Dell Slim ECS1250

Owner's Manual

Regulatory Model: D18S
Regulatory Type: D18S002/D18S003
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DELL Technologies

Notes, cautions, and warnings

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

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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1

Views of Dell Slim ECS1250

Front

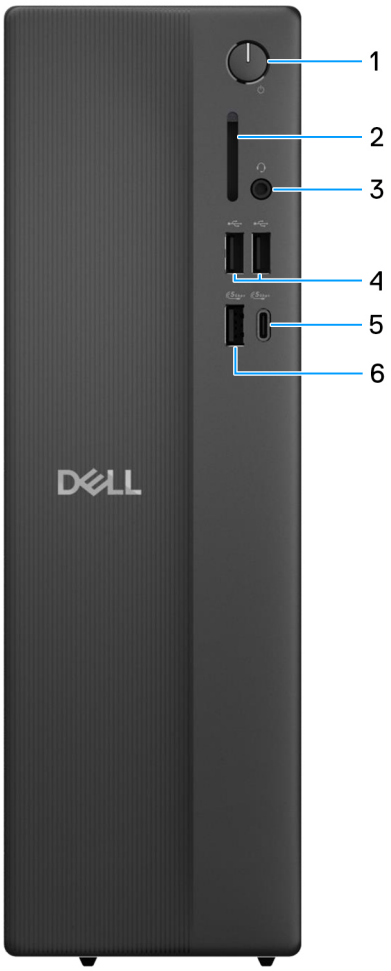

Figure 1. Front view

1. **Power button**

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

   Press to put the computer in sleep state if it is turned on.

   Press and hold to force shut-down the computer.

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

2. **SD-card slot (optional)**

   Reads from and writes to the SD card. The computer supports the following card types:

   - Secure Digital (SD)
   - Secure Digital High Capacity (SDHC)
   - Secure Digital Extended Capacity (SDXC)

3. **One global headset (headphone and microphone combo) jack**

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

4. **USB 2.0 (480 Mbps) ports (2)**

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

5. **USB 3.2 Gen 1 (5 Gbps) Type-C port**

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

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.

Back

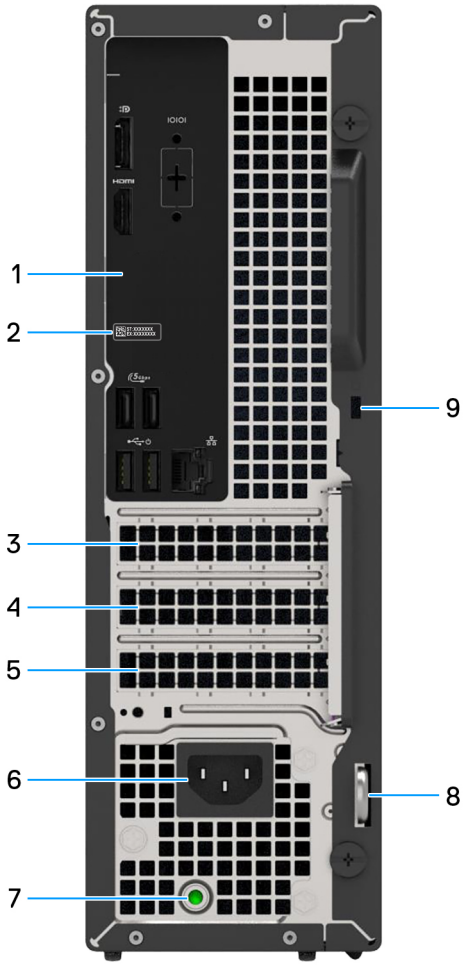

Figure 2. Back view

1. **Back panel**

   Connect USB, audio, video, and other devices.

2. **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.

3. **Half-height PCIe x1 slot**

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

4. **Half-height PCIe x1 slot**

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

5. **Half-height PCIe x16 expansion card slot**

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

6. **Power-cord connector port**

   Connect a power cable to provide power to your computer.

7. **Power-supply diagnostic light**

   Indicates the power-supply state.

8. **Padlock ring**

   Attach a standard padlock to prevent unauthorized access to the interior of your computer.

9. **Security-cable slot (for a Kensington lock)**

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

Back panel

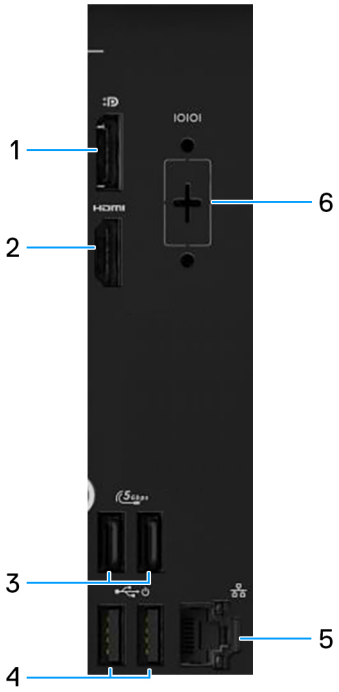

Figure 3. Back Panel

1. **DisplayPort 1.4 port**

   Connect an external display or a projector. Maximum resolution supported up to 5120 x 3200 @60 Hz.

   NOTE: The DisplayPort 1.4 (HBR3) port is featured on computers that are shipped with an Intel Core Ultra 5 225 or Intel Core Ultra 7 265 processor.

   NOTE: The DisplayPort 1.4 (HBR2) port is featured on computers that are shipped with an Intel Core i3 14100, Intel Core i5 14400, or Intel Core i7 14700 processor.

2. **HDMI 2.1 (TDMS) port**

Connect to a TV, external display, or another HDMI-in enabled device. Maximum resolution supported up to 4096 x 2160 at 60 Hz.

3. **USB 3.2 Gen 1 (5 Gbps) ports (2)**

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

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

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

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

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

6. **Legacy serial port (optional)**

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

Service Tag

The service tag is a unique alphanumeric identifier that allows Dell service technicians to identify the hardware components in your computer and access warranty information.

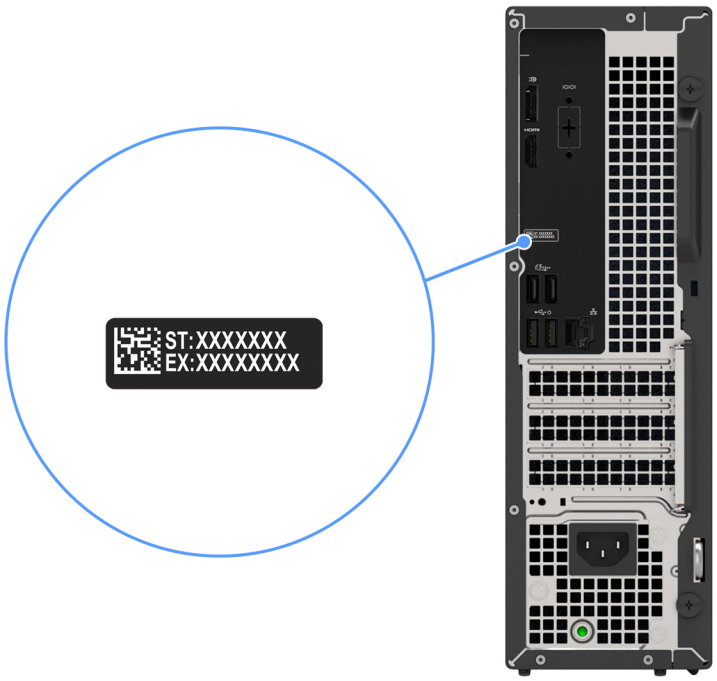

Figure 4. Service tag location of your Dell Slim ECS1250

2

Set up your computer

Steps

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

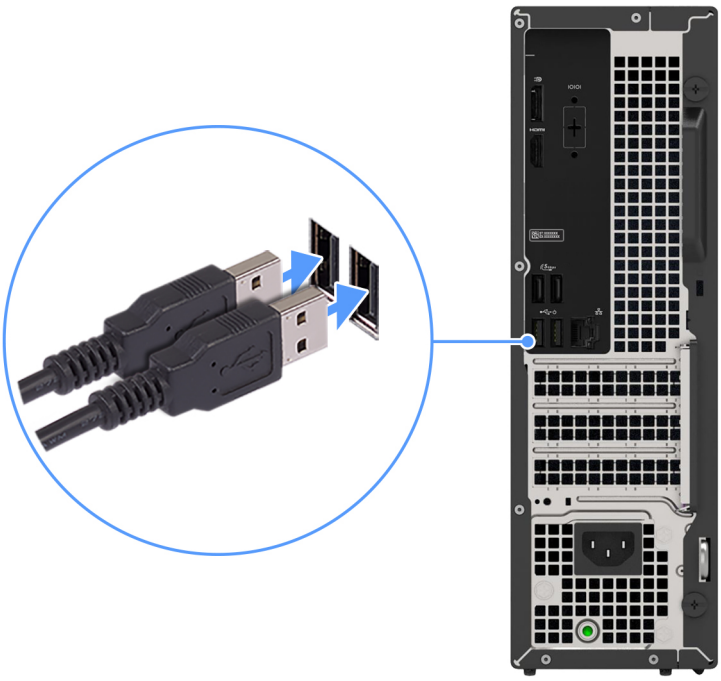

Figure 5. Connecting the wired keyboard and mouse to your Dell Slim ECS1250

2. Connect to your network using an ethernet cable.

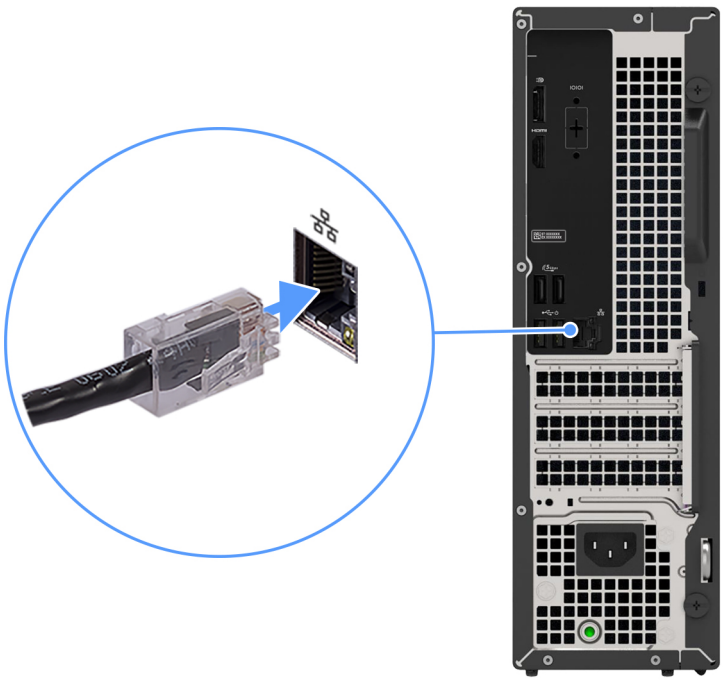

Figure 6. Connecting the ethernet cable

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

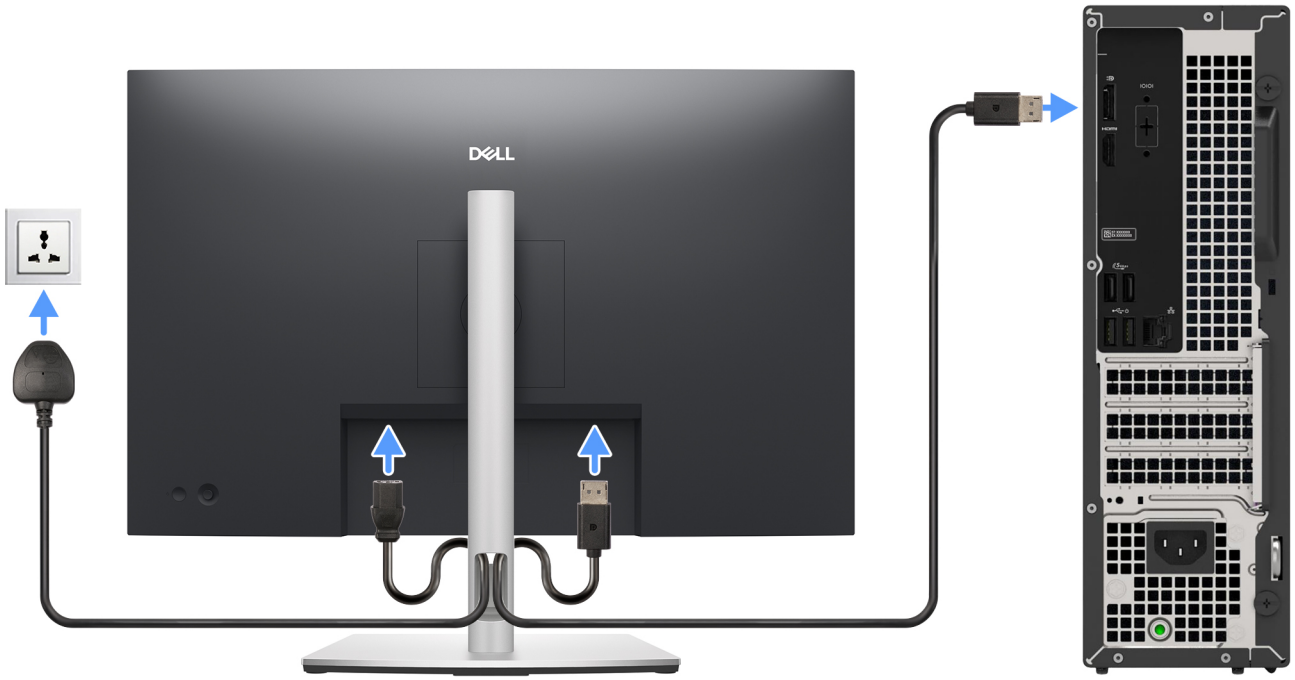

Figure 7. Connect the display

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

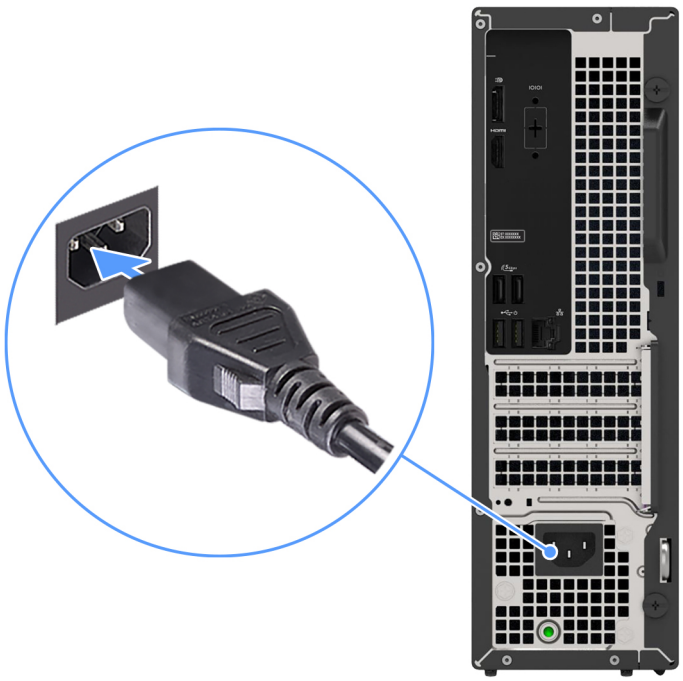

Figure 8. Connect the power cable

5. Press the power button to turn on the computer.

Figure 9. Press the power button

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 AI-based software application that allows you to customize your computer settings for power and battery, and more. For Dell Slim ECS1250 with Dell Optimizer, you can: ● Tune the performance, power consumption, cooling, and fan noise with selectable thermal modes. ● Download and redeem the apps that are purchased with your computer. For more information about configuring and using these features, search for the Dell Optimizer documentation at Dell Support Site.
	**SupportAssist** Proactively checks the health of your computer's hardware and software. The SupportAssist operating system Recovery tool troubleshoots issues with the operating system. For more information, see the SupportAssist documentation at Dell Support Site. **NOTE:** In SupportAssist, click the warranty expiry date to renew or upgrade your warranty.

3

Specifications of Dell Slim ECS1250

Dimensions and weight

The following table lists the height, width, depth, and weight of your Dell Slim ECS1250.

Table 2. Dimensions and weight

Description	Values
Height	303.50 mm (11.95 in.)
Width	95 mm (3.74 in.)
Depth	293 mm (11.54 in.)
Weight **NOTE:** The weight of your computer depends on the configuration ordered and manufacturing variability.	• Minimum: 3.49 kg (7.69 lb) • Maximum: 4.75 kg (10.47 lb)

Processor

The following table lists the details of the processors that are supported for your Dell Slim ECS1250.

Table 3. Processor

Description	Option one	Option two	Option three
Processor type	Intel Core Ultra 5 225	Intel Core Ultra 7 265	Intel Core i3 14100
Processor wattage	65 W	65 W	60 W
Processor total core count	10	20	4
Performance-cores	6	8	4
Efficient-cores	4	12	0
Processor total thread counts **NOTE:** Intel Hyper-Threading Technology is only available on Performance-cores.	10	20	8
Processor speed	Up to 4.9 GHz	Up to 5.3 GHz	Up to 4.7 GHz
Performance-cores frequency			
Processor base frequency	3.3 GHz	2.4 GHz	3.5 GHz
Maximum turbo frequency	4.9 GHz	5.3 GHz	4.7 GHz
Efficient-cores frequency			
Processor base frequency	2.7 GHz	1.8 GHz	Not applicable
Maximum turbo frequency	4.4 GHz	4.6 GHz	Not applicable
Processor cache	20 MB	30 MB	12 MB
Integrated graphics	Intel Graphics	Intel Graphics	Intel UHD Graphics 730

Table 4. Processor

Description	Option four	Option five
Processor type	Intel Core i5 14400	Intel Core i7 14700
Processor wattage	65 W	65 W
Processor total core count	10	20
Performance-cores	6	8
Efficient-cores	4	12
Processor total thread counts **NOTE:** Intel Hyper-Threading Technology is only available on Performance-cores.	16	28
Processor speed	Up to 4.7 GHz	Up to 5.4 GHz
Performance-cores frequency		
Processor base frequency	2.5 GHz	2.1 GHz
Maximum turbo frequency	4.7 GHz	5.3 GHz
Efficient-cores frequency		
Processor base frequency	1.8 GHz	4.2 GHz
Maximum turbo frequency	3.5 GHz	1.5 GHz
Processor cache	20 MB	33 MB
Integrated graphics	Intel UHD Graphics 730	Intel UHD Graphics 770

Chipset

The following table lists the details of the chipset that is supported by your Dell Slim ECS1250.

Table 5. Chipset

Description	Option one	Option two
Processors	Intel Core i3/i5/i7	Intel Core Ultra 5/7
Chipset	Intel Q670	Intel Q870
DRAM bus width	64-bit/128-bit	64-bit/128-bit
Flash EPROM	32 MB + 16 MB	32 MB + 32 MB
PCIe bus	Up to Gen3	Up to Gen4

Operating system

Your Dell Slim ECS1250 supports the following operating systems:

- Windows 11 Home

- Windows 11 Pro
- Windows 11 Pro National Education
- Ubuntu Linux 24.04 LTS, 64-bit

Memory

The following table lists the memory specifications that are supported by your Dell Slim ECS1250.

Table 6. Memory specifications

Description	Values
Memory slots	Two UDIMM slots
Memory type	DDR5
Memory speed	• 4800 MT/s • 5600 MT/s
Maximum memory configuration	64 GB
Minimum memory configuration	8 GB
Memory size per slot	8 GB, 16 GB, and 32 GB
Memory configurations supported	**NOTE:** For computers shipped with an Intel Core i3 14100 or Intel Core i5 14400 processor • 8 GB: 1 x 8 GB, DDR5, 4800 MT/s, UDIMM, single-channel • 16 GB: 2 x 8 GB, DDR5, 4800 MT/s, UDIMM, dual-channel • 16 GB: 1 x 16 GB, DDR5, 4800 MT/s, UDIMM, single-channel • 32 GB: 2 x 16 GB, DDR5, 4800 MT/s, UDIMM, dual-channel • 32 GB: 1 x 32 GB, DDR5, 4800 MT/s, UDIMM, single-channel • 64 GB: 2 x 32 GB, DDR5, 4800 MT/s, UDIMM, dual-channel **NOTE:** For computers shipped with an Intel Core i7 14700, Intel Core Ultra 5 225 or Intel Core Ultra 7 265 processor • 8 GB: 1 x 8 GB, DDR5, 5600 MT/s, UDIMM, single-channel • 16 GB: 2 x 8 GB, DDR5, 5600 MT/s, UDIMM, dual-channel • 16 GB: 1 x 16 GB, DDR5, 5600 MT/s, UDIMM, single-channel • 32 GB: 2 x 16 GB, DDR5, 5600 MT/s, UDIMM, dual-channel • 32 GB: 1 x 32 GB, DDR5, 5600 MT/s, UDIMM, single-channel • 64 GB: 2 x 32 GB, DDR5, 5600 MT/s, UDIMM, dual-channel

External ports and slots

The following table lists the external ports and slots of your Dell Slim ECS1250.

Table 7. External ports and slots

Description	Values
Network port	One RJ45 ethernet port (1 Gbps)
USB ports	**Front** • Two USB 2.0 (480 Mbps) ports • One USB 3.2 Gen 1 (5 Gbps) port • One USB 3.2 Gen 1 (5 Gbps) Type-C port **Rear** • Two USB 2.0 (480 Mbps) ports with Smart Power On • Two USB 3.2 Gen 1 (5 Gbps) ports
Audio port	One global headset (headphone and microphone combo) jack
Video port(s)	**For computers shipped with an Intel Core Ultra 5 225 or Intel Core Ultra 7 265 processor** • One DisplayPort 1.4 (HBR3) port **NOTE:** The maximum resolution supported by DisplayPort 1.4 port (HBR3) is 5120 x 3200 @ 60 Hz. **For computers shipped with an Intel Core i3 14100, Intel Core i5 14400 or Intel Core i7 14700 processor** • One DisplayPort 1.4 (HBR2) port **NOTE:** The maximum resolution supported by DisplayPort 1.4 port (HBR2) is 4096 x 2304 @ 60 Hz. • One HDMI 2.1 (TDMS) port **NOTE:** The maximum resolution supported by the HDMI 2.1 (TDMS) port is 4096 x 2160 @ 60 Hz.
Media-card reader	One SD-card slot (optional)
Power-adapter port	One power-cable connector
Peripheral port	One legacy serial port (optional)
Security-cable slot	• Kensington security-cable slot • One padlock ring slot

Internal slots

The following table lists the internal slots on your Dell Slim ECS1250.

Table 8. Internal slots

Description	Values
M.2	• One M.2 2230 slot for WiFi and Bluetooth combo card • One M.2 2230 or 2280 slot 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.

Table 8. Internal slots (continued)

Description	Values
SATA	One SATA 3.0 slot for 3.5-inch hard drive
PCIe	• One half-height PCIe x16 slot • Two half-height PCIe x1 slots

Ethernet

The following table lists the wired ethernet Local Area Network (LAN) specifications of your Dell Slim ECS1250.

Table 9. Ethernet specifications

Description	Values
Model	Realtek RTL8111KD
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 Slim ECS1250.

Table 10. Wireless module specifications

Description	Option one	Option two
Model number	Intel AX211	Mediatek MT7920
Transfer rate	Up to 2400 Mbps	Up to 1200 Mbps
Frequency bands supported	2.4 GHz/5 GHz/6 GHz	2.4 GHz/5 GHz
Wireless standards	• Wi-Fi 802.11 a/b/g • Wi-Fi 4 (WiFi 802.11n) • Wi-Fi 5 (WiFi 802.11ac) • Wi-Fi 6E (WiFi 802.11ax)	• Wi-Fi 802.11 a/b/g • Wi-Fi 4 (WiFi 802.11n) • Wi-Fi 5 (WiFi 802.11ac) • Wi-Fi 6 (WiFi 802.11ax)
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 5.3 wireless card	Bluetooth 5.4 wireless card

Audio

The following table lists the audio specifications of your Dell Slim ECS1250.

Table 11. Audio specifications

Description	Values
Audio type	Realtek

Table 11. Audio specifications (continued)

Description	Values
Audio controller	ALC3204
Internal audio interface	High definition audio interface
External audio interface	One global headset (headphone and microphone combo) jack

Storage

This section lists the storage options on your Dell Slim ECS1250.

Table 12. Storage matrix

Storage		3.5-inch hard drive	M.2 2230 or 2280 socket
M.2 solid state drive		No	Yes
M.2 solid state drive	3.5-inch hard drive	Yes	Yes (Primary M.2 PCIe boot function)

Table 13. Storage specifications

Storage type	Interface type	Capacity
3.5-inch hard-disk drive, 7200 RPM	SATA AHCI, up to 6 Gbps	Up to 2 TB
M.2 2230 solid state drive	PCIe Gen4x4 NVMe, up to 64 GT/s	Up to 256 GB
M.2 2230 QLC solid state drive	PCIe Gen4x4 NVMe, up to 64 GT/s	Up to 2 TB

Media-card reader (optional)

The following table provides the specification of media cards that are supported by your Dell Slim ECS1250.

Table 14. Media-card reader specifications

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

Power ratings

The following table lists the power rating specifications of Dell Slim ECS1250.

Table 15. Power ratings

Description		Values
Type		180 W internal Power Supply Unit (PSU), 85% Efficient, 80PLUS Bronze
Input voltage		90 VAC–264 VAC
Input frequency		47 Hz to 63 Hz
Input current (maximum)		3 A
Output current (continuous)		Operating ● 12 VA: 15 A ● 12 VB: 14 A Standby mode: ● 12 VA: 1.5 A ● 12 VB: 3.3 A
Rated output voltage		● +12 VA ● +12 VB
Temperature range		
	Operating	5°C to 45°C (41°F to 113°F)
	Storage	-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 Slim ECS1250.

Table 16. Power supply connector

Connector	Pin
180 W (85% efficient, 80PLUS Bronze Certified)	● One 4-pin connector for the processor ● One 8-pin connector for the system board

GPU—Integrated

The following table lists the specifications of the integrated Graphics Processing Unit (GPU) supported by your Dell Slim ECS1250.

