Dell Pro Max 14 Premium

MA14250

Owner's Manual

Regulatory Model: P201G
Regulatory Type: P201G001
July 2025
Rev. A00

Notes, cautions, and warnings

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

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

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

Contents

1

Views of Dell Pro Max 14 Premium MA14250

Right

Figure 1. Right view

1. **microSD card slot**

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

   - micro-Secure Digital (microSD)
   - micro-Secure Digital High Capacity (micro-SDHC)
   - micro-Secure Digital Extended Capacity (micro-SDXC)

2. **Two Thunderbolt 4 (40 Gbps) with Power Delivery and DisplayPort 2.1 ports**

   Connect devices such as external storage devices and printers.

   Supports DisplayPort 2.1, Thunderbolt 4 and also enables you to connect to an external display using a display adapter. Provides a data transfer rate of up to 40 Gbps for Thunderbolt 4.

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

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

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

3. **Global headset port**

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

4. **Security-cable slot (wedge-shaped)**

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

Left

Figure 2. Left view

1. **Two Thunderbolt 5 (Up to 120 Gbps) with Power Delivery and DisplayPort 2.1 ports**

   Supports DisplayPort 2.1, Thunderbolt 5 and also enables you to connect to an external display using a display adapter. Provides data transfer rates of up to 120 Gbps with Bandwidth Boost.

   NOTE: The power adapter is to be connected to one of these Thunderbolt 5 ports.

   NOTE: You can connect a Dell Docking Station to the Thunderbolt 5 ports. For more information, search in the Knowledge Base Resource at Dell Support Site.

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

   NOTE: Thunderbolt 5 is compatible with USB4, USB 3.2, USB 2.0, Thunderbolt 4 and Thunderbolt 3.

   NOTE: Thunderbolt 5 supports up to three 4K displays or two 8K displays.

2. **Power and battery-status light**

   Indicates the power state and battery state of the computer.

   Solid white — Power adapter is connected and the battery is charging.

   Solid amber — Computer is running on battery and the battery charge is low or critical.

   Off — Power adapter is disconnected or the battery is fully charged.

   NOTE: On certain computer models, the power and battery-status light are also used for diagnostics. For more information, see the *Troubleshooting* section in this document.

Top

Figure 3. Top view

1. **Microphones**

   Provide digital sound input for audio recording, voice calls, and so on.

2. **Power button with optional fingerprint reader**

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

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

   For computers shipped with a fingerprint reader, place your finger on the power button to log in.

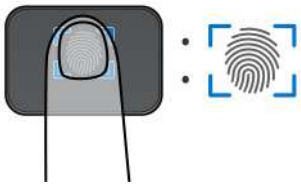


Figure 4. Active area of the fingerprint reader

NOTE: The highlighted area indicates the active fingerprint reader area, and the image is for illustration purposes only.

NOTE: You can customize power-button behavior in Windows. For more information, see Manals at Dell Support Site.

3. **Speakers**

   Provides audio output.

4. **Haptic touchpad**

   Move your finger on the touchpad to move the mouse pointer. Tap to left-click and two fingers tap to right-click.

Front

Figure 5. Front view

1. **IR sensor**

   Provides digital sound input for audio recording and voice calls.

2. **Infrared LED**

   Emits infrared light, which enables the infrared camera to sense and track motion.

3. **Camera**

   Enables you to video chat, capture photos, and record videos.

4. **Camera-status light**

   Turns on when the camera is in use.

5. **Ambient-light sensor**

   The sensor detects the ambient light and automatically adjusts the keyboard backlight and display brightness.

Bottom

Figure 6. Bottom view

1. **Speakers**

   Provide audio output.

2. **Air vents**

   Air vents provide ventilation for your computer. Clogged air vents can cause overheating and can affect your computer's performance and potentially cause hardware issues. Keep the air vents clear of obstructions and clean them regularly to prevent the build-up of dust and dirt.

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

3. **MyDell QR code**

   MyDell is your hub for content that is personalized for your Dell Pro Max 14 Premium MA14250, including videos, articles, manuals, and easy access to support.

4. **Service Tag/Express Service Code label**

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

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

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

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

Figure 7. Service Tag/Express Service Code location

Battery-status light

The following table lists the battery-status light of your Dell Pro Max 14 Premium MA14250.

Table 1. Battery-status light behavior

Power source	LED behavior	System power state	Battery charge level
AC adapter	Off	S0 or S5	100%
AC adapter	Solid white	S0 or S5	< 100%
Battery	Off	S0 or S5	11-100%
Battery	Solid amber	S0 or S5	< 10%

- S0 (ON): The computer is turned on.
- S3 (Sleep): Screen is off and computer is in sleep mode.
- S4 (Hibernate): The computer consumes the least power in the Hibernate state than in the ON or OFF state. The computer is almost in the OFF state. The context data is written to a storage device, allowing you to resume from where you left after the computer is turned on.
- S5 (OFF): The computer is in a shutdown state.

2

Set up your Dell Pro Max 14 Premium MA14250

About this task

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

Steps

1. Connect the power adapter and press the power button.

   NOTE: To conserve battery power, the battery might enter power-saving mode. Ensure that the power adapter is connected before turning on the computer.

Figure 8. Connect the power adapter and press the power button

2. 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, it is recommended 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 an existing Microsoft account or create an account. If not connected to the Internet, create an offline account.

- On the **Support and Protection** screen, enter your contact details.

3. Locate and use Dell apps from the Windows Start menu. This step is optional but recommended.

Table 2. Locate Dell apps

Resources	Description
	Dell Optimizer is an application that is designed to enhance computer performance and productivity by optimizing settings for power, battery, display, and presence detection. It also provides access to applications purchased with your new computer. For more information, see Dell Optimizer User's Guide at Dell Support Site.
	**Dell Product Registration** Register your computer with Dell.
	**Dell Help & Support** Access help and support for your computer.
	**SupportAssist** SupportAssist is a proactive and predictive technology that offers automated technical support for Dell computers. It proactively monitors both hardware and software, addressing performance issues, preventing security threats, and automating engagement with Dell Technical Support. For more information, see 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 Pro Max 14 Premium MA14250

Dimensions and weight

The following table lists the height, width, depth, and weight of your Dell Pro Max 14 Premium MA14250.

Table 3. Dimensions and weight

Description	Values
Height:	
Front height	• For computers shipped with UHD+ OLED displays: 18.91 mm (0.74 in.) • For computers shipped with FHD displays: 19.32 mm (0.76 in.)
Rear height	• For computers shipped with UHD+ OLED displays: 18.91 mm (0.74 in.) • For computers shipped with FHD displays: 19.32 mm (0.76 in.)
Peak height	• For computers shipped with UHD+ OLED displays: 19.72 mm (0.78 in.) • For computers shipped with FHD displays: 20.12 mm (0.79 in.)
Width	310.60 mm (12.23 in.)
Depth	212.46 mm (8.36 in.)
Weight **NOTE:** The weight of your computer depends on the configuration that you ordered.	Minimum: 1.61 kg (3.55 lb)

Processor

The following table lists the details of the processors that are supported in your Dell Pro Max 14 Premium MA14250.

Table 4. Processor

Description	Option one	Option two	Option three
Processor type	Intel Core Ultra 7 255H	Intel Core Ultra 7 265H vPro Enterprise	Intel Core Ultra 9 285H vPro Enterprise

Table 4. Processor (continued)

Description	Option one	Option two	Option three
Processor wattage	45 W	45 W	45 W
Processor total core count	16	16	16
Performance-cores	6	6	6
Efficient-cores	8	8	8
Low Power Efficient-cores	2	2	2
Processor total thread counts **NOTE:** Intel Hyper-Threading Technology is only available on Performance-cores.	16	16	16
Processor speed	Up to 5.10 GHz	Up to 5.30 GHz	Up to 5.40 GHz
Performance-cores frequency			
Processor base frequency	2.00 GHz	2.20 GHz	2.90 GHz
Maximum turbo frequency	5.10 GHz	5.30 GHz	5.40 GHz
Efficient-cores frequency			
Processor base frequency	1.50 GHz	1.70 GHz	2.70 GHz
Maximum turbo frequency	4.50 GHz	4.50 GHz	4.40 GHz
Low Power Efficient-cores frequency			
Processor base frequency	700 MHz	700 MHz	1.00 GHz
Maximum turbo frequency	2.50 GHz	2.50 GHz	2.50 GHz
Processor cache	24 MB	24 MB	24 MB
Integrated graphics	Intel Arc 140T GPU	Intel Arc Pro 140T GPU	Intel Arc Pro 140T GPU
Neural Processing Units (NPU) Performance	Up to 13 TOPS	Up to 13 TOPS	Up to 13 TOPS

Chipset

The following table lists the details of the chipset that is supported by your Dell Pro Max 14 Premium MA14250.

Table 5. Chipset

Description	Values
Chipset	Integrated (Intel Arrow Lake-H)
Processor	• Intel Core Ultra 7 processor

Table 5. Chipset (continued)

Description	Values
	• Intel Core Ultra 7/9 vPro Enterprise processors
DRAM bus width	128-bit
Flash EPROM	64 MB (SBIOS) + 32 MB (VBIOS)
PCIe bus	Up to Gen5

Operating system

Your Dell Pro Max 14 Premium MA14250 supports the following operating systems:

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

Memory

The following table lists the memory specifications of your Dell Pro Max 14 Premium MA14250.

Table 6. Memory specifications

Description	Values
Memory slots	Onboard memory **NOTE:** The memory is integrated on the system board and is not upgradable.
Memory type	Dual-channel LPDDR5x
Memory speed	8400 MT/s
Maximum memory configuration	64 GB
Minimum memory configuration	16 GB
Memory configurations supported	• 16 GB, LPDDR5x, 8400 MT/s, dual-channel (onboard) • 32 GB, LPDDR5x, 8400 MT/s, dual-channel (onboard) • 64 GB, LPDDR5x, 8400 MT/s, dual-channel (onboard)

External ports and slots

The following table lists the external ports and slots on your Dell Pro Max 14 Premium MA14250.

Table 7. External ports and slots

Description	Values
USB ports	• Two USB Type-C Thunderbolt 5 (up to 120 Gbps) with Power Delivery and DisplayPort 2.1 ports • Two USB Type-C Thunderbolt 4 (40 Gbps) with Power Delivery and DisplayPort 2.1 ports
Audio port	One global headset port

Table 7. External ports and slots (continued)

Description	Values
Video port(s)	• Two USB Type-C Thunderbolt 5 (up to 120 Gbps) with Power Delivery and DisplayPort 2.1 ports • Two USB Type-C Thunderbolt 4 (40 Gbps) with Power Delivery and DisplayPort 2.1 ports
Media-card reader	One microSD-card slot
Power-adapter port	USB Type-C
Security-cable slot	One wedge-shaped lock slot

Internal slots

The following table lists the internal slots of your Dell Pro Max 14 Premium MA14250.

Table 8. Internal slots

Description	Values
M.2	One M.2 Key-M (2230 or 2280) slot for a 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.

Wireless module

The following table lists the Wireless Local Area Network (WLAN) module that is supported on your Dell Pro Max 14 Premium MA14250.

Table 9. Wireless module specifications

Description	Values
Model number	Intel Wi-Fi 7 BE201
Transfer rate	Up to 5 Gbps
Frequency bands supported	2.4 GHz/5 GHz/6 GHz **NOTE:** The 6 GHz frequency is only supported on computers that are installed with the Windows 11 operating system.
Wireless standards	• WiFi 802.11a/b/g • Wi-Fi 4 (Wi-Fi 802.11n) • Wi-Fi 5 (WiFi 802.11ac) • Wi-Fi 6E (WiFi 802.11ax) • Wi-Fi 7 (WiFi 802.11be) **NOTE:** Wi-Fi 7 standard is only supported on computers that are installed with the Windows 11 operating system.
Encryption	• 64-bit and 128-bit WEP

Table 9. Wireless module specifications (continued)

Description	Values
	• AES-CCMP • TKIP
Bluetooth wireless card **NOTE:** The functionality of the Bluetooth wireless card may vary based on the operating system.	Bluetooth 5.4 wireless card

Audio

The following table lists the audio specifications of your Dell Pro Max 14 Premium MA14250.

Table 10. Audio specifications

Description		Values
Audio controller		Cirrus Logic CS42L43
Stereo conversion		Supported
Internal audio interface		SoundWire interface
External audio interface		One global headset port
Number of speakers		Four (Two tweeter speakers and two woofer speakers)
Internal-speaker amplifier		Supported
External volume controls		Keyboard shortcut controls
Speaker output:		
	Average	• 2 W + 2 W = 4 W (tweeter) • 2 W + 2 W = 4 W (woofer)
	Peak	• 2.5 W + 2.5 W = 5 W (tweeter) • 2.5 W + 2.5 W = 5 W (woofer)
Microphone		Dual digital-array microphones

Storage

This section lists the storage options on your Dell Pro Max 14 Premium MA14250.

Your Dell Pro Max 14 Premium MA14250 supports:

Table 11. Storage specifications

Storage type	Interface type	Capacity
M.2 2280 solid state drive, TLC with DRAM, Self-Encrypting Ready	PCIe NVMe Gen4 x4	up to 2 TB
M.2 2230 solid state drive, TLC **NOTE:** To replace your M.2 2280 with an M.2 2230 SSD, you must purchase the Dell SSD bracket kit to	PCIe NVMe Gen4 x4	up to 512 GB

Table 11. Storage specifications (continued)

Storage type	Interface type	Capacity
self-install the M.2 2230 SSD in the SSD slot.		

Media-card reader

The following table provides the specification of media cards that are supported by your Dell Pro Max 14 Premium MA14250.

Table 12. Media-card reader specifications

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

Keyboard

The following table lists the keyboard specifications of your Dell Pro Max 14 Premium MA14250.

Table 13. Keyboard specifications

Description	Values
Keyboard type	Zero-lattice, spill-resistant keyboard with battery-saving mini-LED backlit technology and standard AI hotkey
Keyboard layout	QWERTY
Number of keys	• United States and Canada: 79 keys • United Kingdom: 80 keys • Japan: 83 keys • Brazil: 81 keys
Key pitch	X=19.05 mm key pitch Y=18.05 mm key pitch
Keyboard shortcuts	Some keys on your keyboard have two symbols on them. These keys can be used to type alternate characters or to perform secondary functions. • To type the alternate character, press Shift and the desired key. • To perform secondary functions, press Fn and the desired key. **NOTE:** You can define the primary behavior of the function keys (F1–F12) by changing **Function Key Behavior** in the BIOS Setup program. **NOTE:** If Copilot in Windows is not available on your computer, pressing the Copilot key launches Windows

Table 13. Keyboard specifications (continued)

Description	Values
	search. For more information about Copilot in Windows, see the Knowledge Base Resource at the Dell Support site.

Keyboard shortcuts

NOTE: Keyboard characters may differ depending on the keyboard language configuration. Keys that are used for shortcuts remain the same across all language configurations.

Some keys on your keyboard have two symbols on them. These keys can be used to type alternate characters or to perform secondary functions. The symbol that is shown on the lower part of the key refers to the character that is typed out when the key is pressed. If you press shift and the key, the symbol that is shown on the upper part of the key is typed out. For example, if you press **2**, 2 is typed out; if you press **Shift** + **2**, @ is typed out.

The keys F1-F12 at the top row of the keyboard are function keys for multimedia control, as indicated by the icon on the key. Press the function key to enable the task represented by the icon. For example, pressing F1 mutes the audio (see the table below).

However, if the function keys F1-F12 are needed for specific software applications, multimedia functionality can be disabled by pressing **fn** + **Esc**. Later, multimedia control can be invoked by pressing **fn** and the respective function key. For example, mute audio by pressing **fn** + **F1**.

NOTE: You can also define the primary behavior of the function keys (F1–F12) by changing **Function Key Behavior** in the BIOS setup program.

Table 14. Function key primary behavior

Function key	Primary behavior
F1	Mute or unmute audio
F2	Decrease volume
F3	Increase volume
F4	Microphone Mute
F5	Keyboard Illumination/Backlight
F6	Decrease brightness
F7	Increase brightness
F8	Switch to external display
F10	Print screen
F11	Home
F12	End

The **Fn** key is also used with selected keys on the keyboard to invoke secondary functions.

Table 15. Secondary behavior

Function key	Secondary behavior
fn + F1	Operating system and application-specific F1 behavior
fn + F2	Operating system and application-specific F2 behavior
fn + F3	Operating system and application-specific F3 behavior
fn + F4	Operating system and application-specific F4 behavior
Fn + F5	Operating system and application-specific F5 behavior

Table 15. Secondary behavior (continued)

Function key	Secondary behavior
fn + F6	Operating system and application-specific F6 behavior
fn + F7	Operating system and application-specific F6 behavior
fn + F8	Operating system and application-specific F8 behavior
fn + F9	Operating system and application-specific F9 behavior
Fn + F10	Operating system and application-specific F10 behavior
fn + F11	Operating system and application-specific F11 behavior
fn + F12	Operating system and application-specific F12 behavior
fn + Ctrl	Open the application menu
fn + Esc	Toggle between multimedia and function key behavior
fn + PgUp	Scroll up the document or page
fn + PgDn	Scroll down the document or page
fn + Home	Move to the beginning of the document
fn + End	Move to the end of the document
Copilot	Launch Copilot in Windows **NOTE:** If Copilot in Windows is not available on your computer, the Copilot key launches Recall. If both Recall and Copilot in Windows are not available on your computer, the Copilot key launches Windows Search. For more information about Copilot in Windows and Recall, search in the Knowledge Base Resource at the Dell Support Site.

Camera

The following table lists the camera specifications of your Dell Pro Max 14 Premium MA14250.

Table 16. Camera specifications

Description		Values
Number of cameras		One
Camera type		8MP RGB and IR camera
Camera location		Front camera
Camera sensor type		CMOS sensor technology
Camera resolution:		
	Still image	8.29 megapixels
	Video	2560 x 1440 at 30 fps
Infrared camera resolution:		
	Video	640 x 400 at 30 fps
Diagonal viewing angle:		

Table 16. Camera specifications (continued)

Description		Values
	Camera	88.1 degrees
	Infrared camera	86.6 degrees

Touchpad

The following table lists the touchpad specifications of your Dell Pro Max 14 Premium MA14250.

Table 17. Touchpad specifications

Description		Values
Touchpad resolution:		
	Horizontal	> 300 dpi
	Vertical	> 300 dpi
Touchpad dimensions:		
	Horizontal	130 mm (5.12 in.)
	Vertical	70 mm (2.76 in.)
Touchpad gestures		For more information about the touchpad gestures that are available on: • Windows, see the Microsoft Knowledge Base article at Microsoft Support Site. • Ubuntu, see Ubuntu Support Site.

Power adapter

The following table lists the power adapter specifications of your Dell Pro Max 14 Premium MA14250.

Table 18. Power-adapter specifications

Description		Option one	Option two
Type		100 W AC adapter, USB-C **NOTE:** The 100 W AC adapter is only available for purchase with computers that are shipped with integrated graphics.	130 W AC adapter, USB-C
Power-adapter dimensions:			
	Height	26.50 mm (1.04 in.)	22.00 mm (0.87 in.)
	Width	60.00 mm (2.36 in.)	66.00 mm (2.60 in.)
	Depth	122.00 mm (4.80 in.)	143.00 mm (5.63 in.)
Input voltage		100 VAC to 240 VAC	100 VAC to 240 VAC
Input frequency		50 Hz to 60 Hz	50 Hz to 60 Hz
Input current (maximum)		1.70 A	1.80 A

Table 18. Power-adapter specifications (continued)

Description		Option one	Option two
Output current (continuous)		• 20 V/5 A (Continuous) • 15 V/3 A (Continuous) • 9 V/3 A (Continuous) • 5 V/3 A (Continuous)	• 20 V/6.5 A (Continuous) • 5 V/1 A (Continuous)
Rated output voltage		• 20 VDC • 15 VDC • 9 VDC • 5 VDC	• 20 VDC • 5 VDC
Temperature range:			
	Operating	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)
	Storage	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)
CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.			

Power adapter requirements

NOTE: If you did not purchase the Dell-branded power adapter that is recommended for your computer, ensure that the power adapter you use meets the following requirements.

The following table lists the power adapter requirements for your Dell Pro Max 14 Premium MA14250.

Table 19. Power adapter requirements

Description	Value
Power that is required from a power adapter to achieve optimal performance	60 W
Power that charges the computer at a slower speed **NOTE:** A warning message may appear informing you about the use of a lower-powered adapter and slower charging speed.	Less than 60 W
Minimum power that is required from a power adapter to operate the computer and charge the battery **NOTE:** A warning message appears informing you about the use of a lower-powered adapter and slower charging speed.	60 W
USB Power Delivery (PD) fast charging	Supported
ExpressCharge mode	Supported **NOTE:** Ensure the computer with a 72 Wh battery is connected to a power adapter that is rated 94 W and above to support this feature.

Battery

The following table lists the battery specifications of your Dell Pro Max 14 Premium MA14250.

Table 20. Battery specifications

Description		Option one	Option two
Battery type		4-cell, 72 Wh, ExpressCharge	4-cell, 72 Wh, ExpressCharge, Long Life Cycle
Battery voltage		15.6 VDC	15.6 VDC
Battery weight (maximum)		0.27 kg (0.60 lb)	0.27 kg (0.60 lb)
Battery dimensions:			
	Height	7.64 mm (0.30 in.)	7.64 mm (0.30 in.)
	Width	266.62 mm (10.45 in.)	266.62 mm (10.45 in.)
	Depth	72.68 mm (2.86 in.)	72.68 mm (2.86 in.)
Temperature range:			
	Operating	• Charge: 0°C to 50°C (32°F to 122°F) • Discharge: 0°C to 60°C (32°F to 140°F)	• Charge: 0°C to 50°C (32°F to 122°F) • Discharge: 0°C to 60°C (32°F to 140°F)
	Storage	–20°C to 65°C (-4°F to 149°F)	–20°C to 65°C (-4°F to 149°F)
Battery operating time		Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions
Battery charging time (approximate) **NOTE:** You can control the charging time, duration, start and end time, and so on, using the Dell Power Manager application. For more information about Dell Power Manager, search in the Knowledge Base Resource at Dell Support Site.		• ExpressCharge Boost: From 0% to 35% in almost 20 minutes • ExpressCharge: 2 hours • Standard charge: 3 hours	• ExpressCharge Boost: From 0% to 35% in almost 20 minutes • ExpressCharge: 2 hours • Standard charge: 3 hours
Coin-cell battery		Not supported	Not supported
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. **CAUTION: Dell Technologies recommends that you charge the battery regularly for optimal power consumption.**			

Power requirements

NOTE: The information in this section is applicable to the European Union (EU) countries.

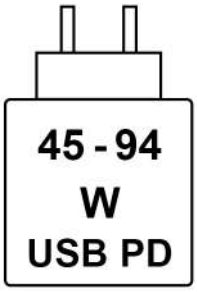


Figure 9. Pictogram for 72 Wh battery

The power that is delivered by the charger must be between a minimum of 45 Watts that is required by the radio equipment, and a maximum of 94 Watts in order to achieve the maximum charging speed.

This computer supports USB Power Delivery (PD) fast charging.

Display

The following table lists the display specifications of your Dell Pro Max 14 Premium MA14250.

Table 21. Display specifications

Description		Option one	Option two
Display type		14-inch, Full High Definition+ (FHD+)	14-inch, Quad High Definition (UHD+ OLED)
Touch options		Not supported	Supported
Display-panel technology		Wide-viewing angle (WVA)	Wide-viewing angle (WVA)
Display-panel dimensions (active area):			
	Height	188.50 mm (7.42 in.)	188.50 mm (7.42 in.)
	Width	301.60 mm (11.87 in.)	301.60 mm (11.87 in.)
	Diagonal	355.60 mm (14.00 in.)	355.60 mm (14.00 in.)
Display-panel native resolution		1920 x 1200	2880 x 1800
Luminance (typical)		400 nits	400 nits
Megapixels		2.30	5.18
Color gamut		100% sRGB	100% DCI-P3
Pixels Per Inch (PPI)		162 ppi	242 PPI
Contrast ratio (minimum)		• Minimum: 1000:1 • Typical: 1500:1 (typical)	Typical: 1000000:1
Response time (maximum)		35 ms	2 ms
Refresh rate		30 Hz to 60 Hz	30 Hz to 60 Hz
Horizontal view angle		• Minimum: +/- 80 degrees • Typical: +/- 85 degrees	Minimum: +/- 88 degrees

Table 21. Display specifications (continued)

Description	Option one	Option two
Vertical view angle	• Minimum: +/- 80 degrees • Typical: +/- 85 degrees	Minimum: +/- 88 degrees
Pixel pitch	0.15708 mm	0.1047 mm
Power consumption (maximum)	2.5 W (at mosaic pattern, 60 Hz)	5.63 W (at mosaic pattern, 60 Hz)
Anti-glare vs glossy finish	Anti-glare	Anti-reflection

Fingerprint reader (optional)

The following table lists the specifications of the optional fingerprint-reader of your Dell Pro Max 14 Premium MA14250.

NOTE: The fingerprint reader is on the power button.

Table 22. Fingerprint reader specifications

Description	Values
Sensor technology	Capacitive sensing
Sensor resolution	500 dpi
Sensor pixel size	108 x 88 pixels

Sensors

The following table lists the sensors of your Dell Pro Max 14 Premium MA14250.

Table 23. Sensor

Sensor support
Ambient Light Sensor
Windows Auto Brightness
IR User Proximity Detection
Accelerometer
Adaptive Thermal Performance (laptop compared with desktop mode) requires Gyro/Accelerometer **NOTE:** This is for thermal only.
Hall Effect Sensor
Sensor Hub (integrated)

GPU—Integrated

The following table lists the specifications of the integrated Graphics Processing Unit (GPU) supported by your Dell Pro Max 14 Premium MA14250.

Table 24. GPU—Integrated

Controller	Memory size	Processor
Intel Arc 140T GPU	Shared system memory	Intel Core Ultra 7 processor
Intel Arc Pro 140T GPU	Shared system memory	Intel Core Ultra 7/9 vPro Enterprise processors

GPU—Discrete

The following table lists the specifications of the discrete Graphics Processing Unit (GPU) supported by your Dell Pro Max 14 Premium MA14250.

Table 25. GPU—Discrete

Controller	Memory size	Memory type
NVIDIA RTX PRO 1000-Blackwell	8 GB	GDDR7
NVIDIA RTX PRO 2000-Blackwell	8 GB	GDDR7

Multiple display support matrix

The following table lists the multiple display support matrix for your Dell Pro Max 14 Premium MA14250.

Table 26. Multiple display support matrix

Graphics Card	Direct Graphics Controller Direct Output Mode	Supported external displays with computer internal display on	Supported external displays with computer internal display off
Intel Arc 140T GPU	Not supported	3	4
Intel Arc Pro 140T GPU	Not supported	3	4
NVIDIA RTX PRO 1000-Blackwell	Supported	3	4
NVIDIA RTX PRO 2000-Blackwell	Supported	3	4

Hardware security

The following table lists the hardware security of your Dell Pro Max 14 Premium MA14250.

