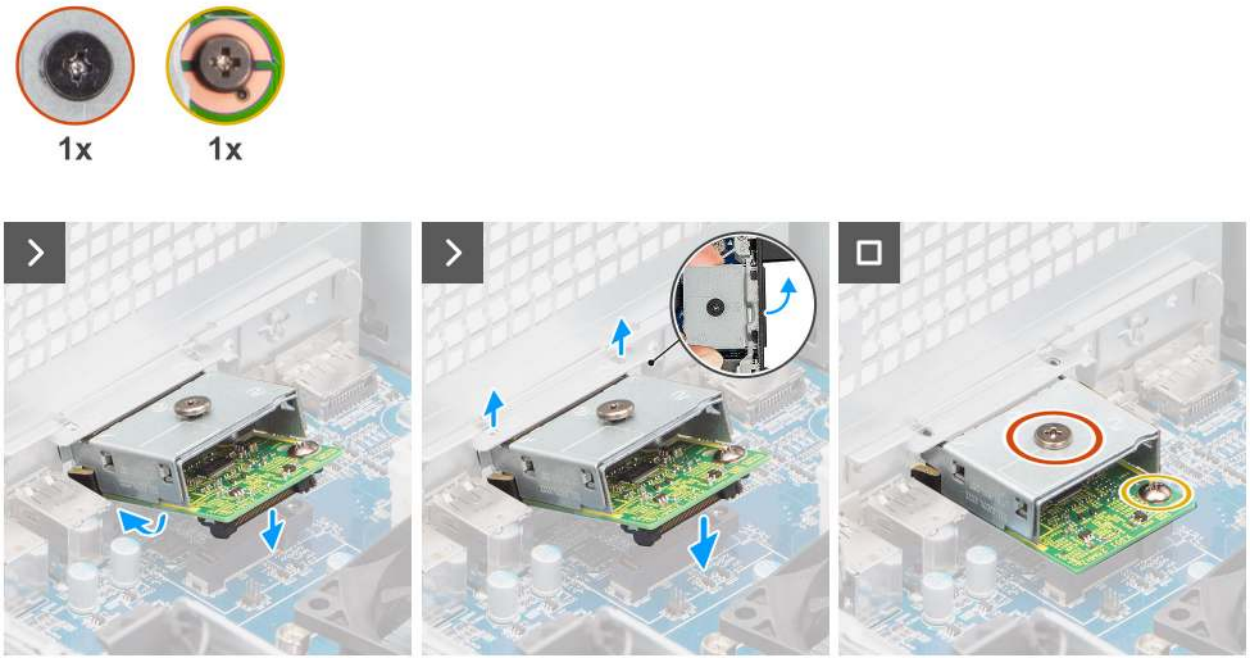


Figure 69. Installing the optional DisplayPort module

Steps

1. Using a screw driver, push against the optional-port cover until it comes off.

   NOTE: This step is only applicable if you are installing the optional-port module on a computer that did not previously have it installed.

2. Place the optional DisplayPort module at an angle and align the tabs on the module to the slots on the chassis.
3. Align the optional DisplayPort module to the slot on the chassis and connect the module to the connector on the system board (OPTION).
4. Replace the screw (M2x4) that secures the optional DisplayPort module to the system board.
5. Align the screw on the optional DisplayPort cover to the screw hole on the optional DisplayPort module.
6. Replace the screw (M2x4) that secures the optional DisplayPort cover to the optional DisplayPort module.

Next steps

1. Install the 125 W heat sink. If applicable.
2. Install the fan.
3. Install the air shroud.

   NOTE: For computers with 1500 W PSU only.

4. Install the side cover.
5. Follow the procedure in after working inside your computer.

Removing the optional HDMI module

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

   NOTE: For computers with 1500 W PSU only.

4. Remove the fan.
5. Remove the 125 W heat sink. If applicable.

About this task

The following image indicates the location of the optional HDMI module and provides a visual representation of the removal procedure.



Figure 70. Removing the optional HDMI module

Steps

1. Remove the screw (M2x4) that secures the optional HDMI cover to the optional HDMI module.
2. Remove the screw (M2x4) that secures the optional HDMI module to the system board.
3. Lift the optional HDMI module at an angle and remove the tabs on the optional HDMI module from the slots on the chassis.
4. Remove the optional HDMI module off the system board.

Installing the optional HDMI module

Prerequisites

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

About this task

NOTE: The optional-port modules are mutually exclusive; only a single module can be installed at a time.

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

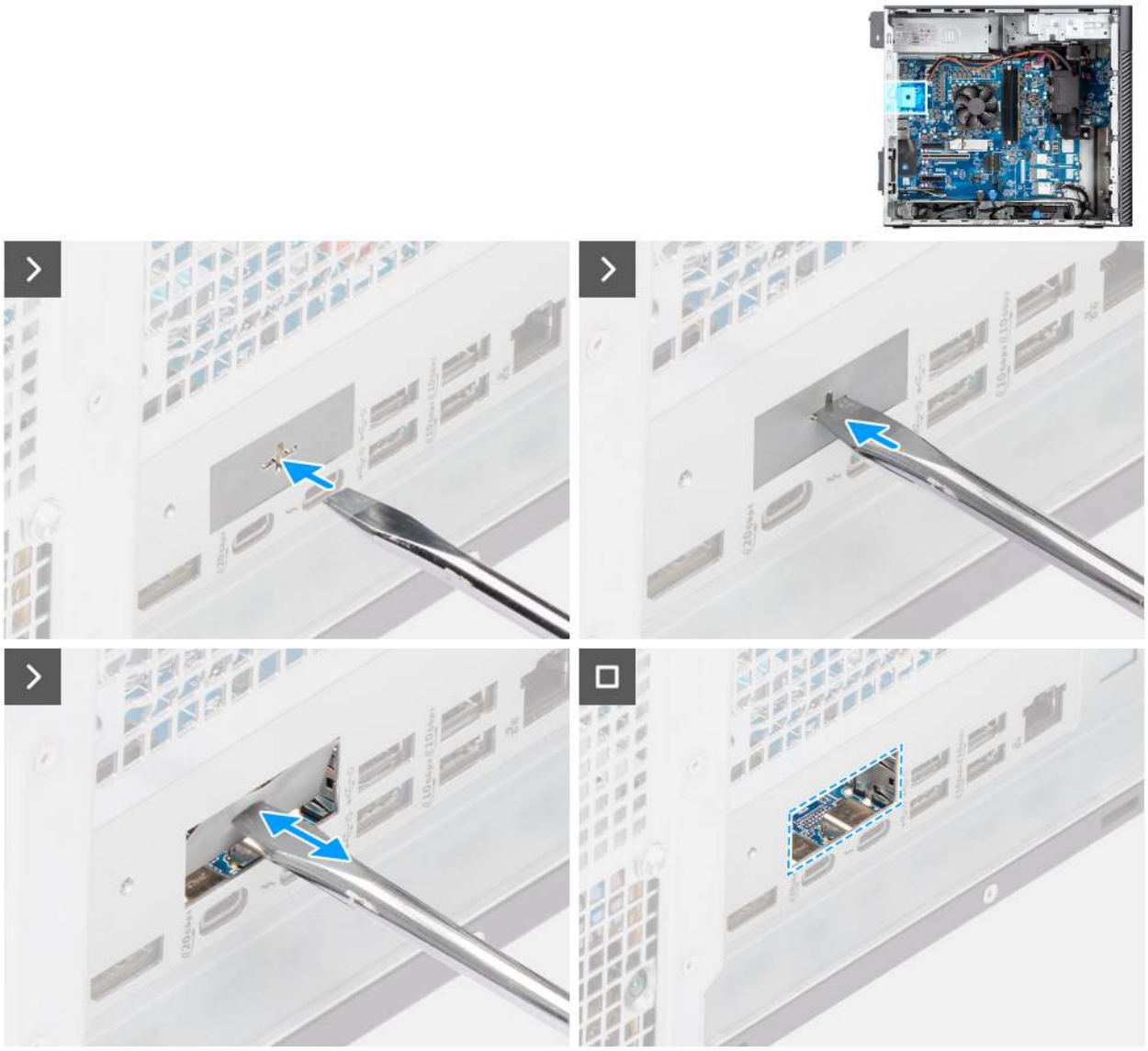


Figure 71. Installing the optional HDMI module

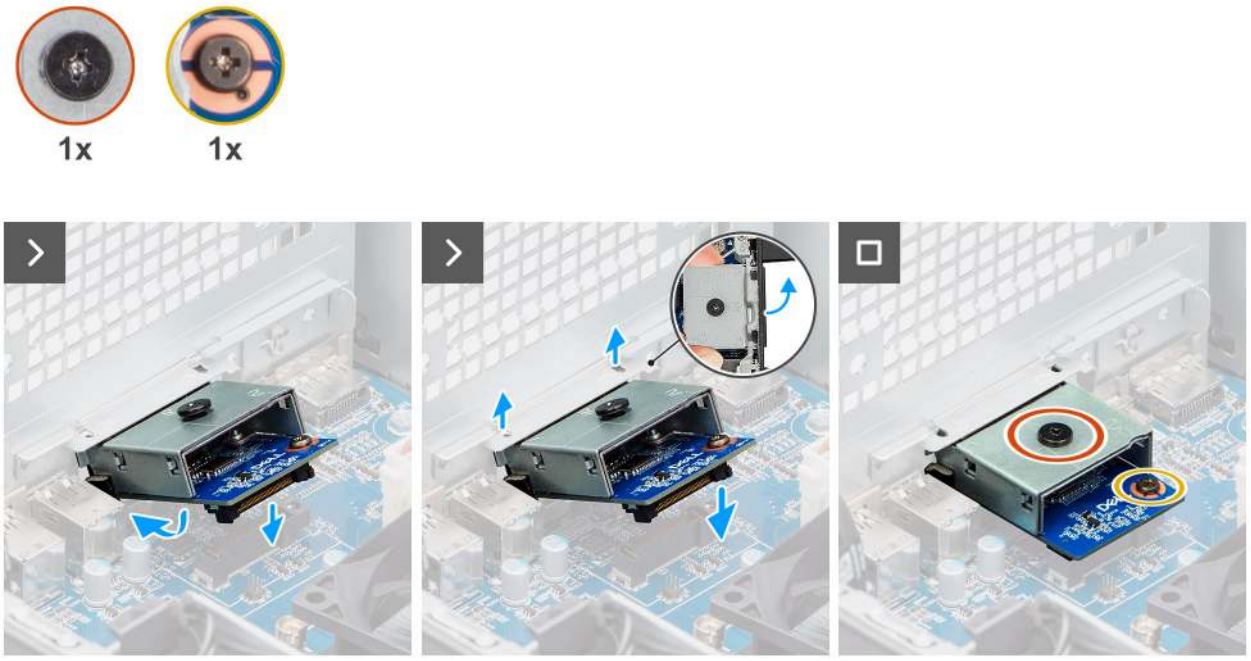


Figure 72. Installing the optional HDMI module

Steps

1. Using a screw driver, push against the optional-port cover until it comes off.

   NOTE: This step is only applicable if you are installing the optional-port module on a computer that did not previously have it installed.

2. Place the optional HDMI module at an angle and align the tabs on the module to the slots on the chassis.
3. Align the optional HDMI module to the slot on the chassis and connect the module to the connector on the system board (OPTION).
4. Replace the screw (M2x4) that secures the optional HDMI module to the system board.
5. Align the screw on the optional HDMI cover to the screw hole on the optional HDMI module.
6. Replace the screw (M2x4) that secures the optional HDMI cover to the optional HDMI module.

Next steps

1. Install the 125 W heat sink. If applicable.
2. Install the fan.
3. Install the air shroud.

   NOTE: For computers with 1500 W PSU only.

4. Install the side cover.
5. Follow the procedure in after working inside your computer.

Removing the optional 5 GbE Optical module

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

   NOTE: For computers with 1500 W PSU only.

4. Remove the fan.
5. Remove the 125 W heat sink. If applicable.

About this task

The following image indicates the location of the optional 5 GbE Optical module and provides a visual representation of the removal procedure.

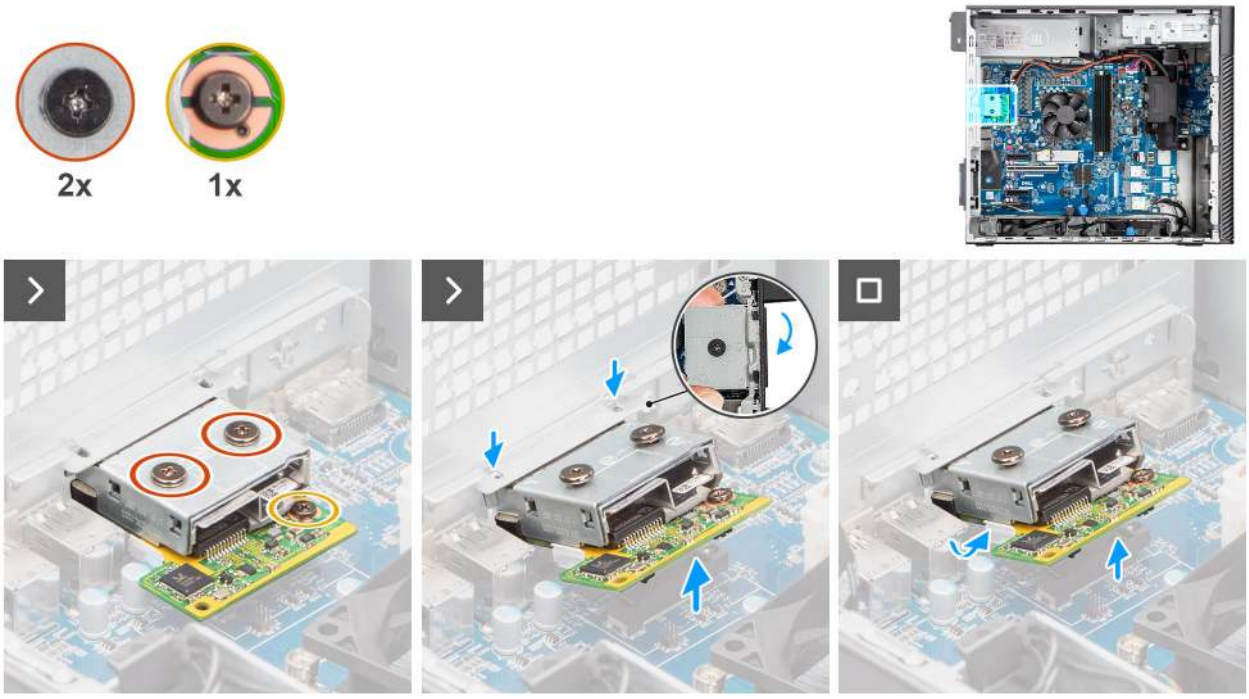


Figure 73. Removing the optional 5GbE Optical module

Steps

1. Remove the two screws (M2x4) that secure the optional 5 GbE Optical module cover to the optional 5 GbE Optical module.
2. Remove the screw (M2x4) that secures the optional 5 GbE Optical module to the system board.
3. Lift the optional 5 GbE Optical module at an angle and remove the tabs on the optional 5 GbE Optical module from the slots on the chassis.
4. Remove the optional 5 GbE Optical module off the system board.