Table 17. GPU—Integrated

Controller	External display support	Memory size	Processor
Intel UHD Graphics 730	● One DisplayPort 1.4 (HBR2) port **NOTE:** The maximum resolution supported by DisplayPort 1.4 port	Shared system memory	● Intel Core i3 14100 ● Intel Core i5 14400

Table 17. GPU—Integrated (continued)

Controller	External display support	Memory size	Processor
	(HBR2) is 4096 x 2304 @ 60 Hz. • One HDMI 2.1 (TDMS) port **NOTE:** The maximum resolution supported by the HDMI 2.1 (TDMS) port is 4096 x 2160 @ 60 Hz .		
Intel UHD Graphics 770	• One DisplayPort 1.4 (HBR2) port **NOTE:** The maximum resolution supported by DisplayPort 1.4 port (HBR2) is 4096 x 2304 @ 60 Hz. • One HDMI 2.1 (TDMS) port **NOTE:** The maximum resolution supported by the HDMI 2.1 (TDMS) port is 4096 x 2160 @ 60 Hz .	Shared system memory	Intel Core i7 14700
Intel Graphics	• One DisplayPort 1.4 (HBR3) port **NOTE:** The maximum resolution supported by DisplayPort 1.4 port (HBR3) is 5120 x 3200 @ 60 Hz. • One HDMI 2.1 (TDMS) port **NOTE:** The maximum resolution supported by the HDMI 2.1 (TDMS) port is 4096 x 2160 @ 60 Hz .	Shared system memory	• Intel Core Ultra 5 225 • Intel Core Ultra 7 265

Hardware security

The following table lists the hardware security of your Dell Slim ECS1250.

Table 18. Hardware security

Hardware security
Kensington security-cable slot
One padlock ring slot
Trusted Platform Module (TPM) 2.0

Environmental

The following table lists the environmental specifications of your Dell Slim ECS1250.

Table 19. Environmental

Feature	Values
Recyclable packaging	Yes
Vertical orientation packaging support	No
Multi-Pack packaging	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 Slim ECS1250.

Table 20. 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 Slim ECS1250.

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

Table 21. Computer environment

Description	Operating	Storage
Temperature range	10°C to 35°C (32°F to95°F)	-40°C to 65°C (-40°F to 149°F)
Relative humidity (maximum)	20% to 80% (non-condensing, Max dew point temperature = 26°C)	5% to 95% (non-condensing, Max dew point temperature = 33°C)
Vibration (maximum)*	0.26 GRMS random at 5 Hz to 350 Hz	1.37 GRMS random at 5 Hz to 350 Hz
Shock (maximum)	40 G†	105 G†
Altitude range	-15.2 m to 3048 m (-49.86 ft to10,000 ft)	-15.2 m to 10,668 m (-49.86 ft to 35,000 ft)
CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.		

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

† Measured using a 2 ms half-sine pulse.

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

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

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

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

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

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

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

Before working inside your computer

About this task

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

Steps

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

   NOTE: If you are using a different operating system, see the documentation of your operating system for shut-down instructions.
3. Turn off all the attached peripherals.
4. Disconnect your computer from the electrical outlet.

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

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

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

Safety precautions

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

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

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

Bonding

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

Electrostatic discharge—ESD protection

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

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

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

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

Perform the following steps to prevent ESD damage:

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

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

For more information about the wrist strap and ESD wrist strap tester, see Components of an ESD Field Service Kit.

- Before transporting a static-sensitive component, place it in an anti-static container or packaging.

ESD Field Service kit

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

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

Working environment

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

ESD packaging

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

Components of an ESD Field Service kit

The components of an ESD Field Service kit are:

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

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

Transporting sensitive components

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

Lifting equipment

Adhere to the following guidelines when lifting heavy equipment:

CAUTION: Do not lift 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

When updating the BIOS on a computer with BitLocker enabled, consider the following precautions.

CAUTION: If BitLocker is not suspended before updating the BIOS, the BitLocker key will not be recognized the next time that you reboot the computer. You are 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 and #2

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 22. Screw list

Component	Screw type	Quantity	Screw image
Left-side cover	#6-32	2	
M.2 2230 solid state drive	M2x3	1	
Wireless card	M2x3	1	
3.5-inch hard drive	#6-32	4	
Power supply unit	#6-32, hex head	3	
Media-card reader (optional)	6x32#	1	
Serial-port module (optional)	M3	2	
Processor fan and heat-sink assembly	Captive	4	
System board	#6-32, hex head	6	
System board	#6-32x3.8	1	
Antenna bracket	#6-32	1	
Antenna modules	M2x3	2	

Major components of Dell Slim ECS1250

The following image shows the major components of Dell Slim ECS1250.

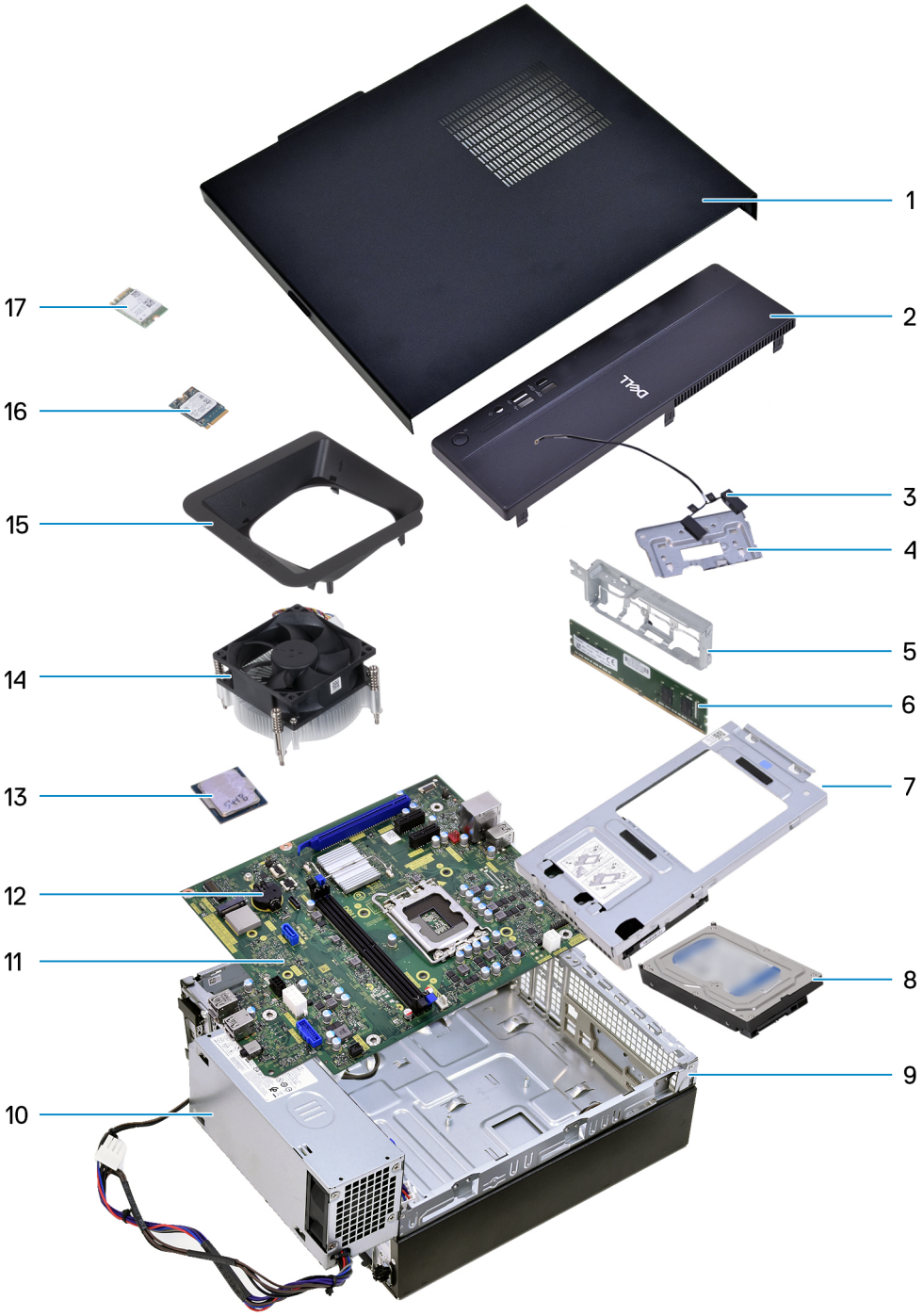

Figure 10. Major components of your computer

1. Left-side cover
2. Front cover
3. Antennas
4. Antenna bracket
5. Front-I/O bracket
6. Memory module
7. Drive bay
8. Hard drive
9. Chassis
10. Power-supply unit
11. System board

12. Coin-cell battery
13. Processor
14. Processor fan and heat-sink assembly
15. Fan shroud
16. M.2 2230 solid state drive
17. Wireless card

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

5

Left-side cover

Removing the left-side cover

Prerequisites

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

About this task

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

Figure 11. Removing the left-side cover

Steps

1. Loosen the two captive screws (#6-32) that secure the left-side cover to the chassis.

2. Slide the left-side cover towards the back of the computer.
3. Lift the left-side cover from the chassis.

Installing the left-side cover

Prerequisites

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

About this task

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

Figure 12. Installing the left-side cover

Steps

1. Align the tabs on the left-side cover with the slots on the chassis.
2. Slide the left-side cover towards the front of the computer.
3. Tighten the two captive screws (#6-32) that secure the left-side cover to the chassis.

Next steps

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

6

Coin-cell battery cover

Removing the coin-cell battery cover

Prerequisites

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

About this task

The following image indicates the location of the coin-cell battery cover and provides a visual representation of the removal procedure.

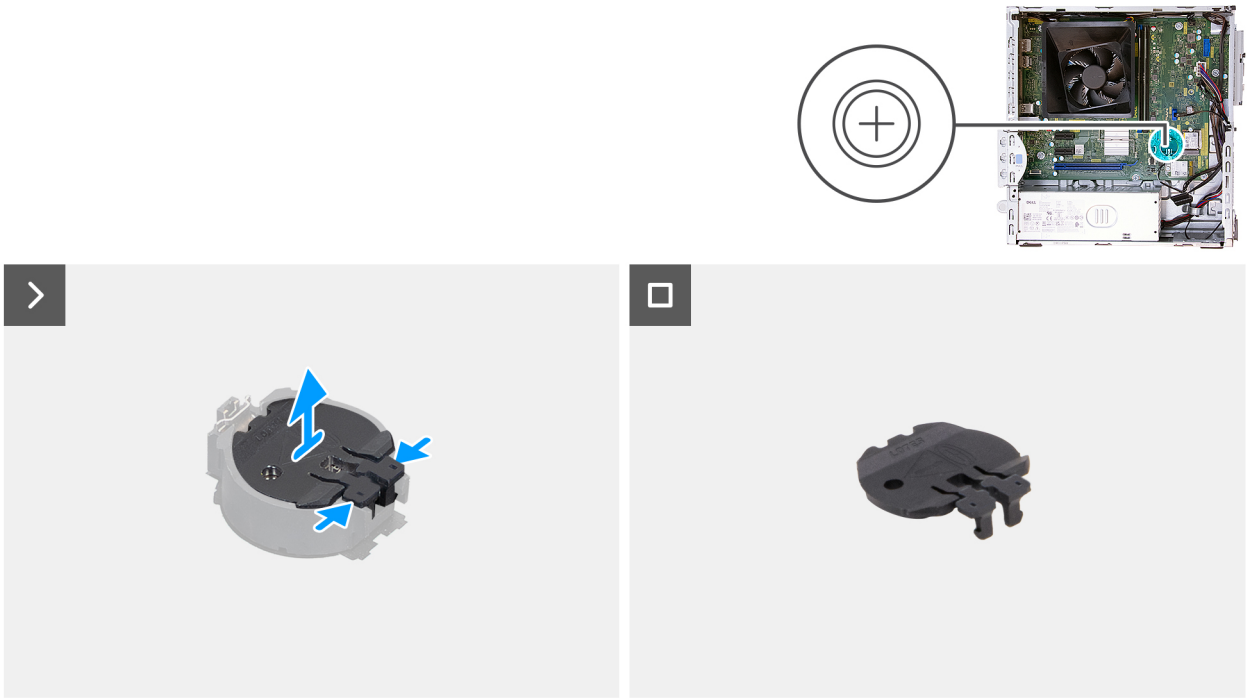

Figure 13. Removing the coin-cell battery cover

Steps

1. Pinch the securing tabs on the coin-cell cover to release the coin-cell cover from the coin-cell battery socket (RTC).
2. Lift the coin-cell cover off the battery socket.

Installing the coin-cell battery cover

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 coin-cell battery cover and provides a visual representation of the installation procedure.

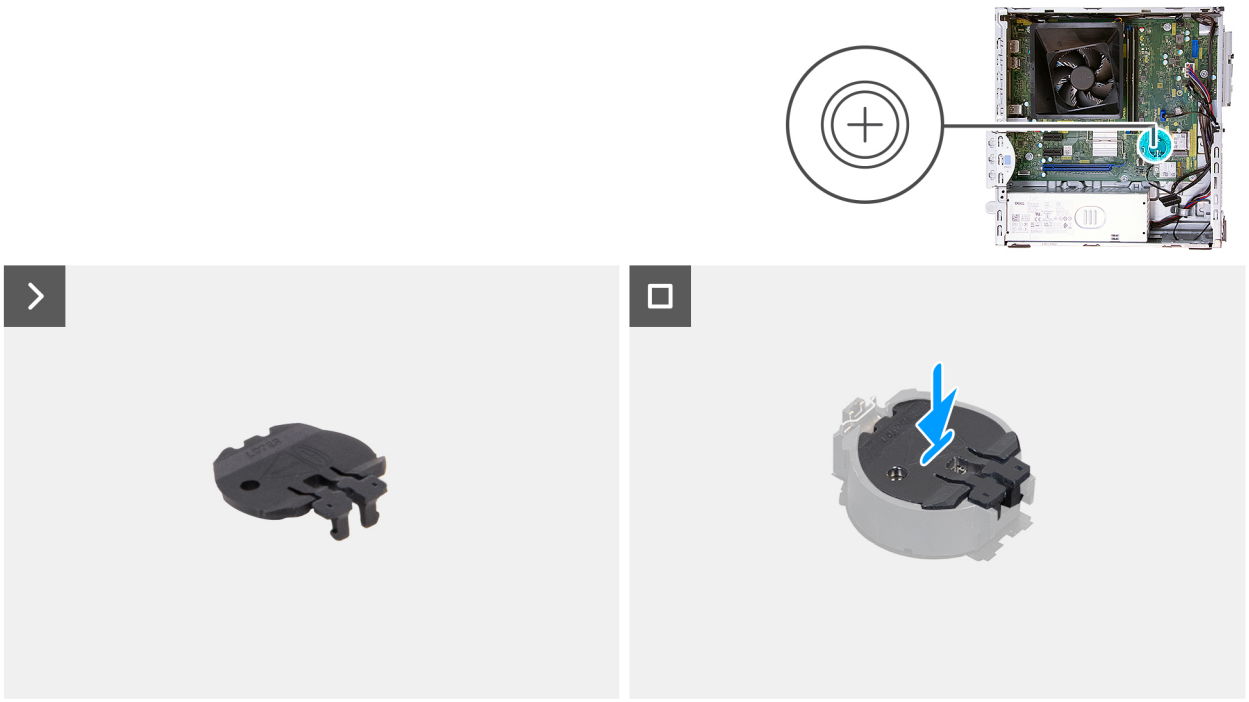

Figure 14. Installing the coin-cell battery cover

Steps

Align the coin-cell battery cover with the battery socket (RTC) and press it into place.

Next steps

1. Install the left-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 left-side cover.
3. Remove the coin-cell cover.

About this task

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

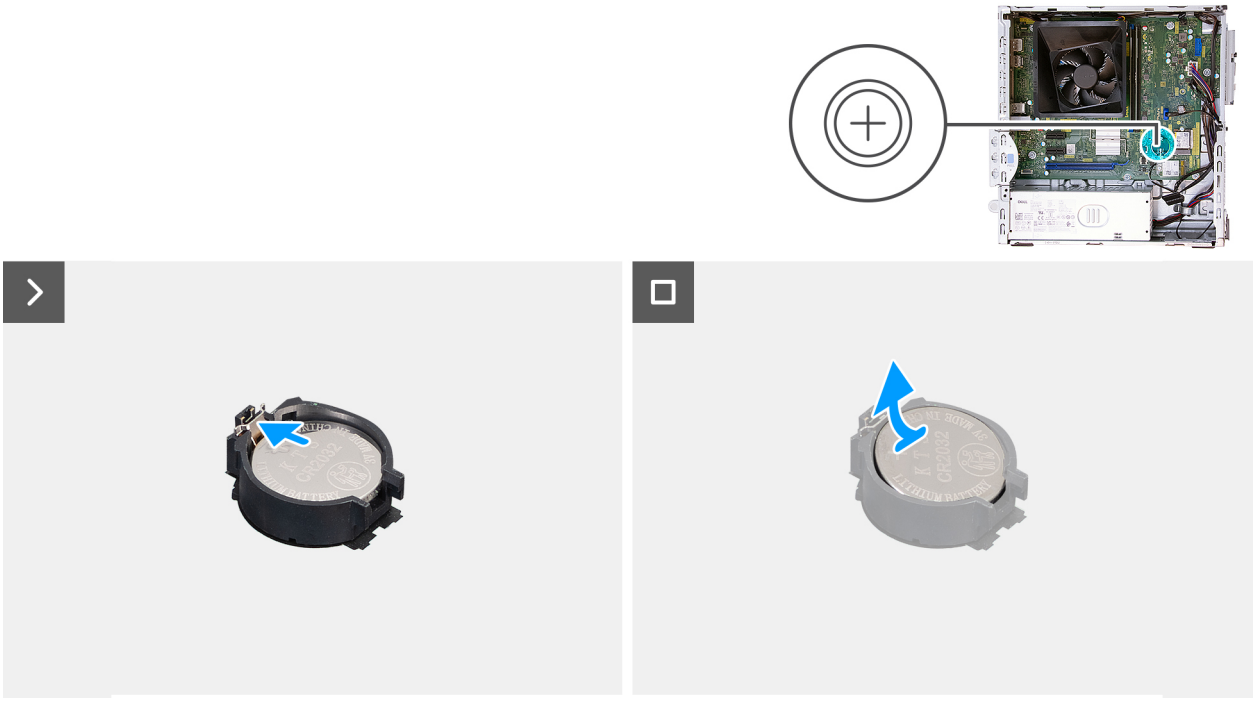

Figure 15. Removing the coin-cell battery

Steps

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

Installing the coin-cell battery

Prerequisites

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

About this task

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

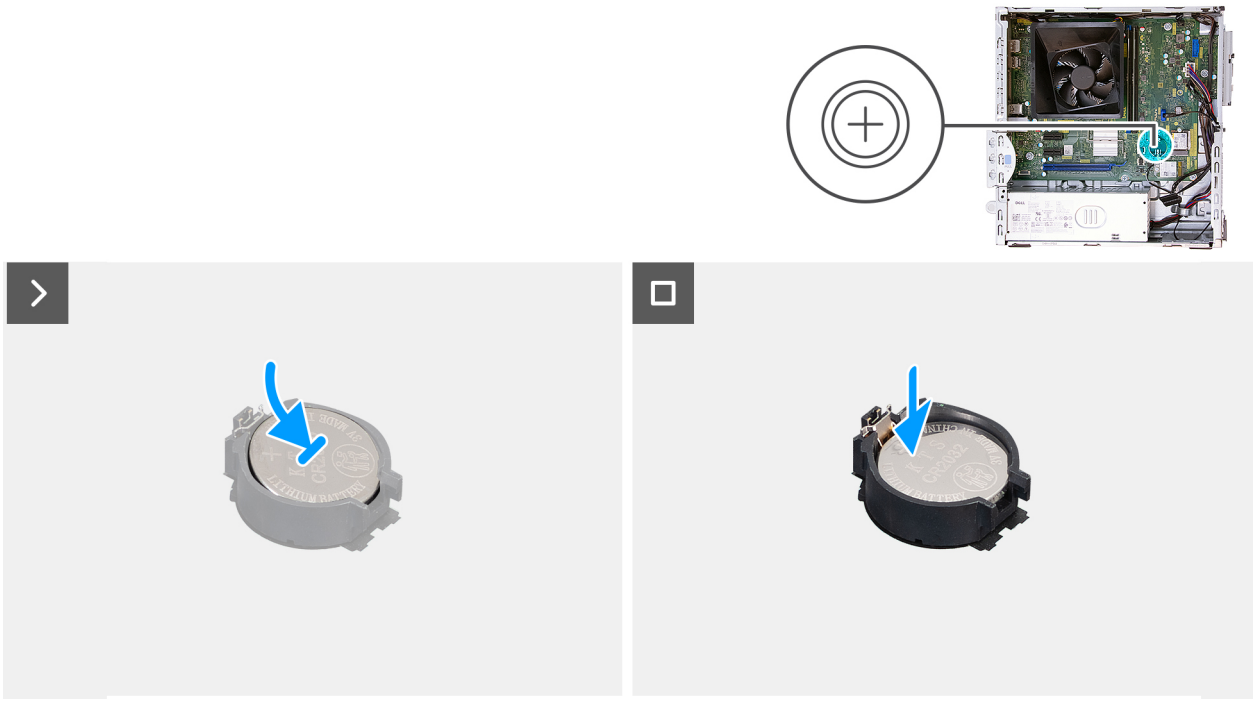

Figure 16. Installing the coin-cell battery

Steps

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

Next steps

1. Install the coin-cell cover.
2. Install the left-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 cover

Removing the front cover

Prerequisites

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

About this task

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

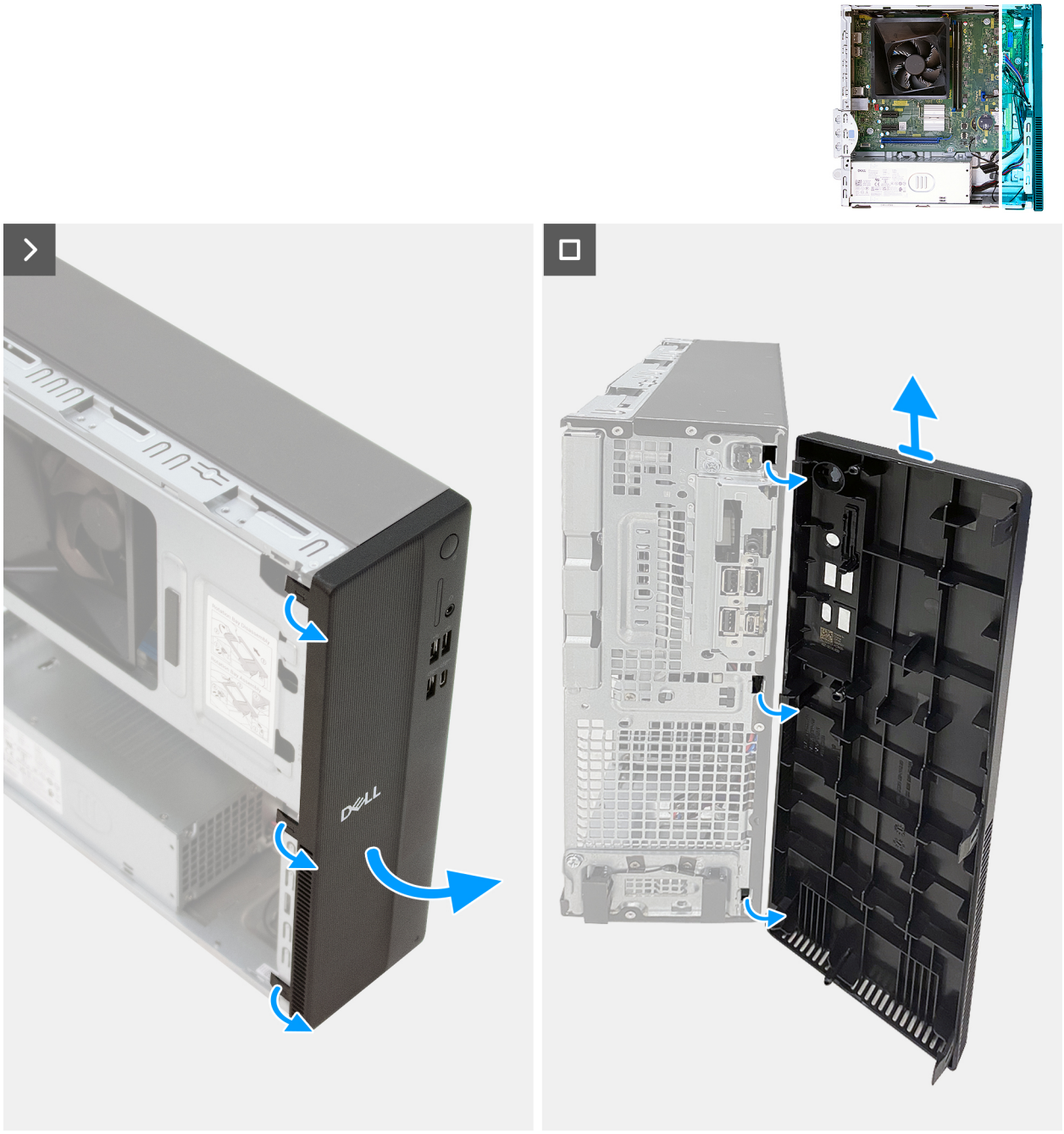

Figure 17. Removing the front cover

Steps

1. Pry and release the front-cover tabs sequentially from the top.
2. Rotate the front cover outward from the chassis and remove the front cover.