Table 27. Hardware security

Hardware security
One wedge-shaped lock slot
Windows Hello - Fingerprint reader (optional)

Table 27. Hardware security (continued)

Hardware security
Trusted Platform Module (TPM) 2.0 discrete
FIPS 140-2 certification for TPM
TCG Certification for TPM (Trusted Computing Group)
Optional fingerprint reader in power button
SED SSD NVMe, SSD per SDL

Operating and storage environment

This table lists the operating and storage specifications of your Dell Pro Max 14 Premium MA14250.

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

Table 28. Computer environment

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

Dell support policy

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

Dell low blue light display

WARNING: Prolonged exposure to blue light from the display may lead to long-term effects such as eye strain, eye fatigue, or damage to the eyes.

Blue light is a color in the light spectrum which has a short wavelength and high energy. Chronic exposure to blue light, particularly from digital sources may disrupt sleep patterns and cause long-term effects such as eye strain, eye fatigue, or damage to the eyes.

The display on this computer is designed to minimize blue light and complies with TÜV Rheinland's requirement for low blue light displays.

Low blue light mode is enabled at the factory, so no further configuration is necessary.

To reduce the risk of eye strain, it is also recommended that you:

- Position the display at a comfortable viewing distance between 20 and 28 inches (50 cm and 70 cm) from your eyes.

- Blink frequently to moisten your eyes, wet your eyes with water, or apply suitable eye drops.
- Take an extended break for 20 minutes every two hours.
- Look away from your display, and gaze at a distant object at 20 ft (609.60 cm) away for at least 20 seconds during each break.

Dell Optimizer

Dell Optimizer is an AI-based software application that allows you to customize your computer settings for power and battery, and more.

For Dell Pro Max 14 Premium MA14250 with Dell Optimizer, you can:

- Extend the battery life of your computer with Intelligent Battery Extender and Dynamic Charge.
- Tune the performance, power consumption, cooling, and fan noise with selectable thermal modes.
- Access and secure your computer depending on your physical presence.
- Download and redeem the apps that are purchased with your computer.

For more information about configuring and using these features, search for *Dell Optimizer* at the Dell Support Site.

4

Working inside your computer

Safety instructions

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

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

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

WARNING: For 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.

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

Before working inside your computer

About this task

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

Steps

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

   NOTE: If you are using a different operating system, see the documentation of your operating system for 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.
6. Remove any media card and optical drive from your computer, if applicable.
7. To clean the air vents, use a soft brush and move vertically.

   NOTE: Do not remove the base cover or use any blower to clean the vents.

8. Enter the Service Mode.

   Service Mode

   Service Mode is used to cut off power without disconnecting the battery cable from the system board before conducting repairs in the computer.

   CAUTION: If you are unable to turn on the computer to put it into Service Mode, disconnect the battery cable. To disconnect the battery cable, follow the steps in Removing the battery.

   NOTE: Ensure that your computer is shut down and the power adapter is disconnected.

   a. Press and hold the B key and the power button for 3 seconds or until the Dell logo appears on the screen.
   b. Press any key to continue.
   c. If the power adapter is not disconnected, a message prompting you to disconnect the power adapter appears on the screen. Disconnect the power adapter and then press any key to enter into the Service Mode. The Service Mode setup automatically skips the following step if the **`Owner Tag`** of the computer is not set up in advance by the user.
   d. When the **ready-to-proceed** message appears on the screen, press any key to proceed. The computer emits three short beeps and shuts down immediately.
      The computer shuts down and enters the Service Mode.

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.

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, disks, or any other parts that you removed before working on your computer.
4. Connect your computer to their electrical outlets.

   NOTE: To exit service mode, ensure to connect the AC adapter to the power-adapter port on your computer.

5. Press the power button to turn on the 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 #0
- Phillips screwdriver #1
- Torx #5 (T5) screwdriver
- Plastic scribe

Screw list

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

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

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

Table 29. Screw list

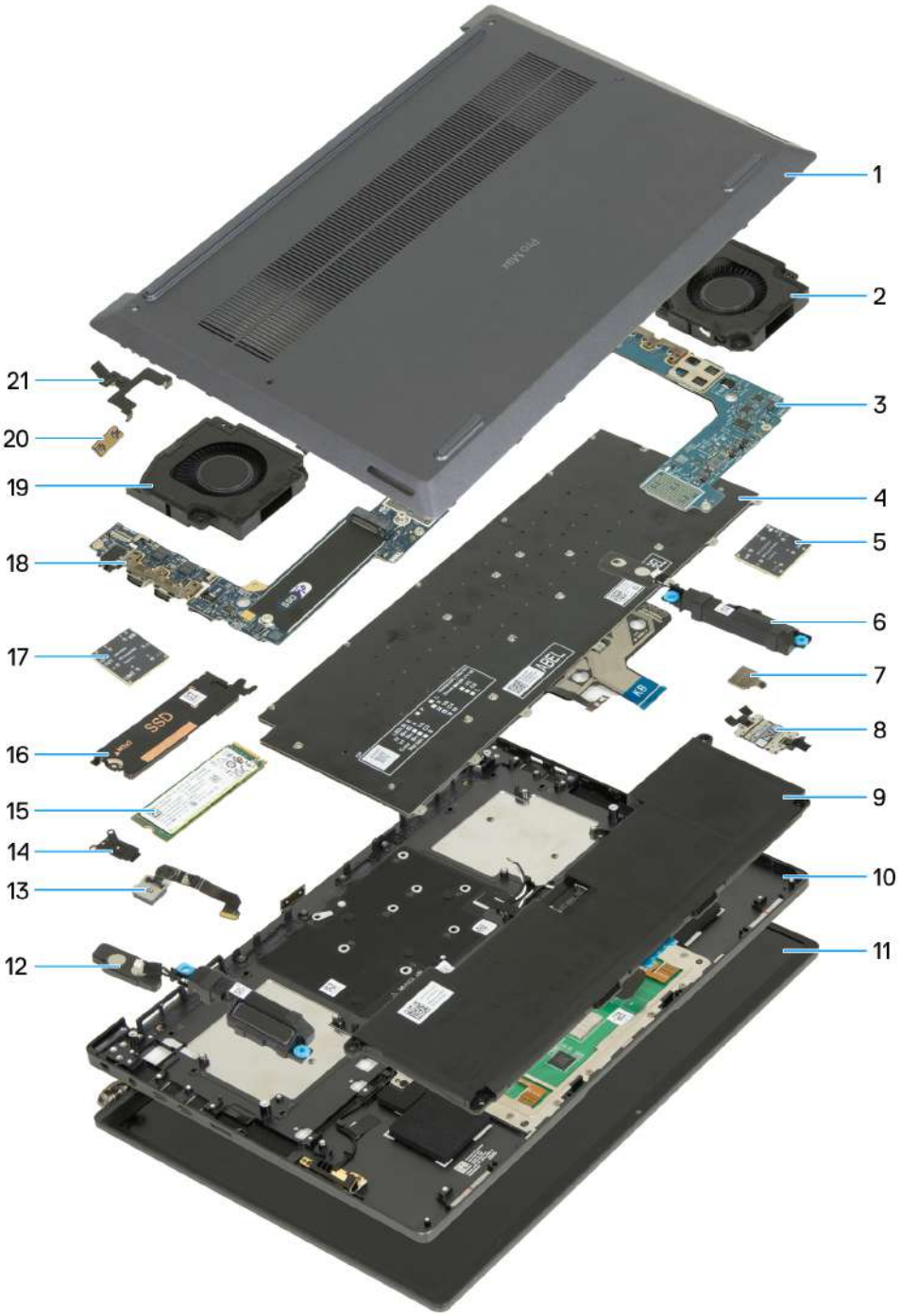
Component	Screw type	Quantity	Screw image
Base cover	M2x3 (T5 Torx screw)	4	
Battery-connector bracket	M2x3.5 (Captive screw)	1	
Battery	M2x4	5	
M.2 2230 solid state drive	M2x2	2	
M.2 2230 solid state drive bracket	M2x2	1	
M.2 solid state drive thermal shield (SSD)	M2x2	1	
Left fan	M2x4	3	
Right fan	M2x4	3	
Display-assembly cable	M1.4x4 (T5 Torx screw)	4	
Left display hinge	M2.5x5	4	
Right display hinge	M2.5x5	4	
Heat sink	Captive screw	7	

Table 29. Screw list (continued)

Component	Screw type	Quantity	Screw image
Left I/O board	M1.6x4	5	
Right I/O board	M1.6x4	5	
Left PC bridge connector board	M1.6x4	6	
Right PC bridge connector board	M1.6x4	6	
System board	M2x3	5	
Power-button bracket	M1.4x2	2	
Wireless-module bracket	M1.6x2.3 (captive screw)	1	
Left speaker	M1.6x1.8	1	
Right speaker	M1.6x1.8	1	
Keyboard	M1.4x1.4	7	
	M1.4x1.2	19	
Wireless antennas	M1.4x3.5 (captive screw)	4	
Touchpad bracket	M2x2	4	

Major components of Dell Pro Max 14 Premium MA14250

The following image shows the major components of Dell Pro Max 14 Premium MA14250.



1. Base cover
2. Left fan
3. Left I/O-board
4. Keyboard
5. Left PC bridge connector board
6. Left speaker
7. Wireless-module bracket
8. Battery cable
9. Battery
10. Palm rest and touchpad assembly
11. Display assembly
12. Right speaker
13. Fingerprint reader
14. Fingerprint reader bracket
15. M.2 2280 solid state drive
16. M.2 2280 solid state drive thermal shield (SSD)
17. Right PC bridge connector board
18. Right I/O-board
19. Right fan
20. Display-assembly cable interposer board
21. Batttery-connector bracket

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.

Customer Replaceable Units (CRUs) and Field Replaceable Units (FRUs) list

Table 30. CRU and FRU list

Customer Replaceable Unit (CRU)	Field Replaceable Unit (FRU)
Base cover	Wireless-module bracket
Battery-connector bracket	Heat sink
Battery	System board
Battery cable	PC bridge connector board
M.2 2230 SSD bracket	I/O board
M.2 2230 SSD	Power button
M.2 2280 SSD thermal shield	Display assembly
M.2 2280 SSD	Speaker
Fan	Keyboard
	Palm rest and touchpad assembly

5

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.

Memory card

Removing the memory card

Prerequisites

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

About this task

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

Figure 10. Removing the memory card

Steps

Pull the memory card out from the microSD card slot.

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

Figure 11. Installing the memory card

Steps

Insert the memory card into the microSD card slot.

Next steps

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

Base cover

Removing the base cover

Prerequisites

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

NOTE: Ensure that your computer is in Service Mode. For more information, see Before working inside your computer.

CAUTION: If your computer is unable to enter Service Mode, push the switch on the battery cable connector to the OFF position to disconnect power from the battery.

2. Remove the memory card, if applicable.

About this task

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

Figure 12. Removing the base cover

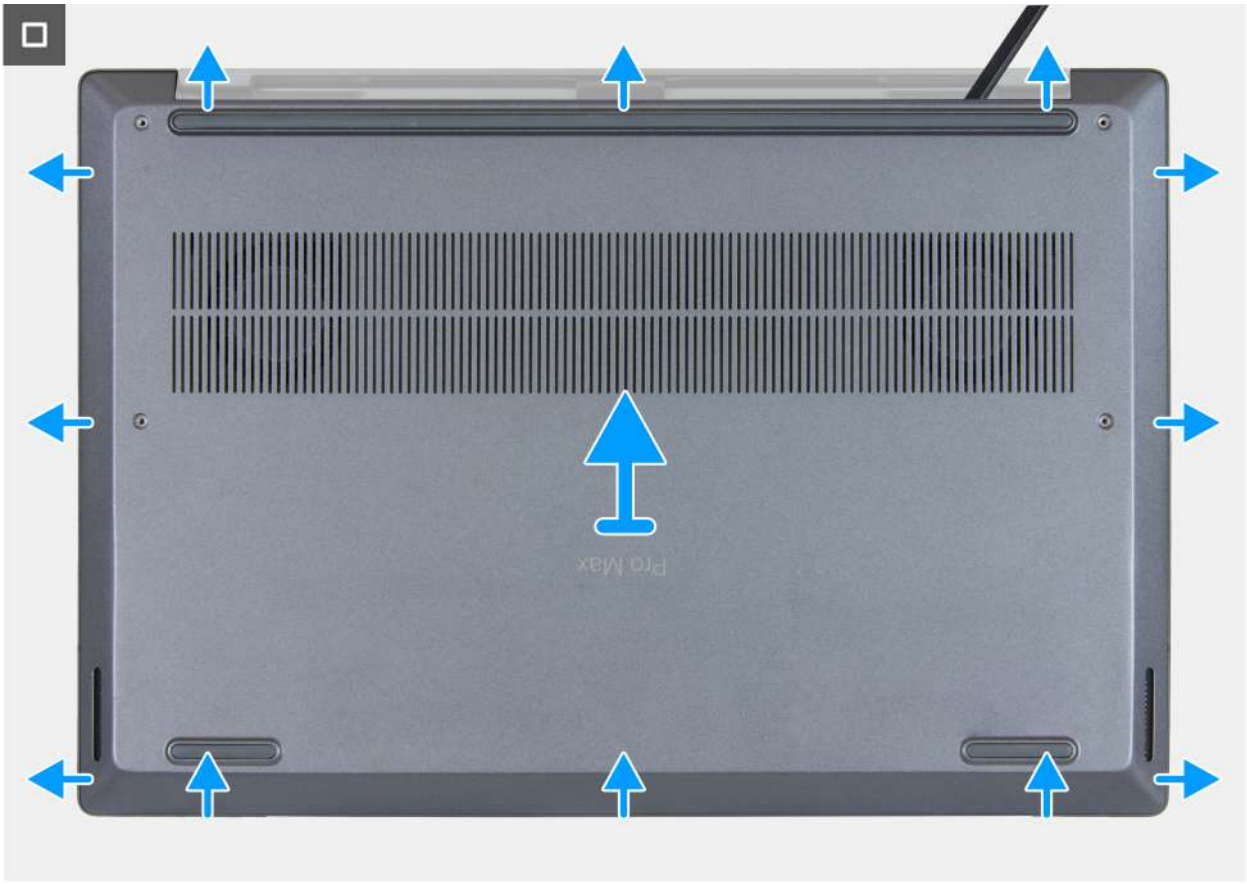


Figure 13. Removing the base cover

Steps

1. Remove the four screws (M2x3, T5) that secure the base cover to the palm rest and keyboard assembly.
2. Using a plastic scribe, pry open the base cover starting from the recesses at the top edge of the base cover, near the hinges.

   CAUTION: Do not slide the scribe along the edges of the base cover as it may damage the latches inside the base cover. Instead, insert the scribe at regular intervals and pry open the base cover.

3. Slide the base cover up and lift it off the palm rest and keyboard assembly.
4. Turn over the computer, place it on a flat surface and open the display lid.
5. Press and hold the power button for five seconds to ground the computer and drain the flea power.

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

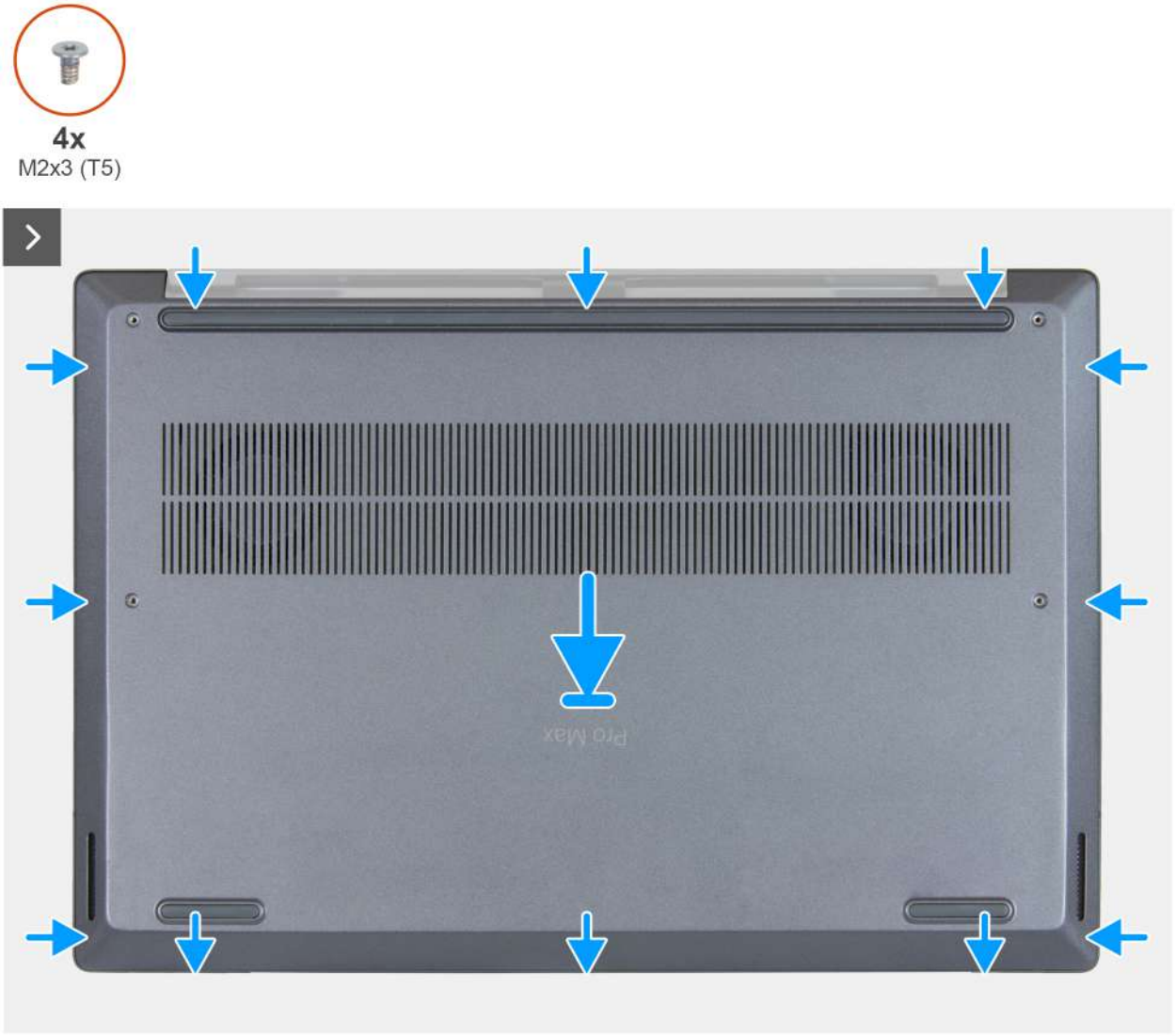


Figure 14. Installing the base cover

Figure 15. Installing the base cover

Steps

1. Slide down the switch on the battery connector to restore power from the battery, if applicable.

   NOTE: Ensure that the switch on the battery connector is at the **ON** position before installing the base cover.

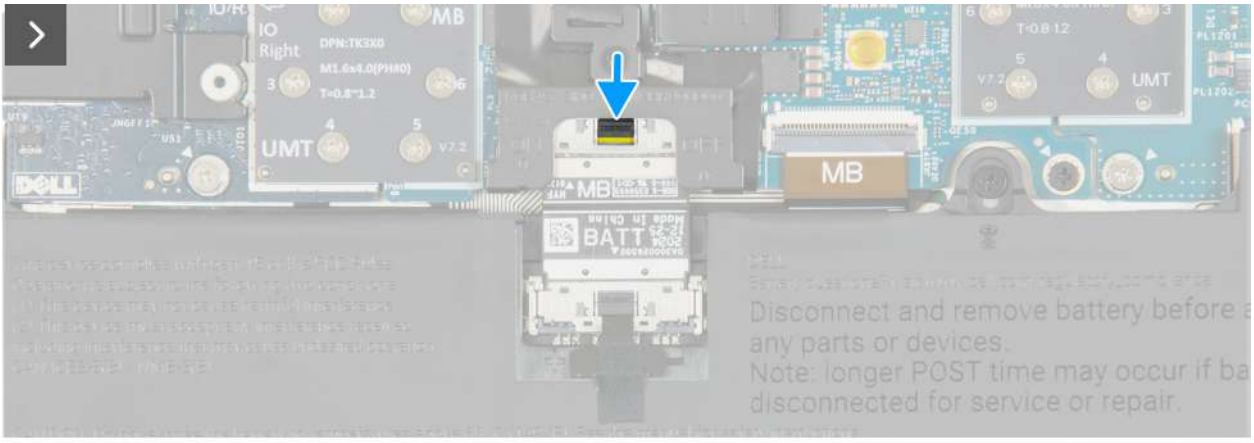


Figure 16. Restore power from the battery

2. Place the base cover on the palm rest and keyboard assembly.
3. Align the screw holes on the base cover with the screw holes on the palm rest and keyboard assembly, and then snap the base cover into place.
4. Replace the four screws (M2x3, T5) to secure the base cover to the palm rest and keyboard assembly.

Next steps

1. Install the memory card, if applicable.
2. Follow the procedure in After working inside your computer.

Battery

Rechargeable Li-ion battery precautions

WARNING:

- **Exercise caution when handling rechargeable Li-ion batteries.**
- **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.**
- **Do not crush, drop, mutilate, or penetrate the battery with foreign objects.**
- **Do not expose the battery to high temperatures, or disassemble battery packs and cells.**
- **Do not apply pressure to the surface of the battery.**
- **Do not bend the battery.**
- **Do not use tools of any kind to pry on or against the battery.**
- **To prevent accidental puncture or damage to the battery and other components, ensure that no screws are lost or misplaced during the servicing of the computer.**
- **Always purchase genuine batteries from Dell Site or authorized Dell partners and resellers.**
- **Swollen batteries should not be used and should be replaced and disposed properly. For guidelines on how to handle and replace swollen rechargeable Li-ion batteries, see Handling swollen rechargeable Li-ion batteries.**

Removing the battery

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the memory card, if applicable.
3. Remove the base cover.

About this task

CAUTION: Removing the battery resets the BIOS setup settings to default. It is recommended that you note the BIOS setup settings before removing the battery.

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

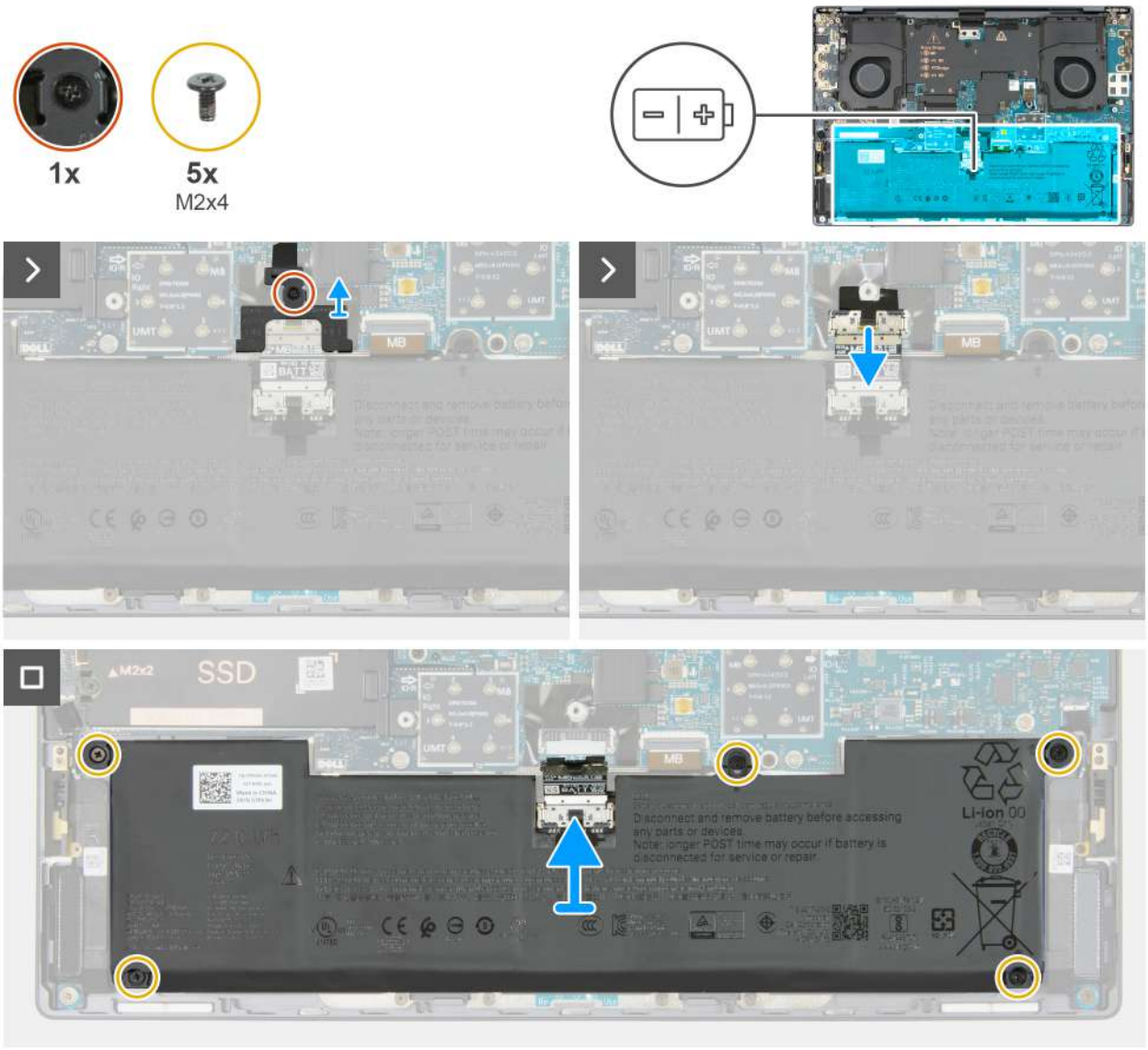


Figure 17. Removing the battery

Steps

1. Loosen the screw that secures the battery-connector bracket to the system board, and then remove the bracket.
2. Disconnect the battery cable from the connector (BATT) on the system board.
3. Remove the five screws (M2x4) that secure the battery to the palm rest and keyboard assembly.
4. Lift the battery, along with the battery cable, off the palm rest and keyboard assembly.
5. Turn over the battery and place it on a clean flat surface.
6. Remove the battery absorber from its slot on the battery.

NOTE: Remove the battery absorber before replacing the battery. The battery absorber is reusable and must be installed on the new battery.

Figure 18. Removing the battery absorber

Installing the battery

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 battery and provides a visual representation of the installation procedure.