Installing the optional 5 GbE Optical module

Prerequisites

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

About this task

NOTE: The optional-port modules are mutually exclusive; only a single module can be installed at a time.

The following images indicate the location of the optional 5 GbE Optical module and provide a visual representation of the installation procedure.

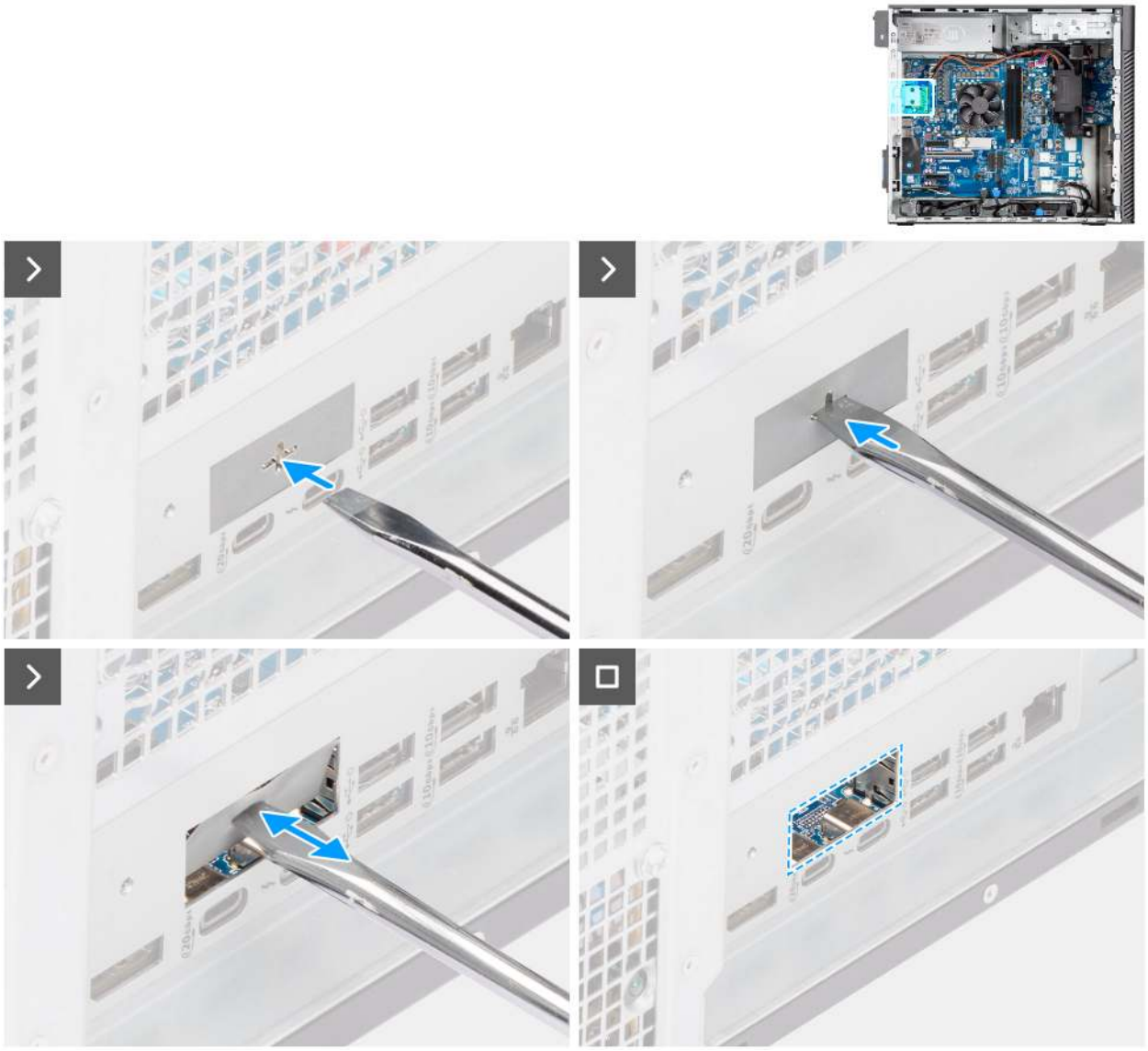


Figure 74. Installing the optional 5GbE Optical module

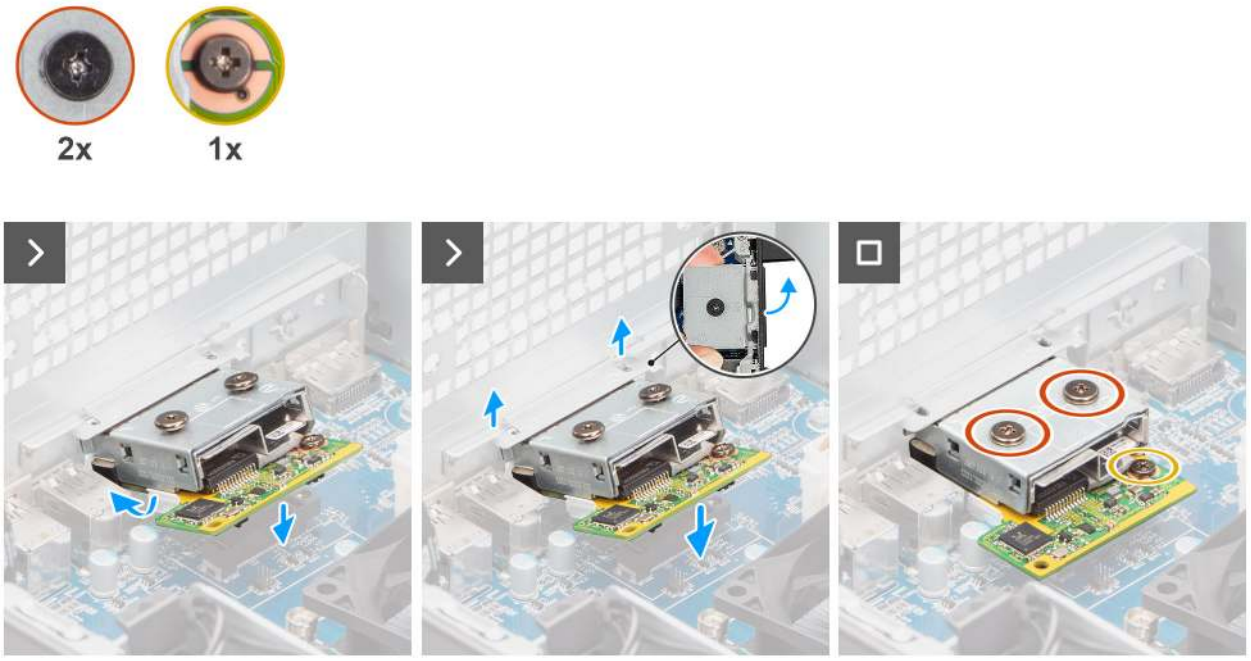


Figure 75. Installing the optional 5GbE Optical module

Steps

1. Using a screw driver, push against the optional-port cover until it comes off.

   NOTE: This step is only applicable if you are installing the optional-port module on a computer that did not previously have it installed.

2. Place the optional 5 GbE Optical module at an angle and align the tabs on the module to the slots on the chassis.
3. Align the optional 5 GbE Optical module to the slot on the chassis and connect the module to the connector on the system board (OPTION).
4. Replace the screw (M2x4) that secures the optional 5 GbE Optical module to the system board.
5. Align the screw on the optional 5 GbE Optical module cover to the screw hole on the optional 5 GbE Optical module.
6. Replace the screw (M2x4) that secures the optional 5 GbE Optical module cover to the optional 5 GbE Optical module.

Next steps

1. Install the 125 W heat sink. If applicable.
2. Install the fan.
3. Install the air shroud.

   NOTE: For computers with 1500 W PSU only.

4. Install the side cover.
5. Follow the procedure in after working inside your computer.

Removing the optional LAN module

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

   NOTE: For computers with 1500 W PSU only.

4. Remove the fan.
5. Remove the 125 W heat sink. If applicable.

About this task

The following image indicates the location of the optional LAN module and provides a visual representation of the removal procedure.

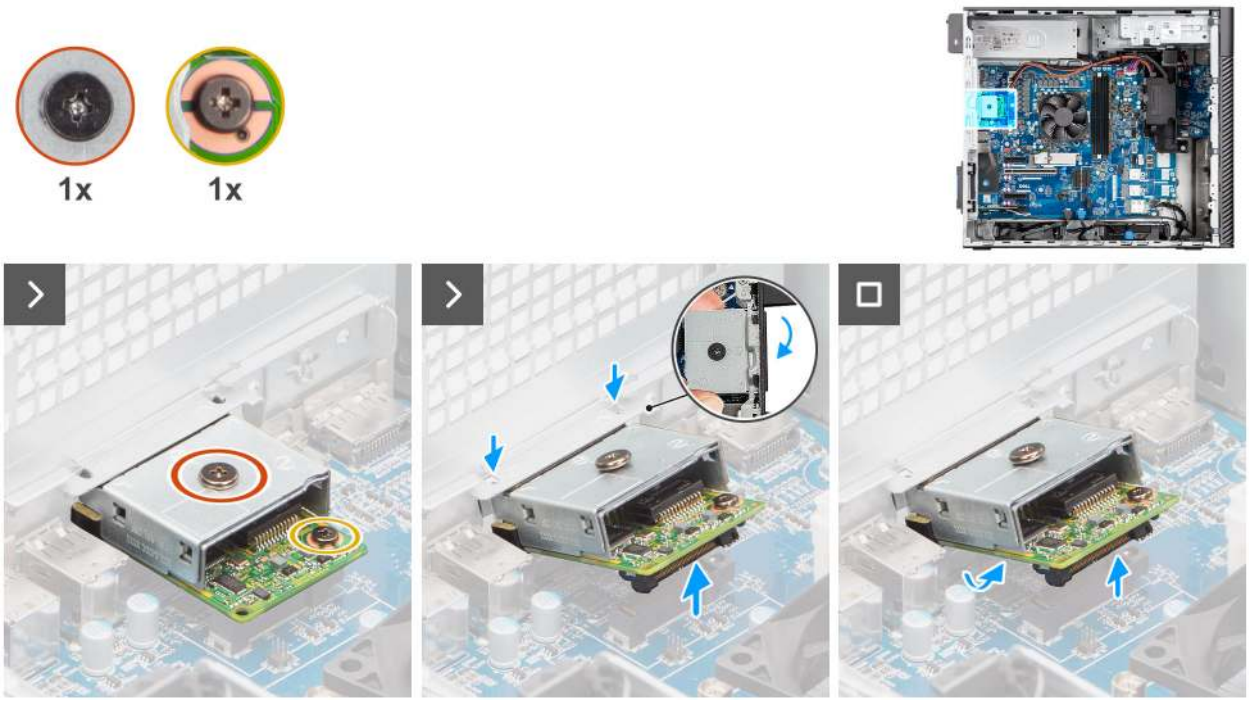


Figure 76. Removing the optional LAN module

Steps

1. Remove the screw (M2x4) that secures the optional LAN module cover to the optional LAN module.
2. Remove the screw (M2x4) that secures the optional LAN module to the system board.
3. Lift the optional LAN module at an angle and remove the tabs on the optional LAN module from the slots on the chassis.
4. Remove the optional LAN module off the system board.

Installing the optional LAN module

Prerequisites

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

About this task

NOTE: The optional-port modules are mutually exclusive; only a single module can be installed at a time.