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

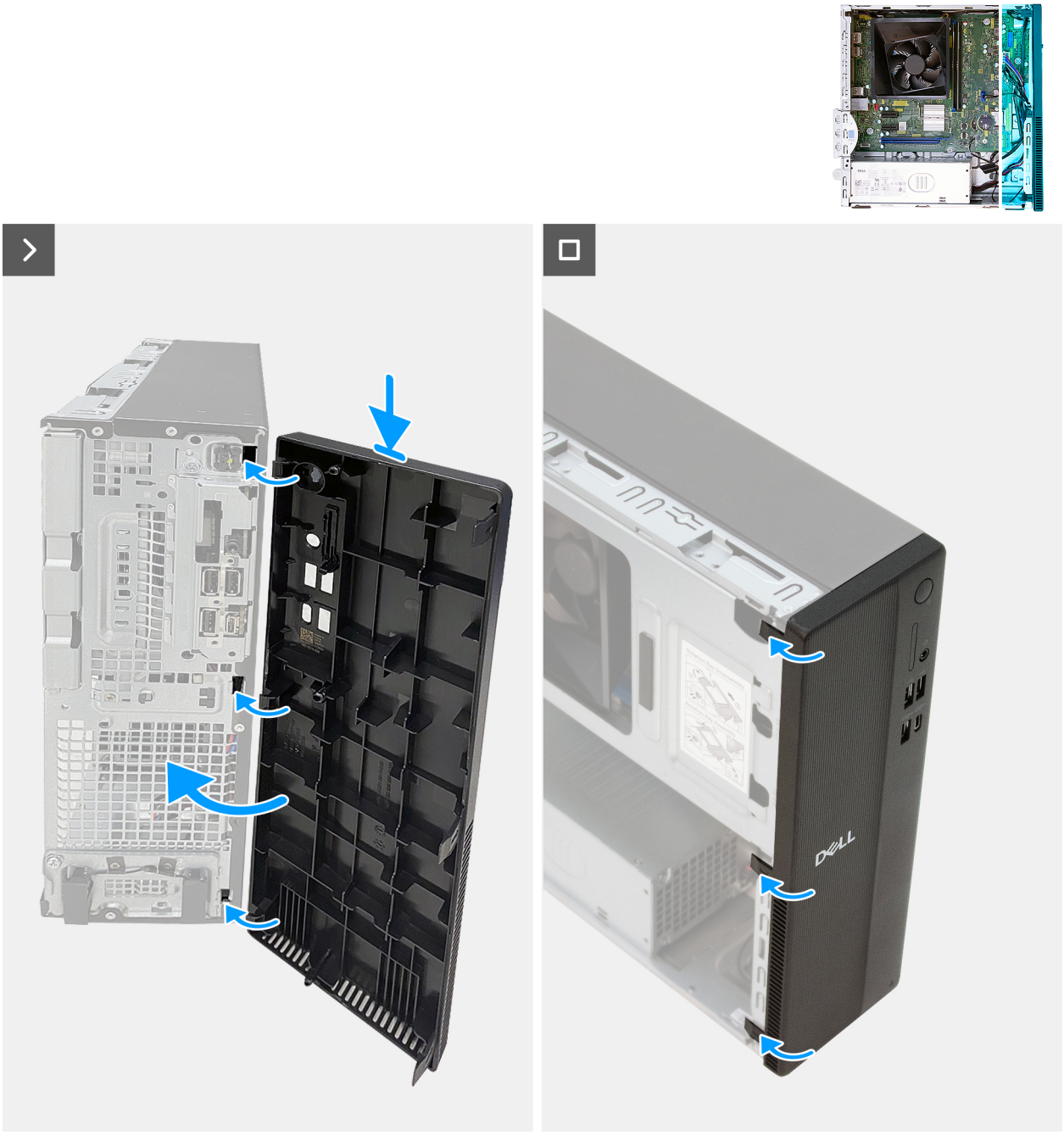

Figure 18. Installing the front cover

Steps

1. Remove the media-card reader cover from the front cover, if applicable.
2. Align and insert the front-cover tabs into the slots on the right side of the chassis.
3. Rotate the front cover towards the chassis and press it into place.

Next steps

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

Drive bay

Removing the drive bay

Prerequisites

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

About this task

NOTE: The drive bay is only available in computers that are shipped with a hard drive.

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

Figure 19. Removing the drive bay

Steps

1. Disconnect the data cable and the power cable from the hard drive.
2. Lift the drive bay from the rear to release the tabs from the chassis.
3. Hold the drive bay firmly with both hands, slide and remove the drive bay from the chassis.

Installing the drive bay

Prerequisites

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

About this task

NOTE: To install the drive bay into a computer that did not have one previously installed, contact Dell to purchase a drive bay.

NOTE: Steps 1 to 6 are only applicable when installing a new drive bay purchased from Dell or when reinstalling the drive bay.

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

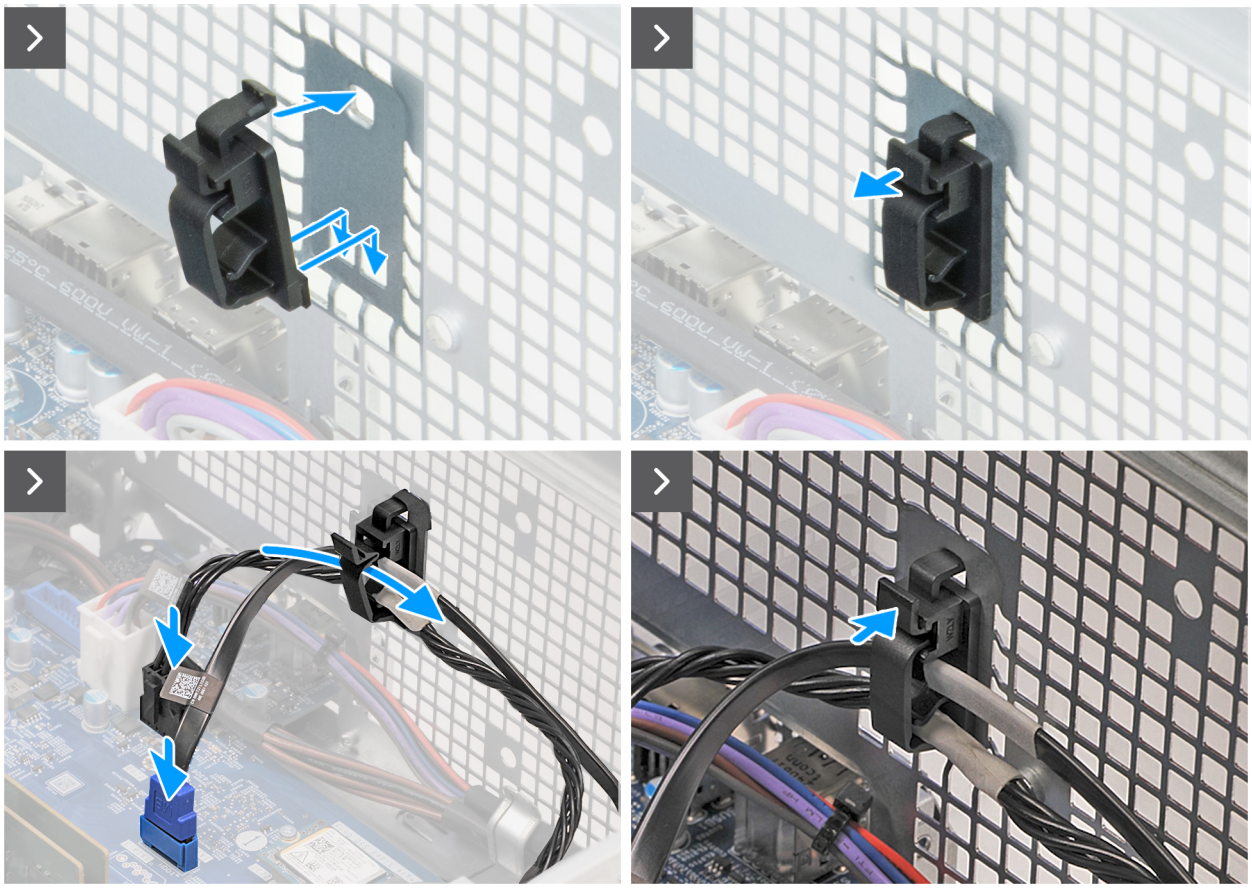

Figure 20. Installing the drive bay

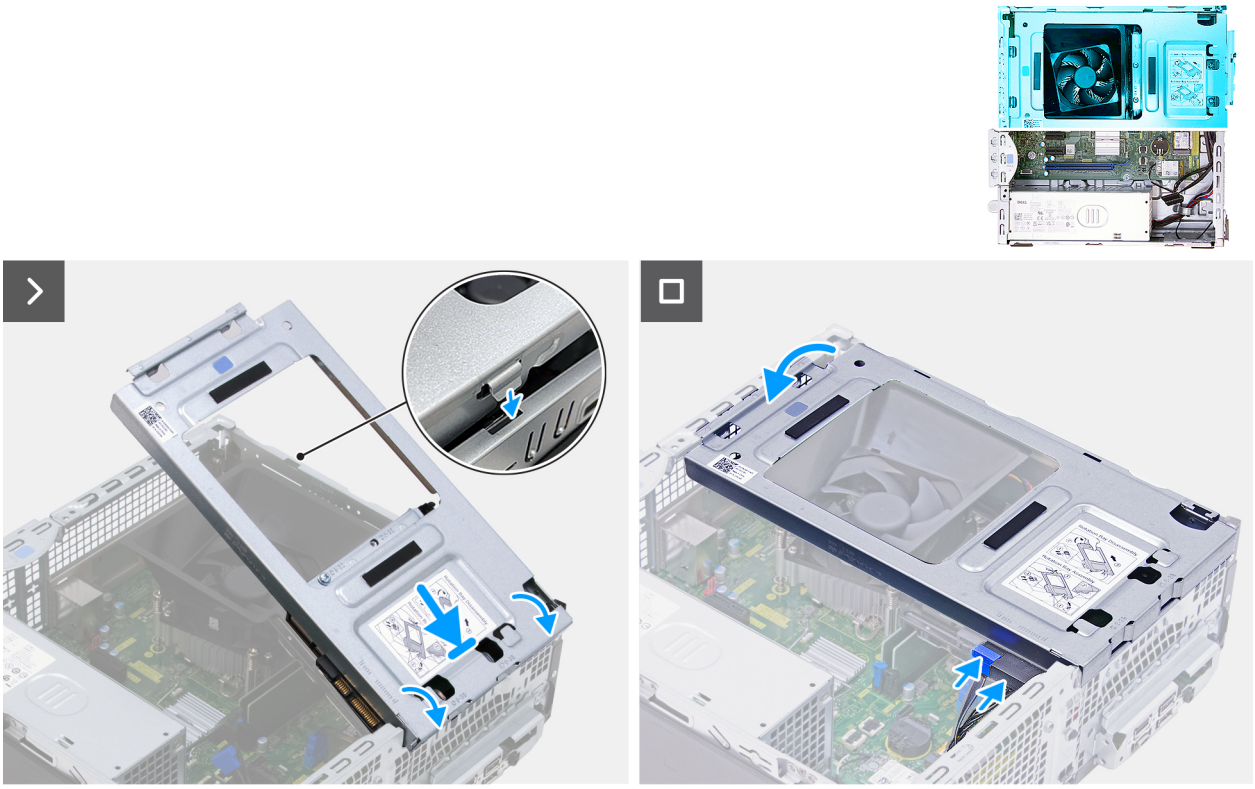

Figure 21. Installing the drive bay

Steps

1. Insert the tabs on the cable clip through the slots on the chassis and press the cable clip into place.
2. Connect the hard-drive power cable to its connector (SATA PWR) on the system board.
3. Connect the hard-drive data cable to its connector (SATA - 0) on the system board.
4. Open the cable clip.
5. Route the hard-drive power and data cables through the cable clip on the chassis.
6. Close the cable clip.
7. Install the hard drive.
8. Holding the drive bay firmly with both hands, slide and secure the hard drive side of the drive bay to the chassis.
9. Press down the other end of the drive bay securing the tabs on the drive bay with the slots on the chassis.
10. Connect the hard-drive data cable and power cables to the hard drive.

Next steps

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

Hard drive

Removing the hard drive

Prerequisites

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

4. Remove the drive bay.

About this task

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

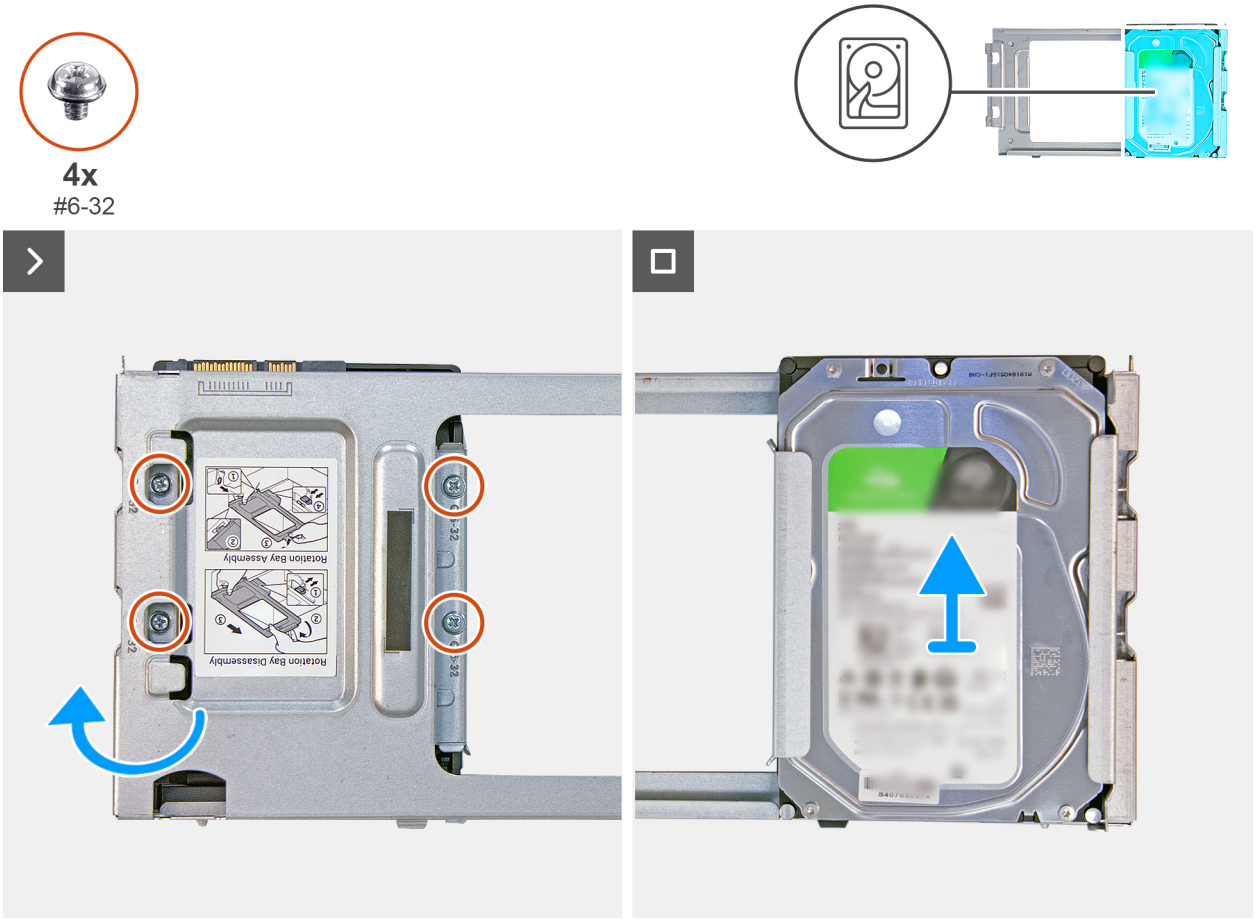

Figure 22. Removing the hard drive

Steps

1. Remove the four screws (#6-32) that secure the hard drive to the drive bay.
2. Flip over the drive bay.
3. Slide the hard drive out from the hard-drive slot on the drive bay.

Installing the hard drive

Prerequisites

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

About this task

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

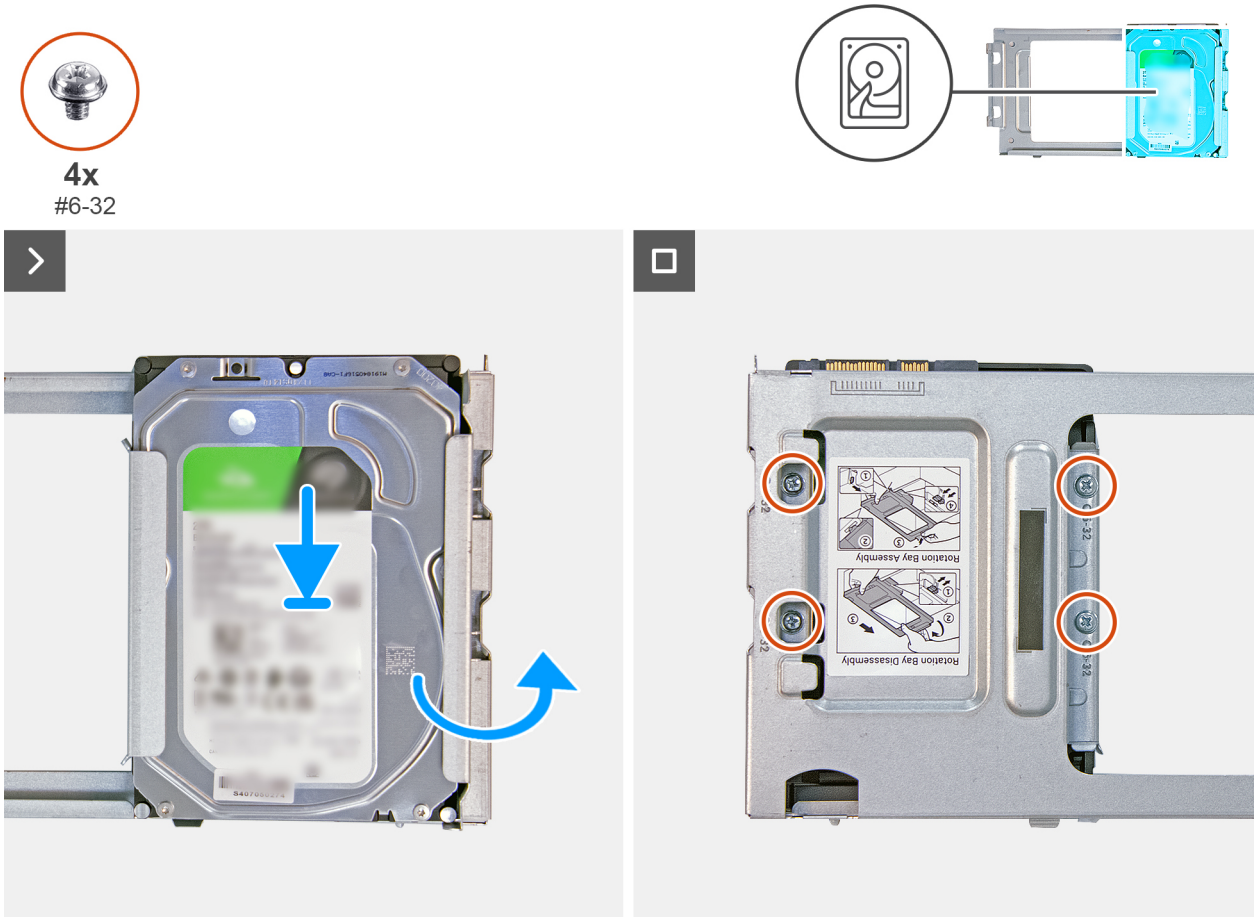

Figure 23. Installing the hard drive

Steps

1. Slide the hard drive into the hard-drive slot of the drive bay.
2. Flip over the drive bay.
3. Replace the four screws (#6-32) that secure the hard drive to the drive bay.

Next steps

1. Install the drive bay.
2. Install the front cover.
3. Install the left-side cover.
4. 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 left-side cover.
3. Remove the front cover.
4. Remove the drive bay.

About this task

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

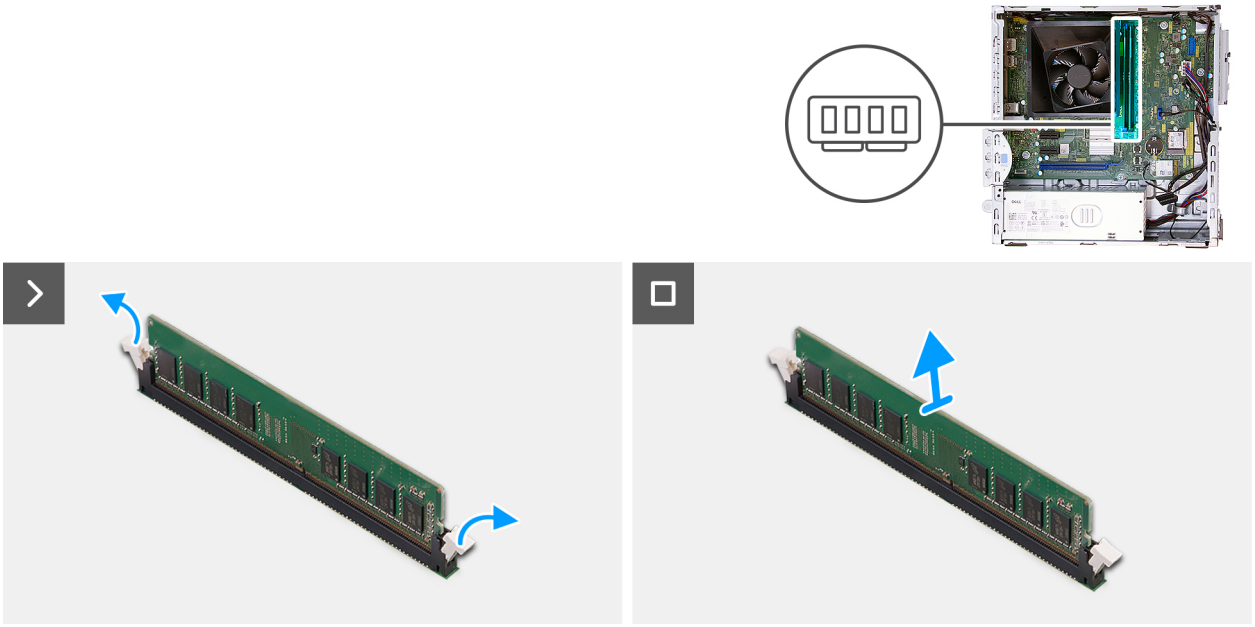

Figure 24. Removing a memory module

Steps

1. Use your fingertips to carefully spread apart the securing clips on each end of the memory-module slot (DIMM1 or DIMM2, whichever is applicable) .
2. Grasp the memory module near the securing clip, and then gently ease the memory module out of the memory-module slot.

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

   NOTE: If the memory module is difficult to remove, gently wriggle the memory module back and forth to remove it from the slot.

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

3. Repeat steps 1 and 2 to remove other memory modules installed in your computer.

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 images indicate the location of the memory modules and provide a visual representation of the installation procedure.

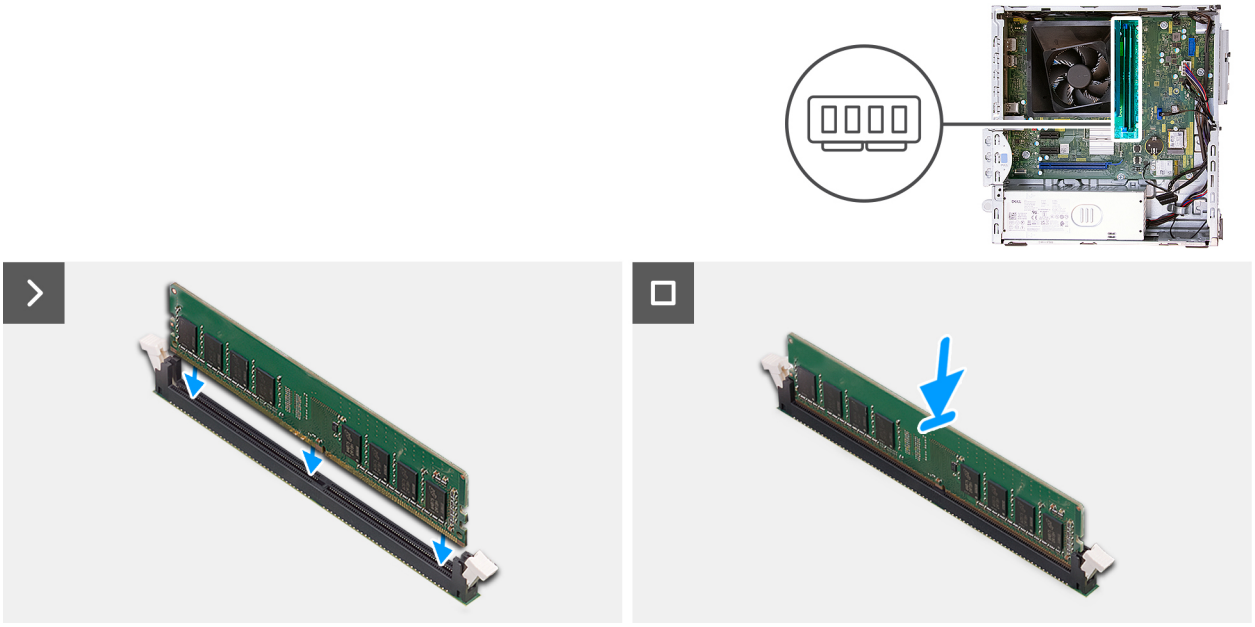

Figure 25. Installing the memory module

Steps

1. Ensure that the memory-module securing clips are in an open position.
2. Align the notch on the memory module with the tab on the memory-module slot (DIMM1 or DIMM2, whichever is applicable).
3. Press down on the memory module until the memory module snaps into position and the securing clips lock in place.

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

   NOTE: If you do not hear the click, remove the memory module and reinstall it.

4. Repeat steps 1 to 3 to install other memory modules in your computer, if applicable.

Next steps

1. Install the drive bay.
2. Install the front cover.
3. Install the left-side cover.
4. Follow the procedure in After working inside your computer.

Solid state drive (SSD)

Removing the M.2 2230 solid state drive

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the front cover.
4. Remove the drive bay.