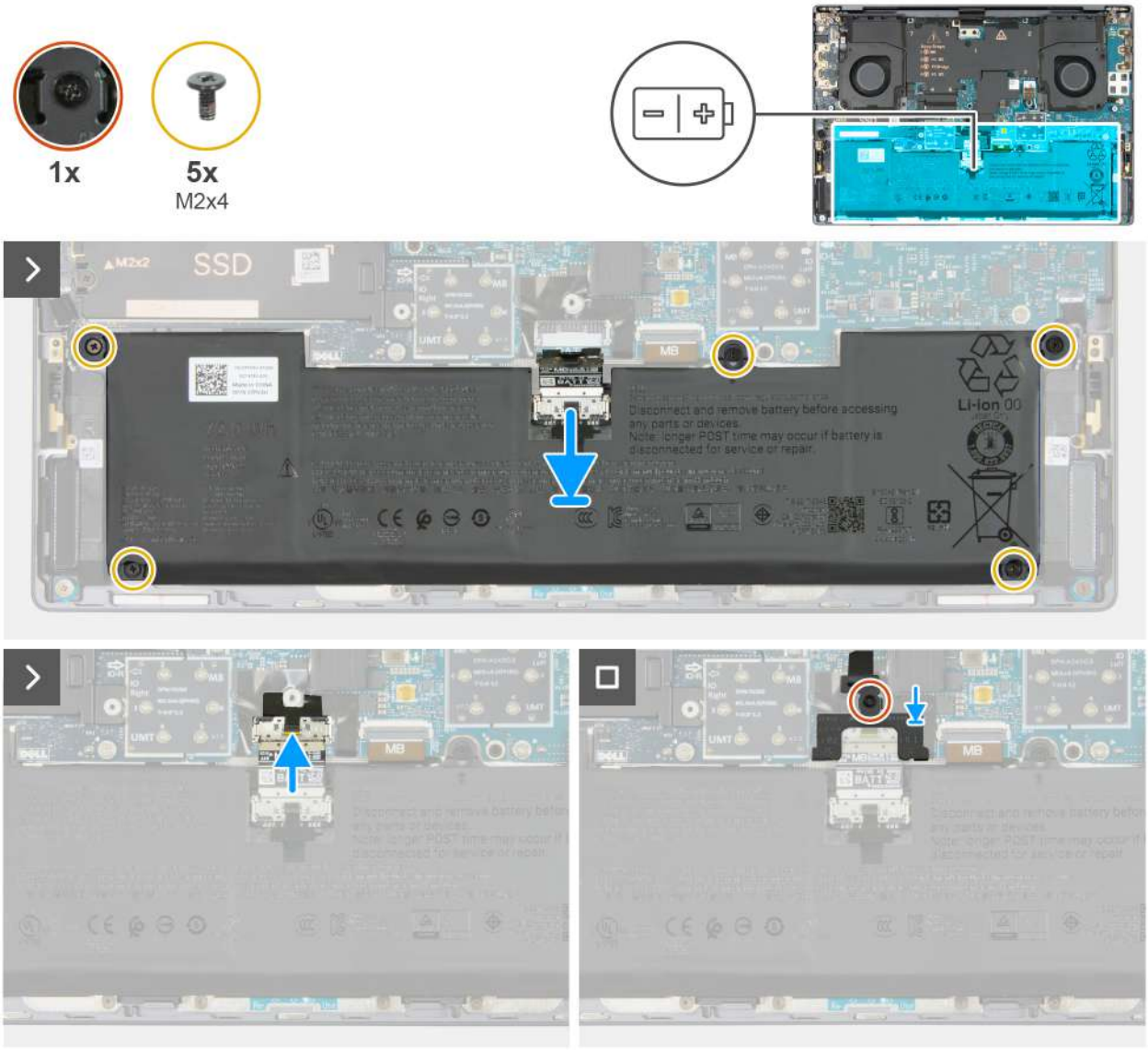


Figure 19. Installing the battery

Steps

1. Turn the battery over and install the existing battery absorber into its slot on the battery.

   NOTE: This step is applicable if a replacement battery is being installed.

Figure 20. Installing the battery absorber

2. Place the battery, along with the battery cable, on the palm rest and keyboard assembly.
3. Align the screw holes on the battery with the screw holes on the battery frame.
4. Replace the five screws (M2x4) to secure the battery to the battery frame.
5. Connect the battery cable to the connector (BATT) on the system board.
6. Place the battery-cable bracket over the connector (BATT) and tighten the screw that secures the battery-connector bracket to the system board.

Next steps

1. Install the memory card, if applicable.
2. Install the base cover.
3. Follow the procedure in After working inside your computer.

Battery cable

Removing the battery cable

Prerequisites

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

   NOTE: Ensure that your computer is in Service Mode. For more information, see Before working inside your computer.

2. Remove the memory card, if applicable.
3. Remove the base cover.
4. Remove the battery.

About this task

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

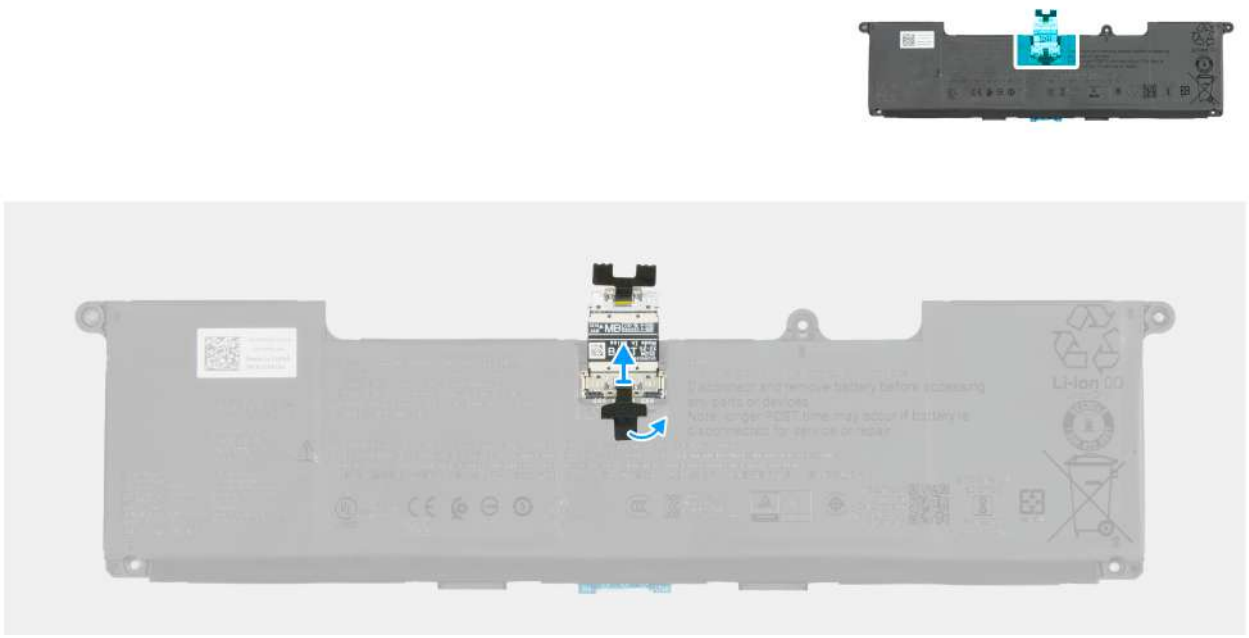


Figure 21. Removing the battery cable

Steps

1. Peel back the battery cable from the battery.
2. Disconnect the battery cable from the connector on the battery.

Replacing the battery cable

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 battery cable and provides a visual representation of the installation procedure.

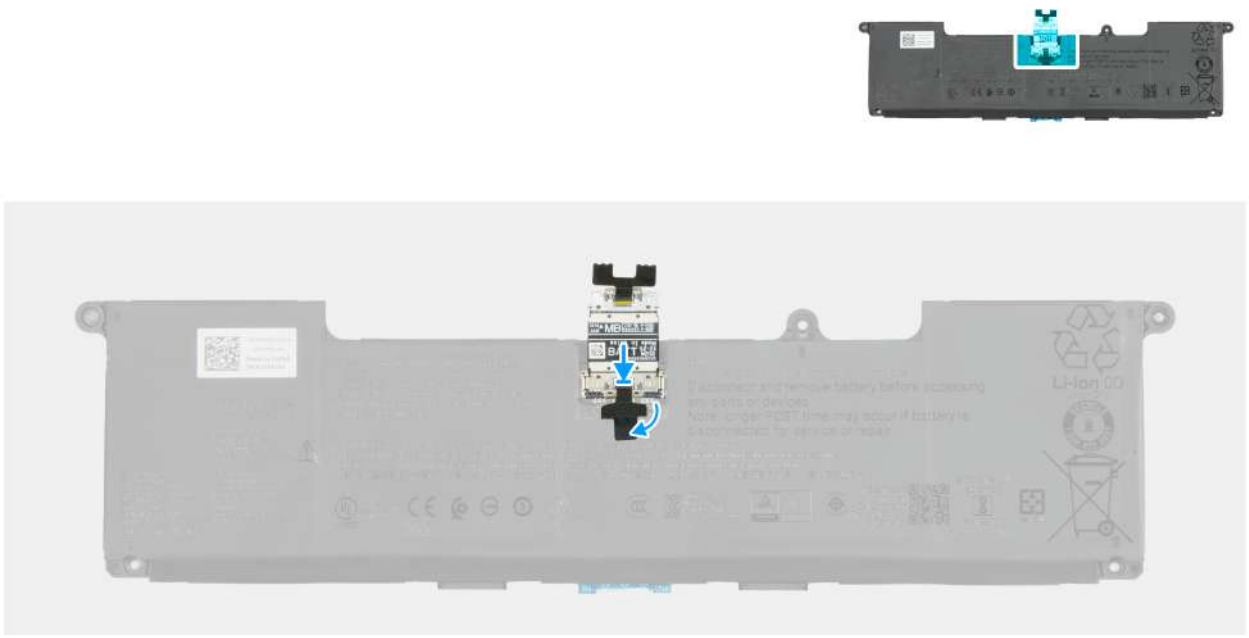


Figure 22. Replacing the battery cable

Steps

1. Connect the battery cable to the connector on the battery.

   NOTE: The connector on the battery cable has a switch that enables power supply to the computer. When replacing the battery cable to the battery, ensure that the switch on the battery connector is turned on.

2. Adhere the battery cable to the battery.

Next steps

1. Install the battery.
2. Install the base cover.
3. Install the memory card, if applicable.
4. Follow the procedure in After working inside your computer.

M.2 solid state drive

Removing the M.2 2280 solid state drive (SSD)

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the memory card, if applicable.
3. Remove the base cover.

About this task

The following images indicate the location of the M.2 2280 solid state drive (SSD) and provide a visual representation of the removal procedure.

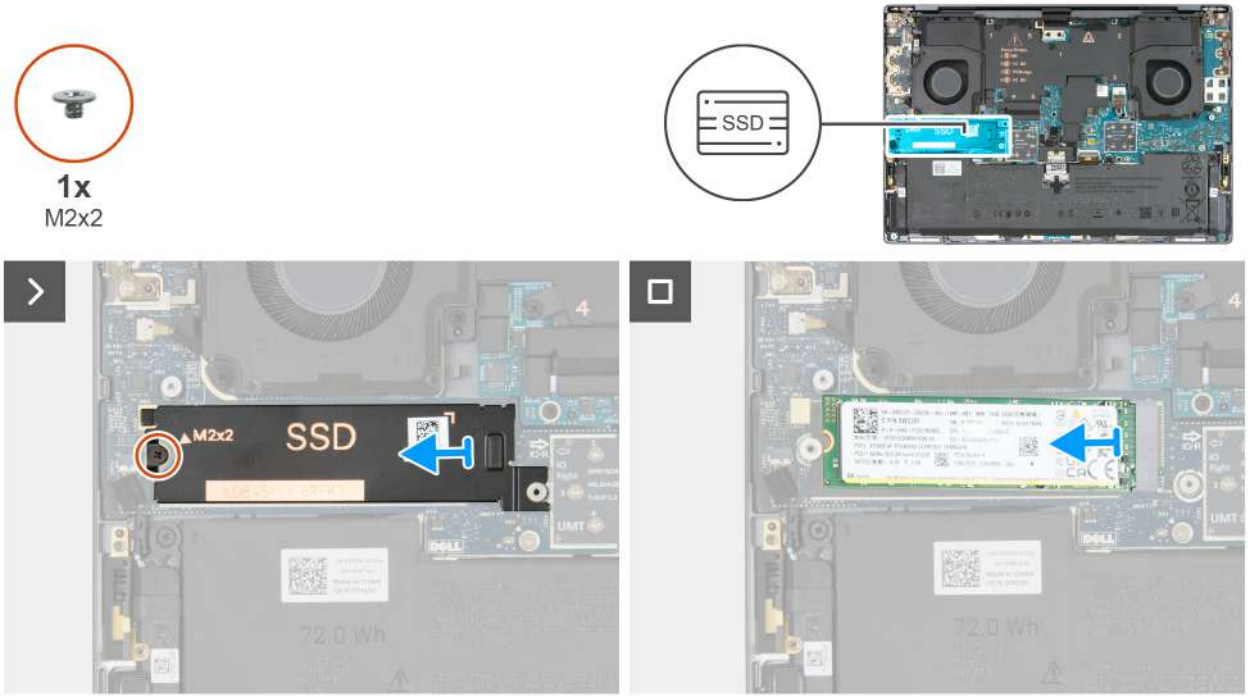


Figure 23. Removing the M.2 2280 solid state drive

Steps

1. Remove the screw (M2x2) that secures the M.2 SSD thermal shield (SSD) to the right I/O board.
2. Lift the M.2 SSD thermal shield (SSD) off the M.2 2280 solid state drive.
3. Remove the M.2 2280 solid state drive from the M.2 card slot (JNGFF1) on the right I/O board.

Installing the M.2 2280 solid state drive (SSD)

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 M.2 2280 solid state drive (SSD) and provide a visual representation of the installation procedure.

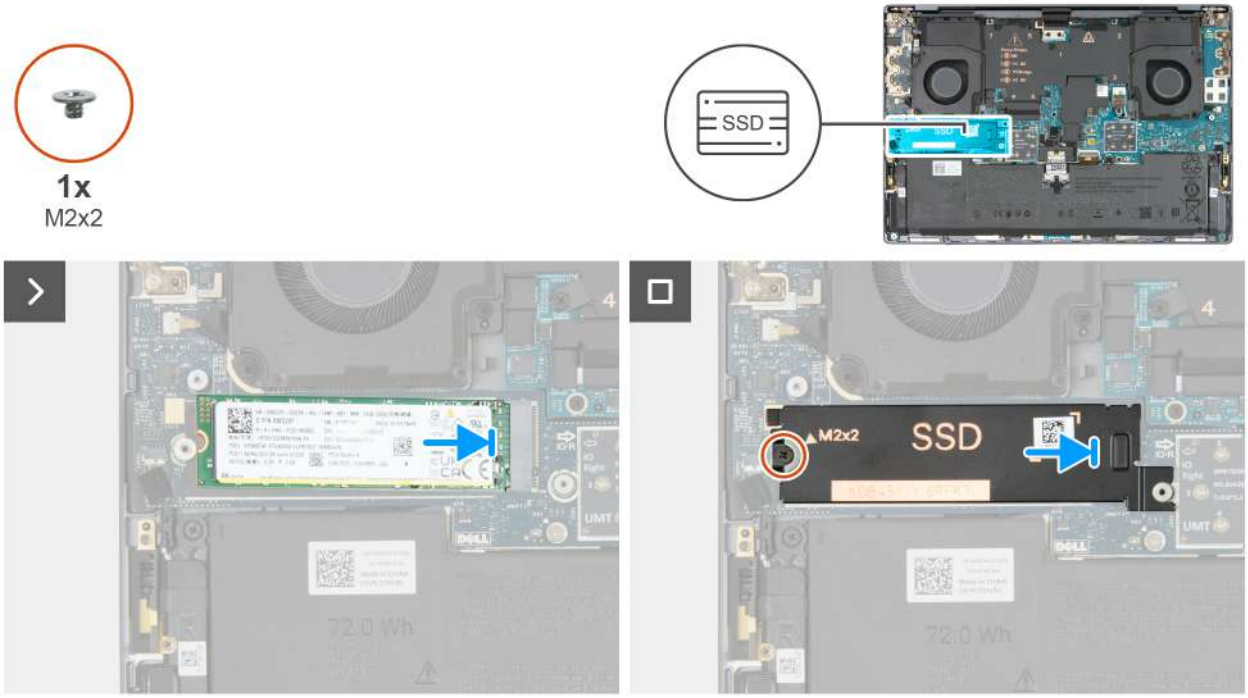


Figure 24. Installing the M.2 2280 solid state drive

Steps

1. Align the notch on the M.2 2280 solid state drive to the tab on the M.2 card slot (JNGFF1) on the right I/O board.
2. Slide the M.2 2280 solid state drive at an angle into the M.2 card slot on the right I/O board.
3. Align and place the M.2 SSD thermal shield (SSD) on the M.2 2280 solid state drive.
4. Replace the screw (M2x2) to secure the M.2 SSD thermal shield (SSD) to the right I/O board.

Next steps

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

Removing the M.2 2230 solid state drive (SSD)

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the memory card, if applicable.
3. Remove the base cover.

About this task

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

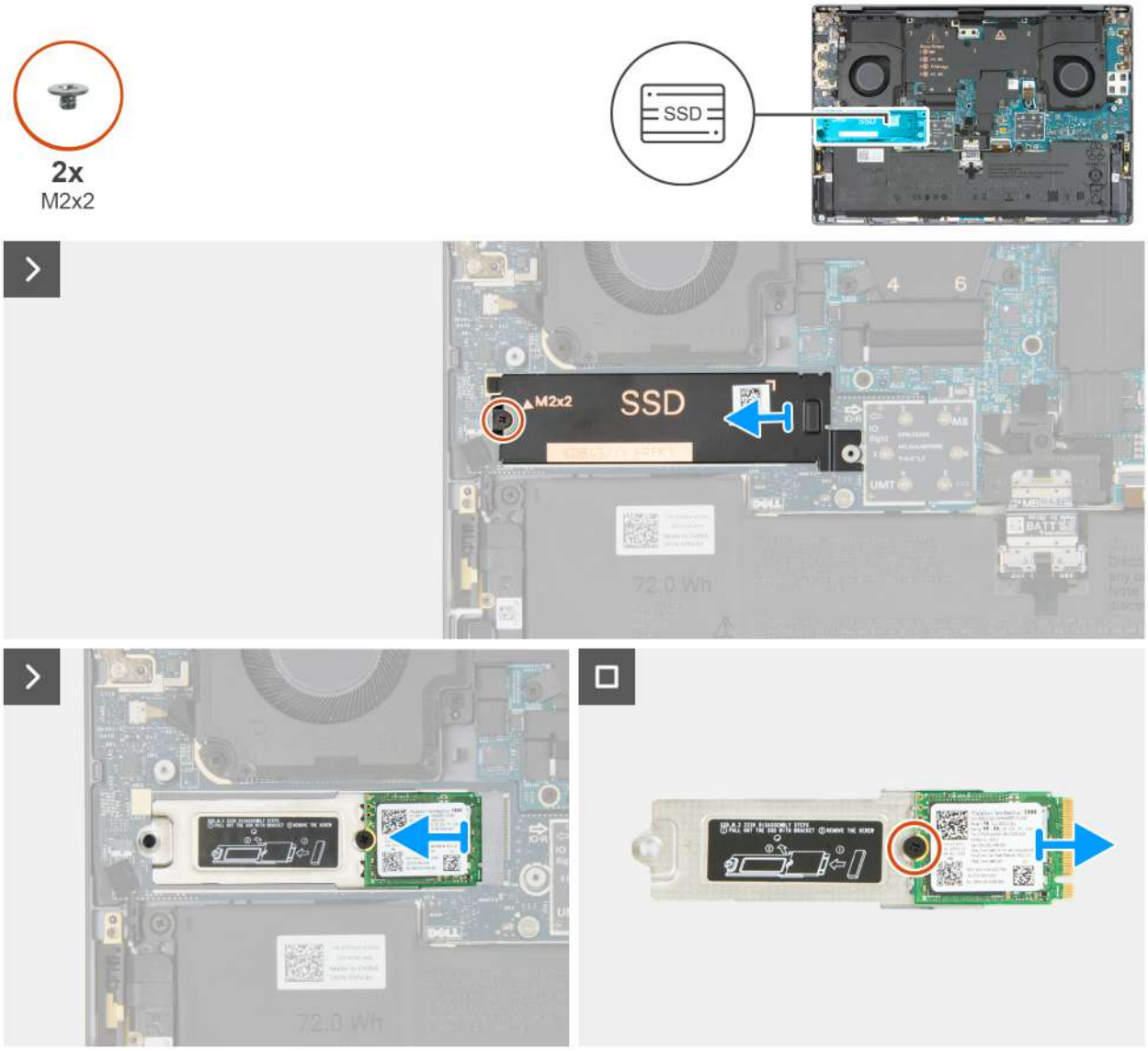


Figure 25. Removing the M.2 2230 solid state drive

Steps

1. Remove the screw (M2x2) that secures the M.2 SSD thermal shield (SSD) to the right I/O board.
2. Lift the M.2 SSD thermal shield off the M.2 2230 solid state drive assembly.
3. Lift and slide the M.2 2230 SSD assembly out of the M.2 card slot (JNGFF1) on the right I/O board.
4. Remove the screw (M2x2) that secures the M.2 2230 solid state drive to the M.2 2230 bracket.
5. Remove the M.2 2230 solid state drive from the M.2 2230 bracket.

Installing the M.2 2230 solid state drive (SSD)

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 M.2 2230 solid state drive (SSD) and provide a visual representation of the installation procedure.

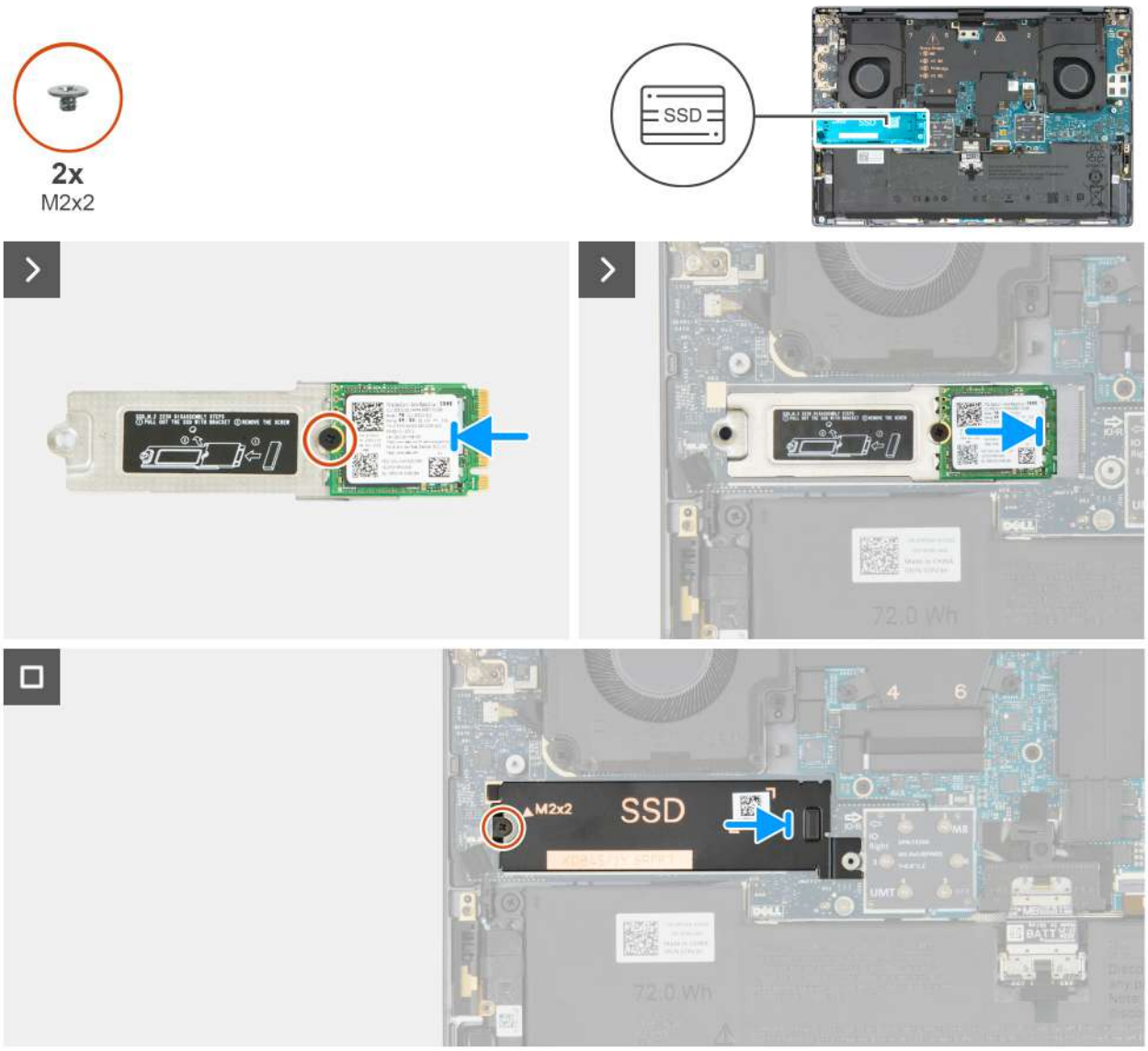


Figure 26. Installing the M.2 2230 solid state drive

Steps

1. Place the M.2 2230 solid state drive on the M.2 2230 bracket.
2. Align the screw hole on the M.2 2230 solid state drive with the screw hole on the M.2 2230 bracket.
3. Replace the screw (M2x2) to secure the M.2 2230 solid state drive (SSD1) to the M.2 2230 bracket.
4. Align the notch on the M.2 2230 solid state drive to the tab on the M.2 card slot (JNGFF1) on the right I/O board.
5. Slide the M.2 2230 solid state drive at an angle into the M.2 card slot on the right I/O board.
6. Align and place the M.2 SSD thermal shield over the M.2 2230 solid state drive.
7. Replace the screw (M2x2) that secures the M.2 SSD thermal shield to the right I/O board.

Next steps

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

Fan

Removing the left fan

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the memory card, if applicable.
3. Remove the base cover.