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

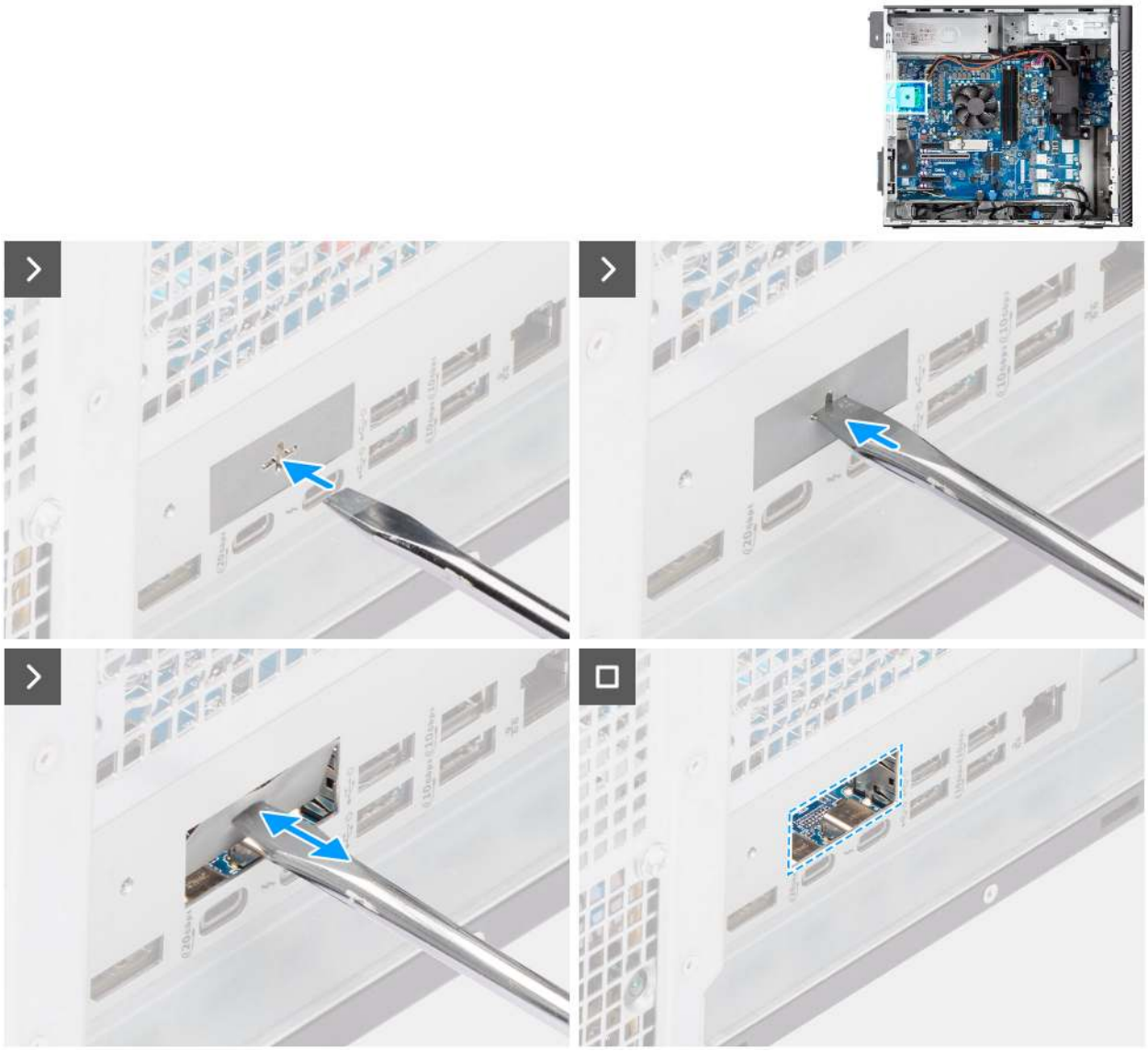


Figure 77. Installing the optional LAN module

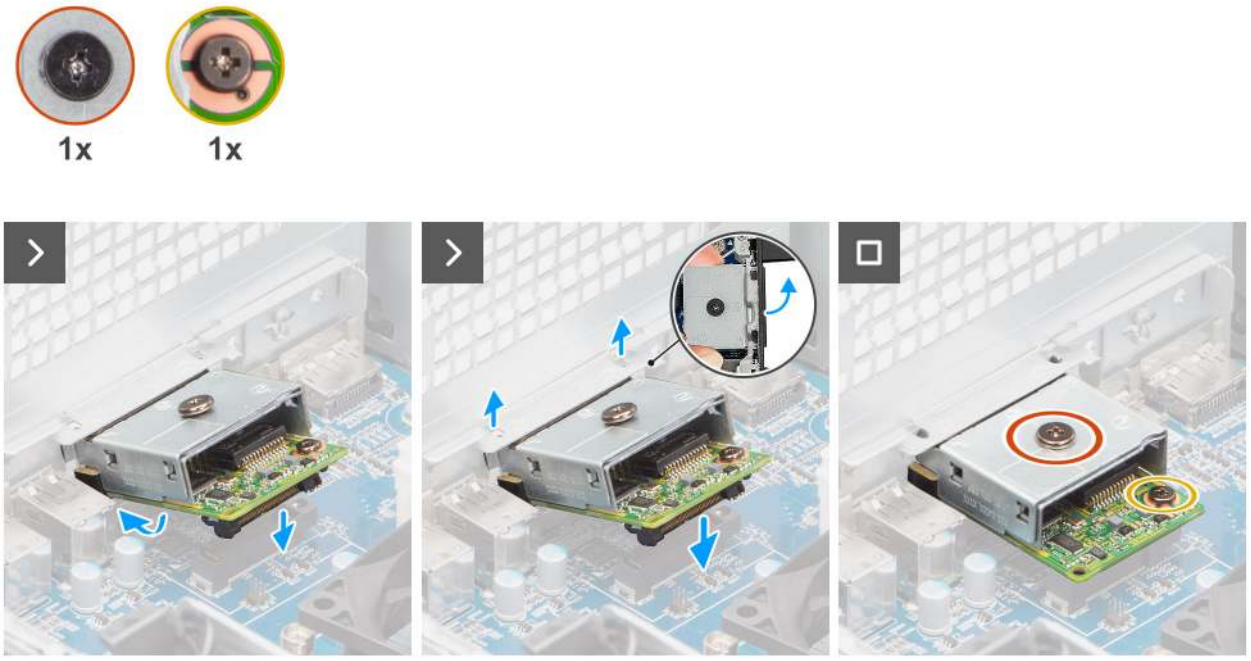


Figure 78. Installing the optional LAN module

Steps

1. Using a screw driver, push against the optional-port cover until it comes off.

   NOTE: This step is only applicable if you are installing the optional-port module on a computer that did not previously have it installed.

2. Place the optional LAN module at an angle and align the tabs on the module to the slots on the chassis.
3. Align the optional LAN module to the slot on the chassis and connect the module to the connector on the system board (OPTION).
4. Replace the screw (M2x4) that secures the optional LAN module to the system board.
5. Align the screw on the optional LAN module cover to the screw hole on the optional LAN module.
6. Replace the screw (M2x4) that secures the optional LAN module cover to the optional LAN module.

Next steps

1. Install the 125 W heat sink. If applicable.
2. Install the fan.
3. Install the air shroud.

   NOTE: For computers with 1500 W PSU only.

4. Install the side cover.
5. Follow the procedure in after working inside your computer.

Removing the optional Thunderbolt module

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

   NOTE: For computers with 1500 W PSU only.

4. Remove the fan.
5. Remove the 125 W heat sink. If applicable.

About this task

The following image indicates the location of the optional Thunderbolt module and provides a visual representation of the removal procedure.



Figure 79. Removing the optional Thunderbolt module

Steps

1. Remove the screw (M2x4) that secures the optional Thunderbolt module cover to the optional Thunderbolt module.
2. Remove the screw (M2x4) that secures the optional Thunderbolt module to the system board.
3. Lift the optional Thunderbolt module at an angle and remove the tabs on the optional Thunderbolt module from the slots on the chassis.
4. Remove the optional Thunderbolt module off the system board.

Installing the optional Thunderbolt module

Prerequisites

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

About this task

NOTE: The optional-port modules are mutually exclusive; only a single module can be installed at a time.

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

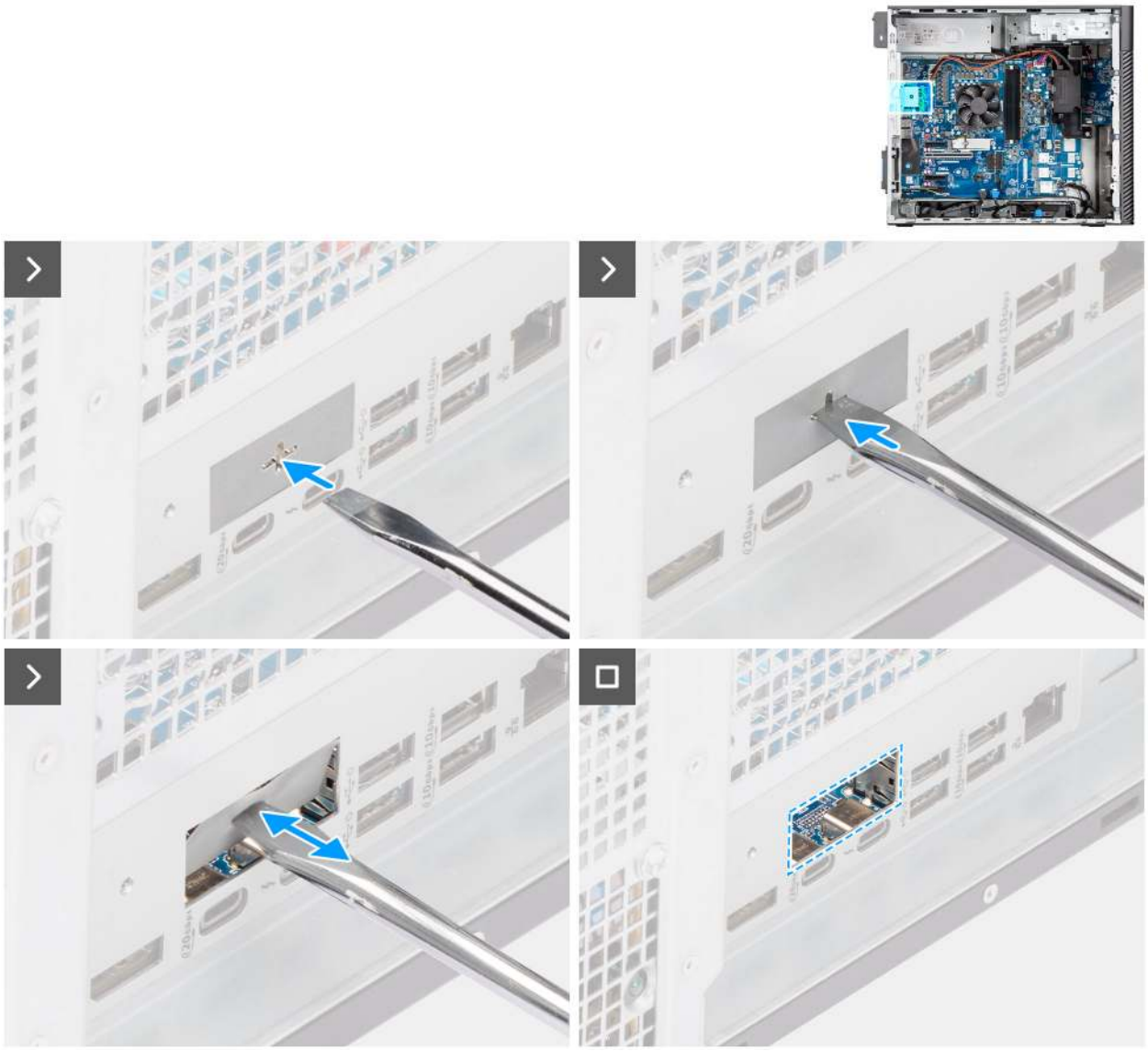


Figure 80. Installing the optional Thunderbolt module

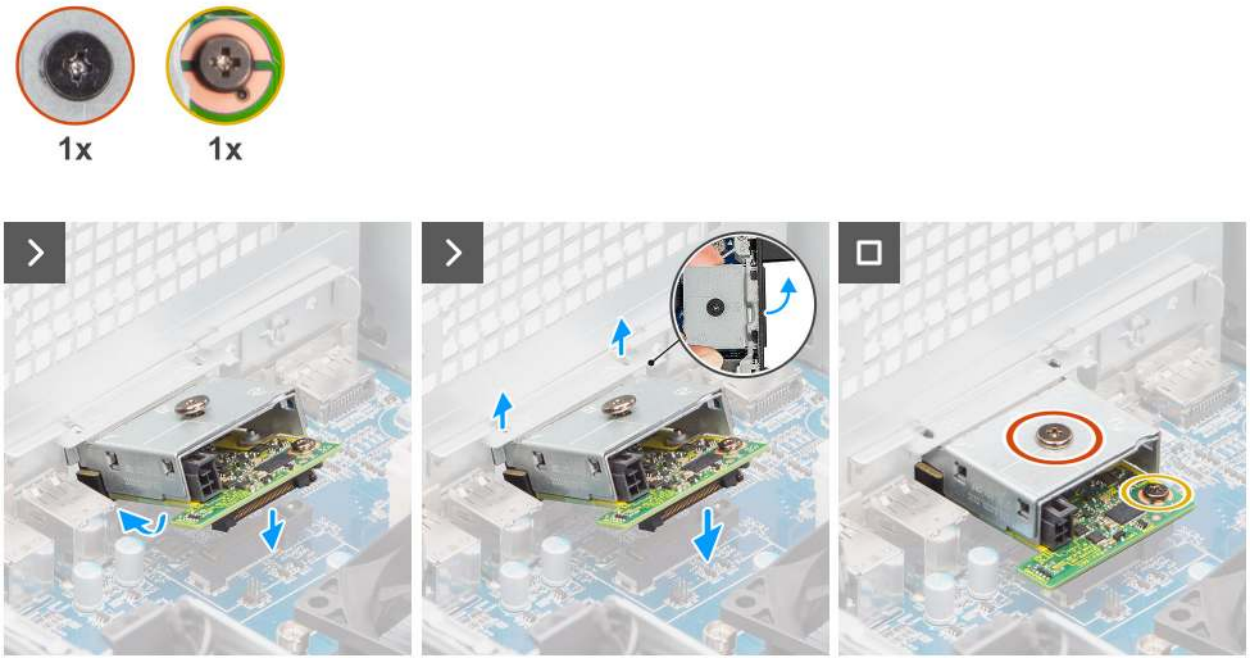


Figure 81. Installing the optional Thunderbolt module

Steps

1. Using a screw driver, push against the optional-port cover until it comes off.

   NOTE: This step is only applicable if you are installing the optional-port module on a computer that did not previously have it installed.

2. Place the optional Thunderbolt module at an angle and align the tabs on the module to the slots on the chassis.
3. Align the optional Thunderbolt module to the slot on the chassis and connect the module to the connector on the system board (OPTION).
4. Replace the screw (M2x4) that secures the optional Thunderbolt module to the system board.
5. Align the screw on the optional Thunderbolt module cover to the screw hole on the optional Thunderbolt module.
6. Replace the screw (M2x4) that secures the optional Thunderbolt module cover to the optional Thunderbolt module.