About this task

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

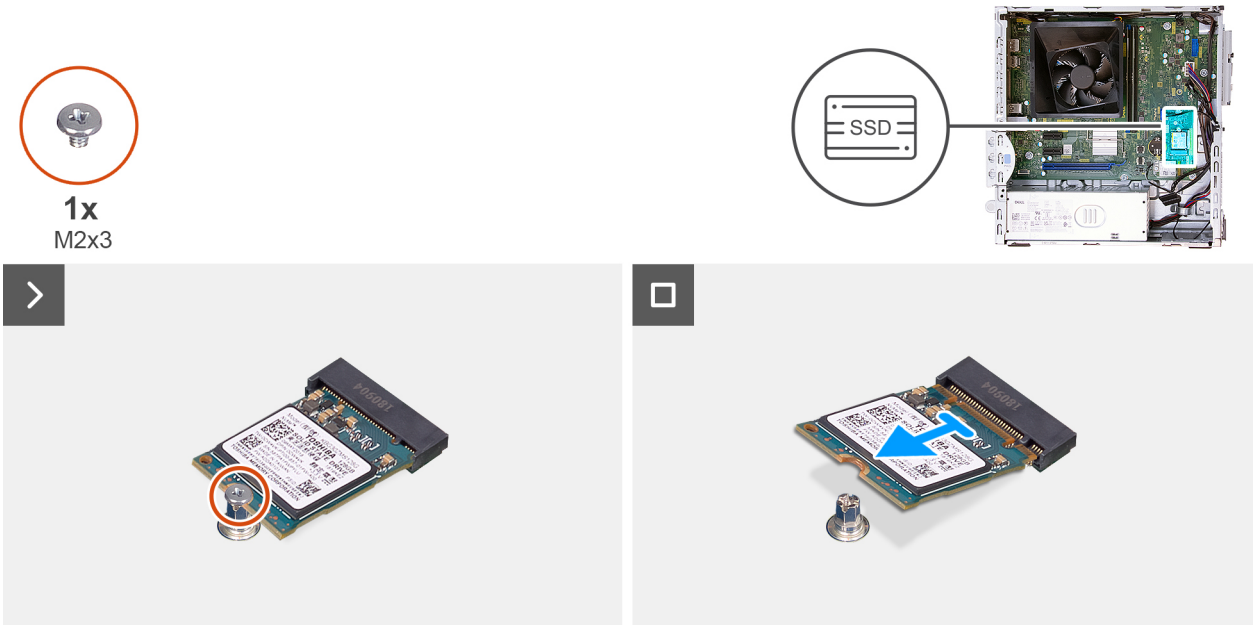

Figure 26. Removing the M.2 2230 solid state drive

Steps

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

Installing the M.2 2230 solid state drive

Prerequisites

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

About this task

NOTE: Steps 1 to 3 are applicable only if you are installing a new M.2 2230 solid state drive for the first time in your computer.

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

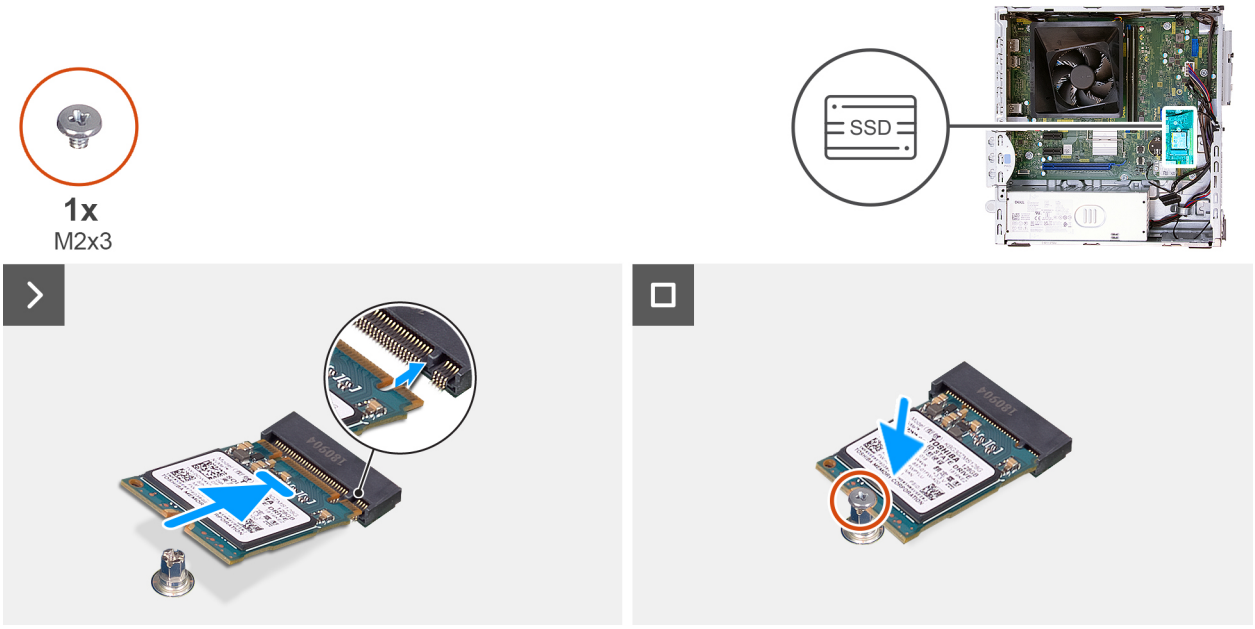

Figure 27. Installing the M.2 2230 solid state drive

Steps

1. Peel off the protection film on the thermal pad.
2. Align and adhere the thermal pad on the solid state drive slot 0 (M.2 PCIe SSD-0) on the system board.
3. Peel off the protective Mylar on the thermal pad.
4. Align the notch on the M.2 2230 solid state drive with the tab on the solid state drive slot (M.2 PCIe SSD-0) on the system board.
5. Slide the M.2 2230 solid state drive into the solid state drive slot (M.2 PCIe SSD-0) on the system board.
6. Replace the screw (M2x3.5) that secures the M.2 2230 solid state drive to the system board.

Next steps

1. Install the drive bay.
2. Install the front cover.
3. Install the left-side cover.
4. Follow the procedure in After working inside your computer.

Wireless card

Removing the wireless card

Prerequisites

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

About this task

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

Figure 28. Removing the wireless card

Steps

1. Remove the screw (M2x3.5) that secures the wireless-card bracket 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 from the wireless-card slot (M.2 WLAN) on the system board.

Installing the wireless 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 wireless card and provide a visual representation of the installation procedure.

Figure 29. Installing the wireless card

Steps

1. Connect the antenna cables to the wireless card.

Table 23. 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. Place the wireless-card bracket on the wireless card.
3. Align the notch on the wireless card with the tab on the wireless-card slot (M.2 WLAN).
4. Slide the wireless card at an angle into the wireless-card slot (M.2 WLAN).
5. Replace the screw (M2x3.5) that secures the wireless-card bracket to the wireless card.

Next steps

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

Media-card reader (optional)

Removing the media-card reader

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the front cover.
4. Remove the drive bay.

About this task

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

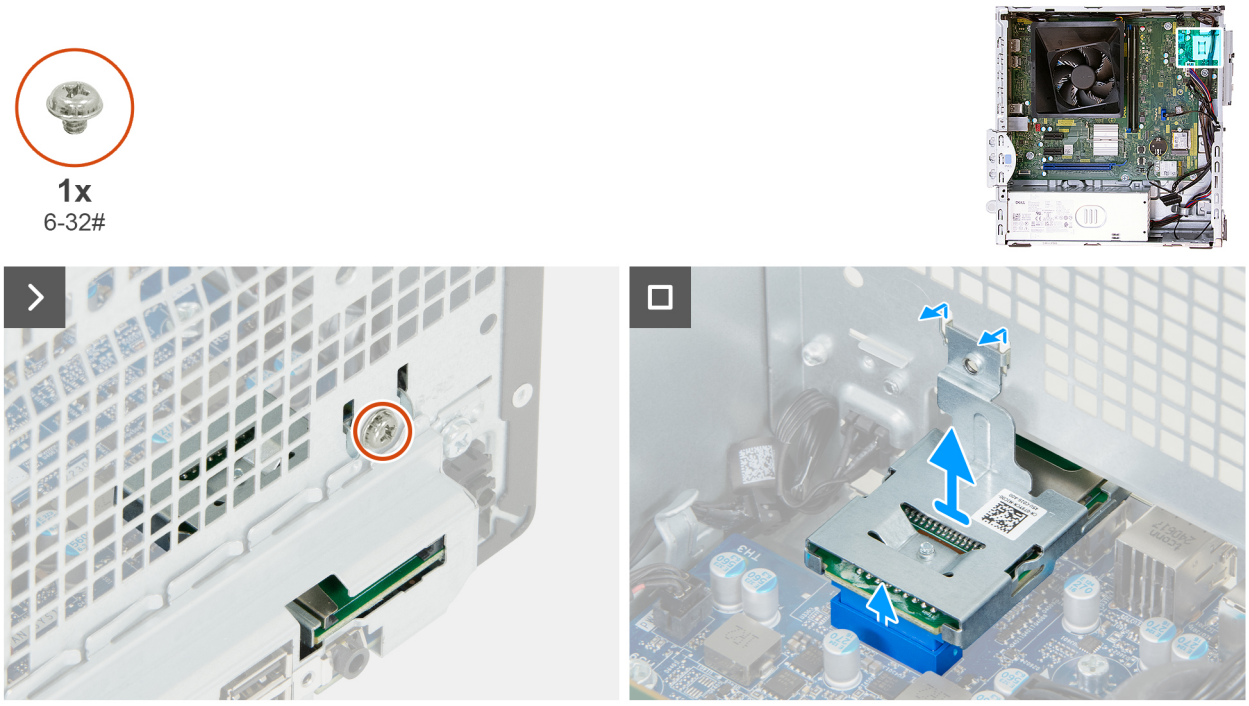

Figure 30. Removing the media-card reader

Steps

1. Remove the screw (6-32#) that secures the media-card reader bracket to the chassis.
2. Lift the media-card reader to disconnect it from its connector (SD CARD) on the system board.
3. Unhook the tabs on the media-card reader from the slots on the chassis and remove the media-card reader from the chassis.

Installing the media-card reader

CAUTION: The information in this 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 media-card reader and provide a visual representation of the installation procedure.

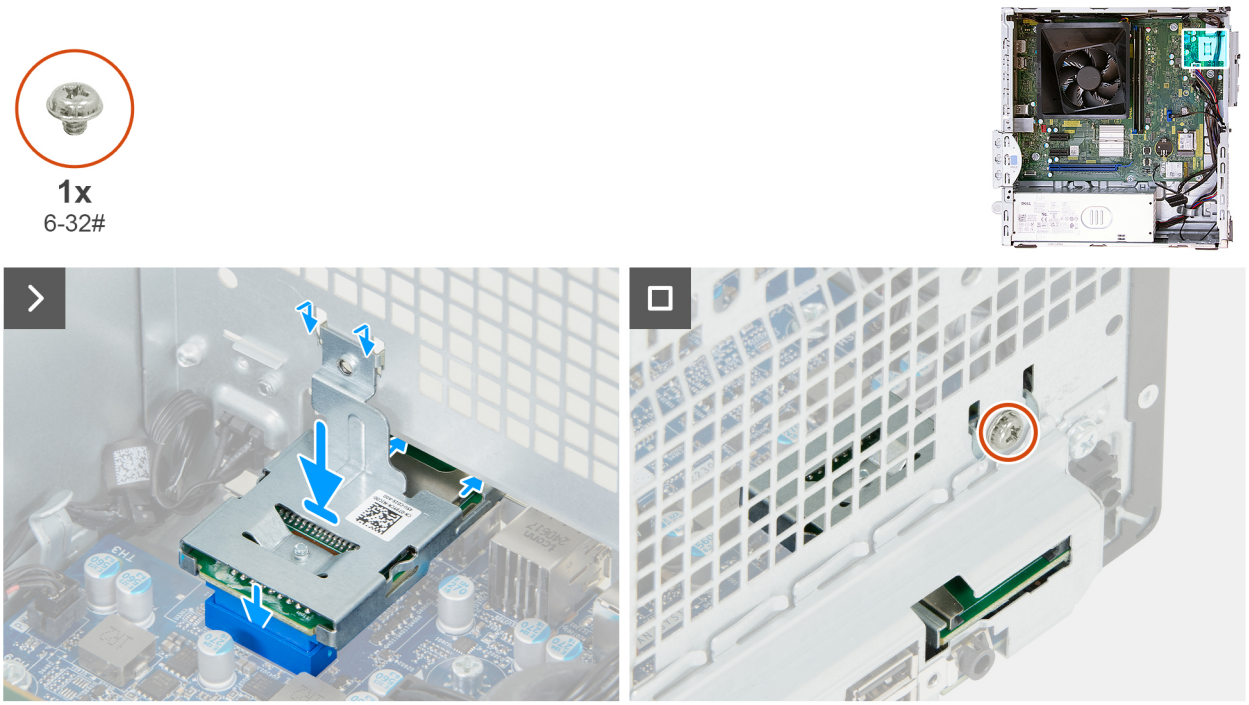

Figure 31. Installing the media-card reader

Steps

1. Place the tabs on the media-card reader through the slots on the chassis and slide the media-card reader towards the media-card reader opening on the chassis.
2. Align the media-card reader connector to its connector (SD CARD) on the system board.
3. Push down on the media-card reader to connect it to its connector on the system board.
4. Align the screw hole on the media-card reader bracket with the screw hole on the chassis.
5. Replace the screw (6-32#) that secures the media-card reader bracket to the chassis.

Next steps

1. Install the drive bay.
2. Install the front cover.
3. Install the left-side cover.
4. 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.

Antenna modules

Removing the antenna module

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

Prerequisites

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

About this task

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

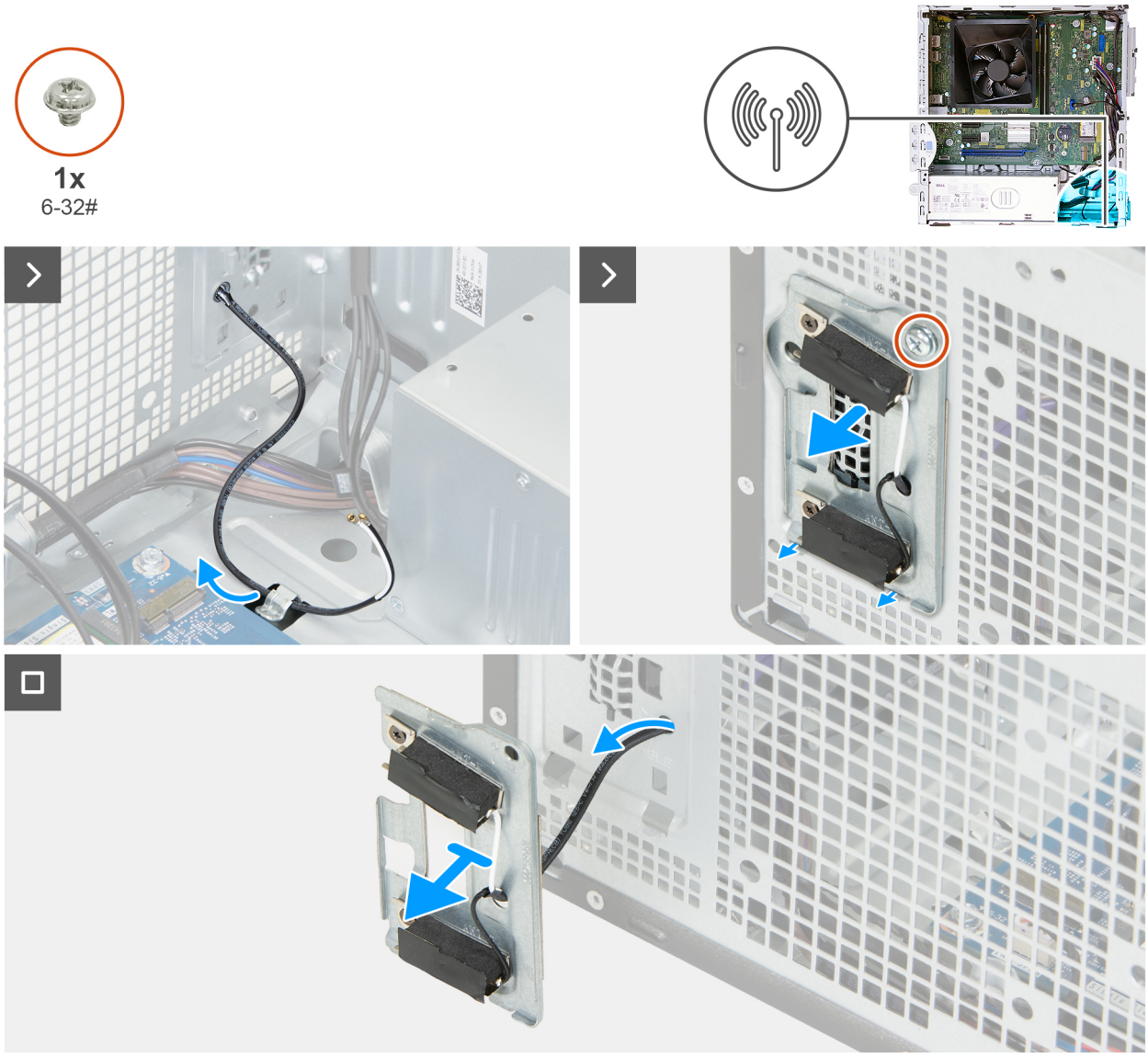

Figure 32. Removing the antenna module

Steps

1. Remove the antenna cable from the routing guide on the chassis.
2. Remove the screw (6-32#) that secures the antenna bracket to the chassis and unhook the tabs of the antenna bracket from the slots on the chassis.
3. Thread the antenna cable through the opening on the chassis and remove the antenna bracket together with the antenna cable from the chassis.

Installing the antenna module

CAUTION: The information in this 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 antenna module and provide a visual representation of the installation procedure.

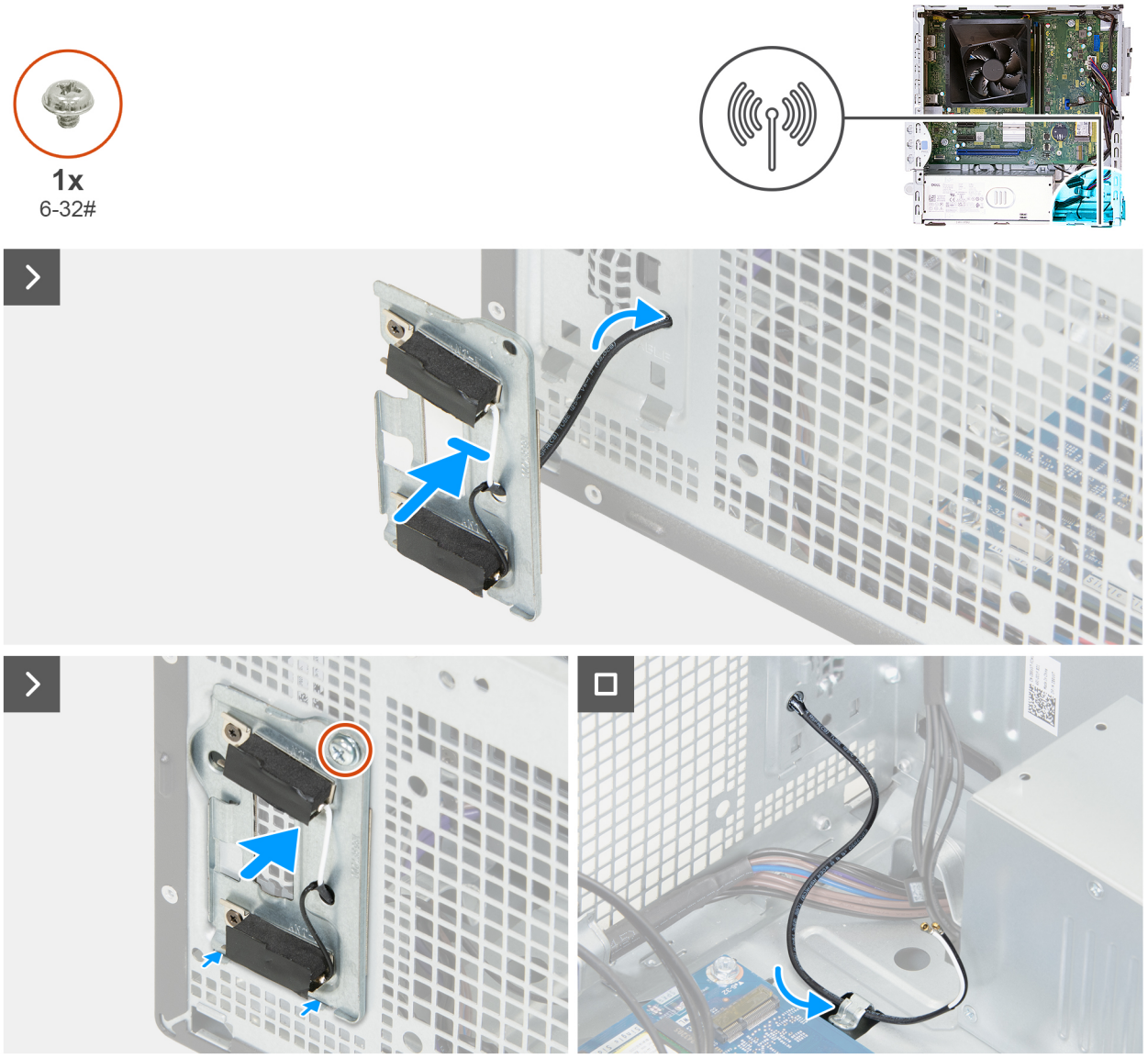

Figure 33. Installing the antenna module

Steps

1. Thread the antenna cable through the hole on the antenna bracket and align the tabs of the antenna bracket with the slots on the chassis.
2. Insert the tabs on the antenna bracket into the slots on the chassis and place the bracket on the chassis.
3. Replace the screw (6-23#) that secures the antenna bracket to the chassis.
4. Route the antenna cable through the routing guide on the chassis.

Next steps

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

Power-supply unit

Removing the power-supply unit

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

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the front cover.
4. Remove the drive bay.

About this task

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

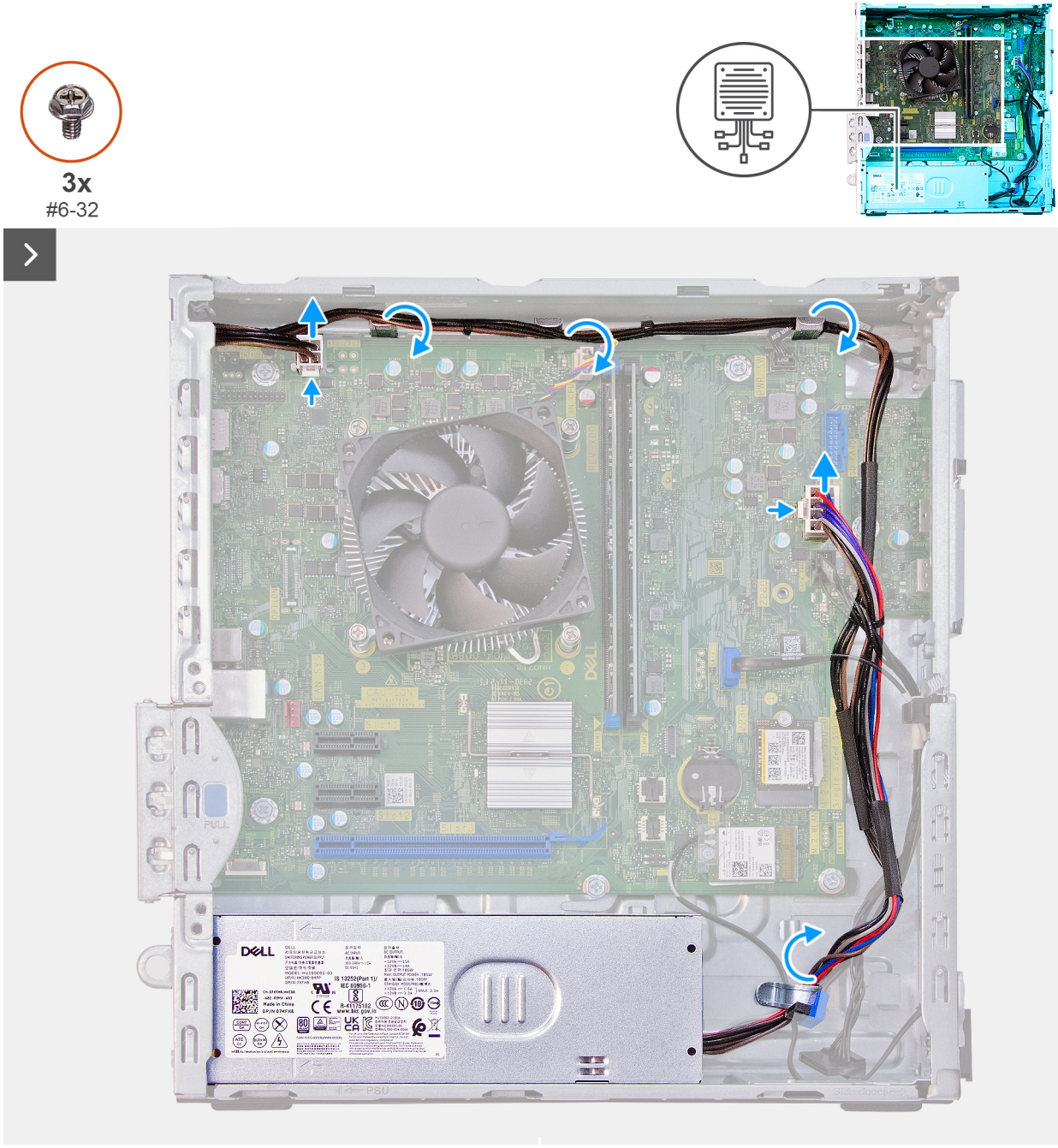

Figure 34. Removing the power-supply unit

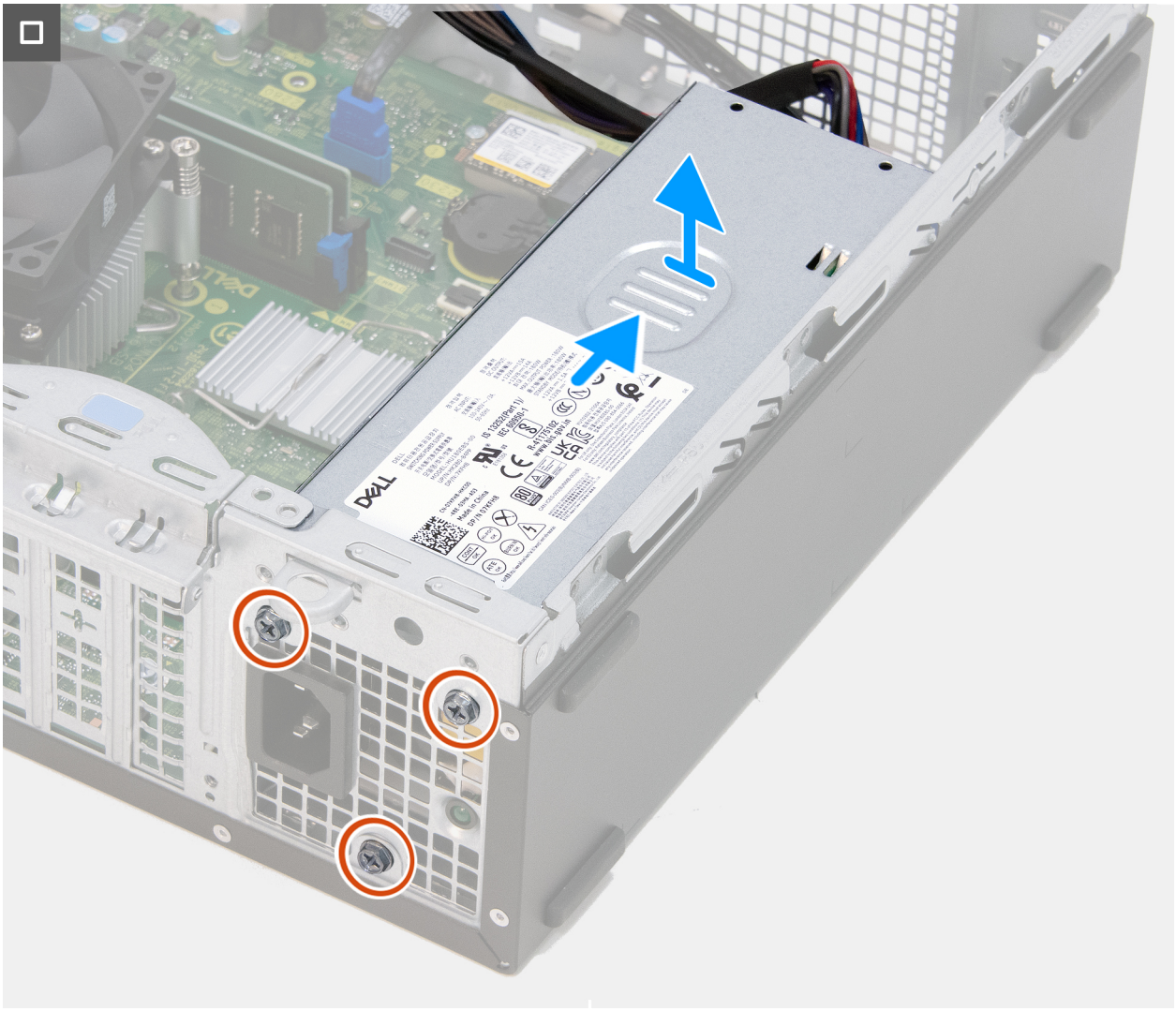

Figure 35. Removing the power-supply unit

Steps

1. Press the securing clip and disconnect the processor-power cable from its connector (ATX CPU1) on the system board.
2. Remove the processor-power cable from the routing guides on the chassis.
3. Press the securing clip and disconnect the system board power cable from its connector (ATX SYS) on the system board.
4. Remove the system-board power cable from the routing guides on the chassis.
5. Remove the three screws (#6-32) that secure the power-supply unit to the chassis.
6. Slide and lift the power-supply unit off the chassis.