About this task

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

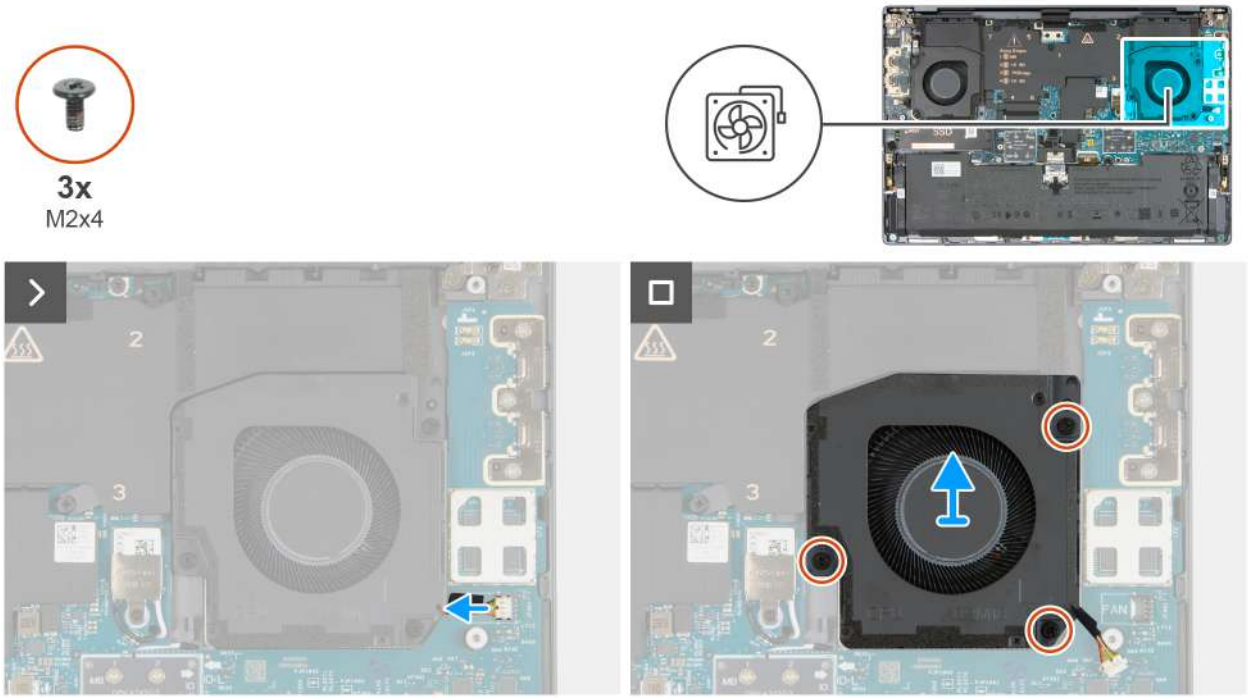


Figure 27. Removing the left fan

Steps

1. Disconnect the fan cable from the connector (JFAN1) on the left I/O-board.
2. Remove the three screws (M2x4) that secure the left fan to the palm rest and keyboard assembly.
3. Lift the left fan off the palm rest and keyboard assembly and rotate the fan to the right to remove it.

Installing the left fan

Prerequisites

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

About this task

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

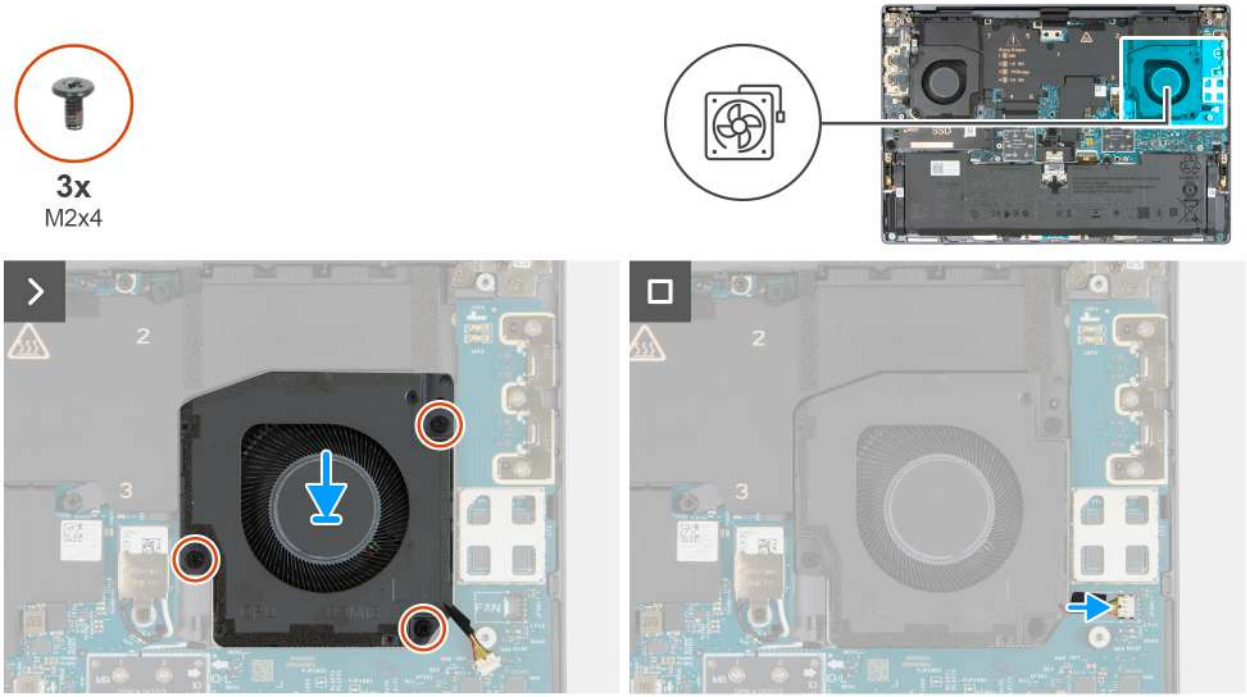


Figure 28. Installing the left fan

Steps

1. Place the left fan in the slot on the palm rest and keyboard assembly.
2. Align the screw holes on the left fan with the screw holes on the palm rest and keyboard assembly.
3. Replace the three screws (M2x4) to secure the left fan to the palm rest and keyboard assembly.
4. Connect the fan-cable connector to the connector (JFAN1) on the left I/O-board.

Next steps

1. Install the base cover.
2. Install the memory card, if applicable.
3. Follow the procedure in After working inside your computer.

Removing the right fan

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the memory card, if applicable.
3. Remove the base cover.

About this task

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

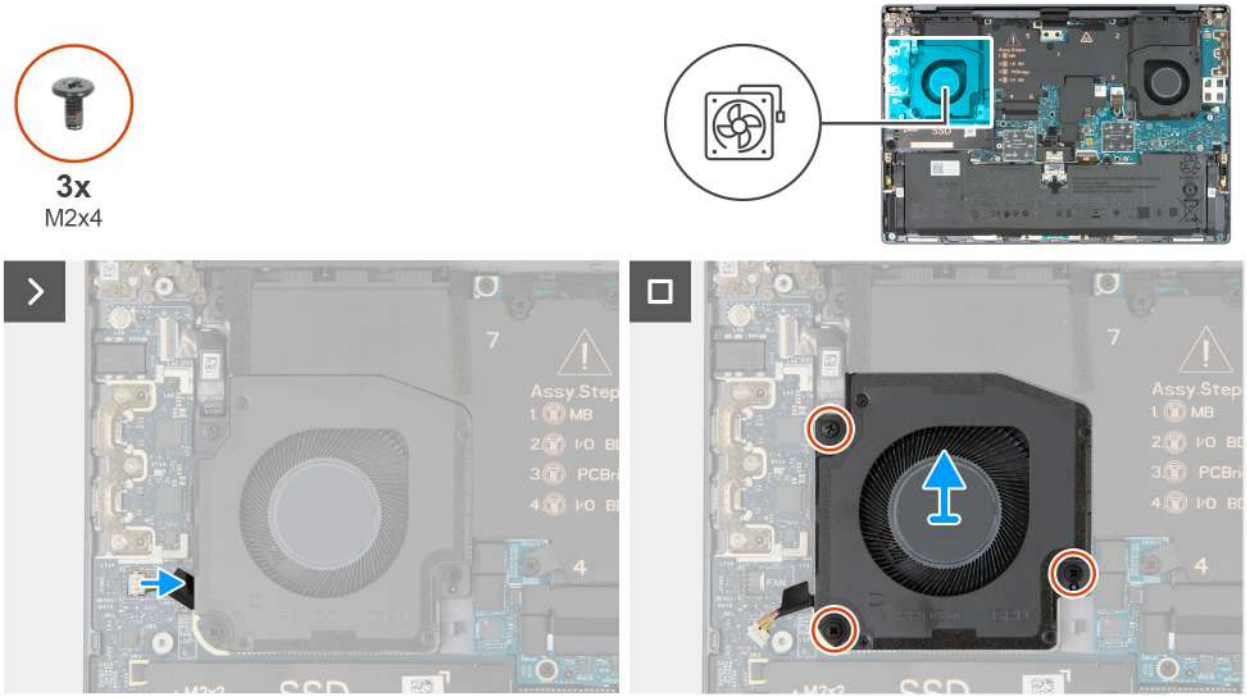


Figure 29. Removing the right fan

Steps

1. Disconnect the fan-cable connector from the connector (JFAN2) on the right I/O-board.
2. Remove the three screws (M2x4) that secure the right fan to the palm rest and keyboard assembly.
3. Lift the right fan off the palm rest and keyboard assembly and rotate the fan to the left to remove it.

Installing the right fan

Prerequisites

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

About this task

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

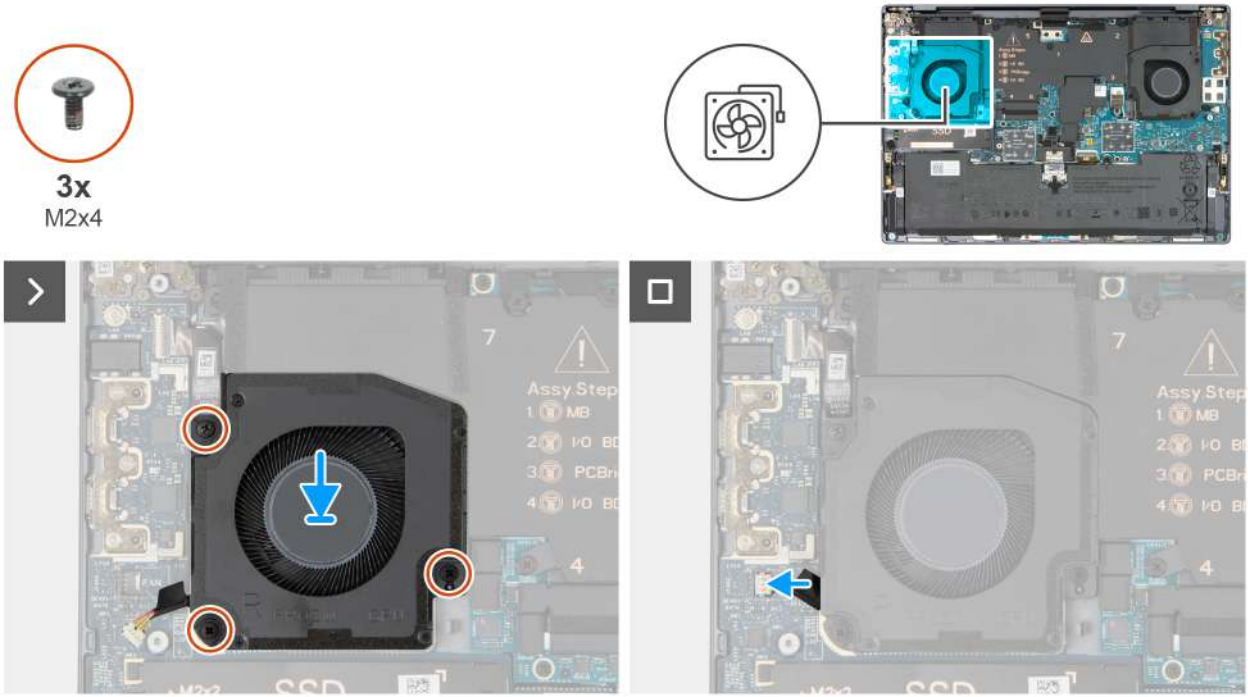


Figure 30. Installing the right fan

Steps

1. Place the right fan in the slot on the palm rest and keyboard assembly.
2. Align the screw holes on the right fan with the screw holes on the palm rest and keyboard assembly.
3. Replace the three screws (M2x4) to secure the right fan to the palm rest and keyboard assembly.
4. Connect the fan-cable connector to the connector (JFAN2) on the right I/O-board.

Next steps

1. Install the base cover.
2. Install the memory card, if applicable.
3. Follow the procedure in After working inside your computer.

6

Removing and installing Field Replaceable Units (FRUs)

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

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

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

CAUTION: Dell Technologies recommends that these procedures be performed by trained technical repair specialists.

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.

Display assembly

Removing the display assembly

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

CAUTION: The maximum operating angle for the display-panel hinge is 135 degrees.

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the memory card, if applicable.
3. Remove the base cover.

About this task

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

Figure 31. Removing the display assembly

Figure 32. Removing the display assembly

Figure 33. Display assembly

Figure 34. Display assembly with touch screen

Steps

1. Remove the two screws (M1.4x4) that secure the display-assembly cable to the display-assembly cable interposer board.
2. Remove the two screws (M1.4x4) that secure the display-assembly cable to the system board.
3. Lift the display-assembly cable off the display-assembly cable interposer board.
4. Remove the display-assembly cable interposer board from the connector (JEDP1) on the system board.

Figure 35. Display-assembly cable interposer board

CAUTION: The interposer boards have pins that connect the flexible printed circuits (FPCs) to the system board or I/O boards. The pins on the interposer boards are fragile. To prevent damage to the pins, take note of the following actions:

- **Hold the interposer boards by their edges.**
- **Do not apply pressure to the pins.**
- **Do not touch and press on the pins.**
- **Do not rotate or slide the interposer boards on any surface.**

5. Open the display and place the laptop at the edge of the table.
6. Open the display and place the laptop at the edge of the table.
7. Remove the eight screws (M2.5x5) that secure the display hinges to the palm-rest and keyboard assembly.
8. Lift the display assembly from the palm-rest and keyboard assembly..

Installing the display assembly

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

CAUTION: The maximum operating angle for the display-panel hinge is 135 degrees.

Prerequisites

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

About this task

NOTE: Ensure that the display hinges are opened to the maximum before replacing the display assembly on the palm-rest and keyboard assembly.

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

Figure 36. Display assembly

Figure 37. Display assembly with touch screen

Figure 38. Installing the display assembly

Figure 39. Installing the display assembly

Steps

1. Place the palm-rest and keyboard assembly at the edge of the table.

2. Align the screw holes of the left and right display hinges of the display assembly to the screw holes on the palm-rest and keyboard assembly.
3. Replace the eight screws (M2.5x5) that secure the display hinges to the palm-rest and keyboard assembly.
4. Align and place the display-assembly interposer board on the connector (JEDP1) on the system board.

Figure 40. Display-assembly cable interposer board

CAUTION: The interposer boards have pins that connect the flexible printed circuits (FPCs) to the system board or I/O boards. The pins on the interposer boards are fragile. To prevent damage to the pins, take note of the following actions:

- **Hold the interposer boards by their edges.**
- **Do not apply pressure to the pins.**
- **Do not touch and press on the pins.**
- **Do not rotate or slide the interposer boards on any surface.**

5. Place the display-assembly cable on the display-assembly cable interposer board.
6. Replace the two screws (M1.4x4) to secure the display-assembly cable to the system board.
7. Replace the two screws (M1.4x4) to secure the display-assembly cable to the display-assembly cable interposer board.

Next steps

1. Install the base cover.
2. Install the memory card, if applicable.
3. Follow the procedure in After working inside your computer.

Heat sink

Removing the heat sink (integrated graphics)

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 memory card, if applicable.
3. Remove the base cover.

About this task

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

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

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

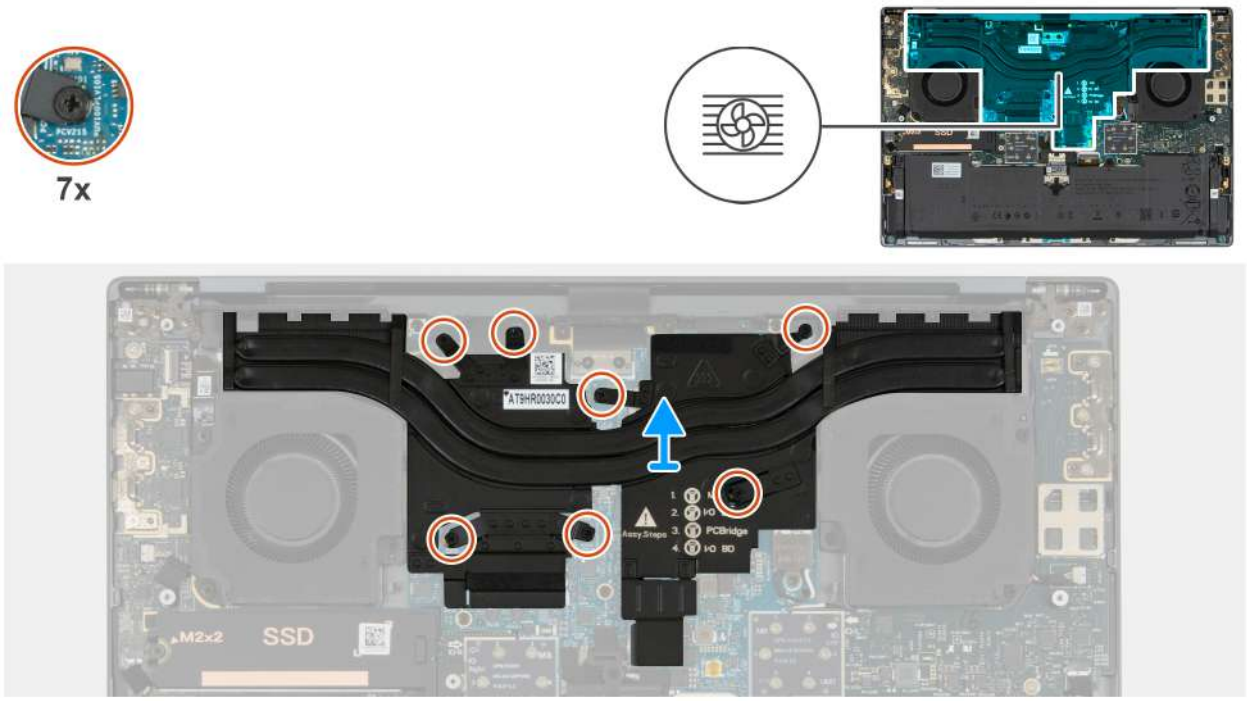


Figure 41. Removing the heat sink

Steps

1. In reverse sequential order (7 > 6 > 5 > 4 > 3 > 2 > 1), loosen the seven captive screws that secure the heat sink to the system board. The screw numbers are printed on the heat sink.
2. Lift the heat sink off the system board.

Installing the heat sink (integrated graphics)

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

Prerequisites

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

About this task

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

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

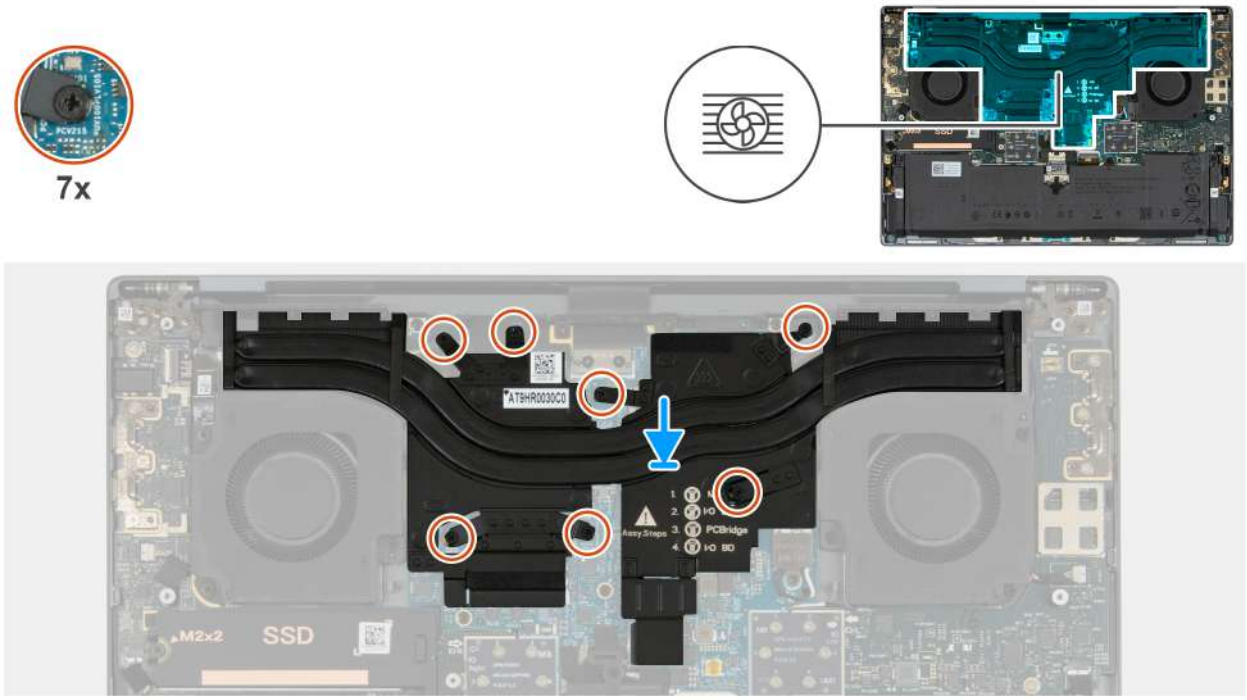


Figure 42. Installing the heat sink

Steps

1. Place the heat sink in the slot on the system board.
2. Align the screw holes on the heat sink with the screw holes on the system board.
3. In sequential order (1 > 2 > 3 > 4 > 5 > 6 > 7), tighten the seven captive screws to secure the heat sink to the system board. The screw numbers are printed on the heat sink.

Next steps

1. Install the base cover.
2. Install the memory card, if applicable.
3. Follow the procedure in After working inside your computer.

Removing the heat sink (discrete graphics)

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 memory card, if applicable.
3. Remove the base cover.

About this task

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

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

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

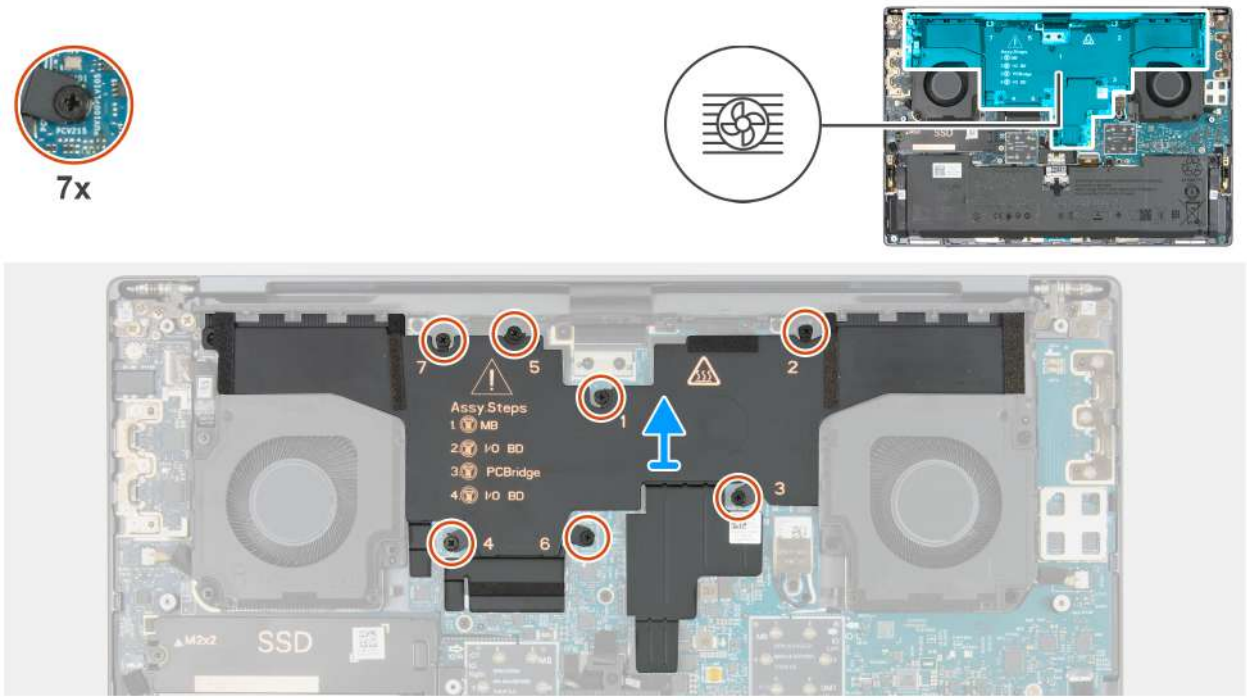


Figure 43. Removing the heat sink

Steps

1. In reverse sequential order (7 > 6 > 5 > 4 > 3 > 2 > 1), loosen the seven captive screws that secure the heat sink to the system board. The screw numbers are printed on the heat sink.
2. Lift the heat sink off the system board.

Installing the heat sink (discrete graphics)

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

Prerequisites

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

About this task

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

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

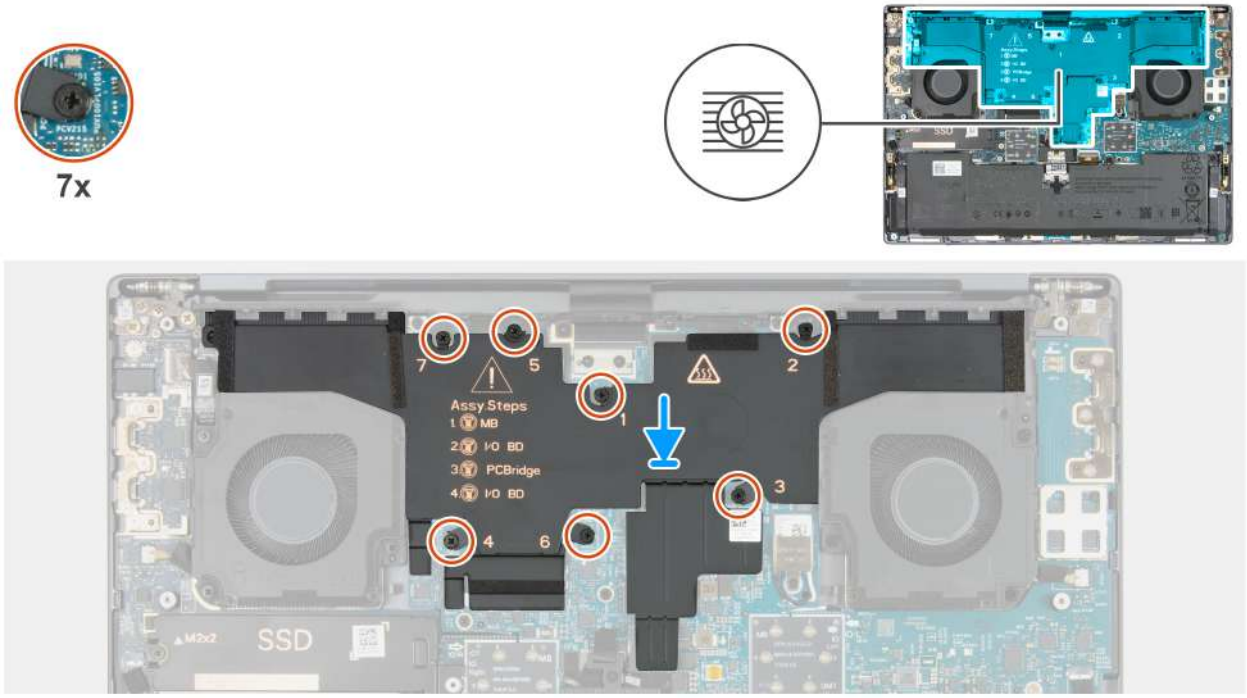


Figure 44. Installing the heat sink

Steps

1. Place the heat sink in the slot on the system board.
2. Align the screw holes on the heat sink with the screw holes on the system board.
3. In sequential order (1 > 2 > 3 > 4 > 5 > 6 > 7), tighten the seven captive screws to secure the heat sink to the system board. The screw numbers are printed on the heat sink.