Next steps

1. Install the 125 W heat sink. If applicable.
2. Install the fan.
3. Install the air shroud.

   NOTE: For computers with 1500 W PSU only.

4. Install the side cover.
5. Follow the procedure in after working inside your computer.

Removing the optional USB module

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

   NOTE: For computers with 1500 W PSU only.

4. Remove the fan.
5. Remove the 125 W heat sink. If applicable.

About this task

The following image indicates the location of the optional USB module and provides a visual representation of the removal procedure.

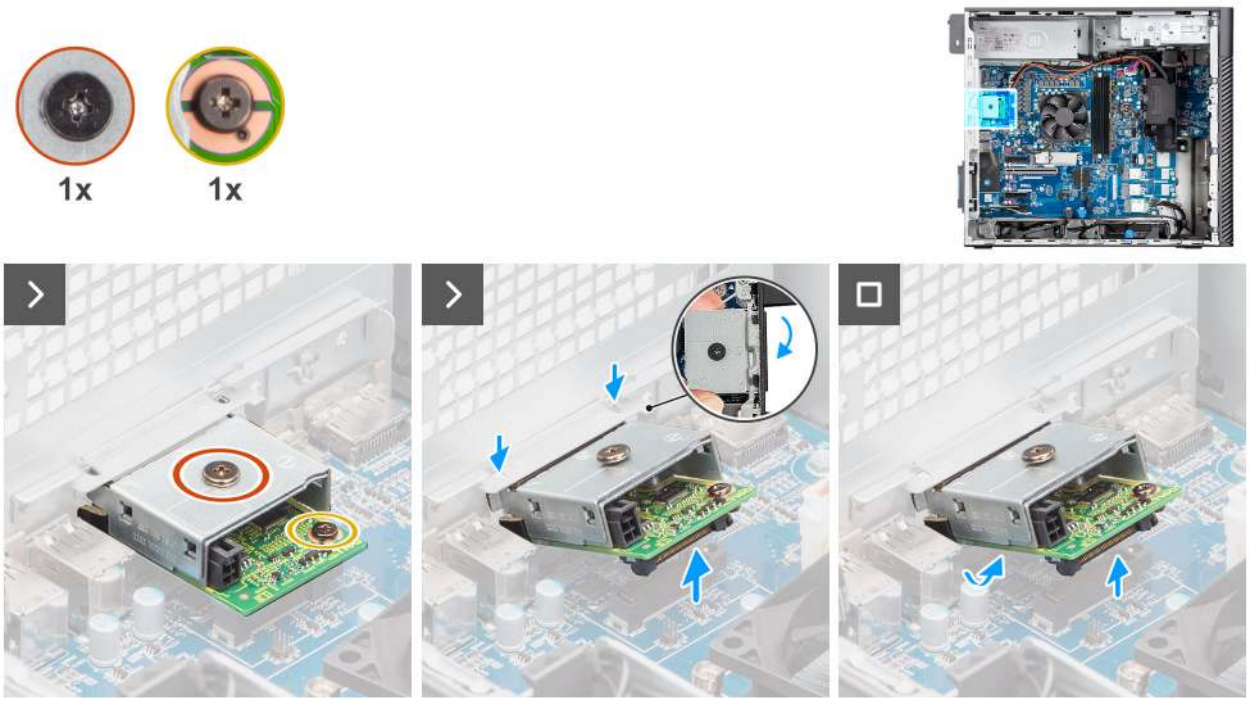


Figure 82. Removing the optional USB module

Steps

1. Remove the screw (M2x4) that secures the optional USB module cover to the optional USB module.
2. Remove the screw (M2x4) that secures the optional USB module to the system board.
3. Lift the optional USB module at an angle and remove the tabs on the optional USB module from the slots on the chassis.
4. Remove the optional USB module off the system board.

Installing the optional USB module

Prerequisites

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

About this task

NOTE: The optional-port modules are mutually exclusive; only a single module can be installed at a time.

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

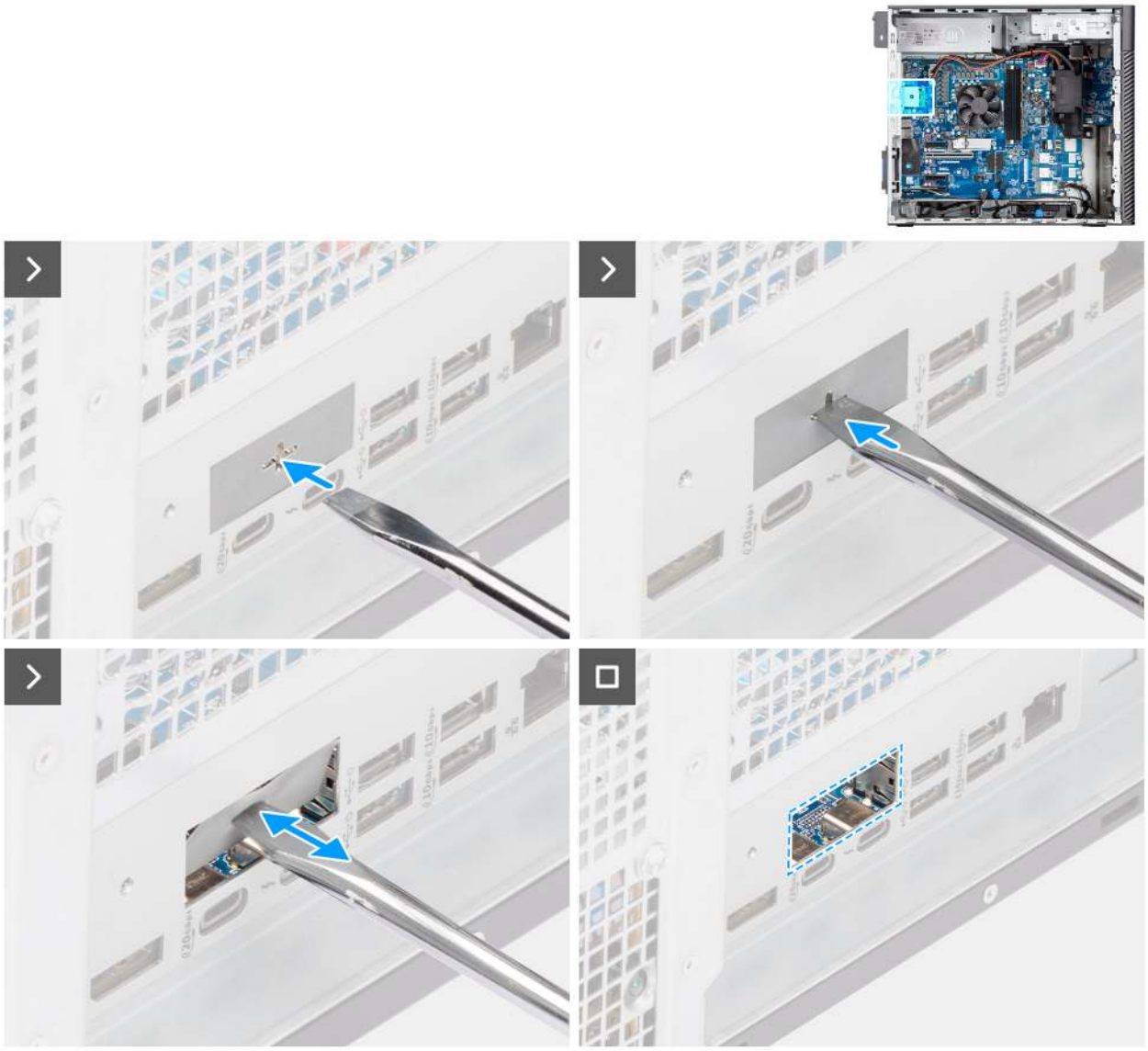


Figure 83. Installing the optional USB module

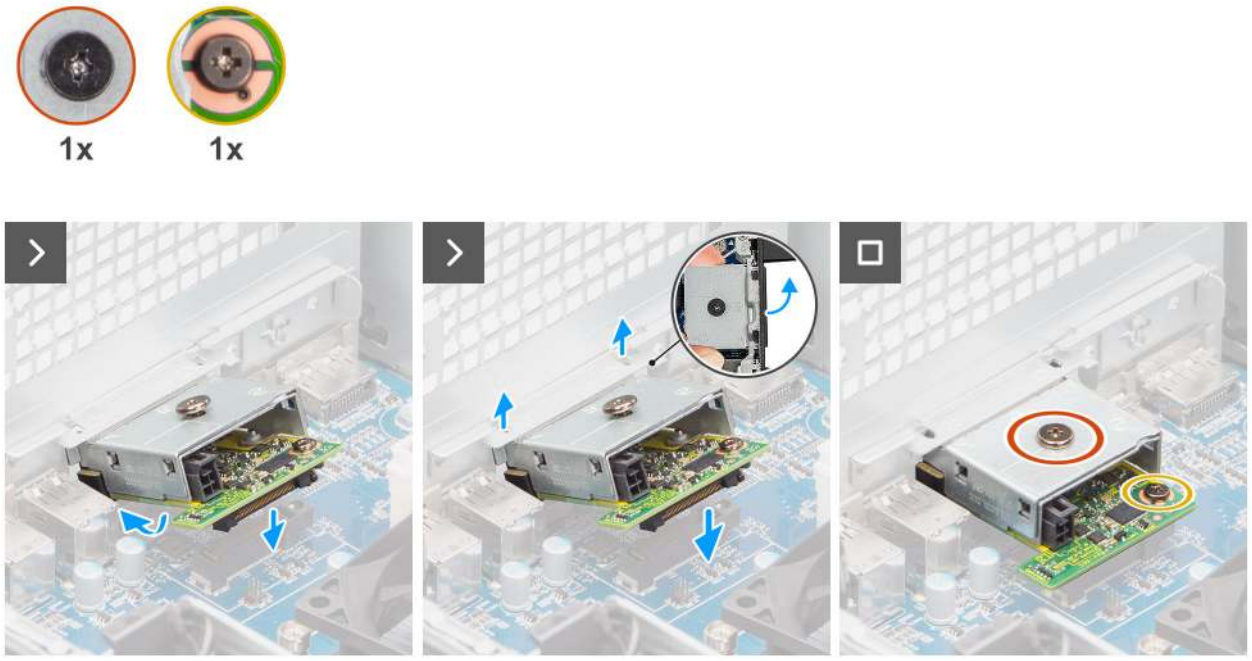


Figure 84. Installing the optional USB module

Steps

1. Using a screw driver, push against the optional-port cover until it comes off.

   NOTE: This step is only applicable if you are installing the optional-port module on a computer that did not previously have it installed.

2. Place the optional USB module at an angle and align the tabs on the module to the slots on the chassis.
3. Align the optional USB module to the slot on the chassis and connect the module to the connector on the system board (OPTION).
4. Replace the screw (M2x4) that secures the optional USB module to the system board.
5. Align the screw on the optional USB module cover to the screw hole on the optional USB module.
6. Replace the screw (M2x4) that secures the optional USB module cover to the optional USB module.

Next steps

1. Install the 125 W heat sink. If applicable.
2. Install the fan.
3. Install the air shroud.

   NOTE: For computers with 1500 W PSU only.

4. Install the side cover.
5. Follow the procedure in after working inside your computer.

Removing the optional VGA module

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the side cover.
3. Remove the air shroud.

   NOTE: For computers with 1500 W PSU only.

4. Remove the fan.
5. Remove the 125 W heat sink. If applicable.

About this task

The following image indicates the location of the optional VGA module and provides a visual representation of the removal procedure.



Figure 85. Removing the optional VGA module

Steps

1. Remove the screw (M2x4) that secures the optional VGA module cover to the optional VGA module.
2. Remove the screw (M2x4) that secures the optional VGA module to the system board.
3. Lift the optional VGA module at an angle and remove the tabs on the optional VGA module from the slots on the chassis.
4. Remove the optional VGA module off the system board.

Installing the optional VGA module

Prerequisites

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

About this task

NOTE: The optional-port modules are mutually exclusive; only a single module can be installed at a time.