Installing the power-supply unit

CAUTION: The information in this 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 power-supply unit and provide a visual representation of the installation procedure.

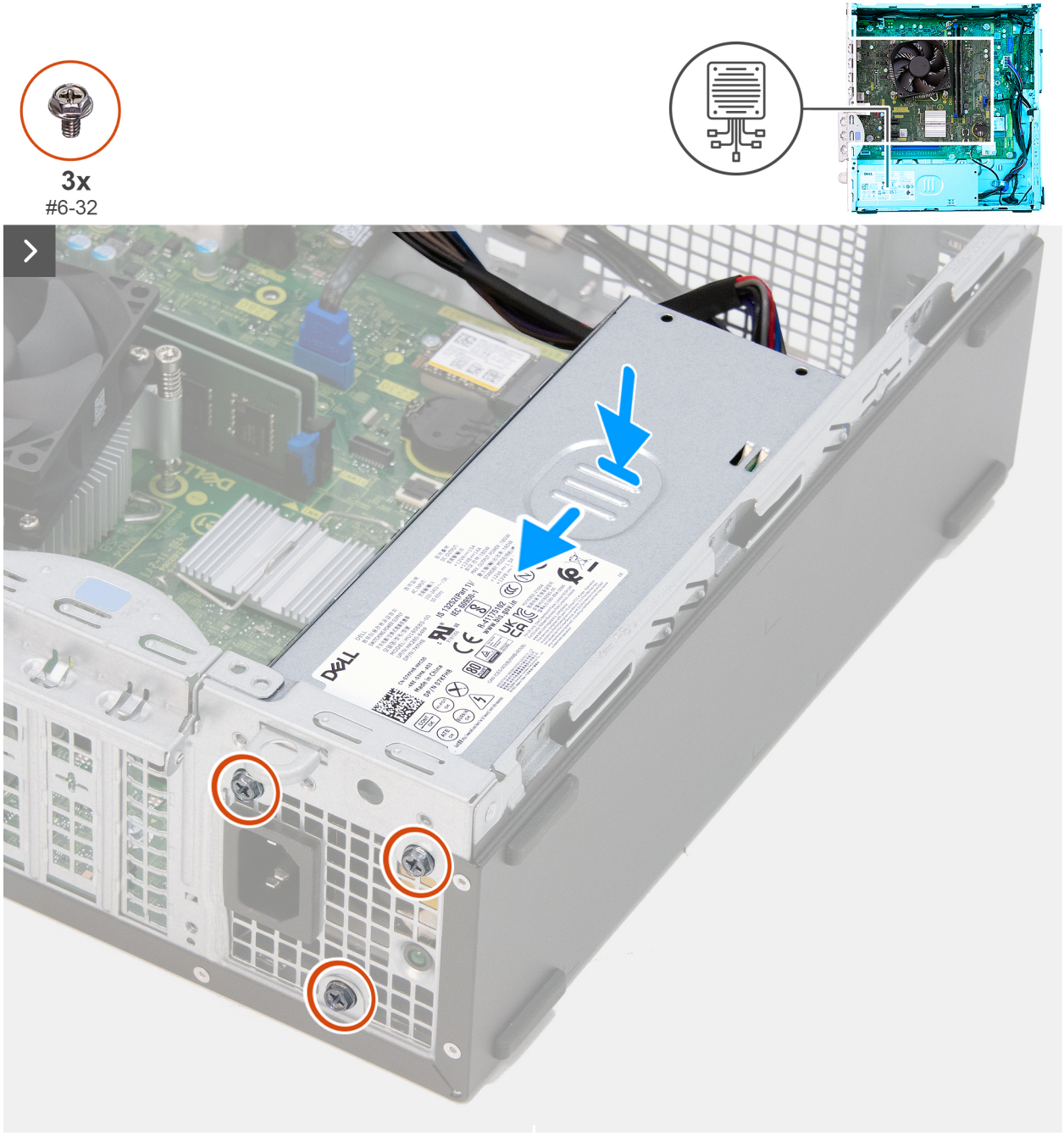

Figure 36. Installing the power-supply unit

Figure 37. Installing the power-supply unit

Steps

1. Place and slide the tabs on the power-supply unit into the latches on the chassis.
2. Align the screw holes on the power-supply unit to the screw holes on the chassis.
3. Replace the three screws (#6-32) that secure the power-supply unit to the chassis.
4. Route the system-board power cable through the routing guides on the chassis.
5. Connect the system-board power cable to its connector (ATX SYS) on the system board.
6. Route the processor-power cable through the routing guides on the chassis.
7. Connect the processor-power cable to its connector (ATX CPU2) on the system board.

Next steps

1. Install the drive bay.
2. Install the front cover.
3. Install the left-side cover.
4. Follow the procedure in After working inside your computer.

Fan shroud

Removing the fan shroud

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

Prerequisites

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

About this task

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

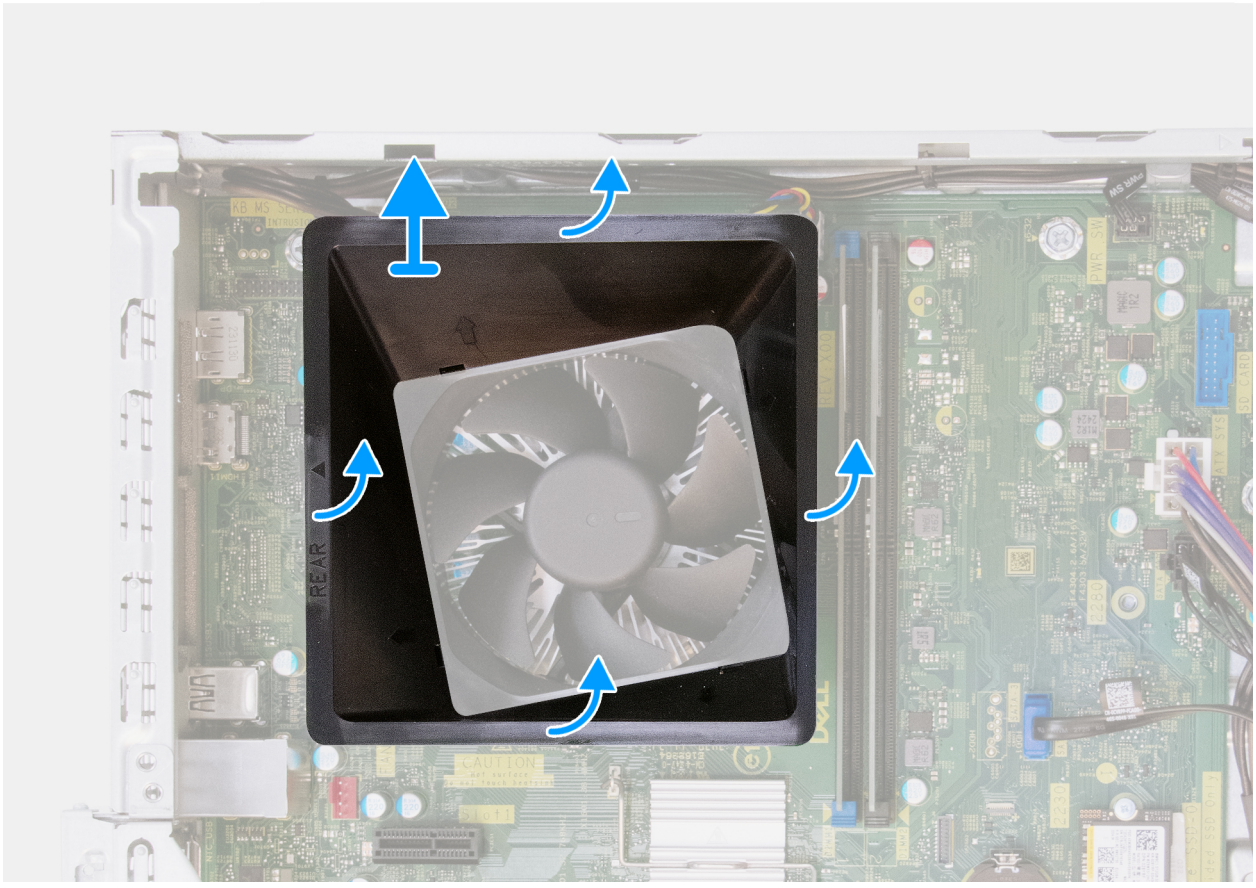

Figure 38. Removing the fan shroud

Steps

1. Pry and release the four securing tabs at the sides of the fan shroud.
2. Lift the fan shroud off the processor fan and heat-sink assembly.

Installing the fan shroud

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

Prerequisites

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

About this task

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

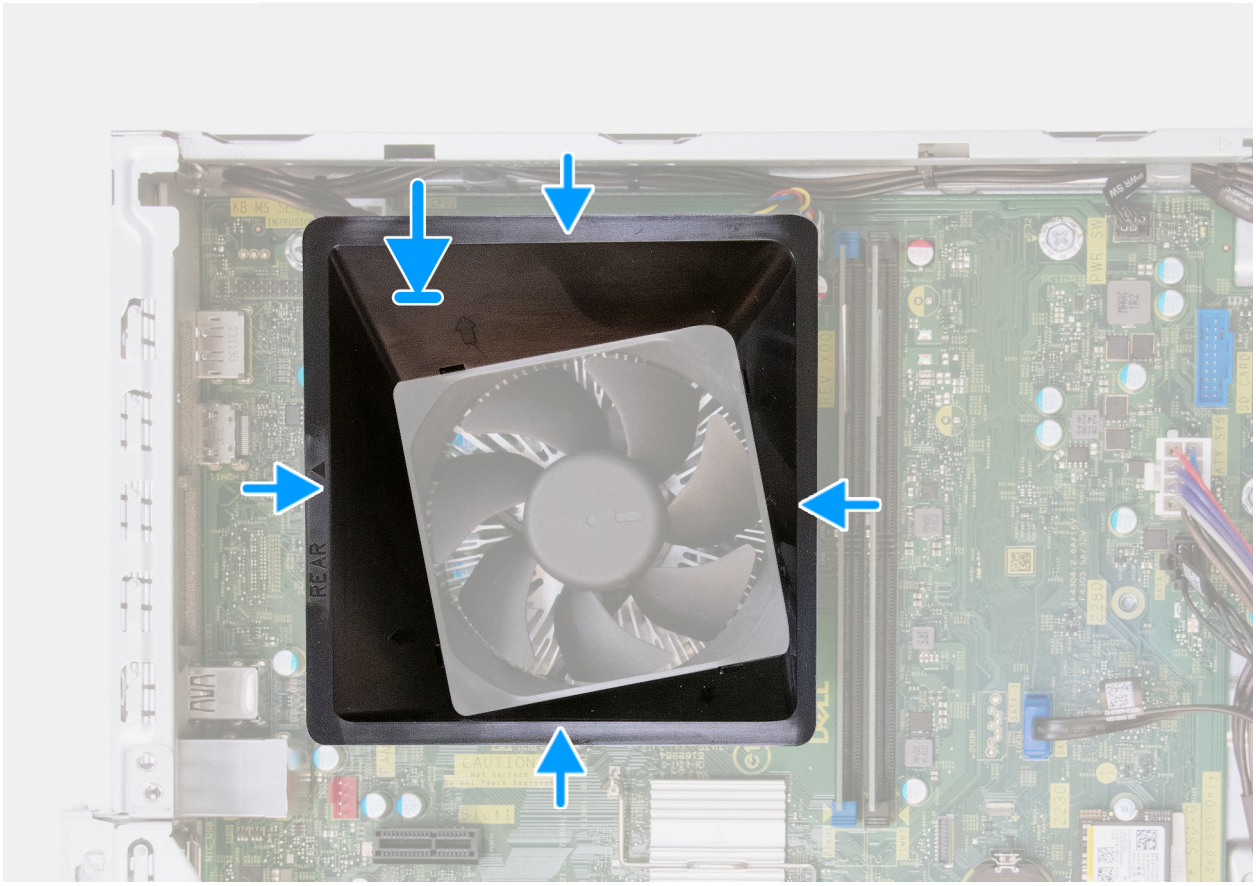

Figure 39. Installing the fan shroud

Steps

1. Align the fan shroud over the processor fan and heat-sink assembly such that the arrow head next to the marking (REAR) points to the back panel.
2. Insert the two alignment posts of the fan shroud into the corresponding holes on the processor fan and heat-sink assembly.
3. Push the fan shroud until the four securing tabs lock into place.

Next steps

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

Processor fan and heat-sink assembly

Removing the processor fan and heat-sink assembly

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

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the front cover.
4. Remove the drive bay.
5. Remove the fan shroud.

About this task

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

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.

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

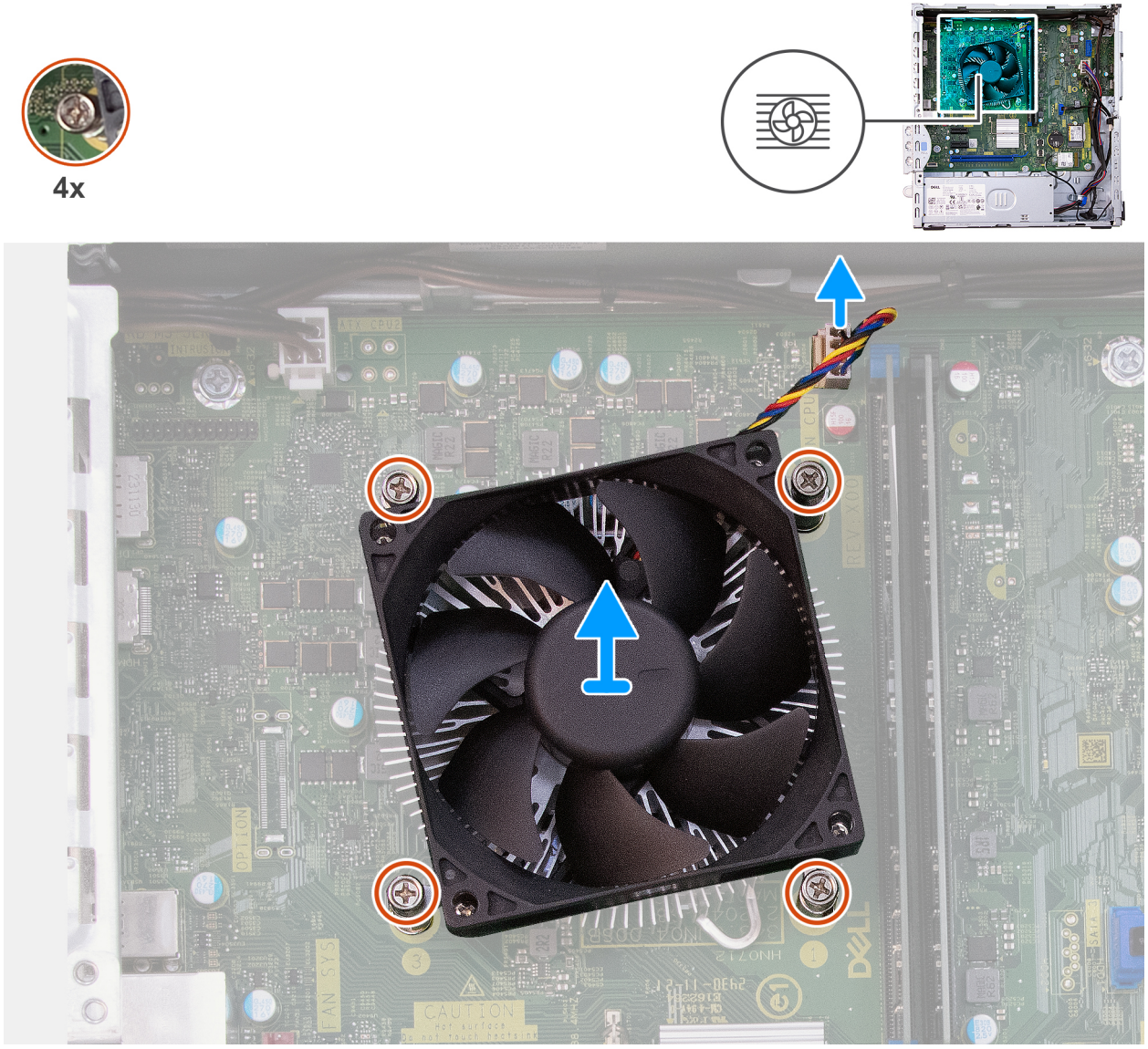

Figure 40. Removing the processor-fan and heat-sink assembly

Steps

1. Disconnect the processor-fan cable from its connector (FAN CPU) 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 off the system board.

Installing the processor fan and heat-sink assembly

CAUTION: The information in this 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 processor fan and heat-sink assembly and provides a visual representation of the installation procedure.

NOTE: If either the processor or the fan and heat-sink assembly is replaced, use the thermal grease that is provided in the kit for thermal conductivity.

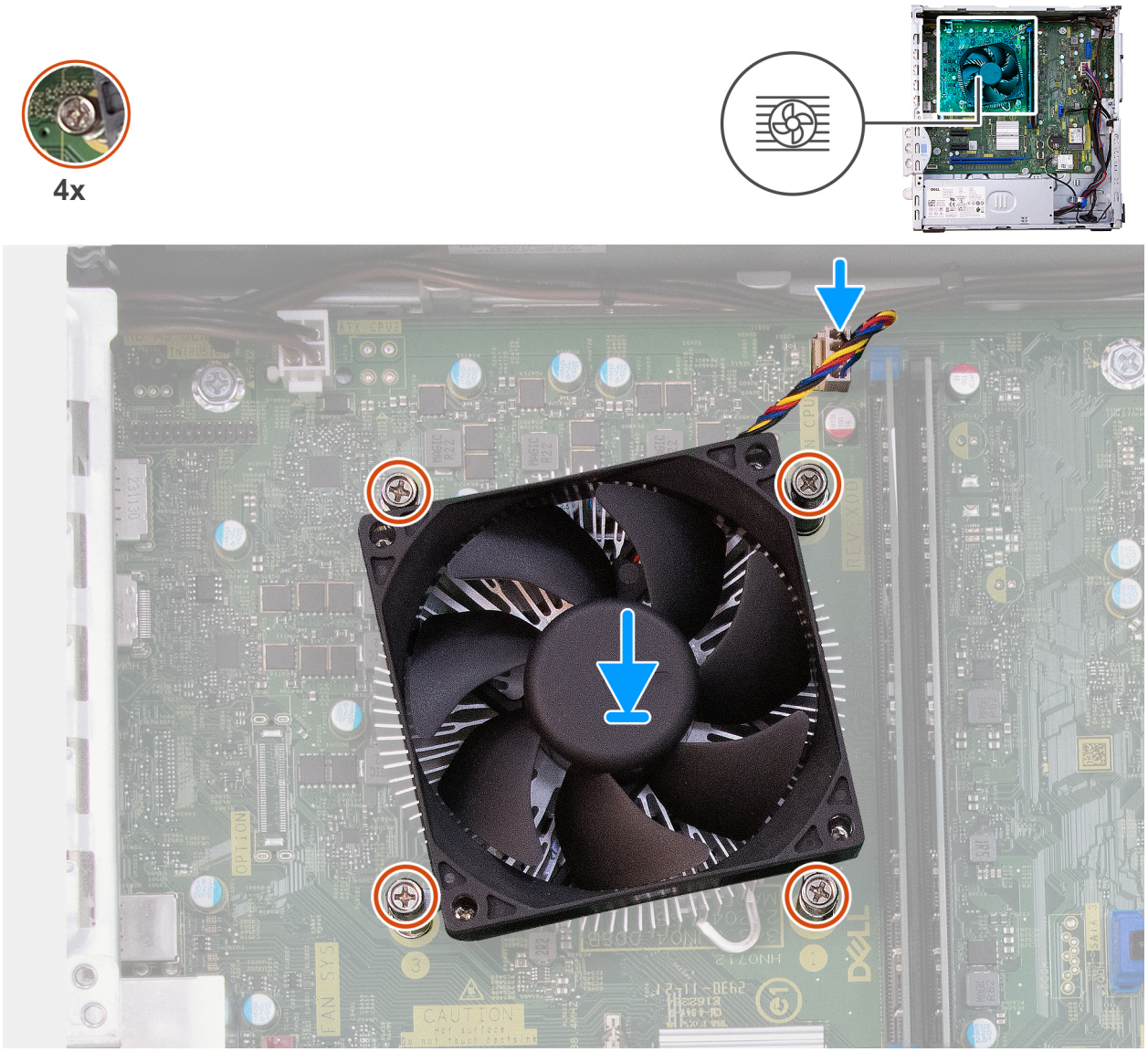

Figure 41. Installing the processor fan and heat-sink assembly

Steps

1. Place the processor fan and heat-sink assembly on the system board and align the captive screws to the screw holes on the system board.
2. In sequential order (1, 2, 3, 4), tighten the four captive screws that secure the processor fan and heat stink assembly to the system board.
3. Connect the processor-fan cable to its connector (FAN CPU) on the system board.

Next steps

1. Install the fan shroud.
2. Install the drive bay.
3. Install the front cover.
4. Install the left-side cover.
5. Follow the procedure in After working inside your computer.

Processor

Removing the processor

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

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the front cover.
4. Remove the drive bay.
5. Remove the fan shroud.
6. Remove the processor fan and heat-sink assembly.

About this task

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

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

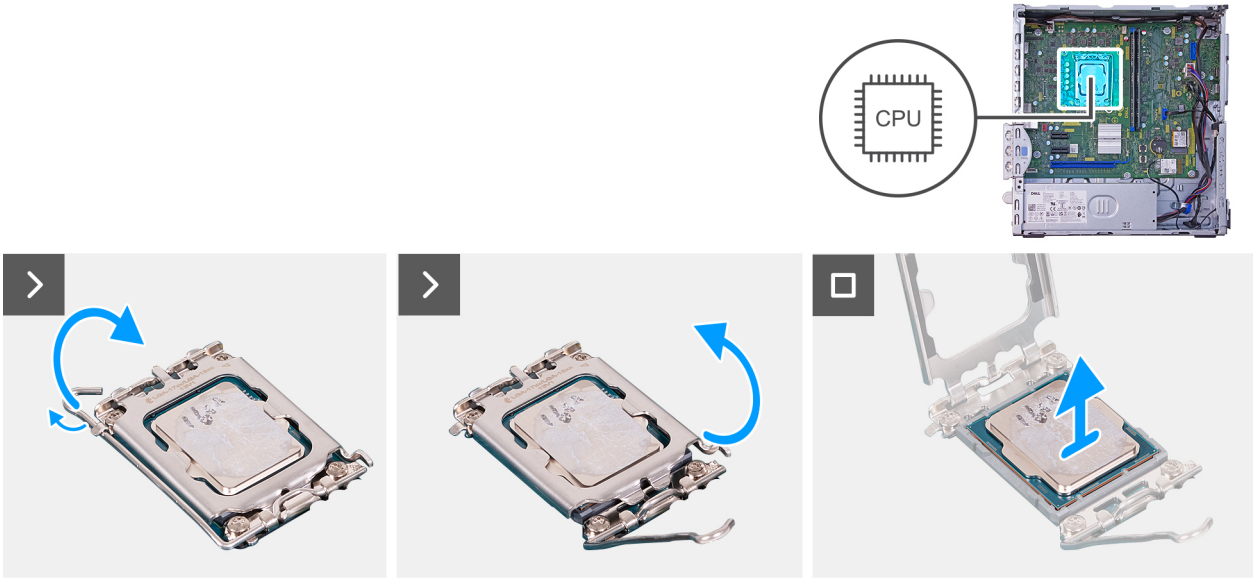

Figure 42. Removing the processor

Steps

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

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

3. Gently lift the processor from the processor socket (CPU1).

Installing the processor

CAUTION: The information in this 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.