Next steps

1. Install the base cover.
2. Install the memory card, if applicable.
3. Follow the procedure in After working inside your computer.

Left I/O-board

Removing the left I/O-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 memory card, if applicable.
3. Remove the base cover.

About this task

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

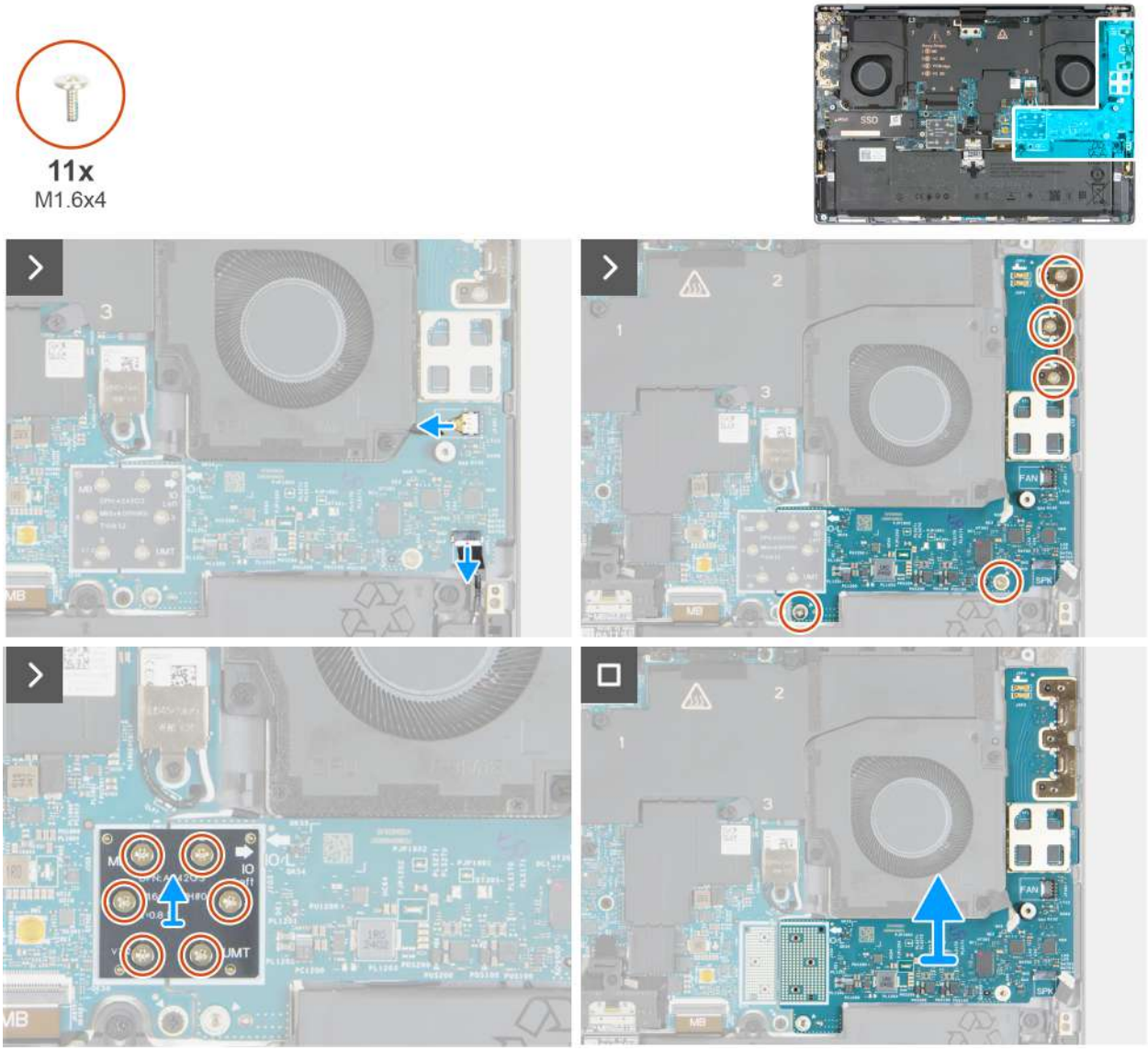


Figure 45. Removing the left I/O-board

Steps

1. Disconnect the fan-cable connector from the connector (JFAN1) on the left I/O-board.
2. Disconnect the speaker cable from the connector (JSPK1) on the left I/O-board.
3. Remove the five screws (M1.6x4) that secure the left I/O-board to the palm rest and keyboard assembly.
4. In reverse sequential order (6 > 5 > 4 > 3 > 2 > 1), remove the six screws (M1.6x4) that secure the left PC bridge connector board to the left I/O-board and the system board.
5. Remove the left PC connector bridge board from its connector (JIO3) on the left I/O-board and the system board.
6. Lift the left I/O-board off the palm rest and keyboard assembly.

Installing the left I/O-board

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

Prerequisites

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

About this task

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

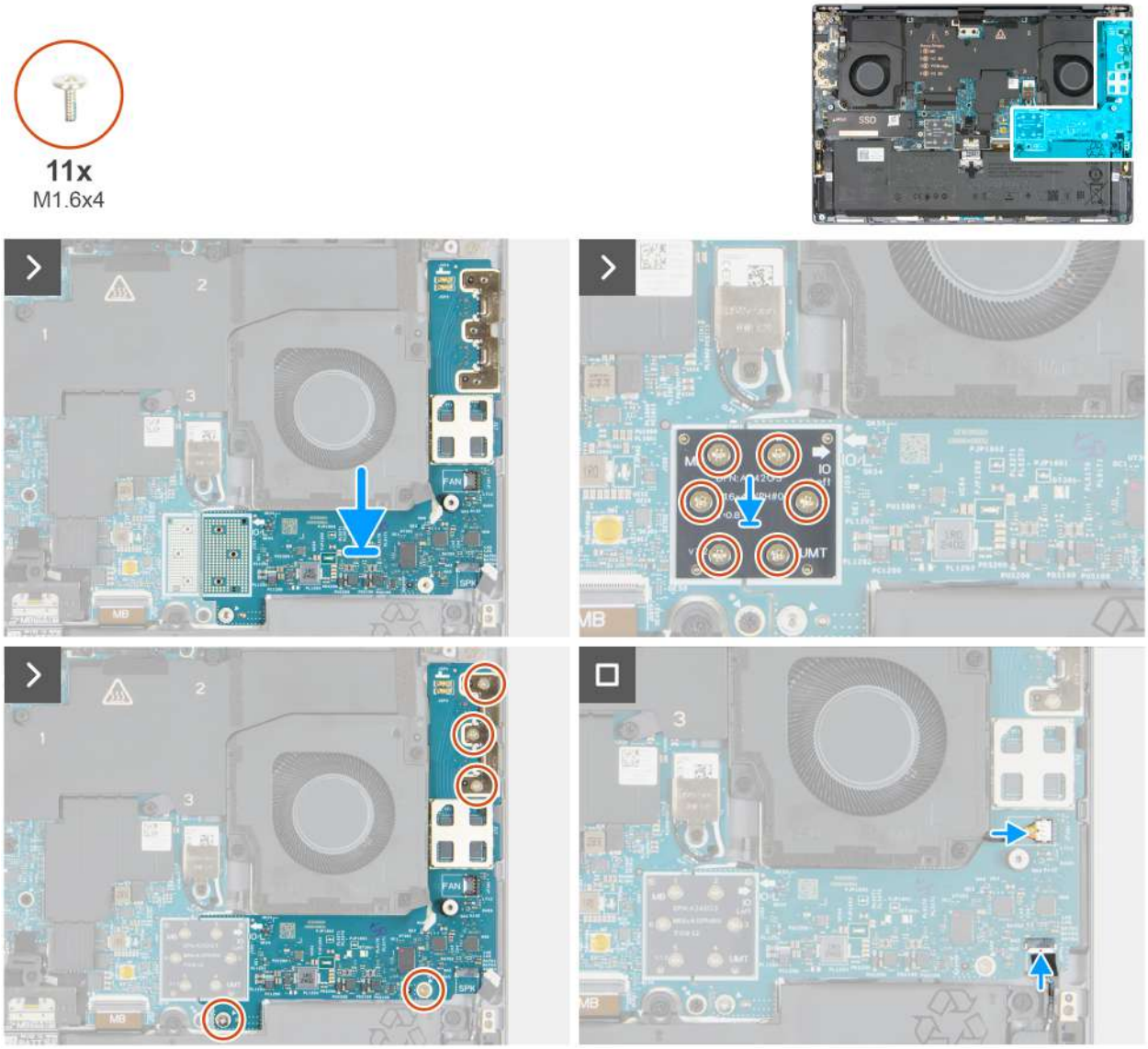


Figure 46. Installing the left I/O-board

Steps

1. Place the left I/O-board on the palm rest and keyboard assembly.
2. Align the screw holes on the left PC bridge connector board with the screw holes on the left I/O-board and the system board.
3. Place the left PC bridge connector board on its connector (JIO3) on the left I/O-board and the system board.
4. In sequential order (1 > 2 > 3 > 4 > 5 > 6), replace the six screws (M1.6x4) that secure the left PC bridge connector board to the left I/O-board and the system board.
5. Replace the five screws (M1.6x4) that secure the left I/O-board to the palm rest and keyboard assembly.
6. Connect the speaker cable to the connector (JSPK1) on the left I/O-board.
7. Connect the fan-cable cable to the connector (JFAN1) on the left I/O-board.

Next steps

1. Install the base cover.
2. Install the memory card, if applicable.
3. Follow the procedure in After working inside your computer.

Right I/O-board

Removing the right I/O-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 memory card, if applicable.
3. Remove the base cover.
4. Remove the M.2 2230 solid state drive or M.2 2280 solid state drive, whichever is applicable.
5. Remove the right fan.

About this task

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

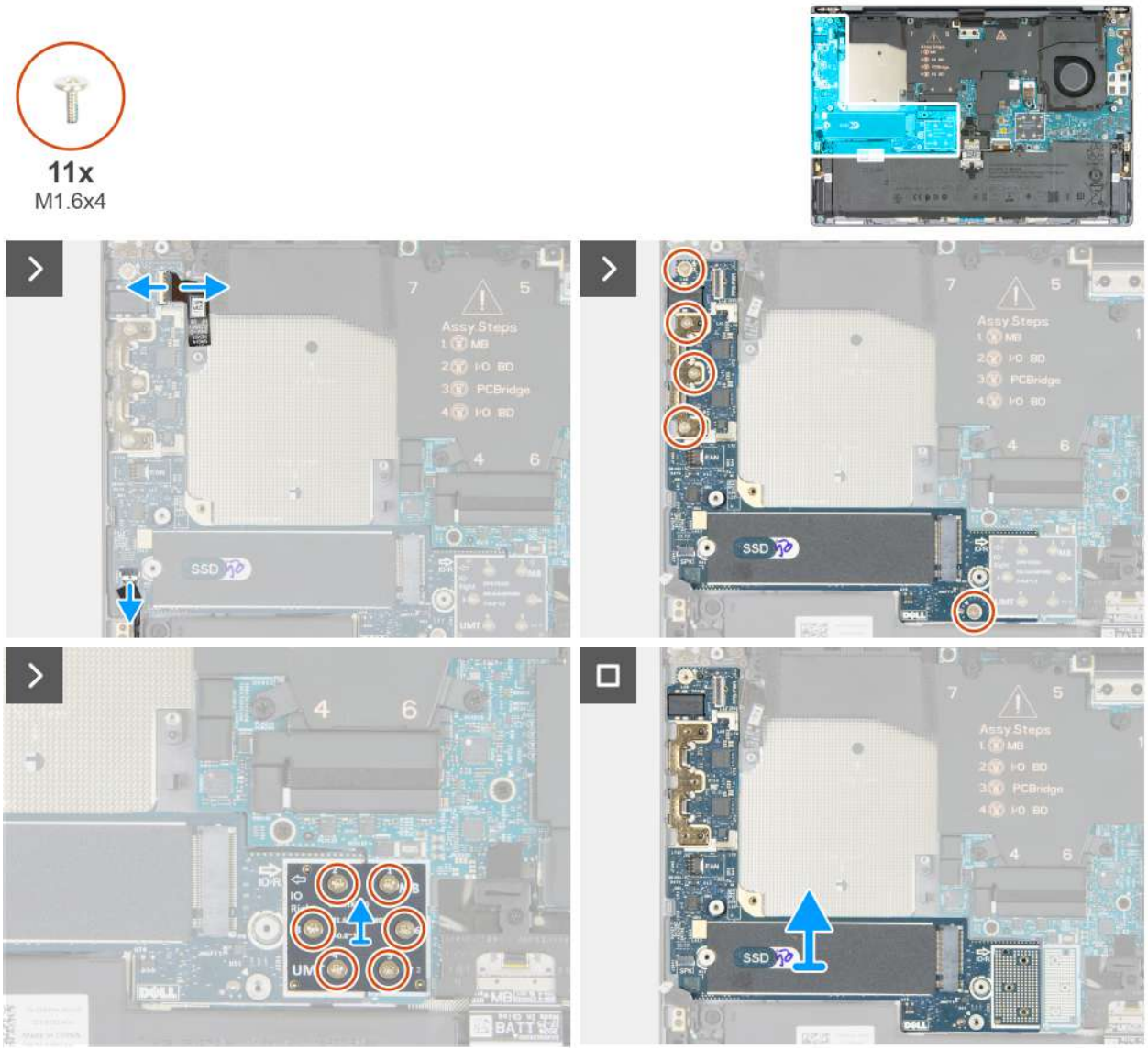


Figure 47. Removing the right I/O-board

Steps

1. Disconnect the power-button cable from the connector (JFP1) on the right I/O-board.
2. Disconnect the speaker cable from the connector (JSPK1) on the right I/O-board.
3. Remove the five screws (M1.6x4) that secure the right I/O-board to the palm rest and keyboard assembly.
4. In reverse sequential order (6 > 5 > 4 > 3 > 2 > 1), remove the six screws (M1.6x4) that secure the right PC bridge connector board to the right I/O-board and system board.
5. Remove the right PC bridge connector board from its connector (JIO1) on the right I/O-board and the system board.
6. Remove the right I/O-board from the palm rest and keyboard assembly.

Installing the right I/O-board

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

Prerequisites

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

About this task

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

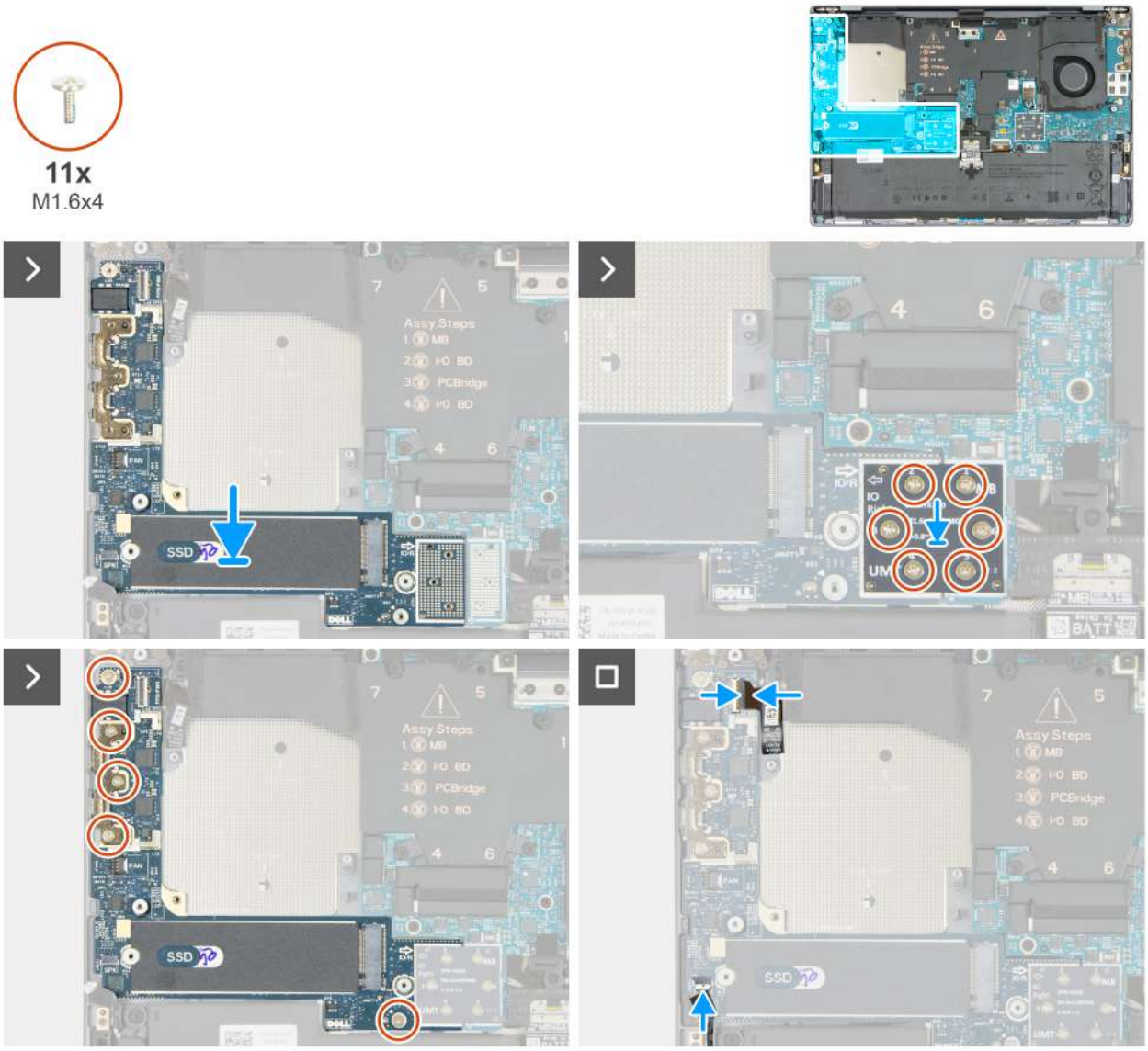


Figure 48. Installing the right I/O-board

Steps

1. Place the right I/O-board on the palm rest and keyboard assembly.
2. Place the right PC bridge connector board on its connector (JIO1) on the right I/O-board and the system board.
3. In sequential order (1 > 2 > 3 > 4 > 5 > 6), replace the six screws (M1.6x4) that secure the right PC bridge connector board to the right I/O-board and the system board.
4. Replace the five screws (M1.6x4) that secure the right I/O-board to the palm rest and keyboard assembly.
5. Connect the power-button cable to the connector (JFP1) on the right I/O-board.
6. Connect the speaker cable to the connector (JSPK1) on the right I/O-board .

Next steps

1. Install the right fan.
2. Install the base cover.
3. Install the memory card, if applicable.
4. Follow the procedure in After working inside your computer.

System board

Removing the system board (integrated graphics)

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 memory card, if applicable.
3. Remove the base cover.
4. Remove the battery.
5. Remove the heat sink.

NOTE: The system board can be removed as an assembly with the heat-sink to preserve the thermal bond between the system board and heat sink.

About this task

The following image indicates the connectors on your system board.

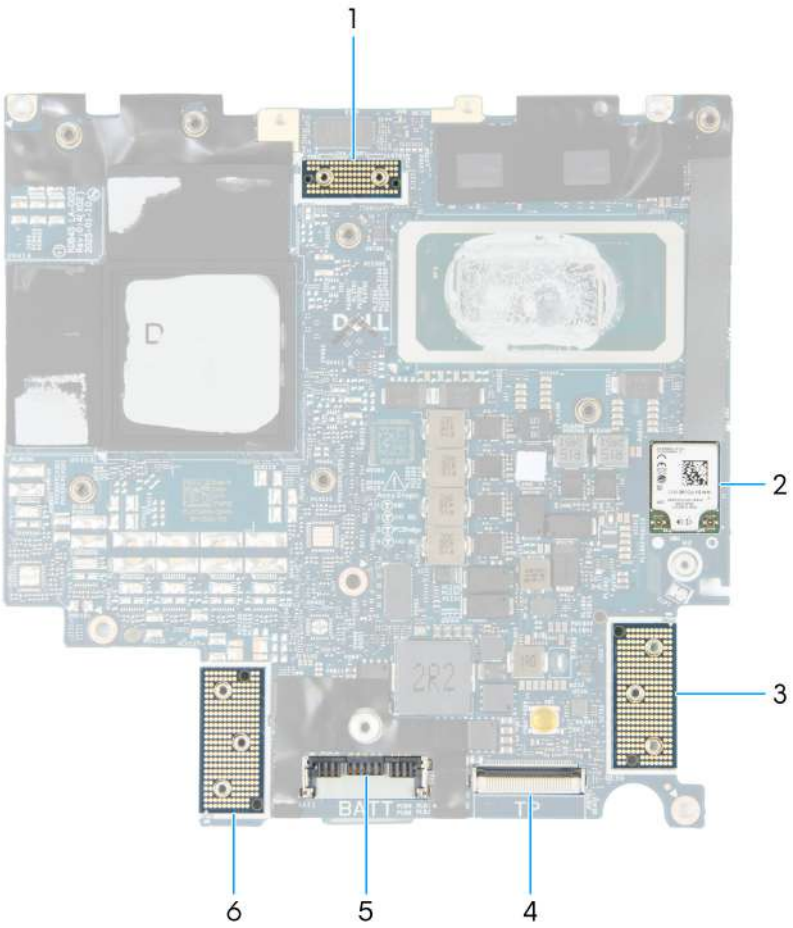


Figure 49. System board connectors

1. Display-interposer board connector (JEDP1)
2. Wireless card (WWFCM)

3. Left PC bridge connector board (JIO3)
4. Touchpad-cable connector (JKBTP1)
5. Battery-cable connector (JBAT1)
6. Right PC bridge connector board (JIO1)

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

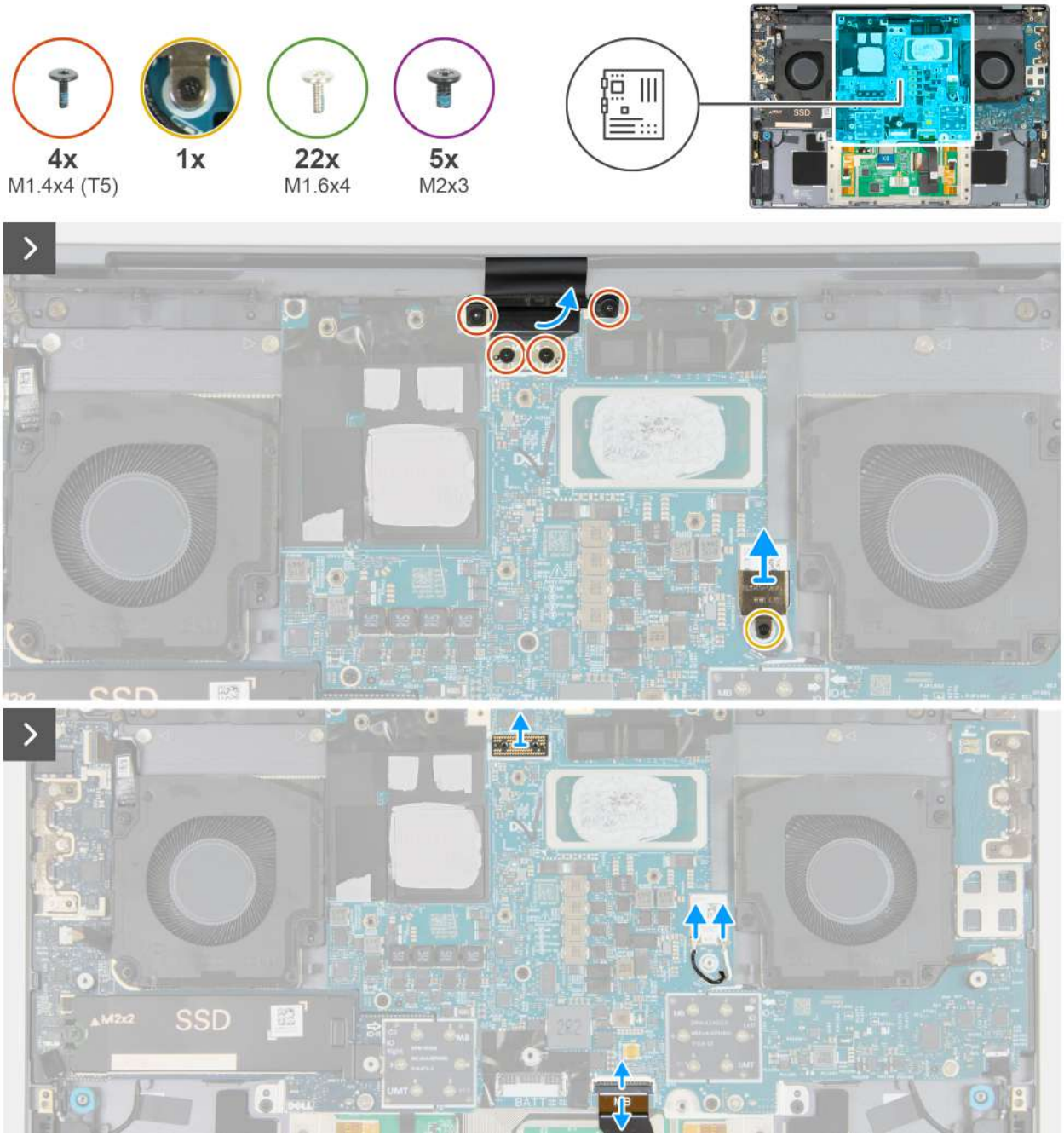


Figure 50. Removing the system board (integrated graphics)

Figure 51. Removing the system board (integrated graphics)

Steps

1. Remove the two screws (M1.4x4) that secure the display-assembly cable connector to the display-connector interposer board.
2. Remove the two screws (M1.4x4) that secure the display-assembly cable connector to the system board.
3. Loosen the captive screw (M1.6x2.3) that secures the wireless-module bracket to the system board and remove the wireless-module bracket.
4. Lift the display-connector interposer board off the system board.
5. Disconnect the antenna cables from the wireless module and remove the cables from the notch on the system board.
6. Disconnect the touchpad cable from the connector (JKBTP1) on the system board.
7. Remove the five screws (M1.6x4) that secure the left I/O-board to the palm rest and keyboard assembly.
8. Remove the five screws (M1.6x4) that secure the right I/O-board to the palm rest and keyboard assembly.