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

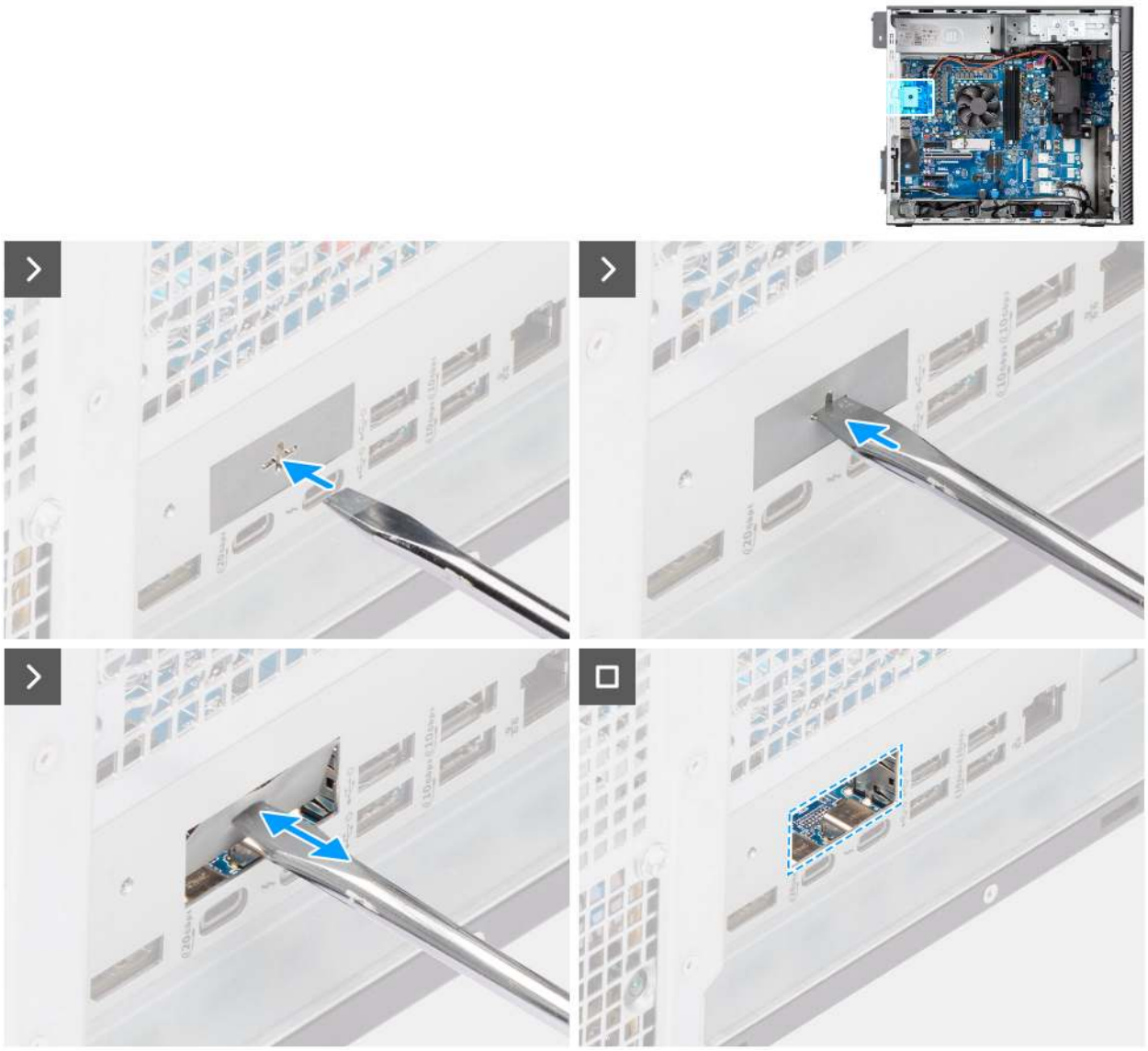


Figure 86. Installing the optional VGA module

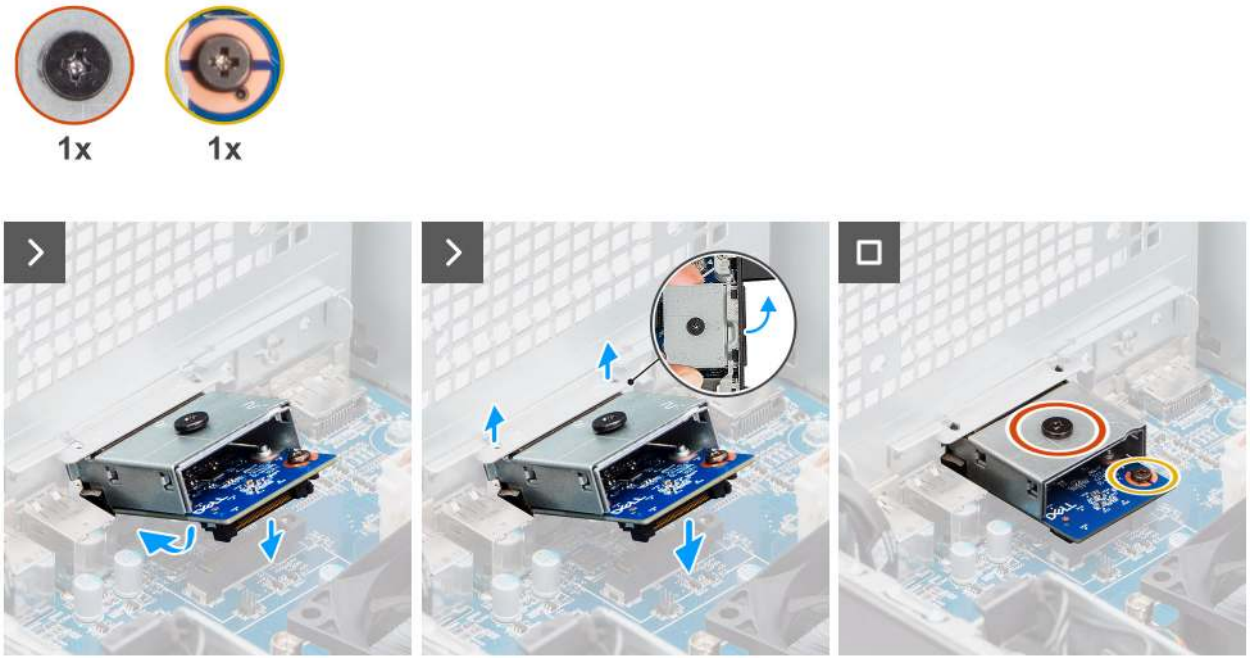


Figure 87. Installing the optional VGA module

Steps

1. Using a screw driver, push against the optional-port cover until it comes off.

   NOTE: This step is only applicable if you are installing the optional-port module on a computer that did not previously have it installed.

2. Place the optional VGA module at an angle and align the tabs on the module to the slots on the chassis.
3. Align the optional VGA module to the slot on the chassis and connect the module to the connector on the system board (OPTION).
4. Replace the screw (M2x4) that secures the optional VGA module to the system board.
5. Align the screw on the optional VGA module cover to the screw hole on the optional VGA module.
6. Replace the screw (M2x4) that secures the optional VGA module cover to the optional VGA module.

Next steps

1. Install the 125 W heat sink. If applicable.
2. Install the fan.
3. Install the air shroud.

   NOTE: For computers with 1500 W PSU only.

4. Install the side cover.
5. Follow the procedure in after working inside your computer.

System board

Removing the system board

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

Prerequisites

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

   NOTE: Your computer's Service Tag is stored in the system board. You must enter the Service Tag in the BIOS setup program after you replace the system board.

   NOTE: Replacing the system board removes any changes that you have made to the BIOS using the BIOS setup program. You must make the appropriate changes again after you replace the system board.

   NOTE: Before disconnecting cables from the system board, note the connector locations to ensure correct reconnection after replacing the board.

2. Remove the side cover.
3. Remove the front bezel.
4. Remove the air shroud.

   NOTE: For computers with 1500 W PSU only.

5. Remove the 3.5-inch HDD.
6. Remove the M.2 2230 SSD or the M.2 2280 SSD.
7. Remove the WLAN.
8. Remove the memory module.
9. Remove the graphics card.
10. Remove the powered GPU.

    NOTE: This step is required only if the computer is configured with a powered GPU.

11. Remove the 125 W heat-sink assembly or the 65 W heat-sink assembly.
12. Remove the processor.
13. Remove the front chassis fan and therear chassis fan.
14. Remove the intrusion switch.
15. Remove the internal speaker.
16. Remove the front I/O bracket.

About this task

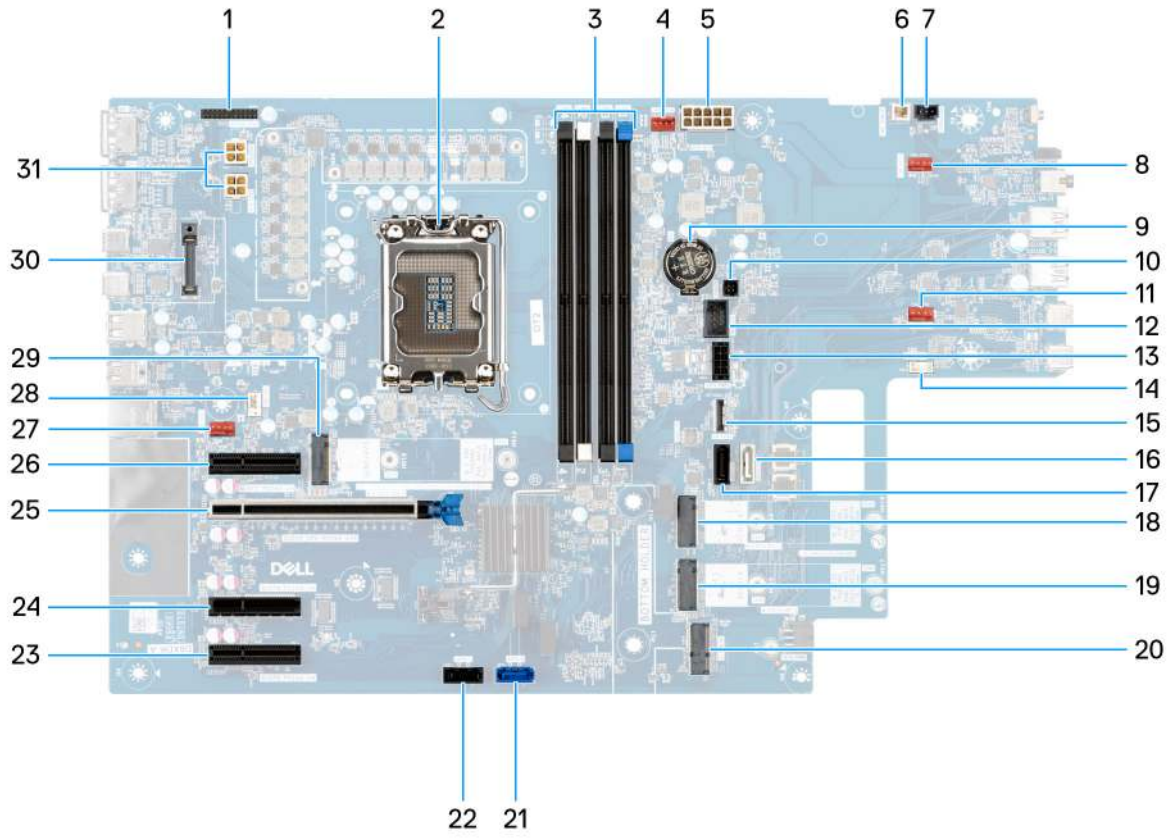


Figure 88. System-board callouts

Table 25. Dell Pro Max Tower T2 FCT2250 system board callouts

No	Connector	Description
1	Serial/PS2	Serial/PS2 module connector
2	CPU0_SKT	Processor socket
3	DIMM1 to DIMM4	Memory module connectors
4	FAN SYS4	System fan connector 4
5	ATX SYS	ATX system power connector
6	PWR REMOTE	Power remote connector
7	INTRUSION	Intrusion switch connector
8	FAN SYS3	System fan connector 3
9	RTC	Coin cell battery
10	SENSOR	Thermal sensor connector
11	FAN SYS2	System fan connector 2
12	INT USB	Internal USB connector
13	SATA PWR2	SATA power connector
14	INT SPKR	Internal speaker connector
15	SD CARD	SD card connector

Table 25. Dell Pro Max Tower T2 FCT2250 system board callouts (continued)

No	Connector	Description
16	SATA-3	SATA 3 connector
17	SATA-2	SATA 2 connector
18	M.2 PCIe SSD-2	M2 PCIe SSD slot 2
19	M.2 PCIe SSD-3	M.2 PCIe SSD slot 3
20	M.2 WLAN	WLAN slot
21	SATA-0	SATA 0 connector
22	SATA-1	SATA 1 connector
23	SLOT5 PCIe3 x4	PCIe x4 connector
24	SLOT4 PCIe4 x4	PCIe x4 connector
25	SLOT2 PCIe5 x16	PCIe x16 connector
26	SLOT1 PCIe3 x4	PCIe x4 connector
27	FAN SYS1	System fan connector 1
28	FAN CPU	CPU fan connector
29	M.2 PCIe SSD-1	M2 PCIe SSD slot 1
30	OPTIONAL MODULE	Optional module header
31	ATX CPU1 and ATX CPU2	4-pin processor power connectors