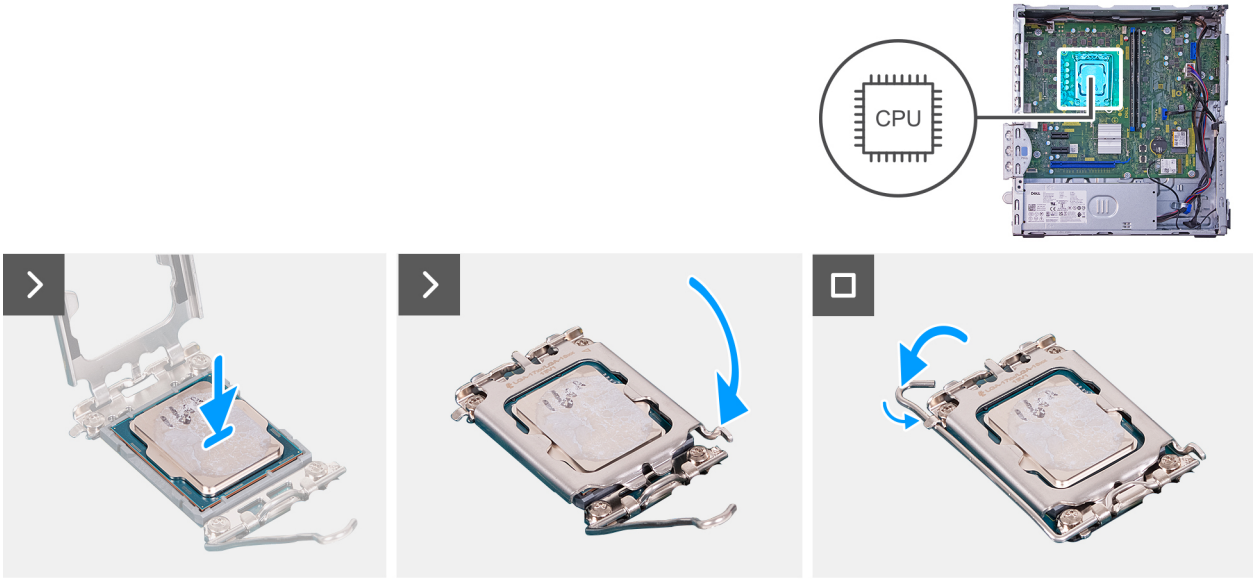

Figure 43. Installing the processor

Steps

1. Ensure that the release lever on the processor socket (CPU1) is fully extended in the open position.

   NOTE: The pin-1 corner of the processor has a triangle that aligns with the triangle on the pin-1 corner on the processor socket (CPU1). When the processor is properly seated, all four corners are aligned at the same height. If one or more corners of the processor are higher than the others, the processor is not seated properly.

2. Align the notches on the processor with the tabs on the processor socket (CPU1) and place the processor in the processor socket (CPU1).

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

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

Next steps

1. Install the processor fan and heat-sink assembly.
2. Install the fan shroud.
3. Install the drive bay.
4. Install the front cover.
5. Install the left-side cover.
6. Follow the procedure in After working inside your computer.

Power button

Removing the power button

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

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the front cover.
4. Remove the drive bay.

About this task

The following image indicates the location of the power button and provides a visual representation of the removal procedure.

Figure 44. Removing the power button

Steps

1. Disconnect the power button cable from its connector (PWR SW) on the system board.
2. Press and hold the release tabs on the power button to release it from the slot on the chassis.
3. Route the power button along with its cable through the slot on the chassis.
4. Remove the power button and its cable from the front of the chassis.

Installing the power button

CAUTION: The information in this removal 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 power button and provides a visual representation of the installation procedure.

Figure 45. Installing the power button

Steps

1. Thread the power-button cable through the slot on the chassis from the front-side of the computer.
2. Align the tabs on the side of the power button with the cutouts of the slot on the chassis.
3. Press the power button into its slot on the chassis.
4. Connect the power-button cable to its connector (PWR SW) on the system board.

Next steps

1. Install the drive bay.
2. Install the front cover.
3. Install the left-side cover.
4. Follow the procedure in After working inside your computer.

Serial-port module (optional)

Removing the serial-port module

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

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the left-side cover.
3. Remove the front cover.
4. Remove the drive bay.
5. Remove the fan shroud.

About this task

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

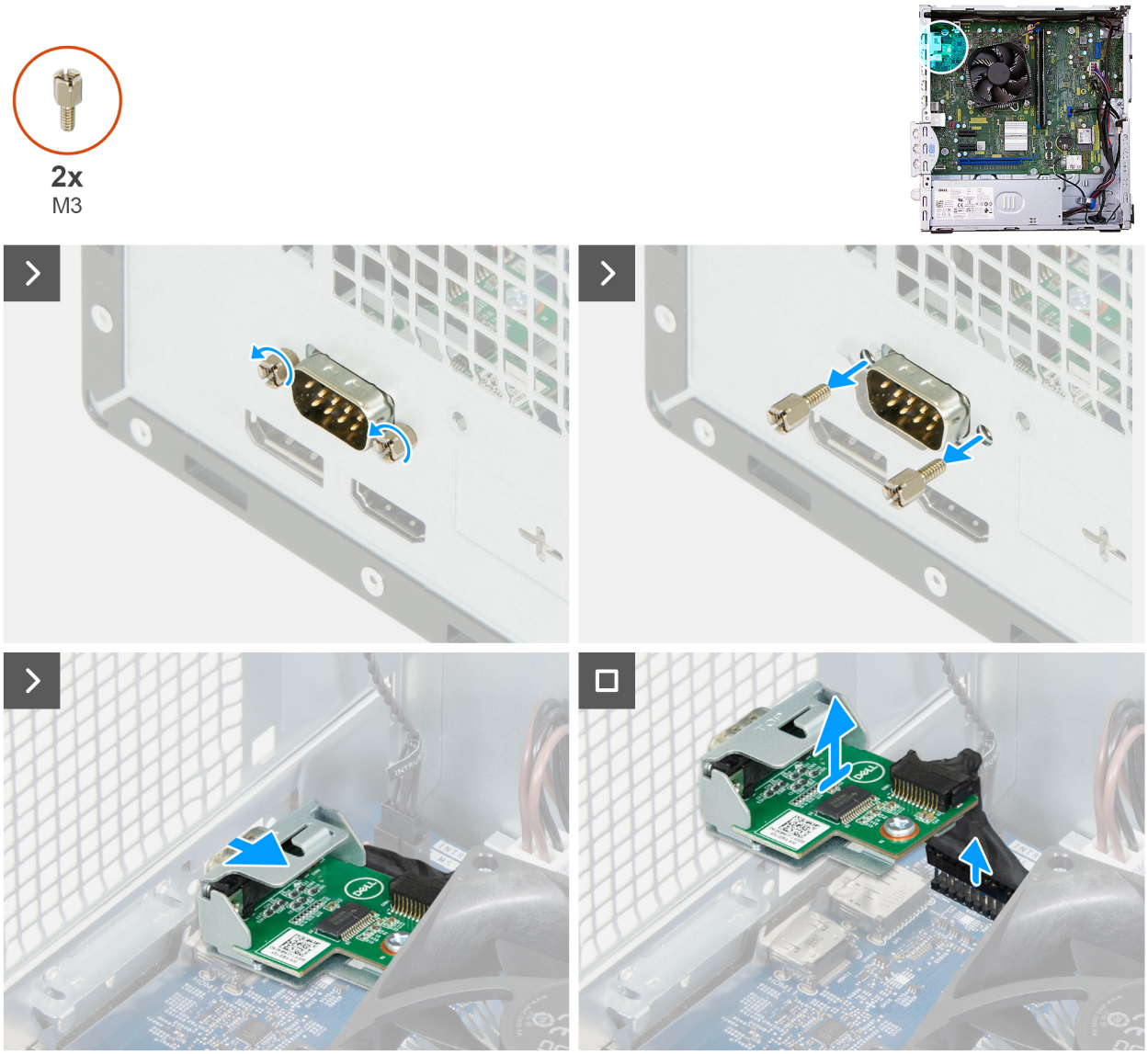

Figure 46. Removing the serial-port module

Steps

1. Remove the two screws (M3) that secure the serial-port module to the chassis and put the screws aside.
2. Slide the serial-port module out from its cutout on the chassis.
3. Disconnect the serial-port module cable from its connector (KB MS SERIAL) on the system board and lift the serial-port module off the system board.

Installing the serial-port module

CAUTION: The information in this 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 serial-port module and provides a visual representation of the installation procedure.

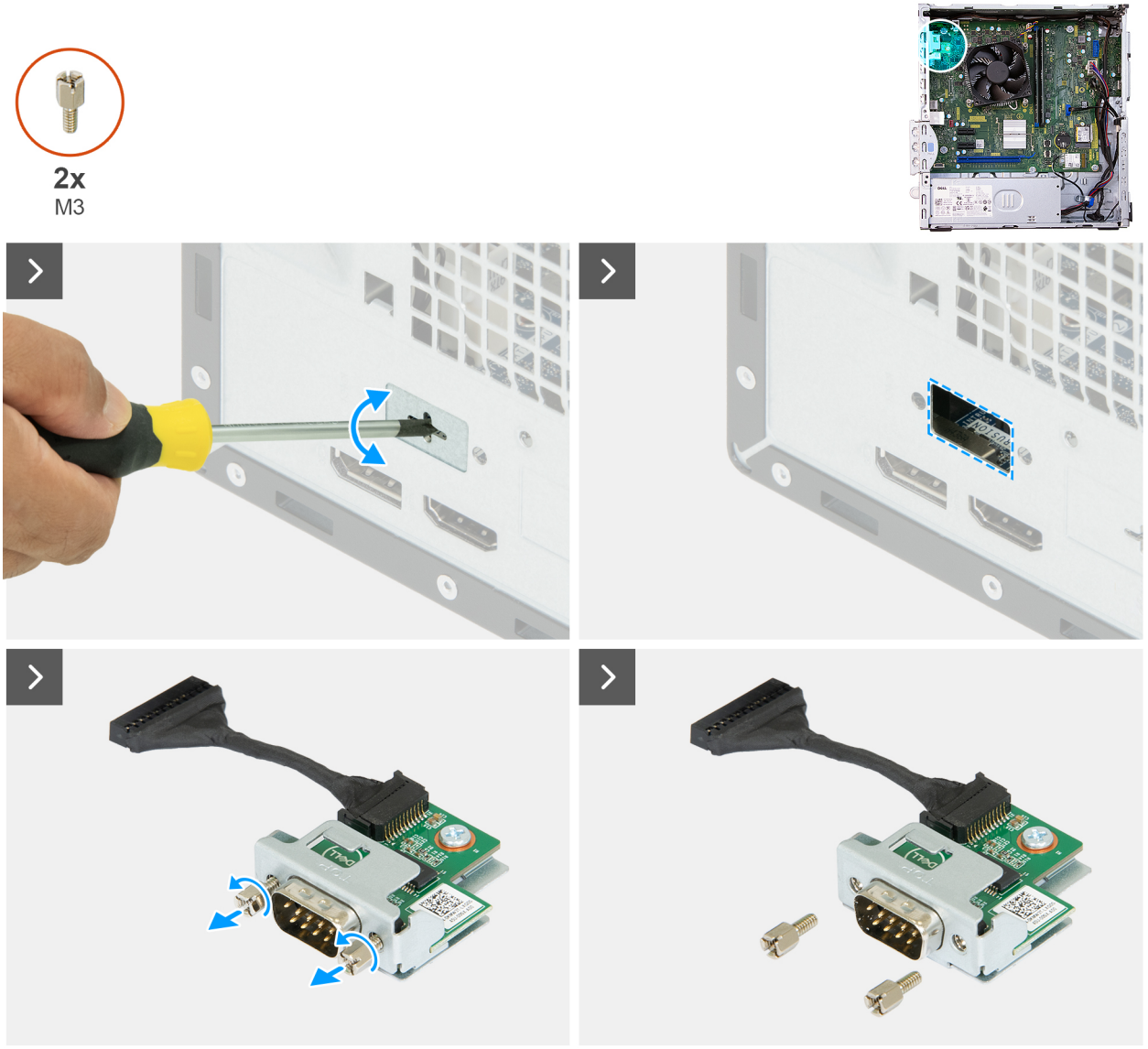

Figure 47. Installing the serial-port module

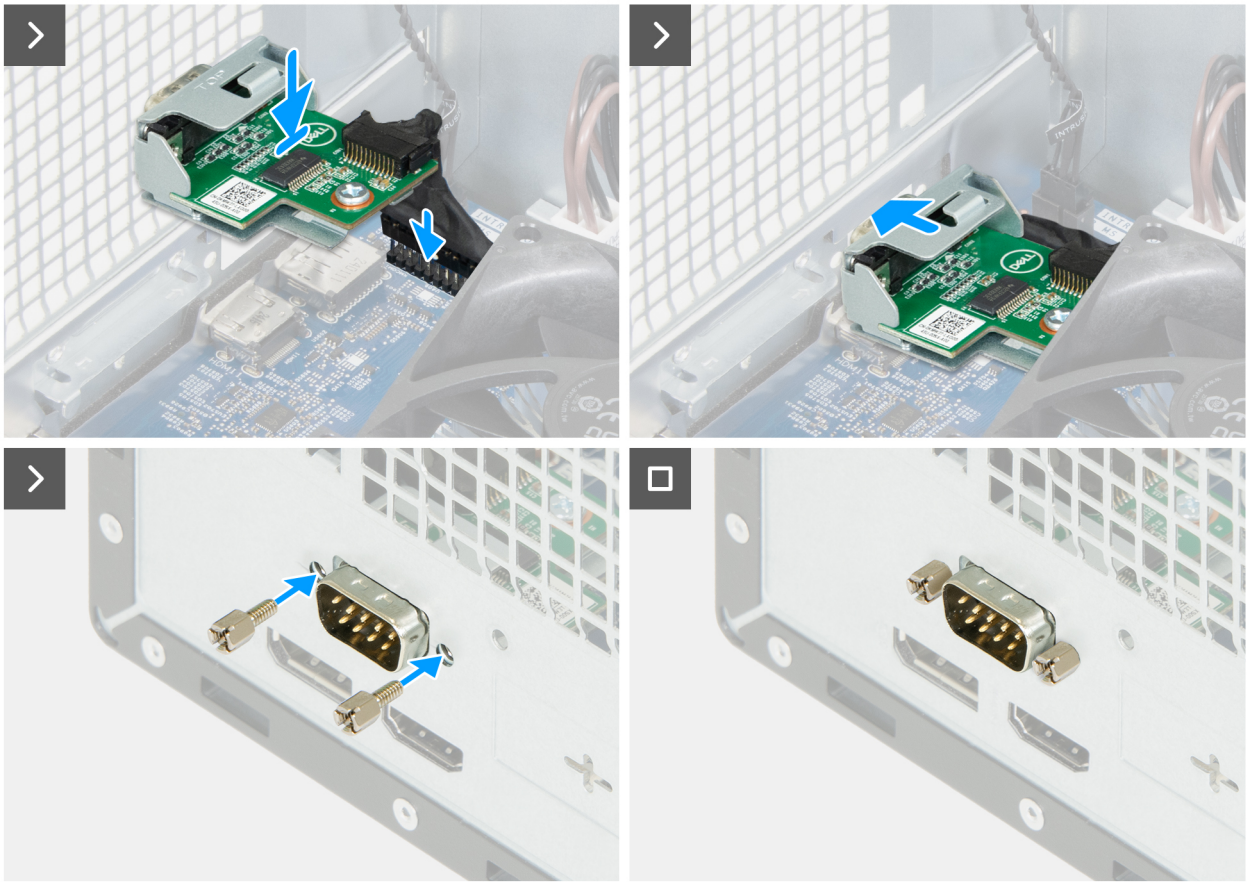

Figure 48. Installing the serial-port module

Steps

1. Using a screwdriver, remove the serial-port module cover from the chassis.

   NOTE: This step is applicable only when the serial-port module is installed for the first time.

   NOTE: To remove the serial-port cover, insert a flat-head screwdriver in the hole of the cover, push the cover to release it, and then lift the cover off the chassis .

2. Remove the two screws (M3) from the serial-port module and put the screws aside.
3. Hold the serial-port module over its connector (KB MS SERIAL) on the system board and connect the cable to its connector (KB MS SERIAL).
4. Insert the serial-port module into the cutout on the chassis.
5. Align the screw holes of the serial-port module to the screw holes on the chassis and replace the two screws (M3) that secure the serial-port module.

Next steps

1. Install the fan shroud.
2. Install the drive bay.
3. Install the front cover.
4. Install the left-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.
2. Remove the left-side cover.
3. Remove the coin-cell battery cover.
4. Remove the coin-cell battery.
5. Remove the front cover.
6. Remove the drive bay.
7. Remove the memory modules.
8. Remove the solid state drive.
9. Remove the wireless card.
10. Remove the media-card reader, if applicable.
11. Remove the power button.
12. Remove the fan shroud.
13. Remove the processor fan and heat-sink assembly.
14. Remove the processor.
15. Remove the serial-port module, if applicable.

About this task

NOTE: The Service Tag information of your computer 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.

The following image indicates the connectors on your system board.

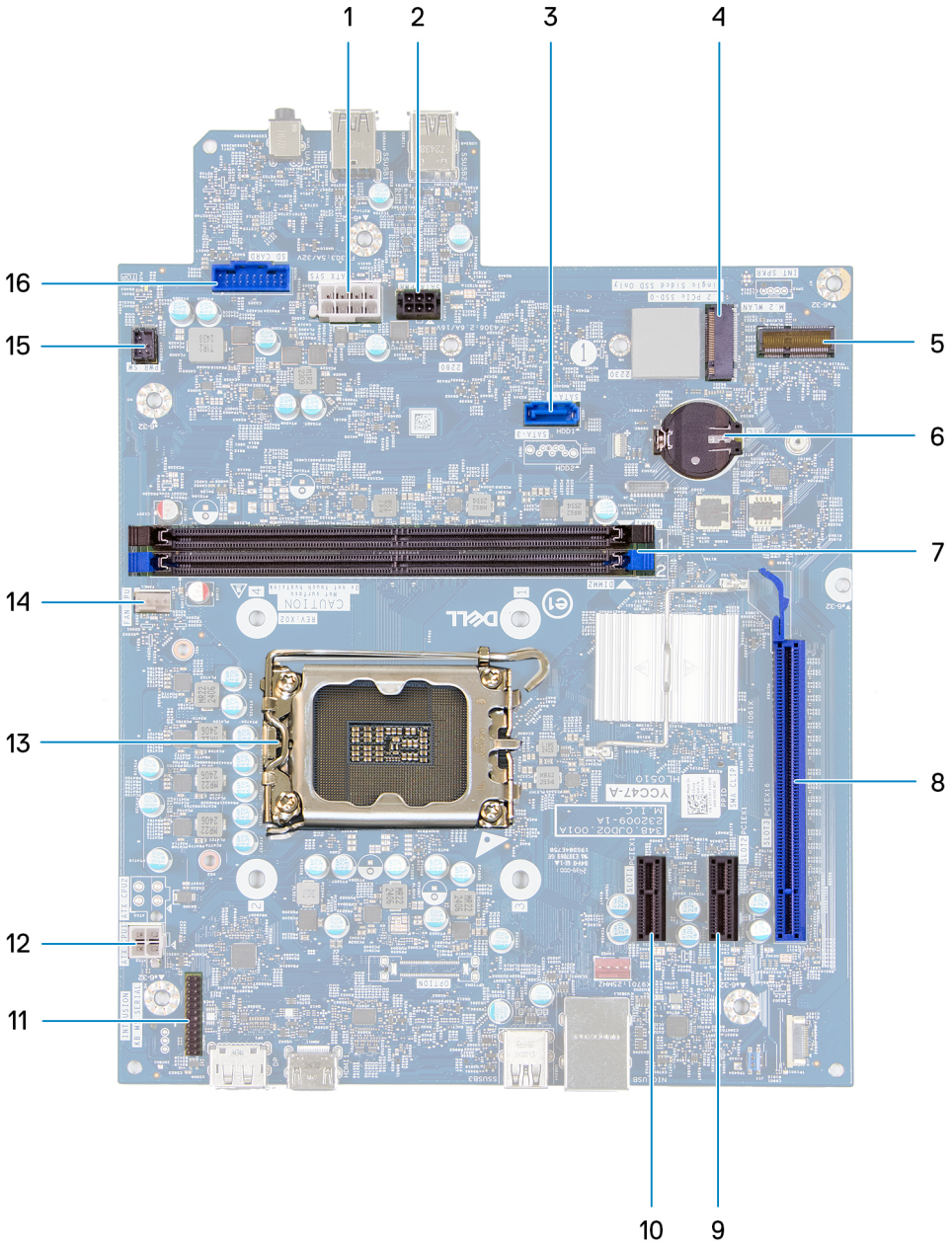

Figure 49. System board overview

1. System-board power connector (ATX SYS)
2. Hard-drive power connector (SATA PWR)
3. Hard-drive data connector (SATA - 0)
4. Solid state drive slot (M.2 PCIe SSD - 0)
5. Wireless-card slot (M.2 WLAN)
6. Coin-cell battery socket (RTC)
7. UDIMM memory slots (DIMM1 and DIMM2)
8. PCIe x16 slot (SLOT 3)
9. PCIe x1 slot (SLOT 2)
10. PCIe x1 slot (SLOT 1)
11. Serial-port module connector (KB MS SERIAL)
12. Processor-power connector (ATX CPU1)
13. Processor socket (CPU1)

14. Processor-fan and heat-sink assembly connector (FAN CPU)
15. Power-button connector (PWR SW)
16. Media-card reader connector (SD CARD)