Figure 52. Assembly steps printed on heat sink

NOTE: Ensure that the ten screws (M1.6x4) that secure the left and right I/O-boards have been removed. This unique assembly sequence is labeled on the heat sink for reference.

9. In reverse sequential order (6 > 5 > 4 > 3 > 2 > 1), remove the six screws (M1.6x4) that secure the left PC bridge connector board to the left I/O-board and the system board.
10. Remove the left PC bridge connector board from its connector (JIO3) on the left I/O-board and the system board.
11. In reverse sequential order (6 > 5 > 4 > 3 > 2 > 1), remove the six screws (M1.6x4) that secure the right PC bridge connector board to the right I/O-board and the system board.
12. Remove the right PC bridge connector board from its connector (JT01) on the right I/O-board and the system board.
13. Remove the five screws (M2x3) that secure the system board to the palm rest and keyboard assembly.
14. Remove the system board from the palm rest and keyboard assembly.

Installing the system board (integrated graphics)

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

Prerequisites

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

About this task

The following image indicates the connectors on your system board.

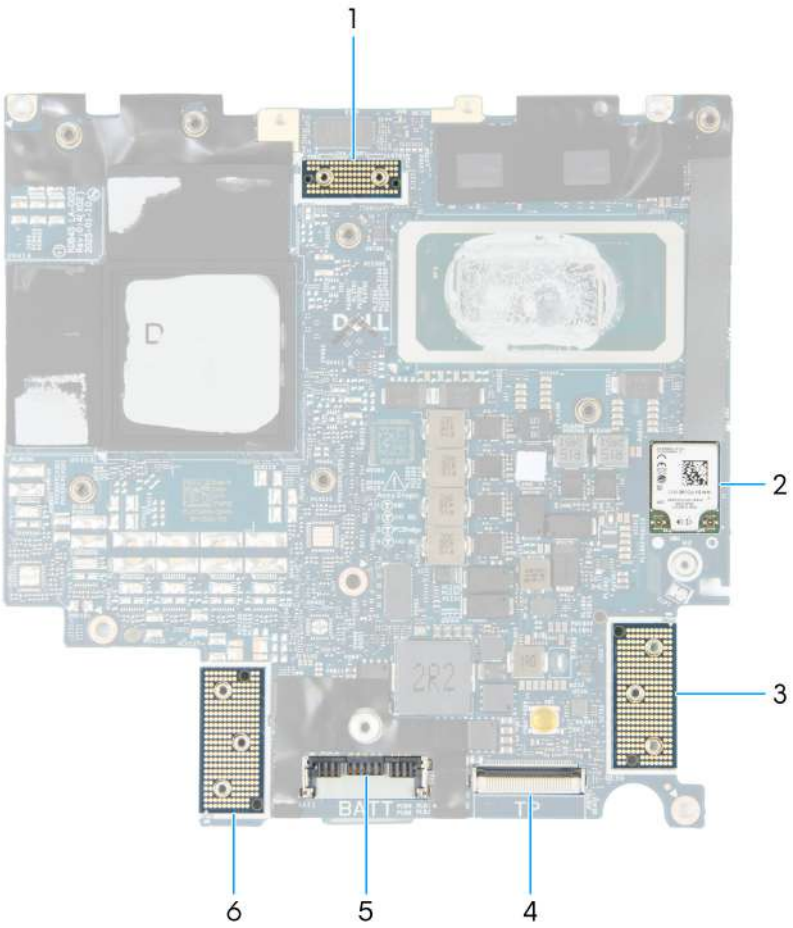


Figure 53. System board connectors

1. Display-interposer board connector (JEDP1)
2. Wireless card (WWFCM)
3. Left PC bridge connector board (JIO3)
4. Touchpad-cable connector (JKBTP1)
5. Battery-cable connector (JBAT1)
6. Right PC bridge connector board (JIO1)

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

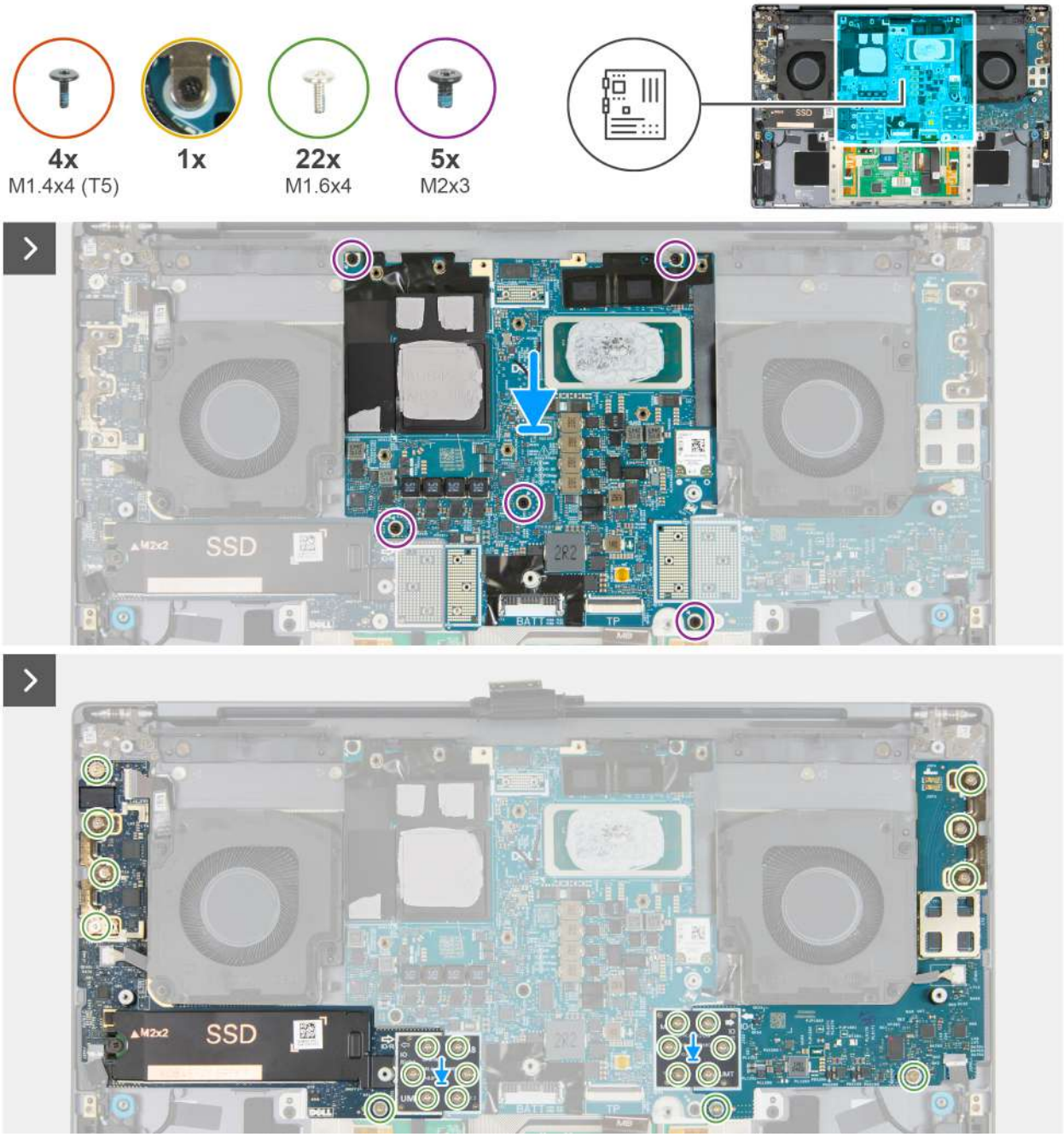


Figure 54. Installing the system board (integrated graphics)

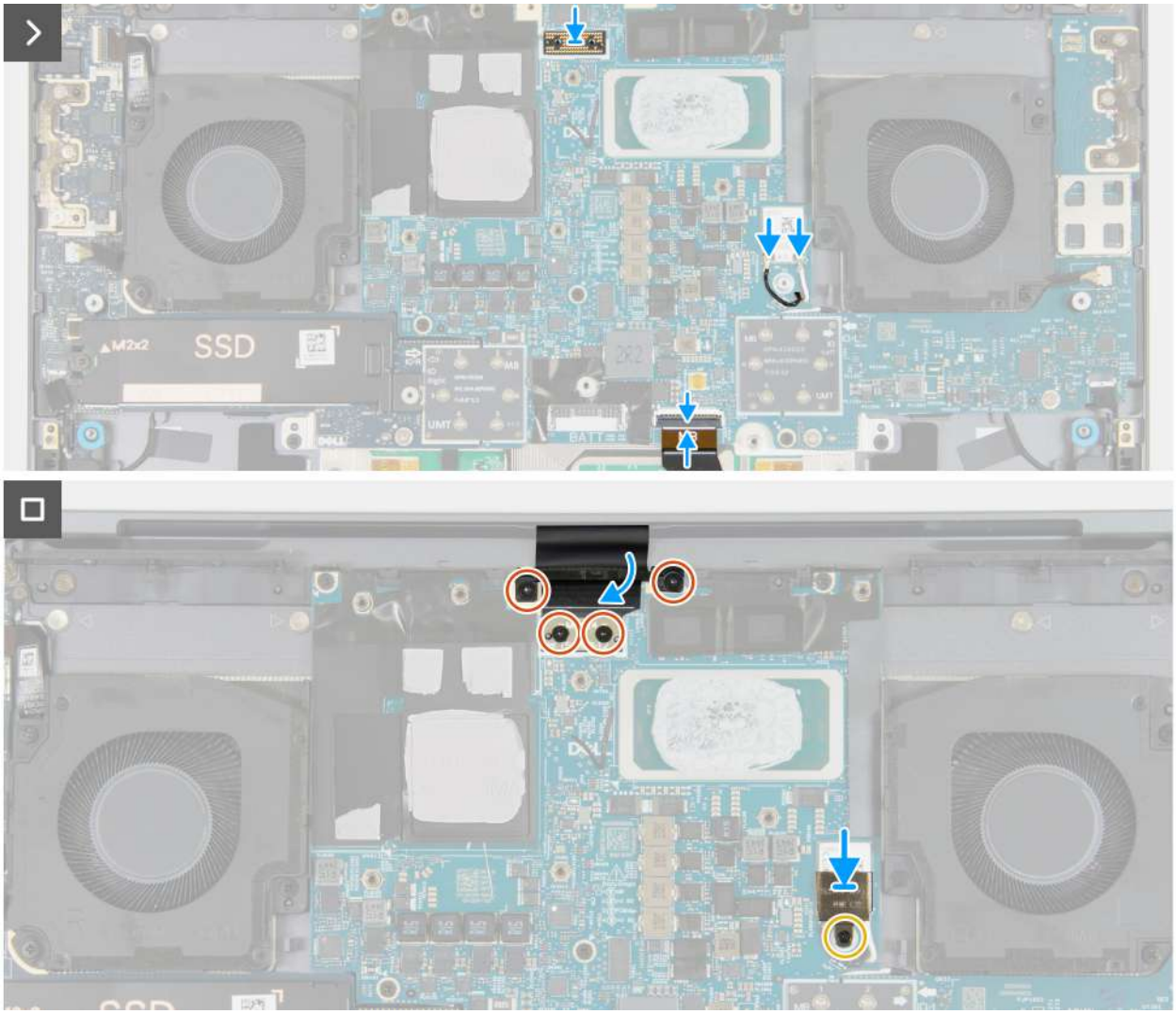


Figure 55. Installing the system board (integrated graphics)

Steps

1. Align the screw holes on the system board with the screw holes on the palm rest and keyboard assembly.
2. Replace the five screws (M2x3) to secure the system board to the palm rest and keyboard assembly.
3. Align the screw holes on the right PC bridge connector board with the screw holes on the right I/O-board and the system board.

Figure 56. Screws of I/O boards

NOTE: Ensure that the ten screws (M1.6x4) that secure the left and right I/O-boards have been removed before installing the left and right PC bridge connector boards.

4. Place the right PC bridge connector board on its connector (JIO1) on the right I/O-board and the system board.
5. In sequential order (1 > 2 > 3 > 4 > 5 > 6), replace the six screws (M1.6x4) that secure the right PC bridge connector board to the right I/O-board and the system board.

   NOTE: Secure the twelve screws (M1.6x4) for the left and right PC bridge connector boards first before securing the ten screws (M1.6x4) for the left and right I/O-boards. This unique assembly sequence is labeled on the heat sink for reference.

Figure 57. Assembly steps printed on heat sink

6. Align the screw holes on the left PC bridge connector board with the screw holes on the left I/O-board and the system board.
7. Place the left PC bridge connector board on its connector (JIO1) on the left I/O-board and the system board.
8. In sequential order (1 > 2 > 3 > 4 > 5 > 6), replace the six screws (M1.6x4) that secure the left PC bridge connector board to the left I/O-board and the system board.
9. Replace the five screws (M1.6x4) that secure the right I/O-board to the palm rest and keyboard assembly.
10. Replace the five screws (M1.6x4) that secure the left I/O-board to the palm rest and keyboard assembly.
11. Connect the touchpad cable to the connector (JKBTP1) on the system board.
12. Connect the antenna cables to the wireless module.
13. Align the screw holes on the display-connector interposer board with the screw holes on the system board.
14. Align the screw hole of the wireless-card bracket with the screw hole on the system board.
15. Place the display-connector interposer board on the system board.
16. Tighten the captive screw (M1.6x2.3) that secures the wireless-card bracket to the system board.
17. Replace the two screws (M1.4x4) to secure the display-assembly cable connector to the system board.
18. Replace the two screws (M1.4x4) to secure the display-assembly cable connector to the display-connector interposer board.

Next steps

1. Install the heat sink.
2. Install the battery.
3. Install the base cover.
4. Install the memory card, if applicable.
5. Follow the procedure in After working inside your computer.

Removing the system board (discrete graphics)

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 memory card, if applicable.
3. Remove the base cover.
4. Remove the battery.
5. Remove the heat sink.

NOTE: The system board can be removed as an assembly with the heat-sink to preserve the thermal bond between the system board and heat sink.

About this task

The following image indicates the connectors on your system board.

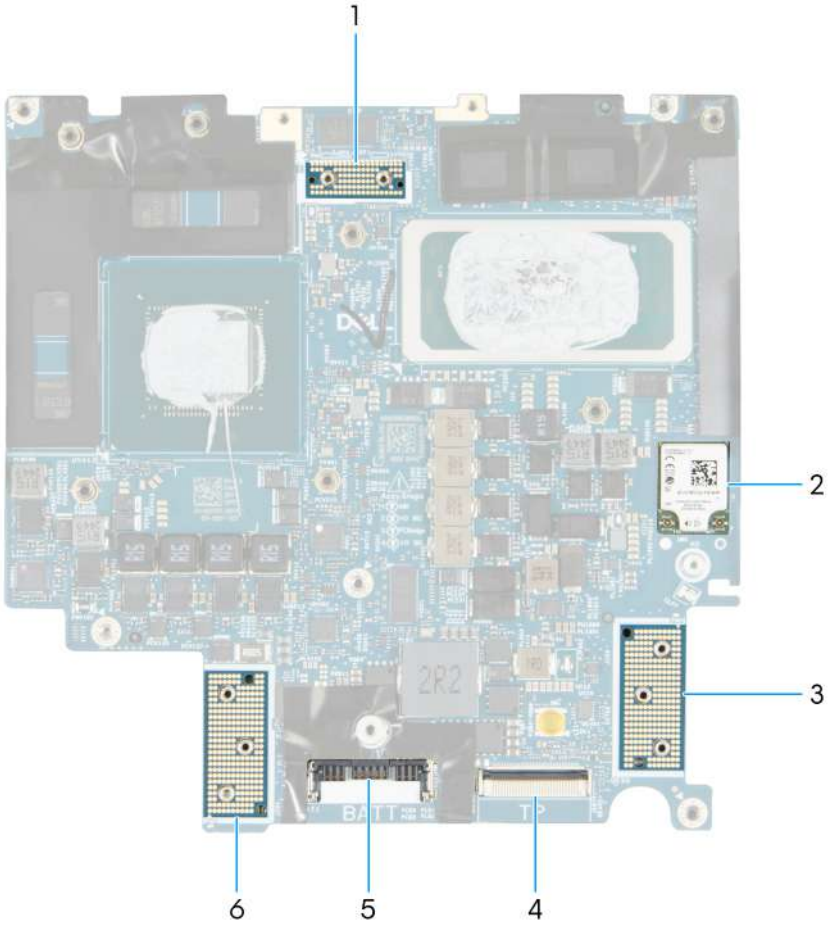


Figure 58. System board connectors

1. Display-interposer board connector (JEDP1)
2. Wireless card (WWFCM)
3. Left PC bridge connector board (JIO3)
4. Touchpad-cable connector (JKBTP1)
5. Battery-cable connector (JBAT1)
6. Right PC bridge connector board (JIO1)

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

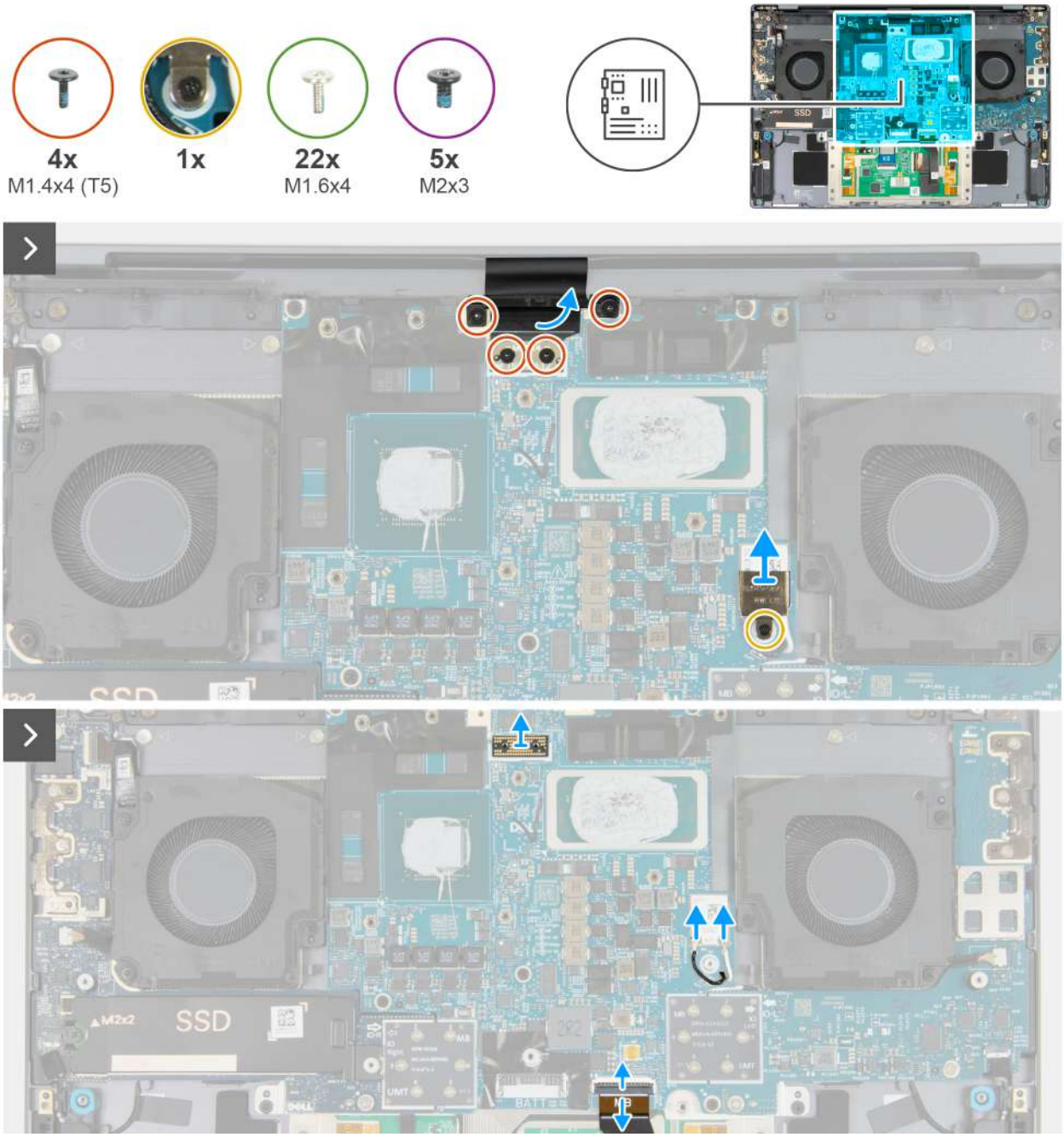


Figure 59. Removing the system board (discrete graphics)

Figure 60. Removing the system board (discrete graphics)

Steps

1. Remove the two screws (M1.4x4) that secure the display-assembly cable connector to the display-connector interposer board.
2. Remove the two screws (M1.4x4) that secure the display-assembly cable connector to the system board.
3. Loosen the captive screw (M1.6x2.3) that secures the wireless-module bracket to the system board and remove the wireless-module bracket.
4. Lift the display-connector interposer board off the system board.
5. Disconnect the antenna cables from the wireless module and remove the cables from the notch on the system board.
6. Disconnect the touchpad cable from the connector (JKBTP1) on the system board.
7. Remove the five screws (M1.6x4) that secure the left I/O-board to the palm rest and keyboard assembly.
8. Remove the five screws (M1.6x4) that secure the right I/O-board to the palm rest and keyboard assembly.

Figure 61. Assembly steps printed on heat sink

NOTE: Ensure that the ten screws (M1.6x4) that secure the left and right I/O-boards have been removed. This unique assembly sequence is labeled on the heat sink for reference.

9. In reverse sequential order (6 > 5 > 4 > 3 > 2 > 1), remove the six screws (M1.6x4) that secure the left PC bridge connector board to the left I/O-board and the system board.
10. Remove the left PC bridge connector board from its connector (JIO3) on the left I/O-board and the system board.
11. In reverse sequential order (6 > 5 > 4 > 3 > 2 > 1), remove the six screws (M1.6x4) that secure the right PC bridge connector board to the right I/O-board and the system board.
12. Remove the right PC bridge connector board from its connector (JT01) on the right I/O-board and the system board.
13. Remove the five screws (M2x3) that secure the system board to the palm rest and keyboard assembly.
14. Remove the system board from the palm rest and keyboard assembly.

Installing the system board (discrete graphics)

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

Prerequisites

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

About this task

The following image indicates the connectors on your system board.