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

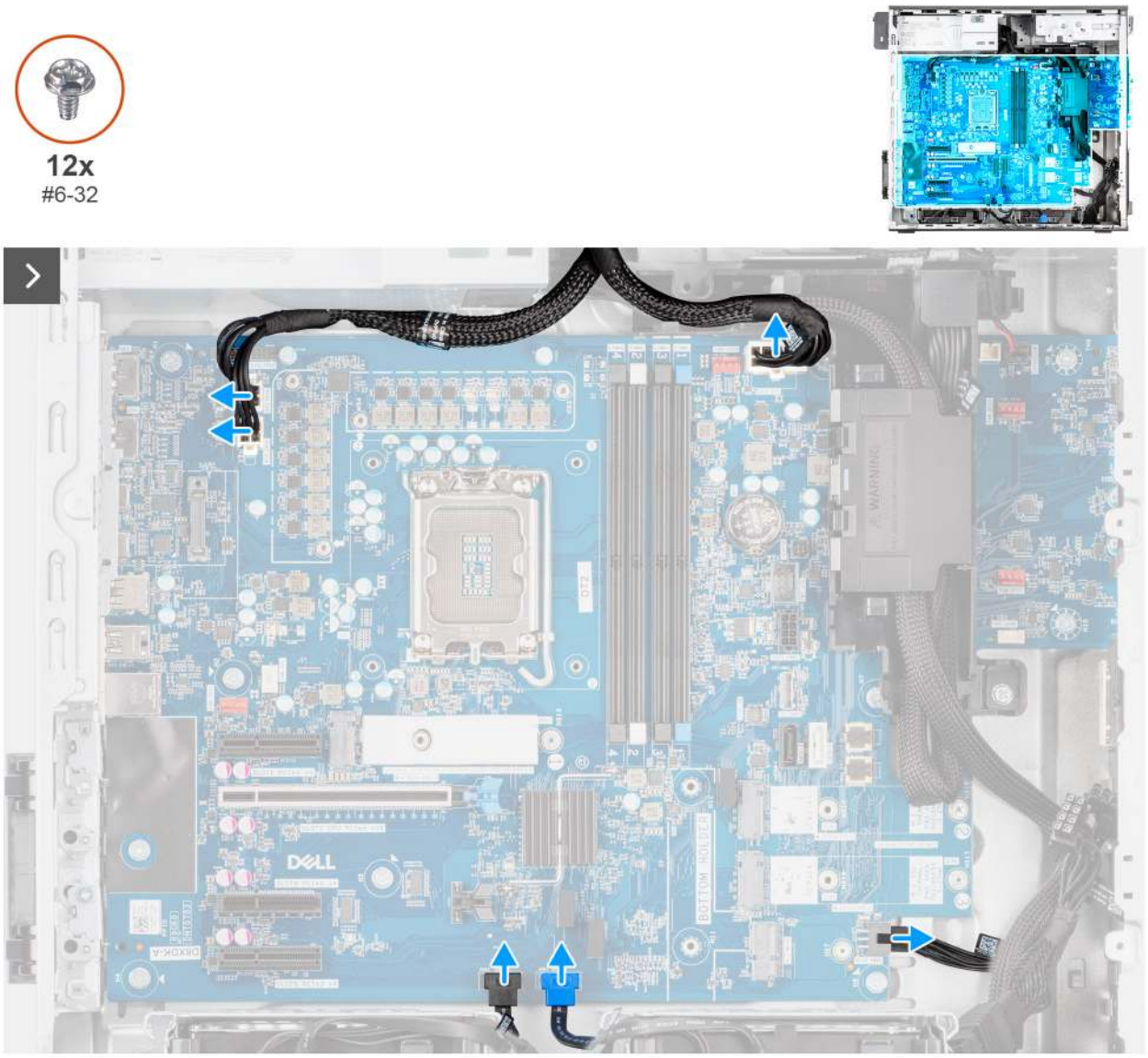


Figure 89. Removing the system board

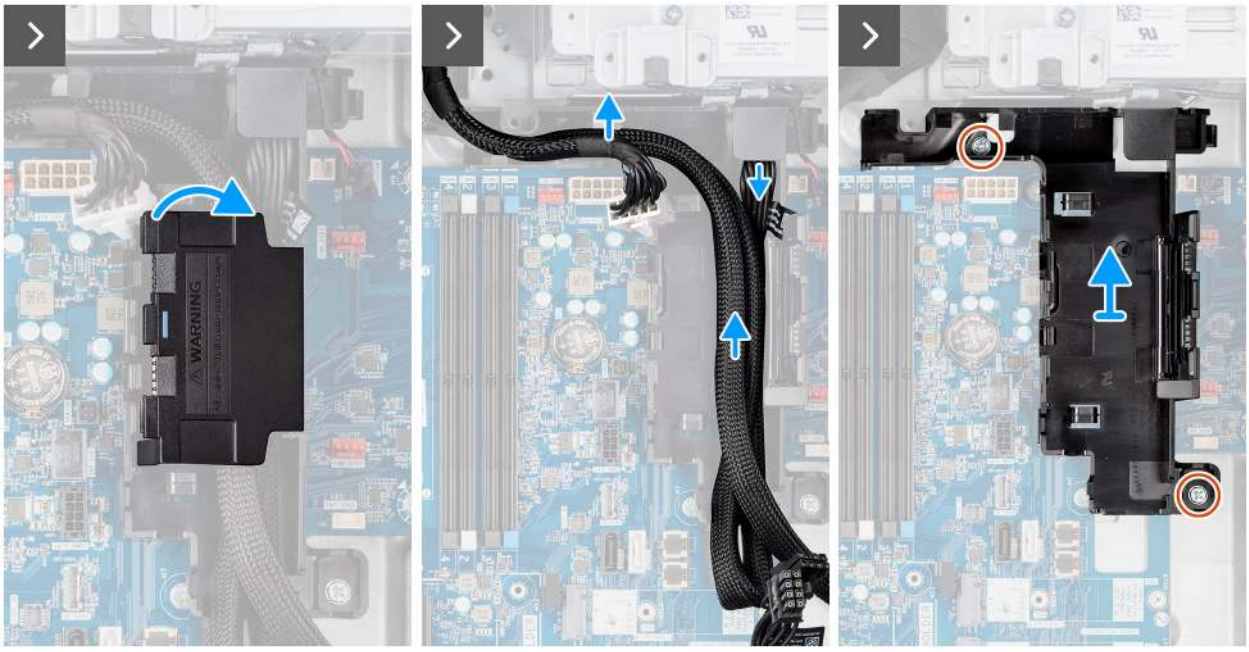


Figure 90. Removing the system board

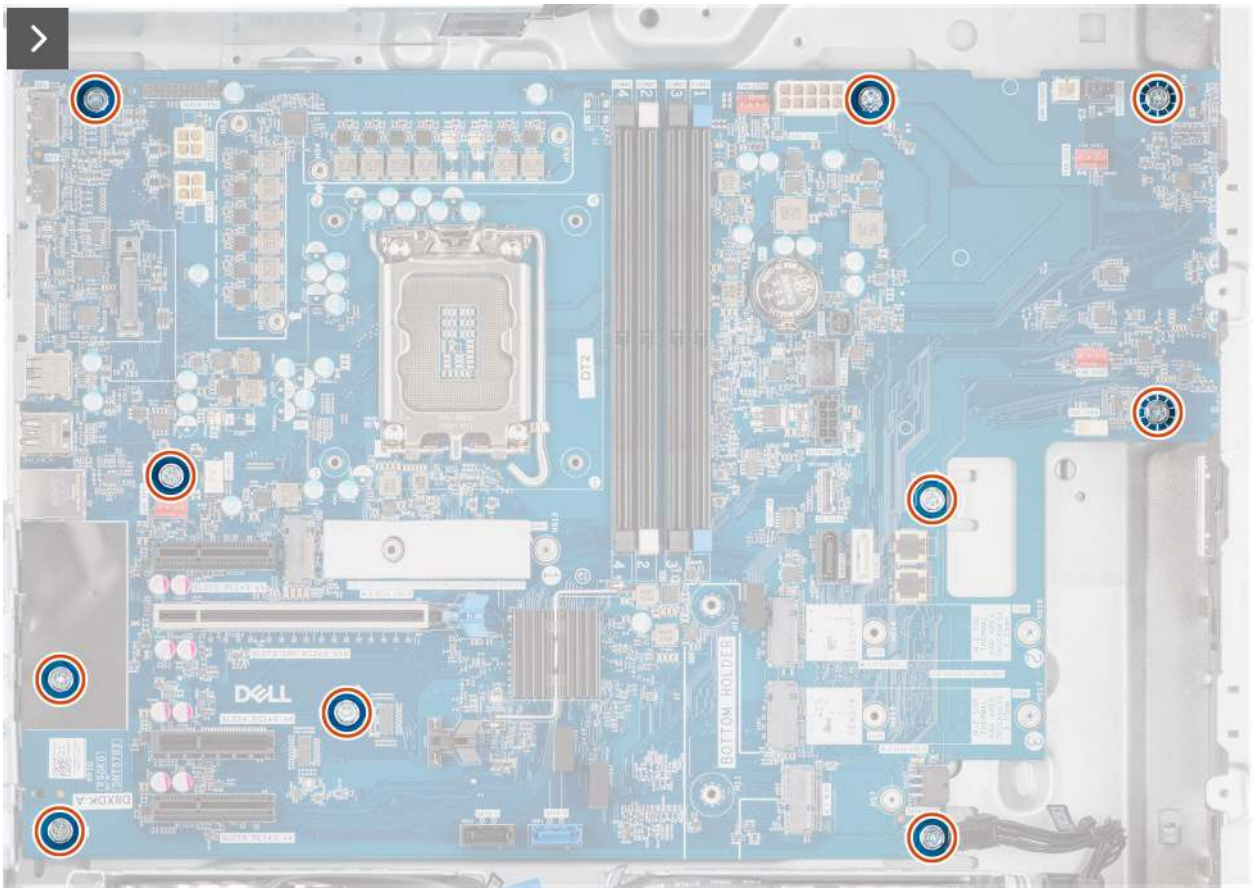


Figure 91. Removing the system board



Figure 92. Removing the system board

Steps

1. Disconnect the power and hard drive cables that are connected to the system board.
2. Open the cable-box cover and unroute them from the cable box.
3. Remove the two screws (#6-32) that secure the cable box to the chassis.
4. Lift the cable box out of the chassis.
5. Remove the ten screws (#6-32) that secure the system board to the chassis.
6. Lift the system board at an angle and remove the system board from the chassis.

Installing the system board

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

Prerequisites

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

About this task

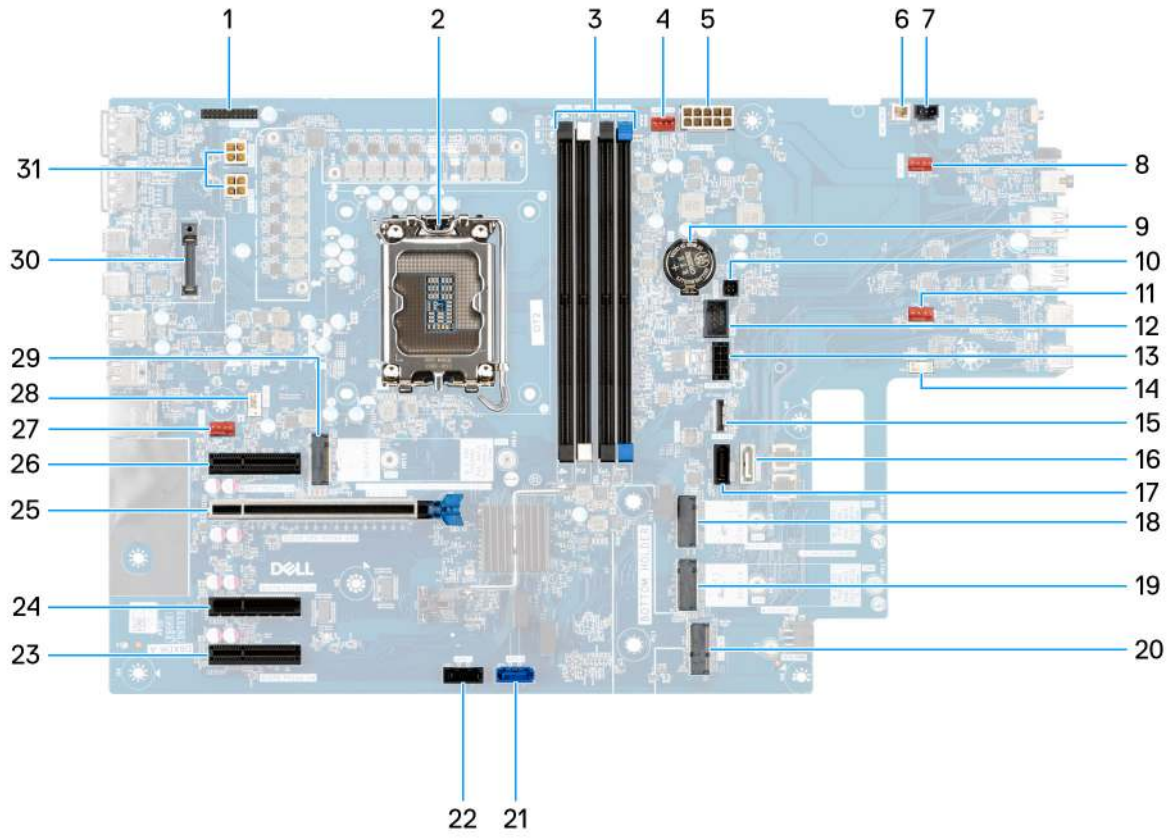


Figure 93. System-board callouts

Table 26. Dell Pro Max Tower T2 FCT2250 system board callouts

No	Connector	Description
1	Serial/PS2	Serial/PS2 module connector
2	CPU0_SKT	Processor socket
3	DIMM1 to DIMM4	Memory module connectors
4	FAN SYS4	System fan connector 4
5	ATX SYS	ATX system power connector
6	PWR REMOTE	Power remote connector
7	INTRUSION	Intrusion switch connector
8	FAN SYS3	System fan connector 3
9	RTC	Coin cell battery
10	SENSOR	Thermal sensor connector
11	FAN SYS2	System fan connector 2
12	INT USB	Internal USB connector
13	SATA PWR2	SATA power connector
14	INT SPKR	Internal speaker connector
15	SD CARD	SD card connector

Table 26. Dell Pro Max Tower T2 FCT2250 system board callouts (continued)

No	Connector	Description
16	SATA-3	SATA 3 connector
17	SATA-2	SATA 2 connector
18	M.2 PCIe SSD-2	M2 PCIe SSD slot 2
19	M.2 PCIe SSD-3	M.2 PCIe SSD slot 3
20	M.2 WLAN	WLAN slot
21	SATA-0	SATA 0 connector
22	SATA-1	SATA 1 connector
23	SLOT5 PCIe3 x4	PCIe x4 connector
24	SLOT4 PCIe4 x4	PCIe x4 connector
25	SLOT2 PCIe5 x16	PCIe x16 connector
26	SLOT1 PCIe3 x4	PCIe x4 connector
27	FAN SYS1	System fan connector 1
28	FAN CPU	CPU fan connector
29	M.2 PCIe SSD-1	M2 PCIe SSD slot 1
30	OPTIONAL MODULE	Optional module header
3 1	ATX CPU1 and ATX CPU2	4-pin processor power connectors