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

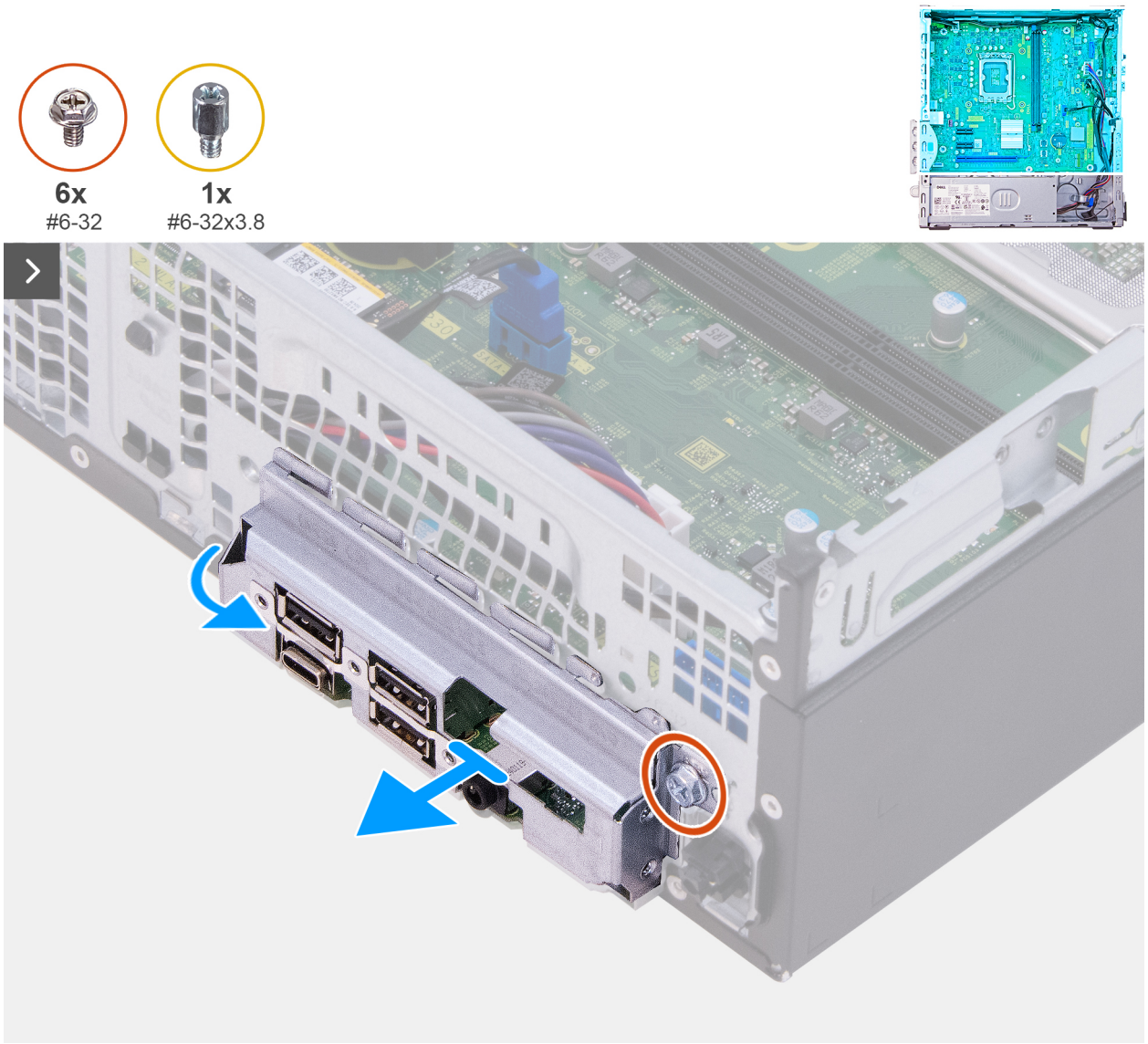

Figure 50. Removing the system board

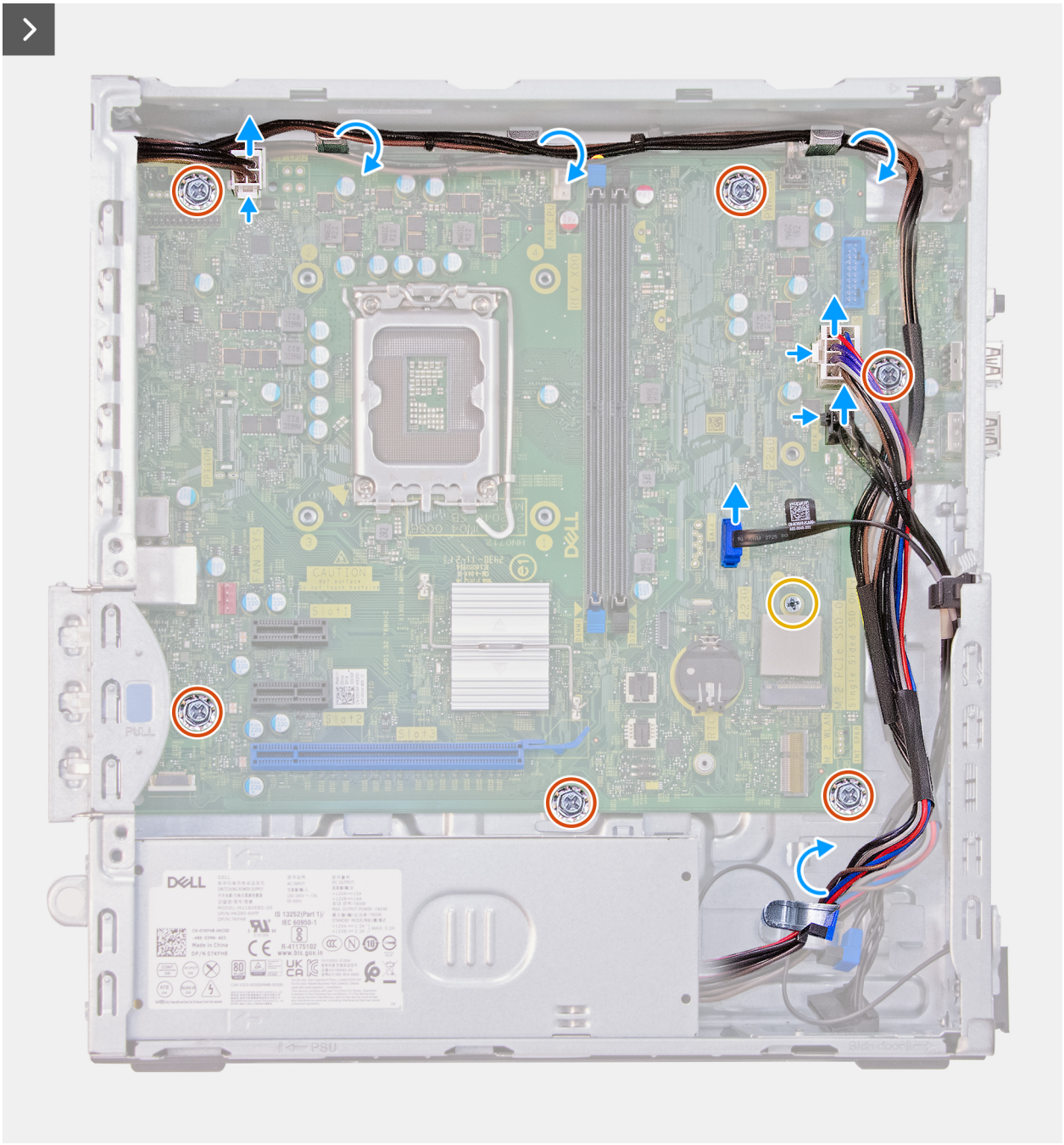

Figure 51. Removing the system board

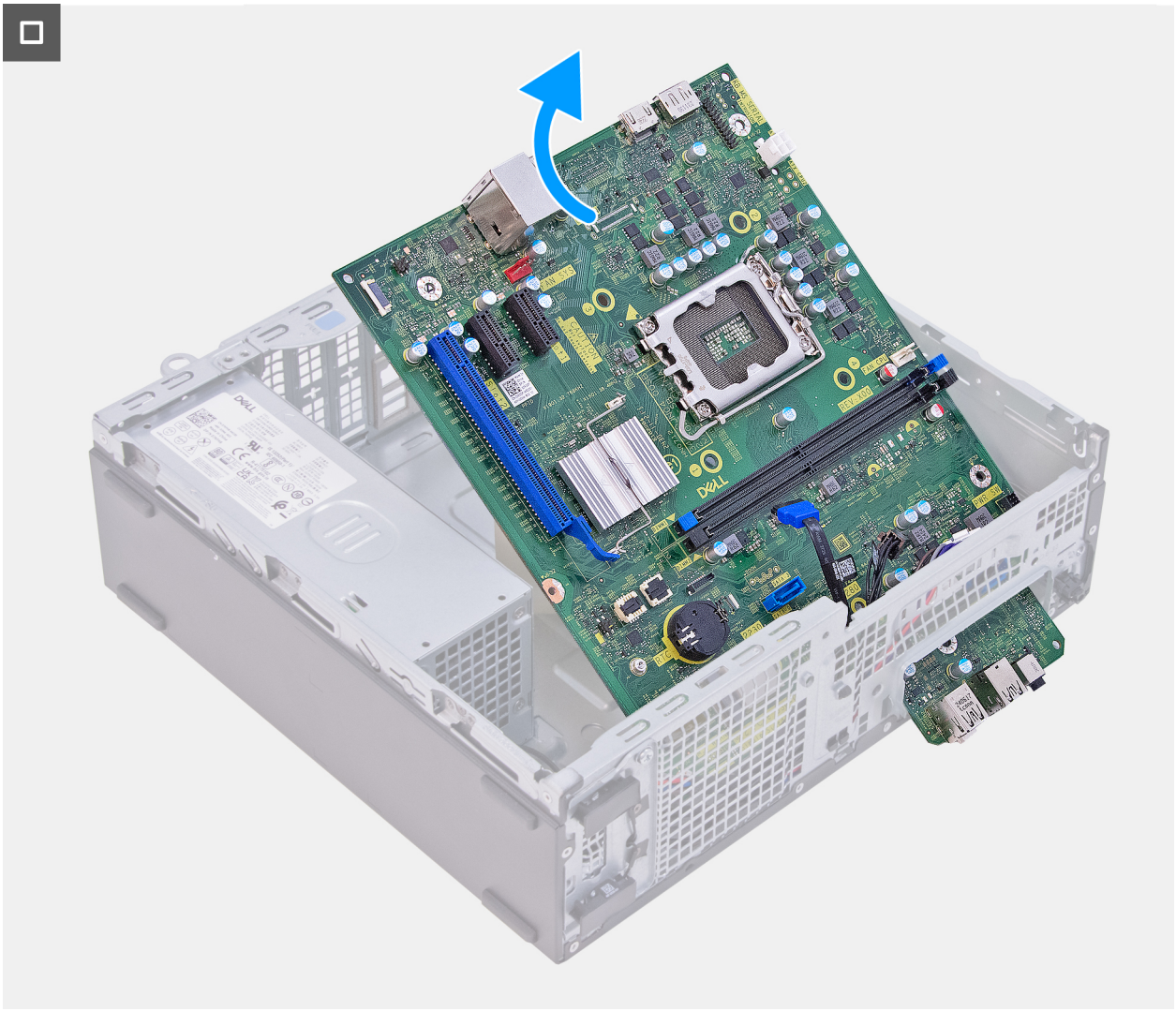

Figure 52. Removing the system board

Steps

1. Remove the screw (#6-32) that secures the front I/O bracket to the chassis.
2. Rotate and remove the front I/O-bracket from the chassis.
3. Press the securing clip and disconnect the processor-power cable from its connector (ATX CPU1) on the system board.
4. Remove the processor-power cable from the routing guides on the chassis.
5. Press the securing clip and disconnect the system board power cable from its connector (ATX SYS) on the system board.
6. Remove the system-board power cable from the routing guides on the chassis.
7. Press the securing clip and disconnect the hard-drive power cable from its connector (SATA PWR) on the system board.
8. Disconnect the hard-drive data cable from its connector (SATA-0) on the system board.
9. Remove the screw mount (#6-32x3.8) and the six screws (#6-32) that secure the system board to the chassis.
10. Lift the system board at an angle and remove it from the chassis.

Installing the system board

CAUTION: The information in this removal 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

NOTE: The Service Tag information of your computer 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.

The following image indicates the connectors on your system board.

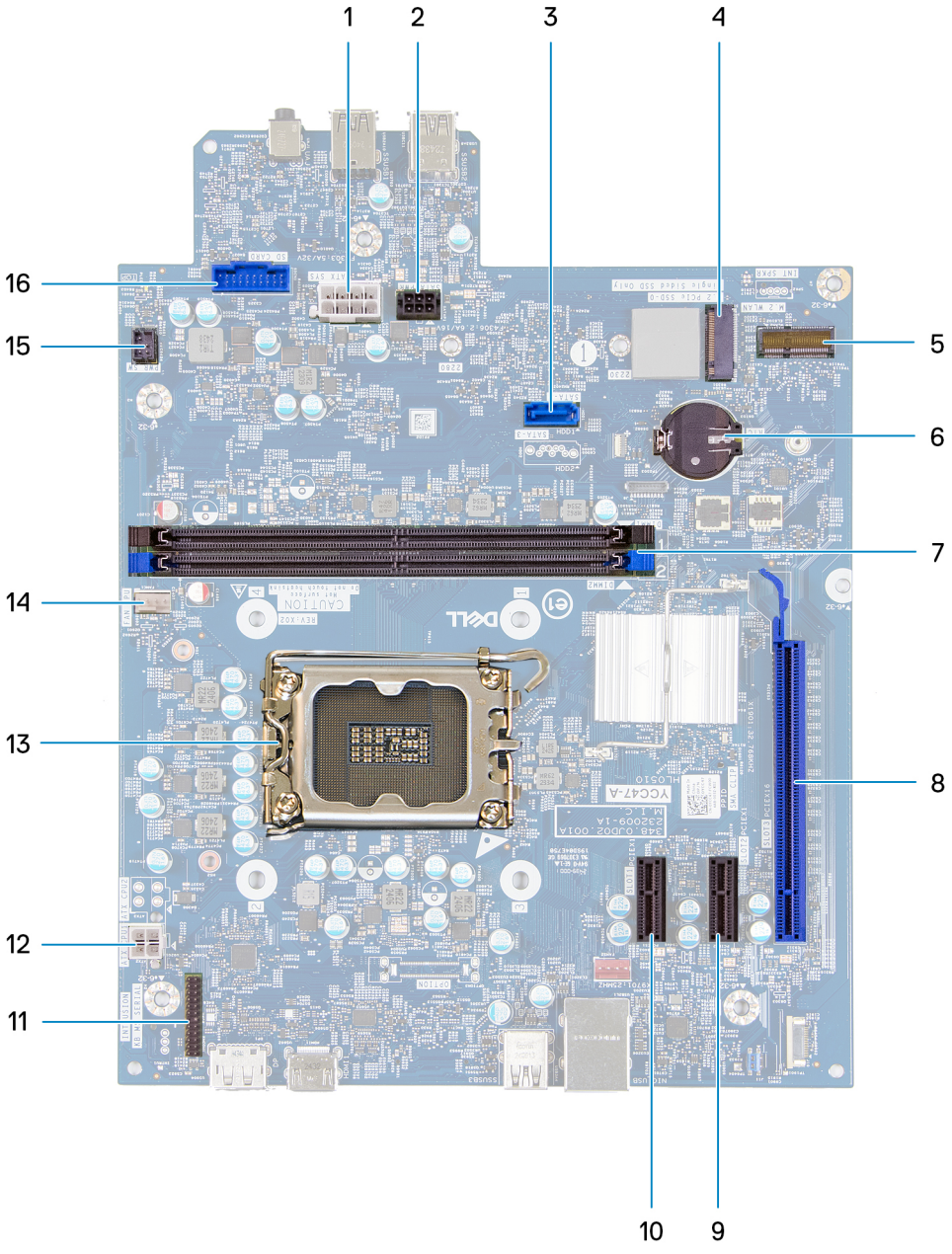

Figure 53. System board overview

1. System-board power connector (ATX SYS)
2. Hard-drive power connector (SATA PWR)
3. Hard-drive data connector (SATA - 0)
4. Solid state drive slot (M.2 PCIe SSD - 0)
5. Wireless-card slot (M.2 WLAN)

6. Coin-cell battery socket (RTC)
7. UDIMM memory slots (DIMM1 and DIMM2)
8. PCIe x16 slot (SLOT 3)
9. PCIe x1 slot (SLOT 2)
10. PCIe x1 slot (SLOT 1)
11. Serial-port module connector (KB MS SERIAL)
12. Processor-power connector (ATX CPU1)
13. Processor socket (CPU1)
14. Processor-fan and heat-sink assembly connector (FAN CPU)
15. Power-button connector (PWR SW)
16. Media-card reader connector (SD CARD)

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

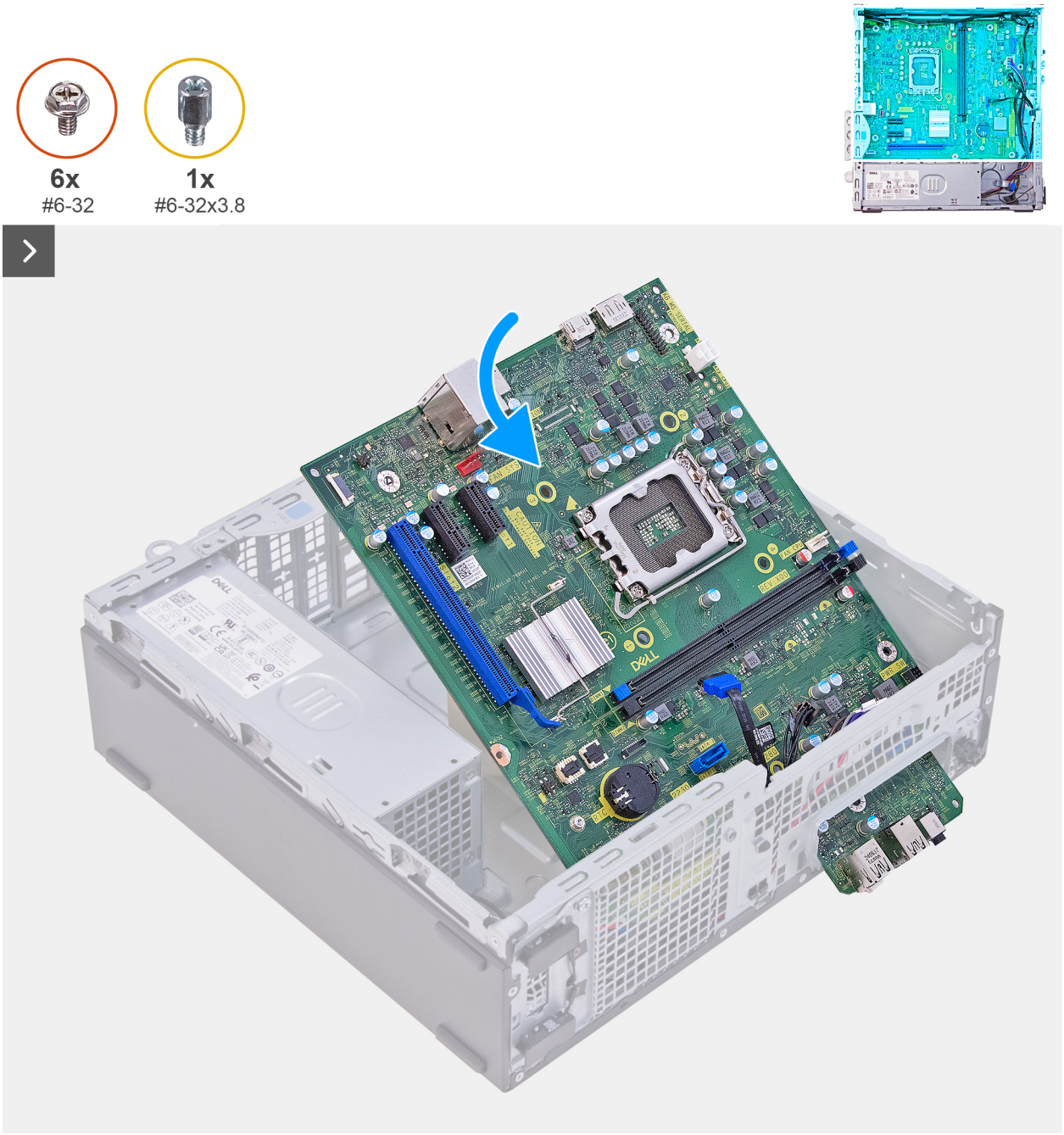

Figure 54. Installing the system board

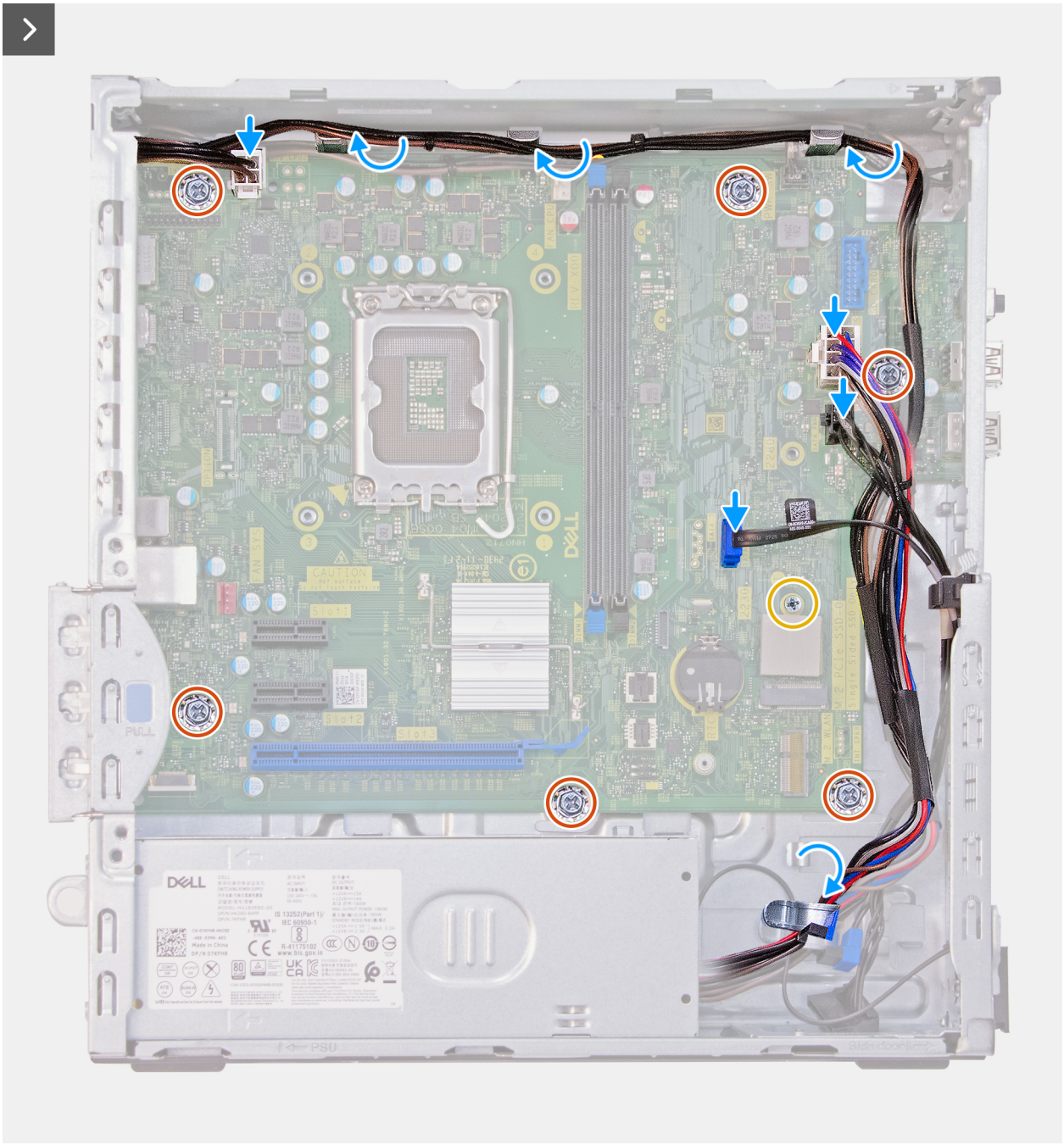

Figure 55. Installing the system board

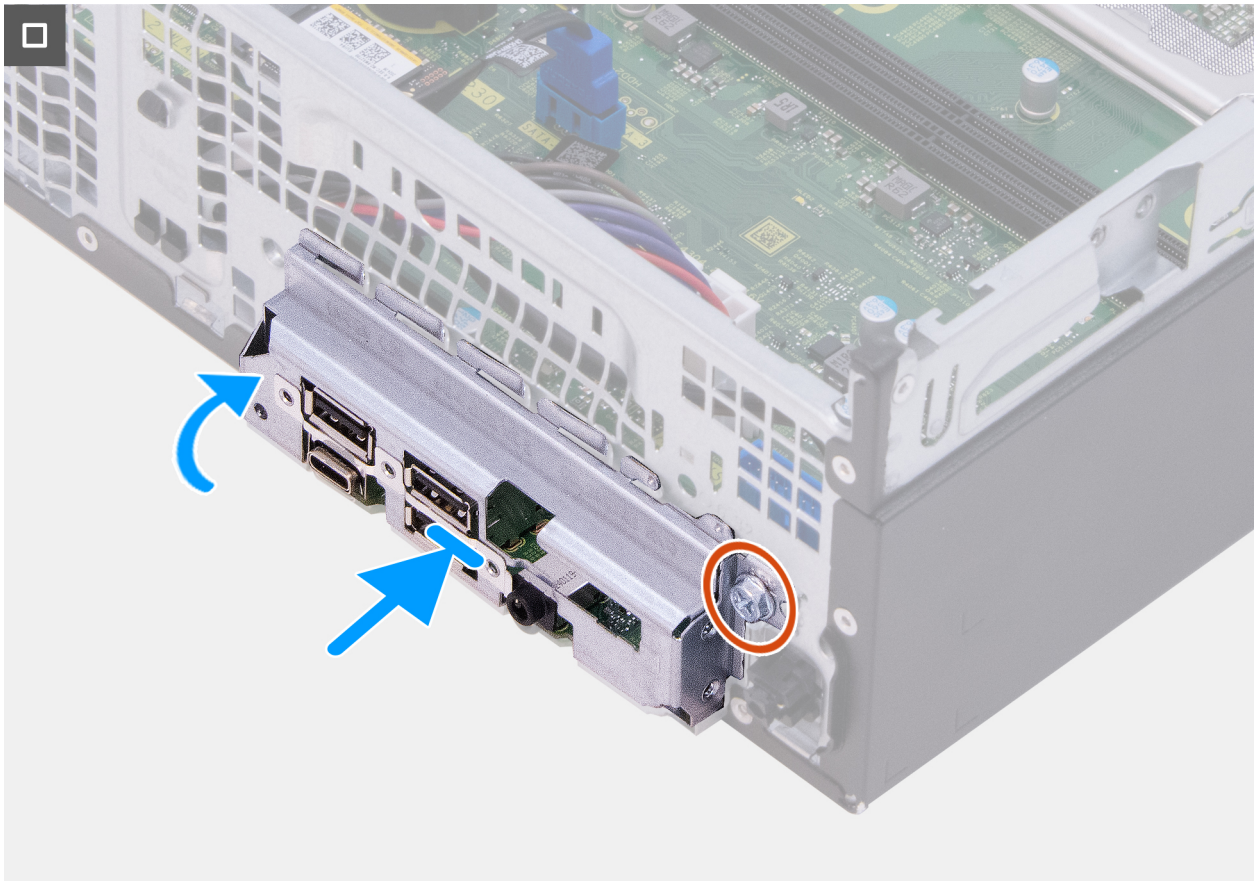

Figure 56. Installing the system board

Steps

1. Slide the front I/O-ports on the system board into the front I/O-slots on the chassis.
2. Align the screw holes on the system board with the screw holes on the chassis.
3. Replace the screw mount (#6-32x3.8) and the six (#6-32) screws that secure the system board to the chassis.
4. Connect the hard-drive data cable to its connector (SATA-0) on the system board.
5. Connect the hard-drive power cable to its connector (SATA PWR) on the system board.
6. Route the system-board power cable through the routing guides on the chassis.
7. Connect the system-board power cable to its connector (ATX SYS) on the system board.
8. Route the processor-power cable through the routing guides on the chassis.
9. Connect the processor-power cable to its connector (ATX CPU2) on the system board.
10. Align and place the slots on the front I/O-bracket with the I/O ports on the system board.
11. Align the screw hole on the front I/O-bracket to the screw hole on the chassis.
12. Replace the screw (#6-32) that secures the front I/O-bracket to the chassis.

Next steps

1. Install the serial-port module, if applicable.
2. Install the processor.
3. Install the processor fan and heat-sink assembly.
4. Install the fan shroud.
5. Install the power button.
6. Install the media-card reader, if applicable.
7. Install the wireless card.
8. Install the solid state drive.
9. Install the memory modules.
10. Install the drive bay.

11. Install the front cover.
12. Install the coin-cell battery.
13. Install the coin-cell battery cover.
14. Install the left-side cover.
15. Follow the procedure in After working inside your computer.

10

Software

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

Operating system

Your Dell Slim ECS1250 supports the following operating systems:

- Windows 11 Home
- Windows 11 Pro
- Windows 11 Pro National Education
- Ubuntu Linux 24.04 LTS, 64-bit

Drivers and downloads

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

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 24. Navigation keys

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

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.