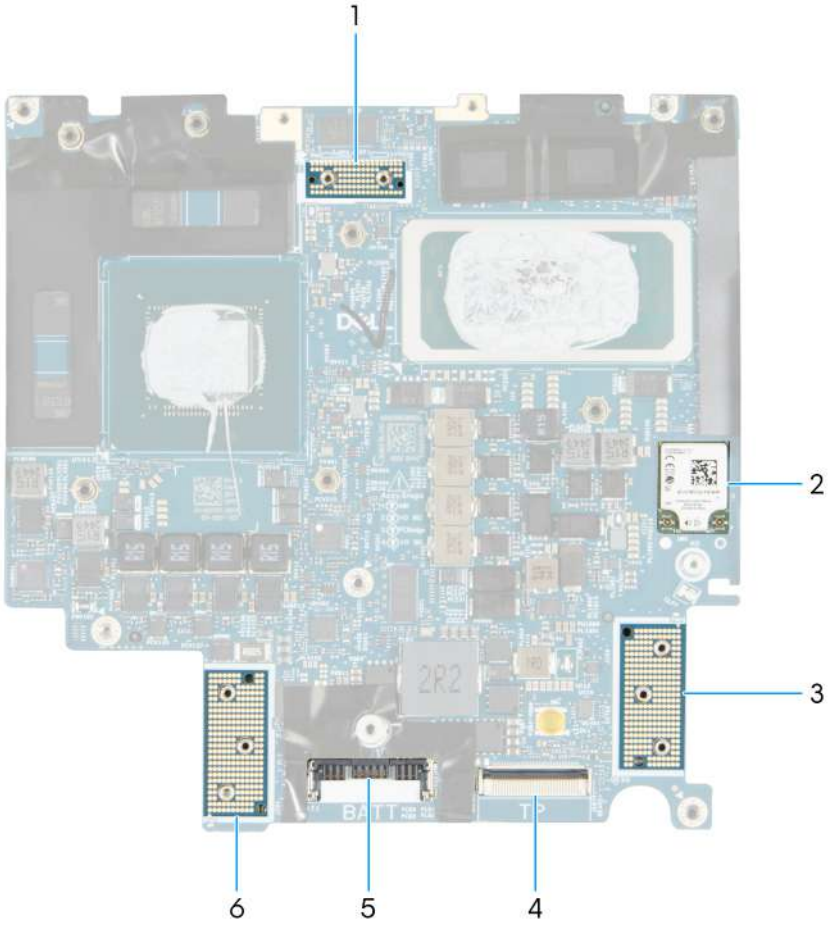


Figure 62. System board connectors

1. Display-interposer board connector (JEDP1)
2. Wireless card (WWFCM)
3. Left PC bridge connector board (JIO3)
4. Touchpad-cable connector (JKBTP1)
5. Battery-cable connector (JBAT1)
6. Right PC bridge connector board (JIO1)

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

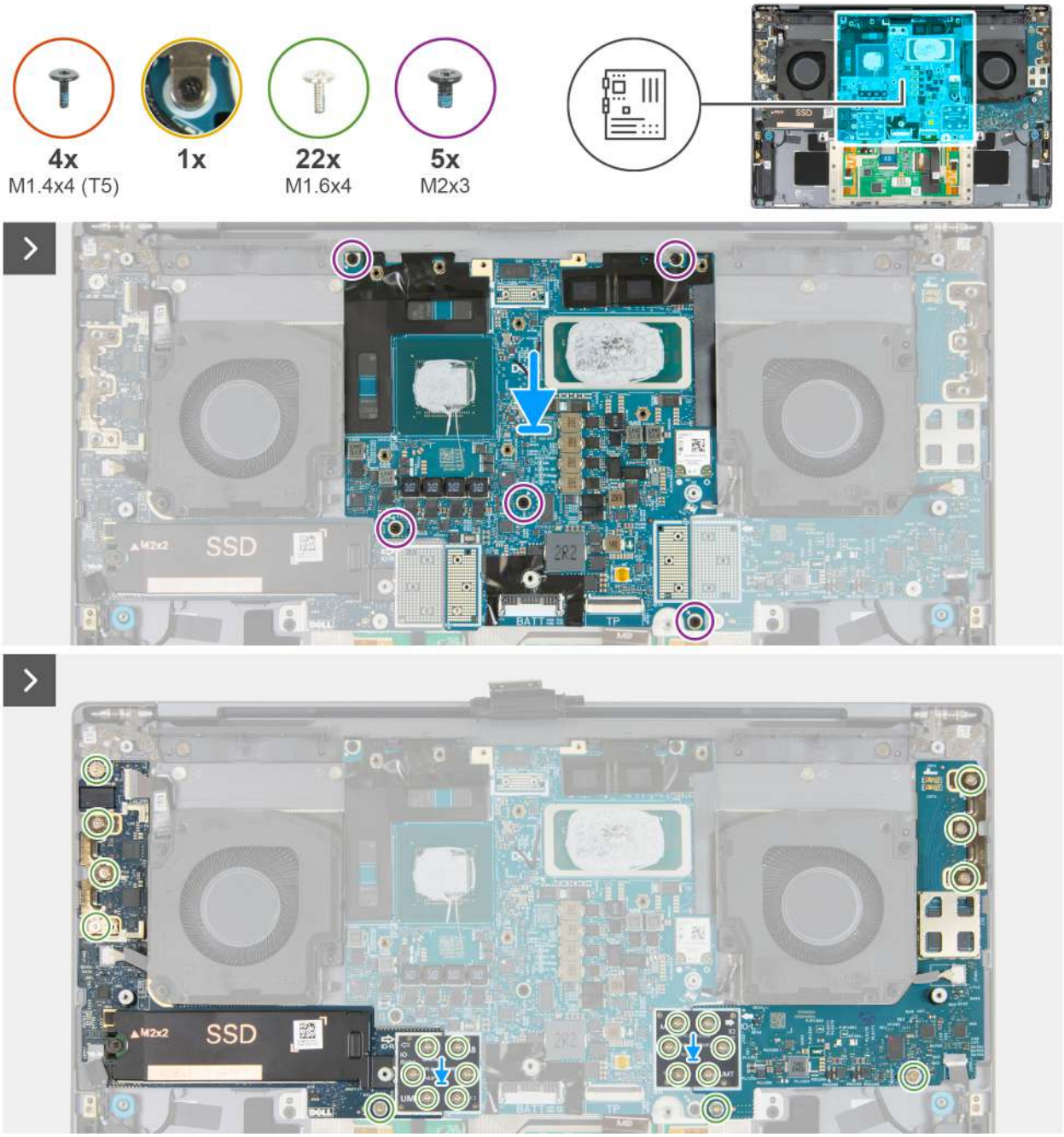


Figure 63. Installing the system board (discrete graphics)

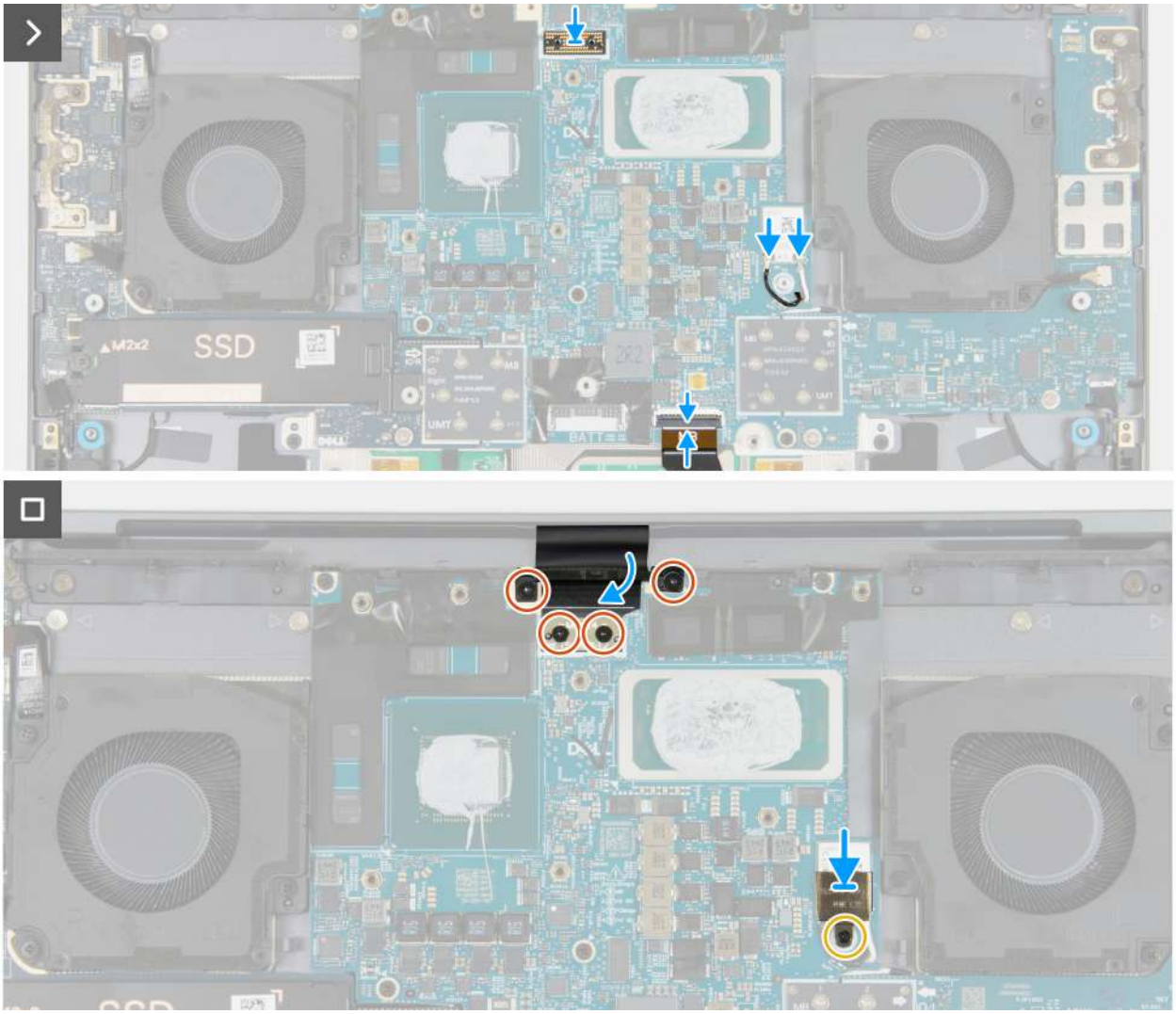


Figure 64. Installing the system board (discrete graphics)

Steps

1. Align the screw holes on the system board with the screw holes on the palm rest and keyboard assembly.
2. Replace the five screws (M2x3) to secure the system board to the palm rest and keyboard assembly.
3. Align the screw holes on the right PC bridge connector board with the screw holes on the right I/O-board and the system board.

Figure 65. Screws of I/O boards

NOTE: Ensure that the ten screws (M1.6x4) that secure the left and right I/O-boards have been removed before installing the left and right PC bridge connector boards.

4. Place the right PC bridge connector board on its connector (JIO1) on the right I/O-board and the system board.
5. In sequential order (1 > 2 > 3 > 4 > 5 > 6), replace the six screws (M1.6x4) that secure the right PC bridge connector board to the right I/O-board and the system board.

   NOTE: Secure the twelve screws (M1.6x4) for the left and right PC bridge connector boards first before securing the ten screws (M1.6x4) for the left and right I/O-boards. This unique assembly sequence is labeled on the heat sink for reference.

Figure 66. Assembly steps printed on heat sink

6. Align the screw holes on the left PC bridge connector board with the screw holes on the left I/O-board and the system board.
7. Place the left PC bridge connector board on its connector (JIO1) on the left I/O-board and the system board.
8. In sequential order (1 > 2 > 3 > 4 > 5 > 6), replace the six screws (M1.6x4) that secure the left PC bridge connector board to the left I/O-board and the system board.
9. Replace the five screws (M1.6x4) that secure the right I/O-board to the palm rest and keyboard assembly.
10. Replace the five screws (M1.6x4) that secure the left I/O-board to the palm rest and keyboard assembly.
11. Connect the touchpad cable to the connector (JKBTP1) on the system board.
12. Connect the antenna cables to the wireless module.
13. Align the screw holes on the display-connector interposer board with the screw holes on the system board.
14. Align the screw hole of the wireless-card bracket with the screw hole on the system board.
15. Place the display-connector interposer board on the system board.
16. Tighten the captive screw (M1.6x2.3) that secures the wireless-card bracket to the system board.
17. Replace the two screws (M1.4x4) to secure the display-assembly cable connector to the system board.
18. Replace the two screws (M1.4x4) to secure the display-assembly cable connector to the display-connector interposer board.

Next steps

1. Install the heat sink.
2. Install the battery.
3. Install the base cover.
4. Install the memory card, if applicable.
5. Follow the procedure in After working inside your computer.

Power button with optional fingerprint reader

Removing the power button or fingerprint reader

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

Prerequisites

1. Remove the memory card, if applicable.
2. Remove the base cover.
3. Remove the battery.
4. Remove the right fan.
5. Remove the right I/O-board.

About this task

The following images indicate the location of the power button or fingerprint reader and provide a visual representation of the removal procedure.

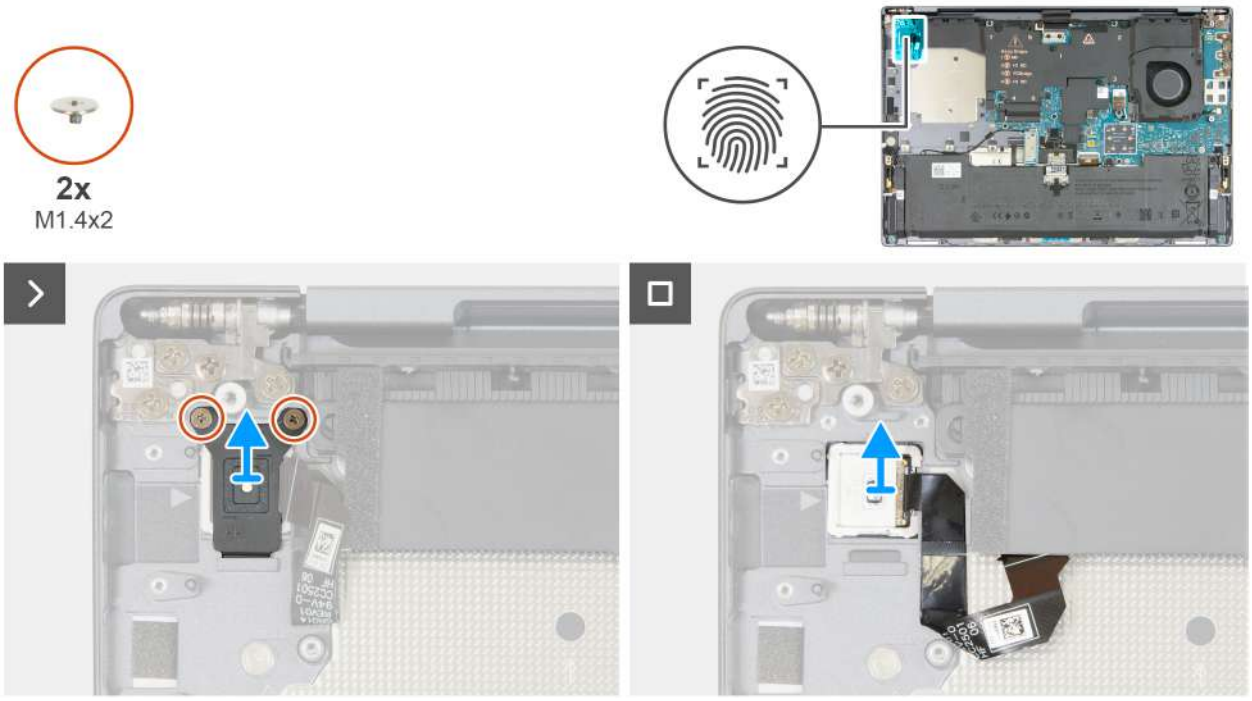


Figure 67. Removing the power button or fingerprint reader

Steps

1. Remove the two screws (M1.4x2) that secure the power-button bracket to the palm rest and keyboard assembly.
2. Slide the power-button bracket up and lift the bracket off the power button.
3. Peel off the power-button cable from the palm rest and keyboard assembly.

   NOTE: There is a piece of conductive adhesive tape on the power-button cable.

4. Place your fingertip as indicated by the white arrow head and pry the power button off the slot on the palm rest and keyboard assembly.
5. Remove the power button along with the cable from the palm rest and keyboard assembly.

Installing the power button or fingerprint reader

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

Prerequisites

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

About this task

The following images indicate the location of the power button or fingerprint reader and provide a visual representation of the installation procedure.

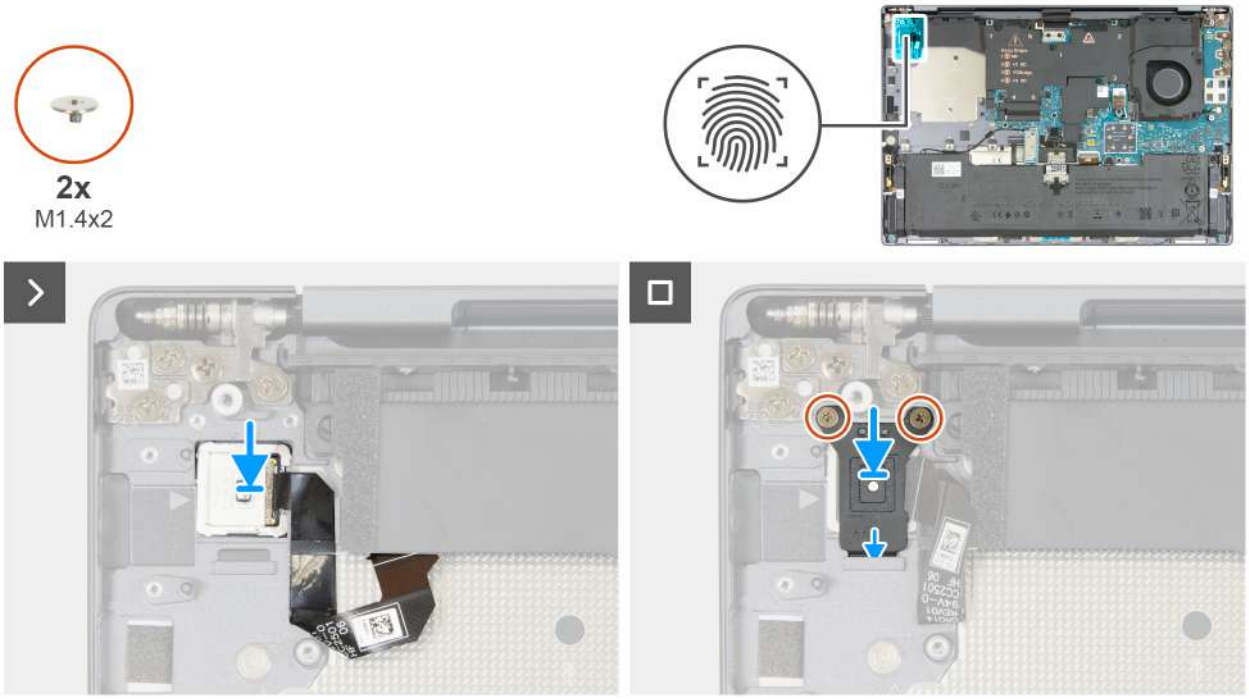


Figure 68. Installing the power button or fingerprint reader

Steps

1. Place the power button into the slot on the palm rest and keyboard assembly.
2. Adhere the power-button cable on the palm rest and keyboard assembly.

   NOTE: There is a piece of conductive adhesive tape on the power-button cable.

3. Align the screw holes on the power-button bracket with the screw holes on the palm rest and keyboard assembly.
4. Slide the power-button bracket into position and replace the two screws (M1.4x2) to secure the bracket to the palm rest and keyboard assembly.

Next steps

1. Install the right I/O-board.
2. Install the base cover.
3. Install the memory card, if applicable.
4. Follow the procedure in After working inside your computer.

Speakers

Removing the speakers

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the memory card, if applicable.
3. Remove the base cover.
4. Remove the M.2 2230 SSD or M.2 2280 SSD, whichever is applicable.
5. Remove the battery.
6. Remove the right fan.
7. Remove the left I/O-board.
8. Remove the right I/O-board.

About this task

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

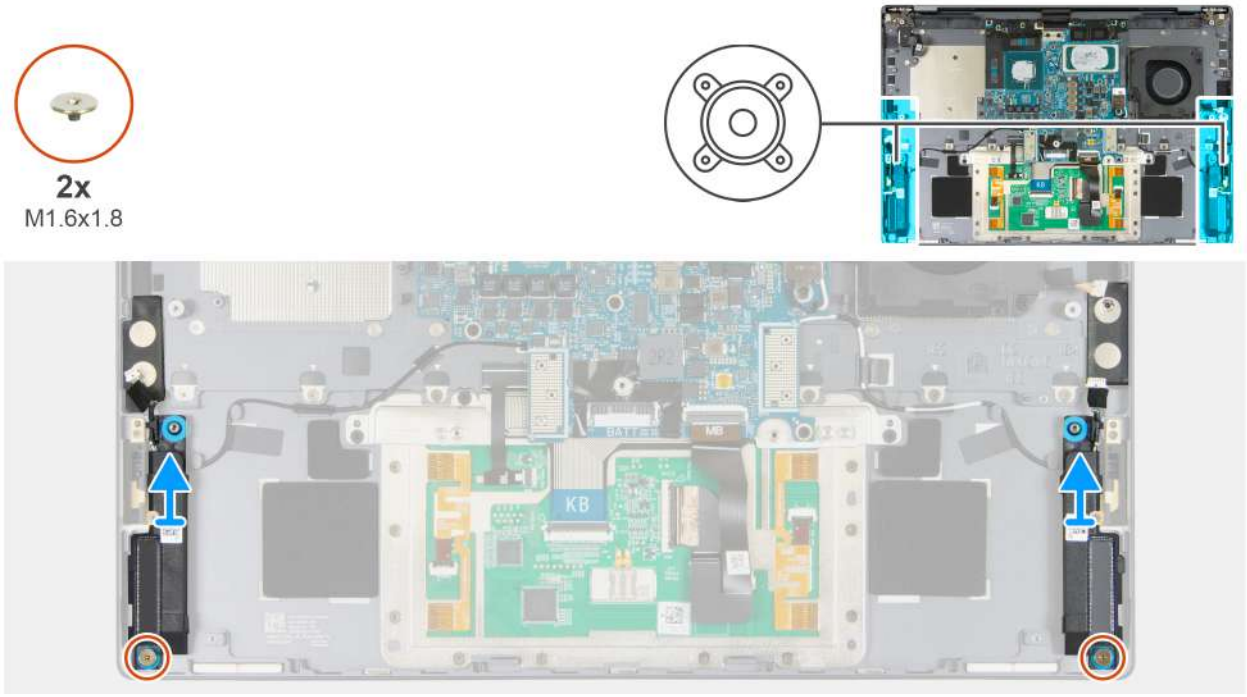


Figure 69. Removing the speakers

Steps

1. Remove the screw (M1.6x1.8) that secures the left speaker to the palm rest and keyboard assembly.
2. Lift the left speaker from the palm rest and keyboard assembly.
3. Remove the screw (M1.6x1.8) that secures the right speaker to the palm rest and keyboard assembly.
4. Lift the right speaker from the palm rest and keyboard assembly.

Installing the speakers

Prerequisites

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

About this task

NOTE: If the rubber grommets are pushed out when removing the speakers, push them back in before replacing the speakers.

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

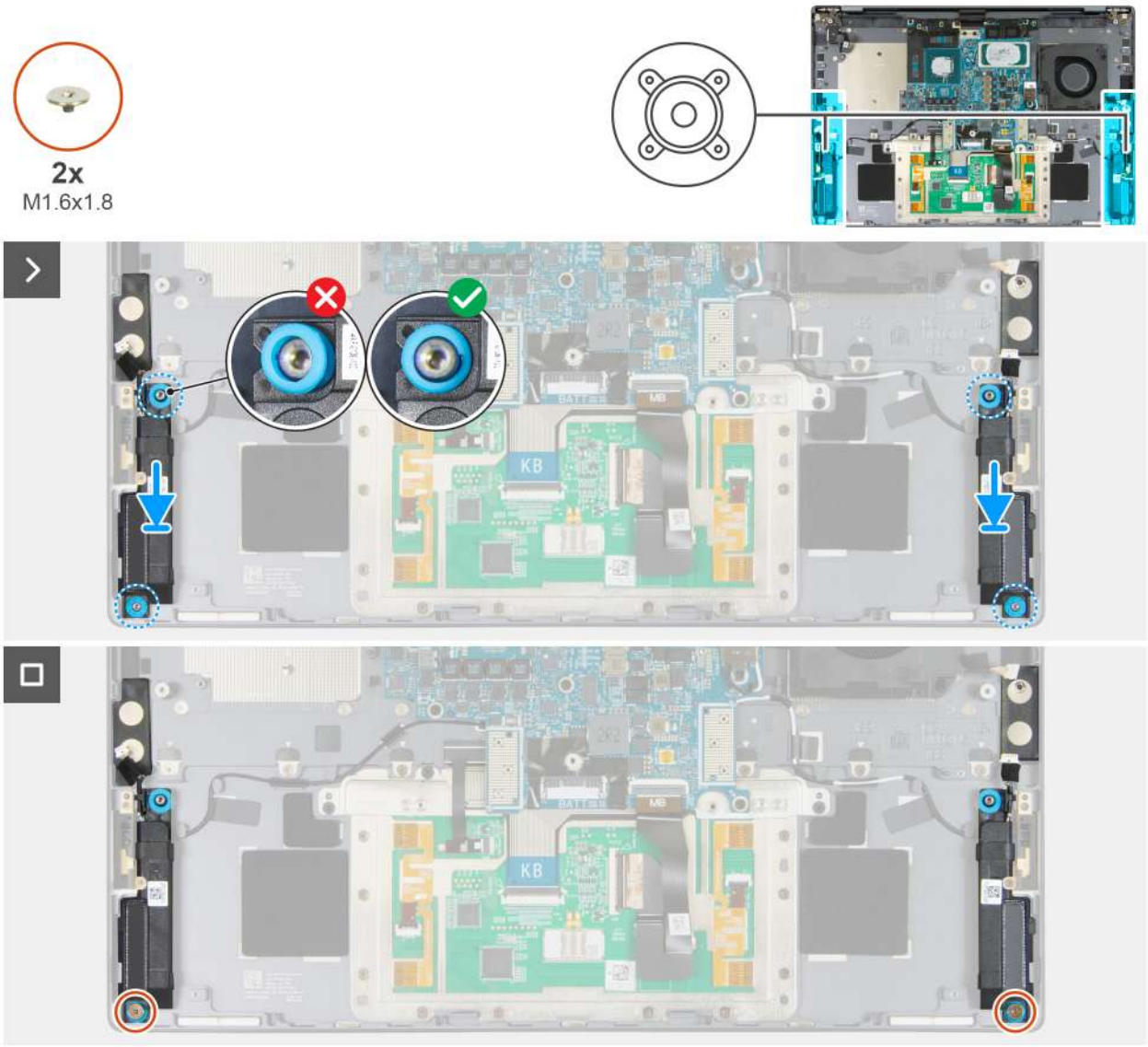


Figure 70. Installing the speakers

Steps

1. Using the alignment posts and rubber grommets, place the left speaker in the slot on the palm rest and keyboard assembly.

   NOTE: Ensure that the rubber grommets on the speakers are threaded through the alignment posts. Ensure that the four rubber grommets are seated into the slot and installed on the speakers properly.

2. Replace the screw (M1.6x1.8) to secure the left speaker to the palm rest and keyboard assembly.
3. Using the alignment posts and rubber grommets, place the right speaker in the slot on the palm rest and keyboard assembly.

   NOTE: Ensure that the rubber grommets on the speakers are threaded through the alignment posts. Ensure that the four rubber grommets are seated into the slot and installed on the speakers properly.

4. Replace the screw (M1.6x1.8) to secure the right speaker to the palm rest and keyboard assembly.

Next steps

1. Install the right I/O-board.
2. Install the left I/O-board.
3. Install the right fan.
4. Install the battery.
5. Install the M.2 2230 SSD or M.2 2280 SSD, whichever is applicable.
6. Install the base cover.
7. Install the memory card, if applicable.
8. Follow the procedure in After working inside your computer.

Keyboard

Removing the keyboard

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 memory card, if applicable.
3. Remove the base cover.
4. Remove the M.2 2230 solid state drive or M.2 2280 solid state drive, whichever is applicable.
5. Remove the battery.
6. Remove the left fan.
7. Remove the right fan.
8. Remove the heat sink.

NOTE: The system board can be removed as an assembly with the heat-sink to preserve the thermal bond between the system board and heat sink.