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

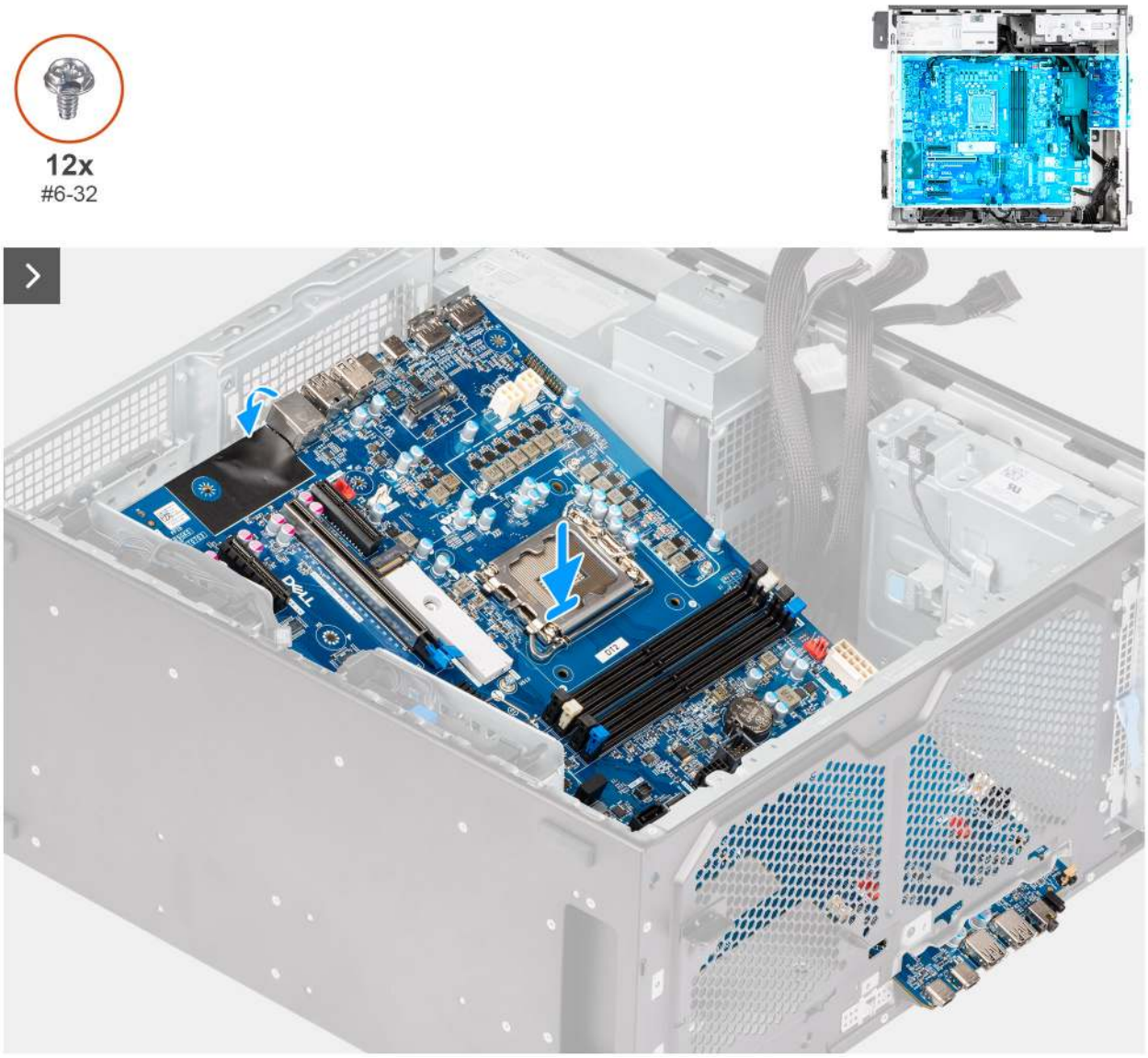


Figure 94. Installing the system board

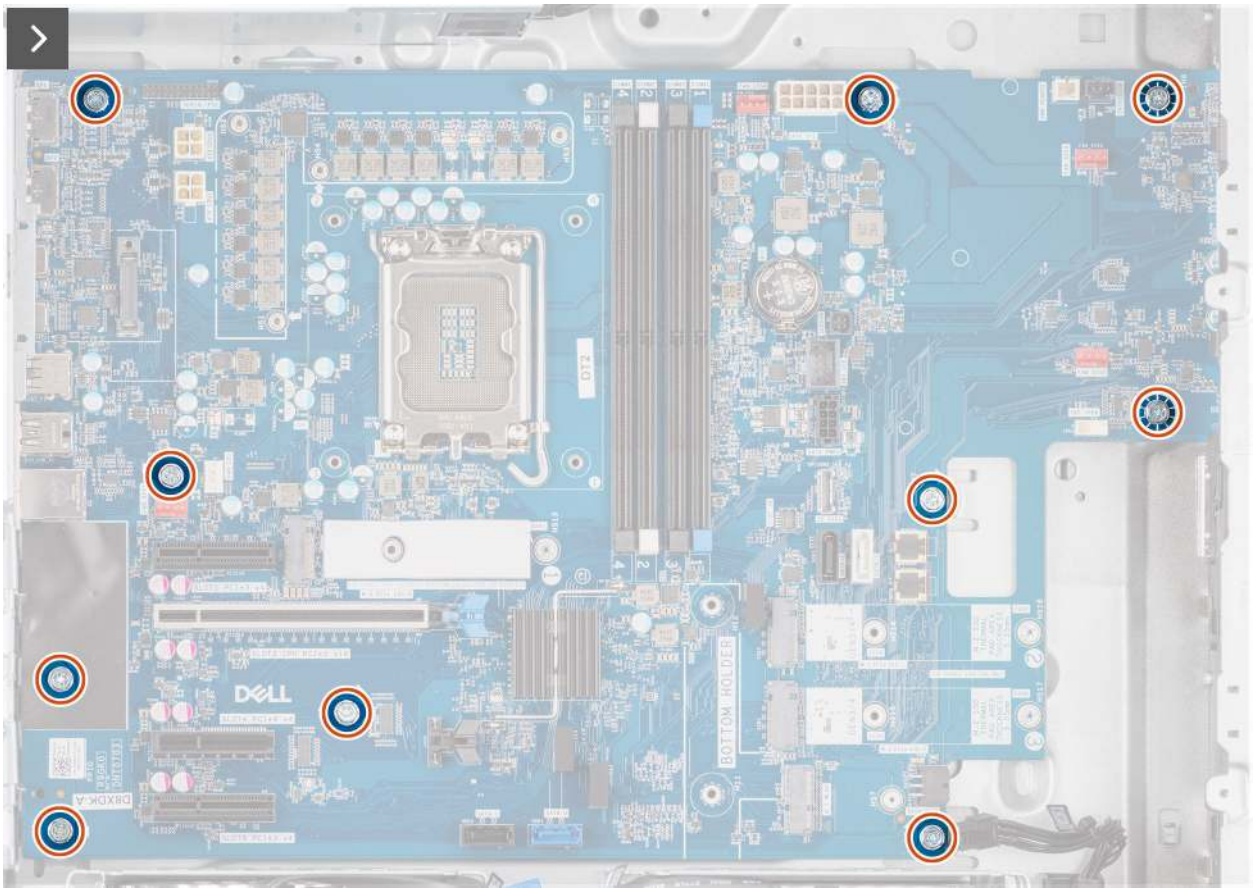


Figure 95. Installing the system board

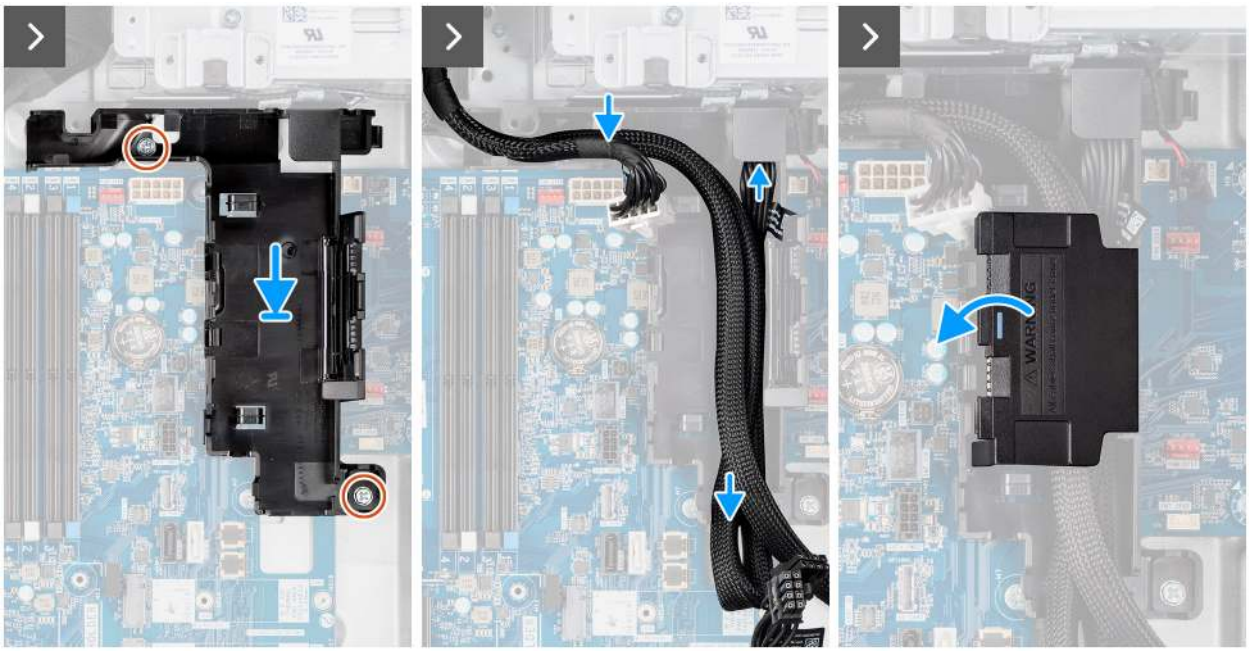


Figure 96. Installing the system board

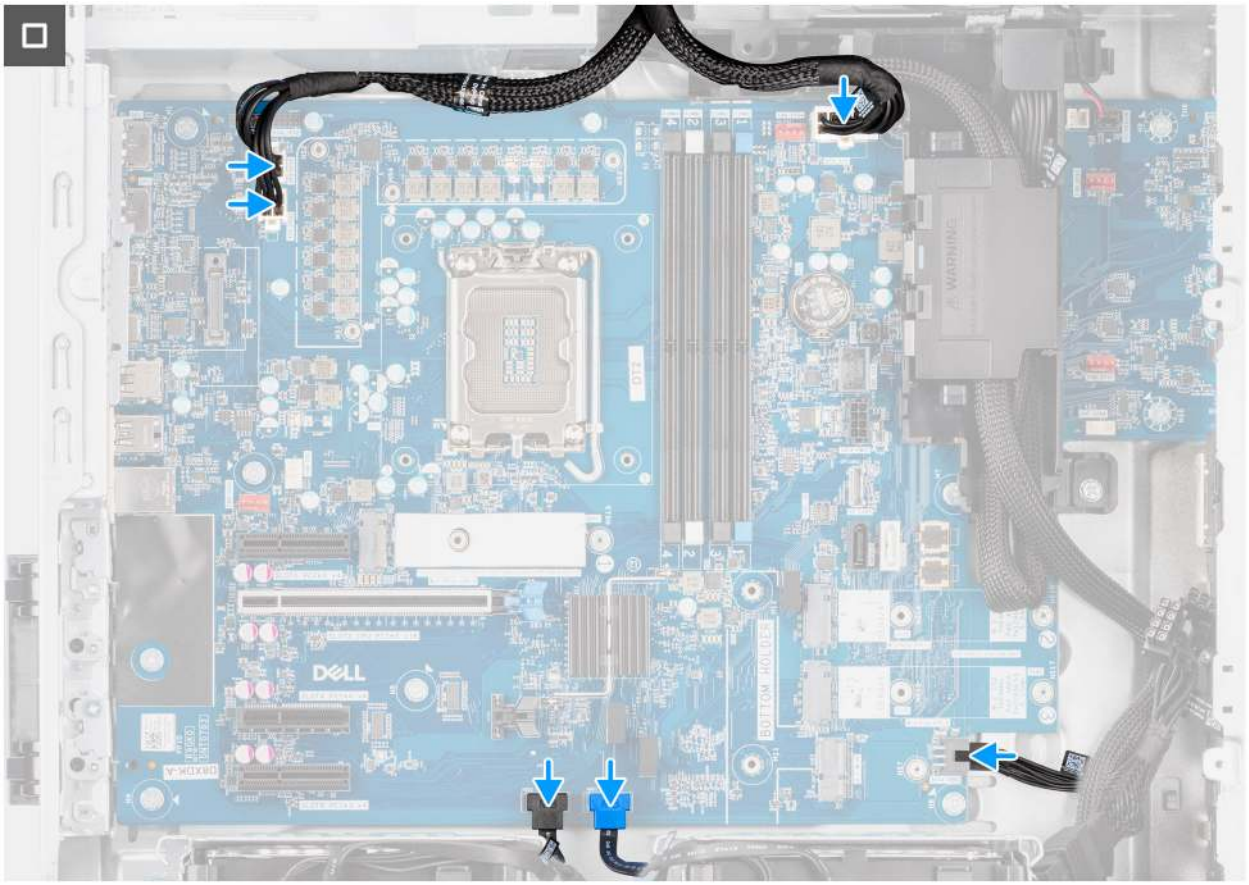


Figure 97. Installing the system board

Steps

1. Align and slide the front I/O ports on the system board into the front I/O slot on the chassis.
2. Align the screw holes on the system board with screw holes on the chassis.
3. Replace the ten screws (#6-32) that secure the system board to the chassis.
4. Align and place the cable box in its slot on the chassis.
5. Replace the two screws (#6-32) that secure the cable box to the chassis.
6. Route the cables through the cable box and close the cable-box cover.

   NOTE: Fold the excess cabling and insert it into the cable box.

7. Connect the power and hard drive cables to their respective connectors on the system board.

Next steps

1. Install the front I/O bracket.
2. Install the internal speaker.
3. Install the intrusion switch.
4. Install the front chassis fan and the rear chassis fan.
5. Install the processor.
6. Install the 125 W heat-sink assembly or the65 W heat-sink assembly.
7. Install the powered GPU.

   NOTE: This step is required only if the computer is configured with a powered GPU.

8. Install the graphics card.
9. Install the memory module.
10. Install the WLAN.
11. Install the M.2 2230 SSD or the M.2 2280 SSD.

12. Install the 3.5-inch HDD.
13. Install the air shroud.

NOTE: For computers with 1500 W PSU only.

14. Install the front bezel.
15. Install the side cover.
16. Follow the procedure in after working inside your computer.

NOTE: Your computers Service Tag is stored on the system board. You must enter the Service Tag in the BIOS setup program after you replace the system board.

NOTE: Replacing the system board removes any changes that you have made to the BIOS using the BIOS setup program. You must make the appropriate changes again after you replace the system board.