BIOS Setup options

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

Table 25. BIOS Setup options—Overview menu

Overview	Description
Dell Slim ECS1250	
BIOS Version	Displays the BIOS version number.
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Displays the Asset Tag of the computer.
Manufacture Date	Displays the manufacture date of the computer.
Ownership Date	Displays the ownership date of the computer.
Express Service Code	Displays the Express Service Code of the computer.
Ownership Tag	Displays the Ownership Tag of the computer.
Signed Firmware Update	Displays whether the Signed Firmware Update is enabled on your computer. By default, the **Signed Firmware Update** option is enabled.
PROCESSOR	
Processor Type	Displays the processor type.

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

Overview	Description
Maximum Clock Speed	Displays the maximum processor clock speed.
Minimum Clock Speed	Displays the minimum processor clock speed.
Current Clock Speed	Displays the current processor clock speed.
Core Count	Displays the number of cores on the processor.
Processor ID	Displays the processor identification code.
Processor L2 Cache	Displays the processor L2 cache size.
Processor L3 Cache	Displays the processor L3 cache size.
Microcode Version	Displays the microcode version.
Intel® Hyper-Threading Capable	Displays whether the processor is Hyper-Threading (HT) capable.
Intel vPro Technology®	Displays whether the Intel vPro feature is supported.
MEMORY	
Memory Installed	Displays the total memory installed on the computer.
Memory Available	Displays the total memory available on the computer.
Memory Speed	Displays the memory speed.
Memory Channel Mode	Displays single or dual channel mode.
Memory Technology	Displays the technology that is used for the memory.
DIMM 1 Size	Displays the DIMM 1 memory size.
DIMM 2 Size	Displays the DIMM 2 memory size.
Devices	
Video Controller	Displays the type of video controller available on the computer.
Video Memory	Displays the video memory information of the computer.
Wi-Fi Device	Displays the wireless device information of the computer.
Native Resolution	Displays the native resolution of the computer.
Video BIOS Version	Displays the video BIOS version of the computer.
Audio Controller	Displays the audio controller information of the computer.
Bluetooth® Device	Displays the Bluetooth device information of the computer.
LOM MAC Address	Displays the LAN On Motherboard (LOM) MAC address of the computer.
Slot 1	Displays the graphics or expansion card that is installed in Slot 1.
Slot 2	Displays the expansion card that is installed in Slot 2.
Slot 3	Displays the expansion card that is installed in Slot 3.

Table 26. BIOS Setup options—Boot Configuration menu

Boot Configuration	Description
Boot Sequence	
Boot Sequence	Displays the boot sequence.
Enable PXE Boot Priority	Enables or disables the option to add a new PXE boot to the top of the Boot Sequence. By default, the **OFF** option is disabled.

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

Boot Configuration	Description
Secure Digital (SD) Card Boot	Enables or disables read-only boot from Secure Digital (SD) card. By default, the **Secure Digital (SD) Card Boot** option is disabled.
Secure Boot	Secure Boot is a method of guaranteeing the integrity of the boot path by performing additional validation of the operating system and PCI add-in cards. The computer stops booting to the operating system when a component is not authenticated during the boot process. Secure Boot can be enabled in BIOS setup or using management interfaces like Dell Command|Configure, but can only be disabled from BIOS setup.
Enable Secure Boot	Enables the computer to boot using only validated boot software. By default, the **Enable Secure Boot** option is enabled. For additional security, Dell Technologies recommends keeping the **Secure Boot** option enabled to ensure that the UEFI firmware validates the operating system during the boot process. **NOTE:** For Secure Boot to be enabled, the computer is required to be in UEFI boot mode and the Enable Legacy Option ROMs option is required to be turned off.
Enable Microsoft UEFI CA	When disabled, the UEFI CA is removed from the BIOS UEFI Secure Boot database. **CAUTION: When disabled, the Microsoft UEFI CA can cause your system to not boot, computer graphics and some devices may not function properly, and the computer could become unrecoverable.** By default, the **Enable Microsoft UEFI CA** option is enabled. Microsoft HLK requirements for DeviceGuard require the UEFI 3rd Party CA removal from the UEFI SecureBoot database (db). Setting this option to Hybrid mode will allow the UEFI 3rd party CA to be used to validate pre-boot option ROMs, but will not allow a bootloader signed with the UEFI 3rd party CA to be loaded. For additional security, Dell Technologies recommends keeping the **Enable Microsoft UEFI CA** option enabled to ensure the broadest compatibility with devices and operating systems.
Secure Boot Mode	Enables or disables the Secure Boot operation mode. By default, the **Deployed Mode** is selected. **NOTE: Deployed Mode** should be selected for normal operation of Secure Boot.
Expert Key Management	
Enable Custom Mode	Enables or disables the ability to modify the keys in the PK, KEK, db, and dbx security key databases to be modified. By default, the **Enable Custom Mode** option is disabled.
Custom Mode Key Management	Selects the custom values for expert key management. By default, the **PK** option is selected.

Table 27. BIOS Setup options—Integrated Devices menu

Integrated Devices	Description
Date/Time	
Date	Sets the computer date in MM/DD/YYYY format. Changes to the date format take effect immediately.

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

Integrated Devices	Description
Time	Sets the computer time in HH/MM/SS 24-hour format. You can switch between a 12-hour and 24-hour clock. Changes to the time format take effect immediately.
Audio	
Enable Audio	Enable or disable the integrated audio controller, microphone, and the internal speaker, whichever is applicable. By default, all the options are enabled.
USB Configuration	
Enable Front USB Ports	Enables the front external USB ports. By default, the **Enable Front External USB Ports** option is enabled.
Enable Rear USB Ports	Enables the rear external USB ports. By default, the **Enable Rear External USB Ports** option is enabled.
Enable USB Boot Support	Enables booting from USB mass storage devices that are connected to external USB ports. By default, the **Enable USB Boot Support** option is enabled.
Front USB configuration	Click each checkbox to enable each individual USB port option.
Rear USB configuration	Click each checkbox to enable each individual USB port option.

Table 28. BIOS Setup options—Storage menu

Storage	Description
SATA/NVMe Operation	
SATA/NVMe Operation	Sets the operating mode of the integrated SATA hard drive controller. By default, the **RAID On** option is selected. The storage device is configured to support RAID functions with VMD controller. **NOTE:** The Windows RST (Intel® Rapid Storage Technology) driver or Linux kernel VMD driver must be loaded in order to boot the operating system.
Storage Interface	Displays the information of various onboard drives.
Port Enablement Port Enablement	Enable or disable the onboard drives. By default, all the onboard drives are enabled.
SATA-0	Enable or disable the SATA-0 drive. By default, the **ON** option is enabled.
M.2 PCIe SSD-0	Enable or disable the M.2 PCIe SSD-0 solid state drive. By default, the **ON** option is enabled.
SMART Reporting	
Enable SMART Reporting	Enable or disable Self-Monitoring, Analysis, and Reporting Technology (SMART) during computer startup. By default, the **OFF** option is disabled.
Drive Information	
SATA-0	
Type	Displays the SATA-0 type information of the computer.

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

Storage	Description
Device	Displays the SATA-0 device information of the computer.
M.2 PCIe SSD-0	
Type	Displays the M.2 PCIe SSD-0 type information of the computer.
Dervice	Displays the M.2 PCIe SSD-0 device information of the computer.
Enable MediaCard	
Secure Digital (SD) Card	Enables or disables the SD card. By default, the **Secure Digital (SD) Card** option is enabled.
Secure Digital (SD) Card Read-Only Mode	Enables or disables the SD card read-only mode. By default, the **Secure Digital (SD) Card Read-Only Mode** option is disabled.

Table 29. BIOS Setup options—Display menu

Display	Description
Primary Display	
Primary Display	Determines the primary display when multiple controllers are available on the computer. By default, the **Auto** option is enabled.
Full Screen Logo	
Full Screen Logo	Enables or disables the computer to display a full-screen logo, if the image matches screen resolution. By default, the **Full Screen Logo** option is disabled.

Table 30. BIOS Setup options—Connection menu

Connection	Description
Network Controller Configuration	
Integrated NIC	Controls the on-board LAN controller. By default, the **Enabled with PXE** option is selected.
Wireless Device Enable	
WLAN	Enables or disables the internal WLAN device. By default, the **WLAN** option enabled.
Bluetooth®	Enables or disables the internal Bluetooth device. By default, the **Bluetooth** option enabled.
Enable UEFI Network Stack	Enable or disable UEFI Network Stack and controls the on-board LAN Controller. By default, the **Auto Enabled** option is selected.
HTTP(s) Boot Feature	
HTTP(s) Boot	Enable or disable the HTTP(s) Boot feature. By default, the **ON** option is enabled.
HTTP(s) Boot Mode	With Auto Mode, the HTTP(s) Boot extracts Boot URL from the DHCP. With Manual Mode, the HTTP(s) Boot reads Boot URL from the user-provided data. By default, the **Auto Mode** option is selected.

Table 31. BIOS Setup options—Power menu

Power	Description
Thermal Management	
Thermal Management	Enables or disables cooling of fan and manages processor heat to adjust the computer performance, noise, and temperature. By default, the **Optimized** option is selected. Standard setting for balanced performance, noise, and temperature.
USB Wake Support	
Enable USB Wake Support	When enabled, you can use the USB devices like a mouse or keyboard to wake your computer from standby. By default, the **ON** option is enabled.
AC Behavior	
AC Recovery	Allows you to determine what happens when AC power is restored after an unexpected loss of AC power. By default, the **Power Off** option is selected.
Block Sleep	Enables or disables the computer from entering Sleep (S3) mode in the operating system. By default, the **OFF** option is disabled. **NOTE:** When enabled, the computer does not go to Sleep, Intel Rapid Start is disabled automatically, and the operating system power option is blank if it was set to Sleep.
Deep Sleep Control	Enable or disable the Deep Sleep mode support. By default, the **Enabled in S4 and S5** option is selected.
Intel Speed Shift Technology	Enable or disable the Intel Speed Shift Technology support. By default, the **ON** option is enabled.

Table 32. BIOS Setup options—Security menu

Security	Description
TPM 2.0 Security	
TPM 2.0 Security On	Enable or disable TPM 2.0 security options. By default, the **ON** option is enabled.
Attestation Enable	Enables to control whether the Trusted Platform Module (TPM) Endorsement Hierarchy is available to the operating system. By default, the **ON** option is enabled.
Key Storage Enable	Enables to control whether the Trusted Platform Module (TPM) Storage Hierarchy is available to the operating system. By default, the **ON** option is enabled.
Clear	Enables to clear the TPM owner information and returns the TPM to the default state. By default, the **OFF** option is enabled.
PPI ByPass for Clear Commands	Controls the TPM Physical Presence Interface (PPI). By default, the **OFF** option is enabled.
SMM Security Mitigation	Enables or disables additional UEFI SMM Security Mitigation protections. This option uses the Windows SMM Security Mitigations Table (WSMT) to confirm to

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

Security	Description
	the operating system that security best practices have been implemented by the UEFI firmware. By default, the **ON** option is enabled. For additional security, Dell Technologies recommends keeping the **SMM Security Mitigation** option enabled unless you have a specific application which is not compatible. **NOTE:** This feature may cause compatibility issues or loss of functionality with some legacy tools and applications.
Data Wipe on Next Boot	
Start Data Wipe	Data Wipe is a secure wipe operation that deletes information from a storage device. **WARNING: The secure Data Wipe operation deletes information in a way that it cannot be reconstructed.** Commands such as delete and format in the operating system may remove files from showing up in the file system. However, they can be reconstructed through forensic means as they are still represented on the physical media. Data Wipe prevents this reconstruction and is not recoverable. When enabled, the data wipe option will prompt to wipe any storage devices that are connected to the computer on the next boot. By default, the **OFF** option is disabled.
Absolute®	
Absolute®	Absolute Software provides various cyber security solutions, some requiring software preloaded on Dell computers and integrated into the BIOS. To use these features, you must enable the Absolute BIOS setting and contact Absolute for configuration and activation. By default, the **Enable Absolute** option is enabled. For additional security, Dell Technologies recommends keeping the **Absolute** option enabled. **NOTE:** When the Absolute features are activated, the Absolute integration cannot be disabled from the BIOS setup screen.
UEFI Boot Path Security	
UEFI Boot Path Security	Enables or disables the computer to prompt the user to enter the Administrator password (if set) when booting to a UEFI boot path device from the F12 boot menu. By default, the **Always Except Internal HDD** option is enabled.
Enable Authenticated BIOS Interface	
Enable Authenticated BIOS Interface	Enables or disables the Enable Authenticated BIOS Interface. By default, the **Enable Authenticated BIOS Interface** option is disabled.
Legacy Manageability Interface Acess	
Legacy Manageability Interface Acess	Allows the platform administrator to control access via the Legacy Manageability Interface. This option is not available.
Firmware Device Tamper Detection	
Firmware Device Tamper Detection	Allows you to control the firmware device tamper detection feature. This feature notifies the user when the firmware device is tampered. When enabled, a screen warning messages are displayed on the computer and a tamper detection event

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

Security	Description
	is logged in the BIOS Events log. The computer fails to reboot until the event is cleared. By default, the **Silent** option is enabled.
Clear Firmware Device Tamper Detection	
Clear Firmware Device Tamper Detection	Allows you to clear the event and enable booting. By default, the **OFF** option is disabled.

Table 33. BIOS Setup options—Passwords menu

Passwords	Description
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.
Password Configuration	The Password configuration page includes several options for changing the requirements of BIOS passwords. You can modify the minimum and maximum length of the passwords and require passwords to contain certain character classes (upper case, lower case, digit, special character). Dell Technologies recommends setting the minimum password length to at least eight characters.
Upper Case Letter	Reinforces password must have at least one upper case letter. By default, the **OFF** option is enabled.
Lower Case Letter	Reinforces password must have at least one lower case letter. By default, the **OFF** option is enabled.
Digit	Reinforces password must have at least one digit. By default, the **OFF** option is enabled.
Special Character	Reinforces password must have at least one special character. By default, the **OFF** option is enabled.
Minimum Characters	Set the minimum characters allowed for password. By default, the **Minimum Characters** value is set to 4.
Password Bypass	
Password Bypass	When enabled, this always prompts for computer and internal hard drive passwords when powered on from the off state. By default, the **Disabled** option is enabled.
Password Changes	
Allow Non-Admin Password Changes	The **Enable Non-Admin Password Changes** option in BIOS setup allows an end user to set or change the computer or hard drive passwords without entering the administrator password. This gives an administrator control over the BIOS settings but enables an end user to provide their own password. By default, the **ON** option is enabled.
Admin Setup Lockout	

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

Passwords	Description
Enable Admin Setup Lockout	The **Enable Admin Setup Lockout** option prevents an end user from even viewing the BIOS setup configuration without first entering the administrator password (if set). By default, the **OFF** option is disabled.
Master Password Lockout	
Enable Master Password Lockout	The Master Password Lockout setting allows you to disable the Recovery Password feature. If the computer, administrator, or hard drive password is forgotten, the computer becomes unusable. **NOTE:** When the owner password is set, the Master Password Lockout option is not available. **NOTE:** When an internal hard drive password is set, it must first be cleared before Master Password Lockout can be changed. By default, the **OFF** option is disabled. Dell does not recommend enabling the **Master Password Lockout** unless you have implemented your own password recovery computer.
Allow Non-Admin PSID Revert	
Enable Allow Non-Admin PSID Revert	Controls access to the Physical Security ID (PSID) revert of NVMe hard-drives from the Dell Security Manager prompt. By default, the **OFF** option is disabled.

Table 34. BIOS Setup options—Update, Recovery menu

Update, Recovery	Description
UEFI Capsule Firmware Updates	
UEFI Capsule Firmware Updates	Enables or disables BIOS updates through UEFI capsule update packages. **NOTE:** Disabling this option blocks the BIOS updates from services such as Microsoft Windows Update and Linux Vendor Firmware Service (LVFS). By default, the **ON** option is enabled.
BIOS Recovery from Hard Drive	
BIOS Recovery from Hard Drive	Enables or disables the user to recover from certain corrupted BIOS conditions from a recovery file on the user primary hard drive or an external USB key. By default, the **ON** option is enabled. **NOTE:** BIOS Recovery from Hard Drive is not available for self-encrypting drives (SED). **NOTE:** BIOS recovery is designed to fix the main BIOS block and cannot work if the Boot Block is damaged. In addition, this feature cannot work in the event of EC corruption, ME corruption, or a hardware issue. The recovery image must exist on an unencrypted partition on the drive.
BIOS Downgrade	
BIOS Downgrade	Controls flashing of the computer firmware to previous revisions. By default, the **ON** option is enabled.
SupportAssist OS Recovery	
SupportAssist OS Recovery	Enables or disables the boot flow for SupportAssist OS Recovery tool in the event of certain computer errors. By default, the **ON** option is enabled.

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

Update, Recovery	Description
BIOSConnect	
BIOSConnect	Enables or disables cloud Service operating system recovery if the main operating system fails to boot with the number of failures equal to or greater than the value specified by the Auto operating system Recovery Threshold setup option and local Service operating system does not boot or is not installed. By default, the **ON** option is enabled.
Dell Auto OS Recovery Threshold	
Dell Auto OS Recovery Threshold	Allows you to control the automatic boot flow for SupportAssist System Resolution Console and for Dell operating system Recovery Tool. By default, the value of **2** option is selected.

Table 35. BIOS Setup options—System Management menu

System Management	Description
Service Tag	
Service Tag	
Asset Tag	
Asset Tag	Creates a computer Asset Tag that can be used by an IT administrator to uniquely identify a particular computer. **NOTE:** Once set in BIOS, the Asset Tag cannot be changed.
Wake on LAN/WLAN	
Wake on LAN/WLAN	Enables or disables the computer to turn on by special LAN signals. By default, the **Disabled** option is selected.
Auto On Time	
Auto On Time	Enable to set the computer to turn on automatically every day or on a preselected date and time. This option can be configured only if the Auto On Time is set to Everyday, Weekdays, or Selected Days. By default, the **Disabled** option is selected.
SERR Messages	
Enable SERR Messages	Enable or disable SERR (system error) messages. By default, the **ON** option is enabled.
First Power On Date	
Set Ownership Date	Set the ownership date. By default, the **OFF** option is enabled.
Diagnostics	
OS Agent Requests	Enables OS agent request to schedule onboard diagnostics. By default, the **ON** option is enabled.
Power-On-Self-Test Automatic Recovery	
Power-On-Self-Test Automatic Recovery	Enables automatic recovery when the computer becomes unresponsive when performing a BIOS Power-On-Self-Test (POST). If the computer becomes unresponsive before POST is completed, the BIOS will automatically attempt to recover the computer. In some cases, this may include resetting the BIOS Setup

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

System Management	Description
	configuration settings to BIOS default values, and unprovisioning the Intel AMT vPro feature, if applicable. By default, the **ON** option is enabled.

Table 36. BIOS Setup options—Keyboard menu

Keyboard	Description
Keyboard Errors	
Enable Keyboard Error Detectio	Enable or disable the keyboard error detection feature. By default, the **ON** option is enabled.
Numlock LED	
Enable Numlock LED	Enable or disable Numlock LED. By default, the **ON** option is enabled.

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

Preboot Behavior	Description
Warning and Errors	
Warning and Errors	Enables or disables the action to be taken when a warning or error is encountered. By default, the **Prompt on Warnings and Errors** option is selected. Stop, prompt, and wait for user input when warnings or errors are detected. **NOTE:** Errors deemed critical to the operation of the computer hardware stop the functioning of the computer.
Extend BIOS POST Time	
Extend BIOS POST Time	Sets the BIOS POST (Power-On Self-Test) load time. By default, the **0 seconds** option is selected.

Table 38. BIOS Setup options—Virtualization menu

Virtualization Support	Description
Intel® Virtualization Technology	
Enable Intel® Virtualization Technology (VT)	When enabled, the computer can run a Virtual Machine Monitor (VMM). By default, the **ON** option is enabled.
VT for Direct I/O	
Enable Intel® VT for Direct I/O	When enabled, the computer can perform Virtualization Technology for Direct I/O (VT-d). VT-d is an Intel method that provides virtualization for memory map I/O. By default, the **ON** option is enabled.
DMA Protection	
Enable Pre-Boot DMA support.	Allows you to control the Pre-Boot DMA protection for both internal and external ports. This option does not directly enable DMA protection in the operating system. **NOTE:** This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi). By default, the **ON** option is enabled.

Table 38. BIOS Setup options—Virtualization menu (continued)

Virtualization Support	Description
	For additional security, Dell Technologies recommends keeping the **Enable Pre-Boot DMA Support** option enabled. **NOTE:** This option is provided only for compatibility purposes, since some older hardware is not DMA capable.
Enable OS Kernel DMA support	Allows you to control the Kernel DMA protection for both internal and external ports. This option does not directly enable DMA protection in the operating system. For operating systems that support DMA protection, this setting indicates to the operating system that the BIOS supports the feature. **NOTE:** This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi). By default, the **ON** option is enabled. **NOTE:** This option is provided only for compatibility purposes, since some older hardware is not DMA capable.
Internal Port DMA Compatability Mode	When enabled, BIOS will notify the operating systemS that the internal ports are not OMA capable. This is intended to help with devices that have OS OMA compatibility issues. This setting does not affect external port OMA or Pre-boot OMA support. By default, the **OFF** option is disabled.

Table 39. BIOS Setup options—Performance menu

Performance	Description
Multi-Core Support	
Active Multiple Performance Cores (P-Cores) Select	Change the number of CPU cores available to the operating system. The default value is set to the maximum number of cores. By default, the **All Active** option is selected.
Active Multiple Efficient Cores (E-Cores) Select	Change the number of CPU E-cores available to the operating system. The default value is set to the maximum number of cores. By default, the **All Active** option is selected.
Intel® SpeedStep	
Enable Intel® SpeedStep Technology	Enables the computer to dynamically adjust processor voltage and core frequency, decreasing average power consumption and heat production. By default, the **ON** option is enabled.
C-States Control	
Enable C-State Control	Enables or disables the ability of the CPU to enter and exit low-power state. When disabled, it disables all C-states. When enabled, it enables all C-states that the chipset or platform allows. By default, the **ON** option is enabled.
Intel® Turbo Boost Technology	
Enable Intel® Turbo Boost Technology	Enables the Intel® TurboBoost™ mode of the processor. When enabled, the Intel TurboBoost driver increases the performance of the CPU or graphics processor. By default, the **ON** option is enabled.
PCIe Resizable Base Address Register (BAR)	

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

Performance	Description
Enable PCIe Resizable Base Address Register (BAR) support	Enable or disable PCIe Resizable BAR support. By default, the **OFF** option is disabled.

Table 40. BIOS Setup options—System Logs menu

System Logs	Description
BIOS Event Log	
Clear Bios Event Log	Allows you to select option to keep or clear BIOS events logs. By default, the **Keep Log** option is selected.
Power Event Log	
Clear Power Event Log	Allows you to select option to keep or clear Power events logs. By default, the **Keep Log** option is selected.

Updating the BIOS

Updating the BIOS in Windows

About this task

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

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

Steps

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

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

3. Click **Drivers & Downloads**.
4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. After the download is complete, navigate to the folder where the BIOS update file has been saved.
8. Double-click the BIOS update file and follow the on-screen instructions.

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

Updating the BIOS using the USB drive in Windows

About this task

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

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

Steps

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

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

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

Updating the BIOS in Linux and Ubuntu

To update the system BIOS on a computer that is installed with Linux or Ubuntu, see How to Update the Dell BIOS in the Ubuntu or Linux Environment at Dell Support Site.

Updating the BIOS from the One-Time boot menu

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

System and setup password

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

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

Table 41. System and setup password

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

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

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

Assigning a System Setup password

Prerequisites

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

Steps

1. To enter the **System Setup**, press **F2** immediately after a power-on or reboot.
2. In the **System BIOS** or **System Setup** screen, select **Security** and press Enter.
   The **Security** screen is displayed.
3. Select **System/Admin Password** and create a password in the **Enter the new password** field.
   Use the following guidelines to create the system password:
   - Password can be up to 32 characters.
   - Password must contain at least one special character: "(! " # $ % & ' * + , - . / : ; < = > ? @ [\ ] ^ _ ` { | })"
   - The password can contain numbers from 0 to 9.
   - The password can contain alphabets A to Z and a to z.
4. Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
5. Press Y to save the changes.
   The computer restarts.

Deleting or changing an existing system password or setup password

Prerequisites

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

Steps

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

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

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

The computer restarts.

Clearing CMOS settings

About this task

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

Steps

1. Remove the left-side cover.
2. Remove the coin-cell battery cover.
3. Remove the coin-cell battery.
4. Wait for one minute.
5. Replace the coin-cell battery.
6. Replace the coin-cell battery cover.
7. Replace the left-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 How to Run Dell Preboot Diagnostics and Hardware Tests on Your Dell Computer.

Running the SupportAssist Pre-Boot System Performance Check

Steps

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

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

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

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

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

Pulsing white—Computer is in the memory-training state, wait for the computer to boot up.

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

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

Off—Computer is in sleep state, hibernation mode, or turned off.

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

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

The following table shows different power-button LED light patterns and associated problems.

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

Table 42. Diagnostic light codes

Diagnostic light codes (Amber, White)	Problem description
1,2	Unrecoverable SPI Flash Failure
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/Clock failure/Gate A20 failure/Super I/O failure/Keyboard controller failure
3,1	CMOS battery failure
3,2	PCI of Video card/chip failure
3,3	BIOS Recovery 1: BIOS recovery image not found
3,4	BIOS Recovery 2: Recovery image found but invalid
3,5	Power Rail Failure: EC ran into power sequencing failure
3,6	Paid SPI Volume Error
3,7	Management Engine (ME) error. Timeout waiting on ME to reply to HECI message.
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 43. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	Dell Site
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 Contact Support at 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.

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Revision history

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

Table 44. Revision history

Revision	Date	Description
A00	03-13-2025	Original publish date.
A01	08-01-2025	Notes added for drive bay or rotation bay availability being dependent on the configuration ordered.
A02	10-13-2025	Added drive bay installation support for computers that did not have a drive bay previously installed.