10

Software

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

Operating system

Your Dell Pro Max Tower T2 FCT2250 supports the following operating systems:

- Windows 11 Home
- Windows 11 Pro
- Windows 11 Pro National Academic
- Windows 11 IoT Enterprise 2024 LTSC
- Ubuntu Linux 24.04 LTS

Drivers and downloads

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

11

BIOS Setup

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

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

Use BIOS Setup for the following purposes:

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

Entering BIOS Setup program

About this task

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

Navigation keys

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

Table 27. Navigation keys

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

One time boot menu

To access the **one time boot menu**, turn on your computer, and then press F2 immediately.

NOTE: If your computer fails to enter the boot menu, restart the computer and press F2 immediately.

The one-time boot menu displays the devices that you can boot from, and also displays the option to start diagnostics. 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

  NOTE: Choosing **Diagnostics**, will display the **ePSA diagnostics** screen.

The **one time boot menu** also displays the option to access the System Setup screen.

F12 One Time Boot menu

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

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

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

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

  NOTE: XXX denotes the SATA drive number.

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

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

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 28. System setup options—System information menu

Overview	
Dell Pro Max Tower T2 FCT2250	
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.
Processor Information	
Processor Type	Displays the processor type.
Maximum Clock Speed	Displays the maximum processor clock speed.
Processor L2 Cache	Displays the processor L2 Cache size.
Processor L3 Cache	Displays the processor L3 Cache size.

Table 28. System setup options—System information menu (continued)

Overview	
Intel vPro Technology	Displays whether the processor is Intel vPro Technology capable.
Memory Information	
Memory Installed	Displays the total computer memory installed.
Memory Speed	Displays the memory speed.
DIMM 1 Size	Displays the DIMM 1 memory size.
DIMM 2 Size	Displays the DIMM 2 memory size.
DIMM 3 Size	Displays the DIMM 3 memory size.
DIMM 4 Size	Displays the DIMM 4 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.
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.
dGPU Video Controller	Displays the discrete video controller type of the computer.
LOM 2 MAC Address	Displays the second 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 4	Displays the SATA hard drive information of the computer.
Slot 5	Displays the SATA hard drive information of the computer.

Table 29. System setup options—Boot Configuration menu

Boot Configuration	
Boot Sequence	
Boot Mode: UEFI only	Displays the boot mode.
Boot Sequence	Displays the boot sequence.
Enable PXE Boot Priority	Enable or disable the PXE Boot priority. By default, the **Enable PXE Boot Priority** option is not enabled. When enabled and if a PXE boot option is detected, it will be added to the top of the boot sequence.
Force PXE On Next Boot	Enable or disable the Force PXE On the next boot. By default, the **Force PXE On Next Boot** option is not enabled.
Secure Boot	
Enable Secure Boot	Enable or disable the secure boot feature. By default, the option is not enabled.
Secure Boot Mode	Enable or disable to change the secure boot mode options. By default, the **Deployed Mode** is enabled.

Table 29. System setup options—Boot Configuration menu (continued)

Boot Configuration	
Expert Key Management	
Enable Custom Mode	Enable or disable the custom mode. By default, the **custom mode** option is not enabled.
Custom Mode Key Management	Select the custom values for expert key management.

Table 30. 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.
Audio	
Enable Audio	Enable or disable the integrated audio controller. By default, all the options are enabled.
USB/Thunderbolt Configuration	Enable or disable booting from USB mass storage devices through the boot sequence or boot menu. By default, all the options are enabled.
Enable Thunderbolt Technology Support	Enable or disable the Thunderbolt Technology Support. By default, all the options are enabled. **NOTE:** Enabling the "Enable Thunderbolt Adaptor Boot Support" or "Enable Thunderbolt Adaptor Pre-boot Modules" options may allow devices connected to the Thunderbolt adaptor during pre-boot to function in the operation system regardless of the Security Level selected in BIOS Setup. The device will continue to operate in the operating system until is disconnected. When reconnected while within the operating system, the device will connect according to the Security Level and previous OS authorizations.
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.

Table 31. System setup options—Storage menu

Storage	
Storage Interface	
Port Enablement	Enable or disable the onboard drives. By default, all the options are 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 31. 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-0	
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.
M.2 PCIe SSD-1	
Type	Displays the M.2 PCIe SSD-1 type information of the computer.
Device	Displays the M.2 PCIe SSD-1 device information of the computer.
M.2 PCIe SSD-2	
Type	Displays the M.2 PCIe SSD-2 type information of the computer.
Device	Displays the M.2 PCIe SSD-2 device information of the computer.
Enable MediaCard	
Secure Digital (SD) Card	Enable or disable the SD card. By default, the **Secure Digital (SD) Card** option is enabled.
Secure Digital (SD) Card Read-Only Mode	Enable or disable the SD card read-only mode. By default, the **Secure Digital (SD) Card Read-Only Mode** option is not enabled.

Table 32. System setup options—Security menu

Security	
TPM 2.0 Security	
Chassis intrusion	Controls the chassis intrusion feature. 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.
Firmware Device Tamper Detection	Enable or disable the Firmware Device Tamper Detection. By default, the **Silent** option is enabled.
Clear Firmware Device Tamper Detection	Enable or disable the Clear Firmware Device Tamper Detection. By default, the **Clear Firmware Device Tamper Detection** option is disabled.

Table 33. System setup options—Passwords menu

Passwords	
Admin Password	Set, change, or delete the administrator password.
System Password	Set, change, or delete the computer password.
M.2 PCIe SSD-0	Set, change, or delete the M.2 PCIe SSD-0 password.

Table 34. System setup options—Update, Recovery menu

Update, Recovery	
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 35. System setup options—System Management menu

System Management	
Service Tag	Display the Service Tag of the computer.
Asset Tag	Create a computer Asset Tag.
First Power On Date	
Set Ownership Date	Enable or disable the Ownership date. By default, the option is disabled.

Table 36. System setup options—Keyboard menu

Keyboard	
Keyboard Errors	
Numlock LED	
Enable Numlock LED	Enable or disable the Numlock LED. By default, the option is enabled.

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

Pre-boot Behavior	
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.

Table 38. 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.
Power Event Log	
Clear Power event log	Display Power 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 BitLocker key is not recognized the next time you reboot the computer. You will then be prompted to enter the recovery key to proceed, and the computer displays a prompt for the recovery key on each reboot. Failure to provide the recovery key can result in data loss or an operating system reinstall. For more information, see the Knowledge Base Resource Updating the BIOS on Dell systems with BitLocker enabled.

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

Steps

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

   NOTE: If you do not have the Service Tag, use SupportAssist 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, navigate to the folder where the BIOS update file has been saved.
8. Double-click the BIOS update file and follow the on-screen instructions.

   For more information, search in the Knowledge Base Resource at Dell Support Site.

Updating the BIOS 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 Dell Support Site.

Updating the BIOS using the USB drive in Windows

About this task

CAUTION: If BitLocker is not suspended before updating the BIOS, the BitLocker key is not recognized the next time you reboot the computer. You will then be prompted to enter the recovery key to proceed, and the computer displays a prompt for the recovery key on each reboot. Failure to provide the recovery key can result in data loss or an operating system reinstall. For more information, see the Knowledge Base Resource Updating the BIOS on Dell systems with BitLocker enabled.

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

Steps

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

NOTE: If you do not have the Service Tag, use SupportAssist 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. Create a bootable USB drive. For more information, search in the Knowledge Base Resource at Dell Support Site.
8. Copy the BIOS setup program file to the bootable USB drive.
9. Connect the bootable USB drive to the computer that needs the BIOS update.
10. Restart the computer and press **F12**.
11. Select the USB drive from the **One Time Boot Menu**.
12. Type the BIOS setup program filename and press **Enter**.
    The **BIOS Update Utility** appears.
13. Follow the on-screen instructions to complete the BIOS update.

Updating the BIOS from the One-Time boot menu

You can run the BIOS flash update file from Windows using a bootable USB drive or you can also update the BIOS from the One-Time boot menu on the computer. To update your computers BIOS, copy the BIOS XXXX.exe file onto a USB drive formatted with the FAT32 file system. Then, restart your computer and boot from the USB drive using the One-Time Boot Menu.

About this task

CAUTION: If BitLocker is not suspended before updating the BIOS, the BitLocker key is not recognized the next time you reboot the computer. You will then be prompted to enter the recovery key to proceed, and the computer displays a prompt for the recovery key on each reboot. Failure to provide the recovery key can result in data loss or an operating system reinstall. For more information, see the Knowledge Base Resource Updating the BIOS on Dell systems with BitLocker enabled.

To confirm if the BIOS Flash Update is listed as a boot option, you can boot your computer to the **One Time Boot** Menu. If the option is listed, then the BIOS can be updated using this method.

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

- USB drive formatted to the FAT32 file system (the drive 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 must be connected to the computer
- For laptops, ensure that the battery is adequately charged before flashing the BIOS.

Perform the following steps to update the BIOS from the One-Time boot menu:

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

Steps

1. Turn off the computer and insert the USB drive that contains the BIOS flash update file.
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 the 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 flash update is completed.

System and setup password

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

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

Table 39. System and setup password

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

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

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

Assigning a System Setup password

Prerequisites

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

Steps

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

Deleting or changing an existing system password or setup password

Prerequisites

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

Steps

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

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

Clearing CMOS settings

About this task

CAUTION: Clearing CMOS settings resets the BIOS settings on your computer.

Steps

1. Remove the side cover.
2. Disconnect the battery cable from the system board.
3. Remove the coin-cell battery.
4. Wait for one minute.
5. Replace the coin-cell battery.
6. Connect the battery cable to the system board.
7. Replace the side cover.

Clearing system and setup passwords

About this task

To clear the system or setup passwords, contact Dell technical support as described at Contact Support.

NOTE: For information about how to reset Windows or application passwords, see 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 within the BIOS and launched by the BIOS internally. The embedded system diagnostics provides options for particular devices or device groups allowing you to:

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

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

For more information, see the knowledge base article 000181163.

Running the SupportAssist Pre-Boot System Performance Check

Steps

1. Turn on your computer.
2. As the computer boots, press the F12 key.
3. On the boot menu screen, select **Diagnostics**.
   The diagnostic quick test begins.
   NOTE: For more information about running the SupportAssist Pre-Boot System Performance Check on a specific device, see Dell Support Site.
4. If there are any issues, error codes are displayed.
   Note the error code and validation number and contact Dell.

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 Dell Support Site.

System-diagnostic lights

This section lists the system-diagnostic lights of your Dell Pro Max Tower T2 FCT2250.

The following table shows different Service LED blinking patterns and associated problems. The diagnostic light codes consist of a two-digit number, and the digits are separated by a comma. The number stands for a blinking pattern; the first digit shows the number of blinks in amber color, and the second digit shows the number of blinks in white color. The Service LED blinks in the following manner:

- The Service LED blinks the number of times equal to the value of the first digit and turns off with a short pause.
- After that, the Service LED blinks the number of times equal to the value of the second digit.

- The Service LED turns off again with a longer pause.
- After the second pause, the blinking pattern will be repeated.

Table 40. Diagnostic light codes

Diagnostic light codes (Amber, White)	Problem description
1,1	TPM Detection Failure
1,2	Unrecoverable SPI Flash Failure
1,5	EC unable to program i-Fuse
1,6	Generic catch-all for ungraceful EC code flow errors
1,7	Non-RPMC Flash on Boot Guard fused system
1,8	Chipset “Catastrophic Error” signal has tripped
2,1	CPU configuration or CPU failure
2,2	System board: BIOS or Read-Only Memory (ROM) failure
2,3	No memory or Random-Access Memory (RAM) detected
2,4	Memory or Random-Access Memory (RAM) failure
2,5	Invalid memory installed
2,6	System board/Chipset Error
2,7	LCD failure SBIOS message
2,8	Display power-rail failure on the system board
3,1	CMOS battery failure
3,2	PCI of Video card/chip failure
3,3	Recovery image not found
3,4	Recovery image found but invalid
3,5	EC power-rail error
3,6	Flash corruption detected by SBIOS
3,7	Timeout waiting on ME to reply to HECI message
4,1	Memory DIMM power rail failure
4,2	CPU Power cable connection issue

Recovering the operating system

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

Dell SupportAssist OS Recovery is a stand-alone tool that is preinstalled on Dell computers running the Windows operating system. It consists of tools to diagnose and troubleshoot issues that may occur before your computer boots to the operating system. It enables you to diagnose hardware issues, repair your computer, back up your files, and restore your computer to its factory state.

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

For more information about the Dell SupportAssist OS Recovery, see *Dell SupportAssist OS Recovery User's Guide* at Serviceability Tools at the Dell Support Site. Click **SupportAssist** and then click **SupportAssist OS Recovery**.

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

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 Pro and Pro Max computers from **No POST/No Boot/No Power** situations. You can initiate the RTC reset on the computer 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 computer 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 its default settings, disable Intel vPro, and reset the computer date and time. The following items are not affected by the RTC reset:

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

NOTE: The IT administrator's vPro account and password on the computer will be unprovisioned. The computer must go through the setup and configuration process again to reconnect it to the vPro server.

The below items may or may not be 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 provides multiple options for recovering the Windows operating system on your Dell computer. For more information, see Dell Windows Backup Media and Recovery Options.

Network power cycle

About this task

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

Steps

1. Turn off the computer.
2. Turn off the modem.

   NOTE: Some Internet service providers (ISPs) provide a modem and router combo device.
3. Turn off the wireless router.
4. Wait for 30 seconds.
5. Turn on the wireless router.
6. Turn on the modem.
7. Turn on the computer.

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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 41. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	Dell Site
Tips	
Contact Support	In Windows search, type `Contact Support`, and press Enter.
Online help for operating system	Windows Support Site Linux Support Site
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals, and documents.	Your Dell computer is uniquely identified using a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, enter the Service Tag or Express Service Code at Dell Support Site. For more information about how to find the Service Tag for your computer, see Locate the Service Tag on your computer.
Dell knowledge base articles	1. Go to Dell Support Site. 2. On the menu bar at the top of the Support page, select **Support** > **Support Library**. 3. In the Search field on the Support Library 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 Dell Support Site.

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

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