9. Remove the left I/O-board.
10. Remove the right I/O-board.
11. Remove the system board.

About this task

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

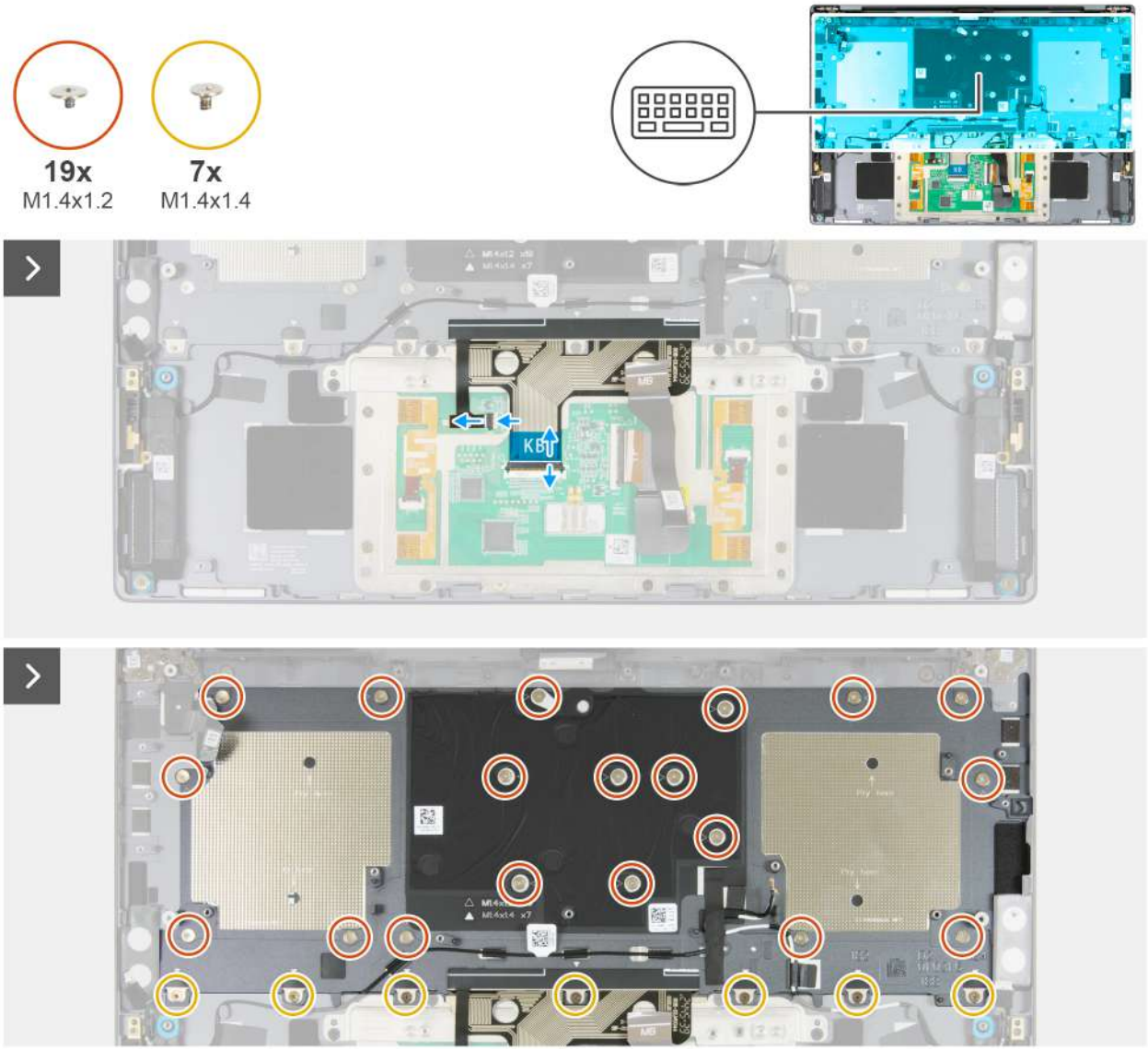


Figure 71. Removing the keyboard

Figure 72. Removing the keyboard

Figure 73. The keyboard

Steps

1. Disconnect the keyboard cable from the connector (KB) on the touchpad board.
2. Disconnect the keyboard-backlight cable from the connector (BL) on the touchpad board.

   NOTE: This step applies only to computers shipped with a backlit keyboard installed.

3. Remove the nineteen screws (M1.4x1.2) and seven screws (M1.4x1.4) that secure the keyboard to the palm rest and keyboard assembly.
4. Turn over the computer and lift the keyboard off the palm rest assembly.

Installing the keyboard

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

Prerequisites

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

About this task

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

Figure 74. Installing the keyboard

Figure 75. Installing the keyboard

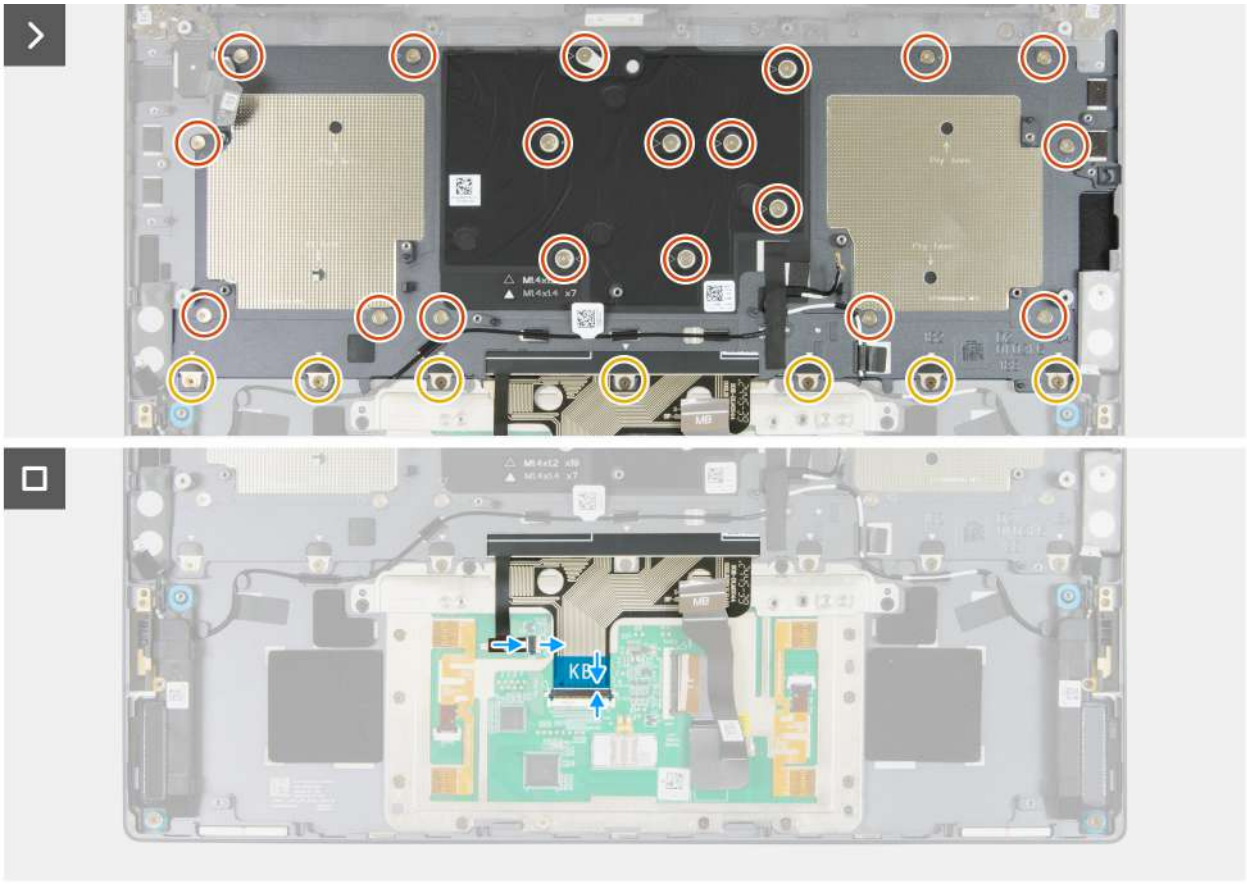


Figure 76. Installing the keyboard

Steps

1. Turn over the computer and open the display lid.
2. Align the keyboard to the palm rest and touchpad assembly and insert the keyboard into the opening on the palm rest and touchpad assembly.
3. Turn over the computer and place it at the edge of the table.

   NOTE: The palm rest and touchpad assembly rest on the table while the display lid is extended over the edge of the table.

4. Replace the nineteen screws (M1.4x1.2) and seven screws (M1.4x1.4) that secure the keyboard to the palm rest assembly.
5. Connect the keyboard cable to the connector (KB) on the touchpad board.
6. Connect the keyboard-backlight cable to the connector (BL) on the touchpad board.

   NOTE: This step applies only to computers shipped with a backlit keyboard installed.

Next steps

1. Install the system board.
2. Install the right I/O-board.
3. Install the left I/O-board.
4. Install the heat sink, if applicable.
5. Install the right fan.
6. Install the left fan.
7. Install the battery.
8. Install the M.2 2230 SSD or M.2 2280 SSD, whichever is applicable.
9. Install the base cover.
10. Install the memory card, if applicable.
11. Follow the procedure in After working inside your computer.

Palm rest and touchpad assembly

Removing the palm rest and touchpad assembly

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

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the memory card, if applicable.
3. Remove the base cover.
4. Remove the M.2 2230 solid state drive or M.2 2280 solid state drive, whichever is applicable.
5. Remove the battery.
6. Remove the left fan.
7. Remove the right fan.
8. Remove the left I/O-board.
9. Remove the right I/O-board.
10. Remove the display assembly.
11. Remove the system board.

NOTE: The system board can be removed as an assembly with the heat-sink to preserve the thermal bond between the system board and heat sink.

12. Remove the power button.
13. Remove the speakers.
14. Remove the keyboard.

About this task

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

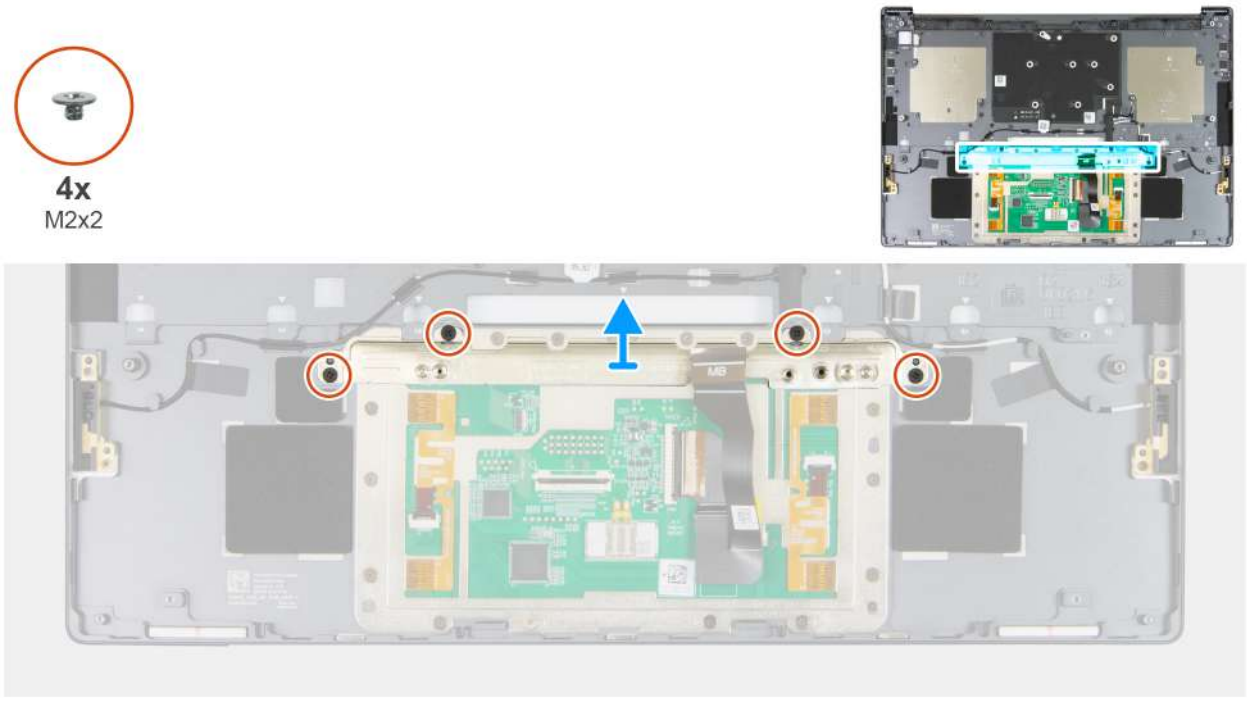


Figure 77. Removing the touchpad bracket

The image below shows the palm rest and touchpad assembly after the **Prerequisites** have been performed and the touchpad bracket has been removed.

Figure 78. Palm rest and touchpad assembly

NOTE: The palm rest and touchpad assembly cannot be further disassembled once all the **Prerequisites** are completed and the touchpad bracket has been removed. If the touchpad is malfunctioning and is required to be replaced, replace the entire palm rest and touchpad assembly.

Steps

After performing the **Prerequisites** and the removal of the touchpad bracket, you are left with the palm rest and touchpad assembly.

Installing the palm rest and touchpad assembly

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

Prerequisites

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

About this task

The image below shows the palm rest and touchpad assembly.

Figure 79. Palm rest and touchpad assembly

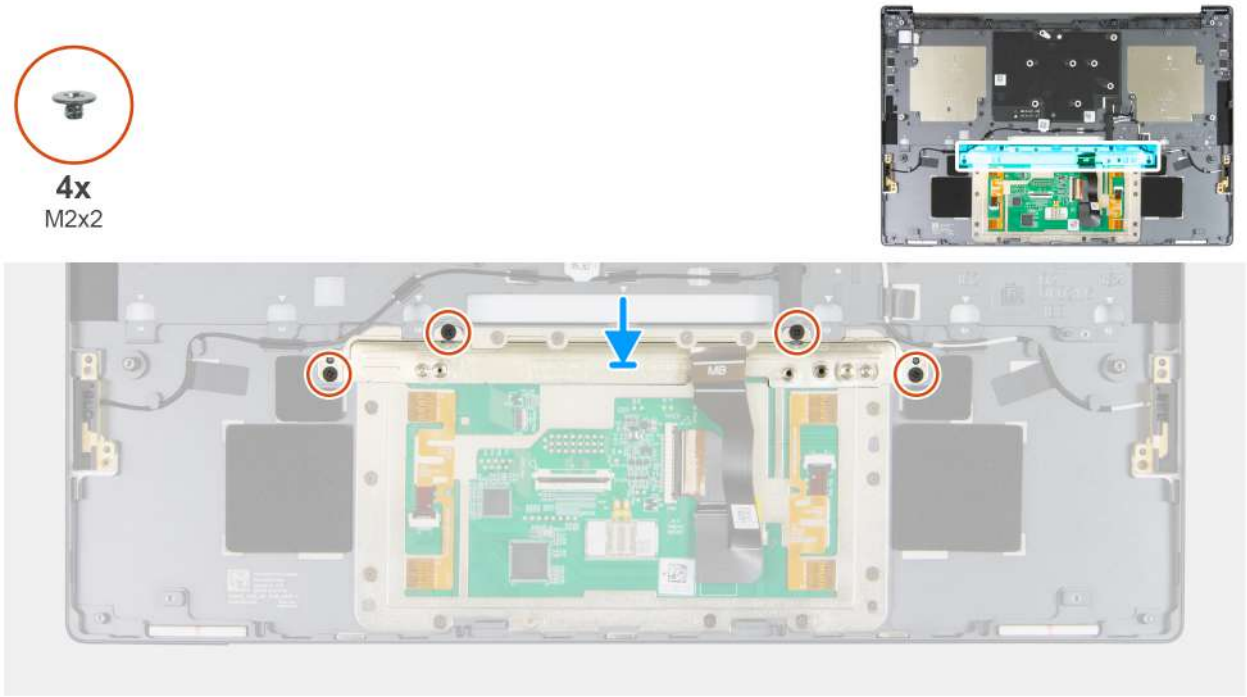


Figure 80. Replacing the touchpad bracket

Steps

1. Place the palm rest and touchpad assembly on a flat surface.

2. Replace the four screws (M2x2) that secure the touchpad bracket to the palm rest and touchpad assembly.
3. Perform the **Next steps** to install the palm rest and touchpad assembly.

Next steps

1. Install the keyboard.
2. Install the speakers.
3. Install the power button.
4. Install the system board.

   NOTE: The system board can be installed with the heat sink attached to it in order to simplify the procedure and preserve the thermal bond between the system board and heat sink.

5. Install the display assembly.
6. Install the right I/O-board.
7. Install the left I/O-board.
8. Install the right fan.
9. Install the left fan.
10. Install the battery.
11. Install the M.2 2230 SSD or M.2 2280 SSD, whichever is applicable.
12. Install the base cover.
13. Install the memory card, if applicable.
14. Follow the procedure in After working inside your computer.

7

Software

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

Operating system

Your Dell Pro Max 14 Premium MA14250 supports the following operating systems:

- Windows 11 Home
- Windows 11 Pro
- 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 000123347.

8

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

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 31. Navigation keys

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

F12 One Time Boot menu

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

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

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

- Windows Boot Manager
- UEFI M.2 solid state drive Boot

- UEFI HTTPs Boot
- Diagnostics

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

View Advanced Setup options

About this task

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

NOTE: BIOS Setup options, including **Advanced Setup** options, are described in the **System setup options** option.

To enable Advanced Setup:

Steps

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

View Service options

About this task

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

NOTE: Service options are described in BIOS Setup options.

To view Service options:

Steps

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

BIOS Setup options

BIOS Setup options

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

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

Table 32. BIOS Setup options—Overview menu

Overview	
Dell Pro Max 14 Premium MA14250	
BIOS Version	Displays the BIOS version number.
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Displays the Asset Tag of the computer.

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

Overview	
Manufacture Date	Displays the manufacture date of the computer.
Ownership Date	Displays the ownership date of the computer.
Express Service Code	Displays the Express Service Code of the computer.
Ownership Tag	Displays the Ownership Tag of the computer.
BATTERY Information	
Primary	Displays the primary battery of the computer.
Battery Level	Displays the battery level of the computer.
Battery State	Displays the battery state of the computer.
Health	Displays the battery health of the computer.
AC Adapter	Displays whether an AC adapter is connected. If connected, displays the type of AC adapter that is connected.
dGPU Video Controller	Displays the type of discrete video controller available on the computer.
Battery Life Type	Display the battery life type of the computer.
PROCESSOR Information	
Processor Type	Displays the processor type.
Maximum Clock Speed	Displays the maximum processor clock speed. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Core Count	Displays the total core count of the processor.
Processor ID	Displays the processor ID.
Processor L2 Cache	Displays the processor.
Processor L3 Cache	Displays the processor.
Microcode Version	Displays the microcode version of the processor.
Intel® Hyper-Threading Capable	Displays whether the processor is Hyper-Threading (HT) capable or not.
Intel® vPro Technology	Displays whether the processor supports vPro technology.
MEMORY Information	
Memory Installed	Displays the total memory installed on the computer.
Memory Available	Displays the total memory available on the computer.
Memory Speed	Displays the memory speed. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Memory Technology	Displays the technology that is used for the memory.
DEVICES Information	
Panel Type	Displays the type of display panel available on the computer.
Panel Revision	Displays the panel revision version of the computer.
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.

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

Overview	
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.
Pass Through MAC Address	Displays the MAC address of the video pass-through.

Table 33. System Setup options—Boot Configuration menu

Boot Configuration	
Boot Sequence	
Boot Sequence	Displays the boot sequence.
Enable PXE Boot Priority	When enabled, any new PXE boot option that is detected by the computer is added to the top of the Boot Sequence. By default, the **Enable PXE Boot Priority** option is disabled.
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. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
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.
Add Boot Option	Allows for adding or changing boot options.
Enable Secure Boot	Enables the computer to boot using only validated boot software. By default, this **Enable Secure Boot** option is disabled. For additional security, Dell Technologies recommends keeping the **Secure Boot** option enabled to ensure that the UEFI firmware validates the operating system during the boot process. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options. **NOTE:** To enable Secure Boot, the computer must be in UEFI boot mode and the Enable Legacy Option ROMs option must be turned off.
Enable Microsoft UEFI CA	When disabled, the UEFI CA is removed from the BIOS UEFI Secure Boot database ('db' variable). **CAUTION: If you disable Microsoft UEFI CA, the computer may not boot, computer graphics may not function, some devices may not function properly, and the computer could become unrecoverable.** Microsoft HLK requirements for DeviceGuard require the UEFI 3rd Party CA removal from the UEFI Secure Boot database (db). Setting this option to Allow Pre-Boot Modules Only, 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 setting the Microsoft UEFI CA option to **Enabled** to ensure the broadest compatibility with devices and operating systems.

Table 33. System Setup options—Boot Configuration menu (continued)

Boot Configuration	
Secure Boot Mode	Enables or disables the Secure Boot operation mode. By default, the **Deployed Mode** is selected. **Deployed Mode** should be selected for normal operation of Secure Boot.
Expert Key Management	
Enable Custom Mode	Enables or disables the keys in the PK, KEK, db, and dbx security key databases to be modified. By default, the **Enable Custom Mode** option is disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Custom Mode Key Management	Selects the custom values for expert key management. By default, the **PK** option is selected. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.

Table 34. System Setup options—Integrated Devices menu

Integrated Devices	
Date/Time	
Date	Sets the computer date in MM/DD/YYYY format. Changes to the date format take effect immediately.
Time	Sets the computer time in HH/MM/SS 24-hour format. You can select between a 12-hour or 24-hour clock. Changes to the time format take effect immediately.
Camera	
Enable Camera	Enables the camera. By default, the **Enable Camera** option is enabled. **NOTE:** Depending on the configuration ordered, the camera setup option may not be available.
Audio	
Enable Audio	Enables all integrated audio controller. By default, all the options are enabled.
Enable Microphone	Enables the microphone. By default, the **Enable Microphone** option is enabled. **NOTE:** Depending on the configuration ordered, the microphone setup option may not be available.
Enable Internal Speaker	Enables the internal speaker. By default, the **Enable Internal Speaker** option is enabled.
USB/Thunderbolt Configuration	
Enable Thunderbolt™ Technology Support	Enables the associated ports and adapters for Thunderbolt Technology support. By default, the **Enable Thunderbolt Technology Support** option is enabled.
Enable Thunderbolt™ Boot Support	Enables the Thunderbolt adapter-peripheral device and USB devices that are connected to the Thunderbolt adapter to be used during BIOS Preboot. By default, the **Enable Thunderbolt Boot Support** option is disabled.

Table 34. System Setup options—Integrated Devices menu (continued)

Integrated Devices	
	NOTE: To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Disable USB4 PCIE Tunneling	Disables the USB4 PCIE Tunneling option. By default, the **Disable USB4 PCIE Tunneling** option is disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in Entering BIOS Setup program.
Video/Power only on Type-C Ports	Enables or disables the Type-C port functionality to video or only power. By default, the **Video/Power only on Type-C Ports** option is disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Type-C Dock	
Type-C Dock Override	Enables or disables to use connected Type-C Dell Dock to provide data stream with external USB ports disabled. When Type-C Dock override is enabled, the Video/Audio/LAN submenu is activated. By default, the **Type-C Dock Override** option is enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in Entering BIOS Setup program.
Type-C Dock Audio	Enables or disables the usage of audio inputs and outputs from the connected Type-C Dell docking station. By default, the **Type-C Dock Audio** option is enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Type-C Dock LAN	Enables or disables the usage of LAN on the external ports of the connected Type-C Dell docking station. By default, the **Type-C Dock LAN** option is enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Miscellaneous Devices	
Enable Fingerprint Reader Device	Enables or disables the Fingerprint Reader Device option. By default, the **Enable Fingerprint Reader Device** option is enabled.
Unobtrusive Mode	
Enable Unobtrusive Mode	Enables or disables the unobtrusive mode. When enabled, all system LEDs, LCD panel backlight and audio devices of the computer are turned off. By default, the **Enable Unobtrusive Mode** option is disabled. **NOTE:** On computers with collaboration touchpad, the Collaboration Touchpad is disabled when the **Enable Unobtrusive Mode** option is enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.

Table 35. System Setup options—Storage menu

Storage	
SATA/NVMe Operation	Sets the operating mode of the integrated SATA hard drive controller.

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

Storage	
	By default, the **RAID On** option is selected.
Storage Interface	Displays the information of various onboard drives.
Port Enablement	Enables or disables the M.2 PCIe SSD option. By default, the **M.2 PCIe SSD-1** option is enabled.
SMART Reporting	
Enable SMART Reporting	Enables or disables the SMART reporting option. By default, the **Enable SMART Reporting** option is disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Drive Information	Displays the information of onboard drives.
Enable MediaCard	
Secure Digital (SD) Card	Enables or disables the SD card. By default, the **Secure Digital (SD) Card** option is enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Secure Digital (SD) Card Read-Only Mode	Enables or disables the SD card read-only mode. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options. By default, the **Secure Digital (SD) Card Read-Only Mode** option is disabled.

Table 36. System Setup options—Display menu

Display	
Display Brightness	
Brightness on battery power	By default, the screen brightness is set to 50 when the computer is running on battery power. Set the screen brightness when the computer is running on battery power. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Brightness on AC power	By default, the screen brightness is set to 100 when the computer is running on AC power. Set the screen brightness when the computer is running on AC power. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Touchscreen	Enables or disables the touch screen option. By default, the **Touchscreen** option is enabled. **NOTE:** Only available on computers with touch screen displays. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Full Screen Logo	Enables or disables the computer to display full screen logo, if the image matches screen resolution. By default, the **Full Screen Logo** option is disabled.

Table 36. System Setup options—Display menu (continued)

Display	
	NOTE: To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Enable Hybrid Graphics / Advanced Optimus (when available)	When turned on, the system allows both integrated and discrete graphics controllers to work together for optimized capability and battery life. When turned off, the discrete graphics controller will drive all displays to prioritize graphics capability over battery life. By default, the **Enable Hybrid Graphics / Advanced Optimus (when available)** option is enabled. **NOTE:** Linux is not supported with Hybrid Graphics enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Discrete Graphics Controller Direct Output Mode	If selected, the system will set all external displays to be managed by the discrete graphics controller, with the purpose of enabling unique discrete graphics controller features. The internal display will be managed by the integrated graphics controller. Pre-OS content is only visible on the internal display. By default, the **Discrete Graphics Controller Direct Output Mode** option is enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.

Table 37. System Setup options—Connection menu

Connection	
Wireless Device Enable	
WLAN	Enables or disables the internal WLAN device. By default, the **WLAN** option is enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Bluetooth®	Enables or disables the internal Bluetooth® device. By default, the **Bluetooth** option is enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Enable UEFI Network Stack	Enables or disables the UEFI Network Stack and controls the onboard LAN Controller. By default, the **Enable UEFI Network Stack** option is set to **Enabled**. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Wireless Radio Control	
Control WLAN Radio	Enable to sense the connection of the computer to a wired network and then disables the selected WLAN radio. Upon disconnection from the wired network, the selected wireless radios are reenabled.

Table 37. System Setup options—Connection menu (continued)

Connection	
	By default, the **Control WLAN Radio** option is disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Enable UEFI Bluetooth Stack	Enables or disables the UEFI Bluetooth Stack. When enabled, UEFI Bluetooth protocols are installed and are available, allowing pre-OS Bluetooth HID features. By default, the **Enable UEFI Bluetooth Stack** option is enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
HTTP(s) Boot Feature	
HTTP(s) Boot	When enabled, supports HTTP(s) boot on the client BIOS, which offers wired or wireless and HTTP/HTTPS connection options. By default, the **HTTP(s) Boot** option is enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
HTTP(s) Boot Modes	In Auto Mode, the boot URL is obtained from the DHCP response; the boot URL specifies the HTTP Boot Server and location of the Network Boot Program (NBP) file. In Manual mode, the user enters the URL in the text box, which must start with `http://` or `https://` and end with the NBP file name. By default, **Auto Mode** is selected. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
CA Certificate	Upload or delete the CA certificate. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.

Table 38. System Setup options—Power menu

Power	
Battery Configuration	Enables or disables the computer to run on battery during peak power usage hours. Use the table **Custom Charge Start** and **Custom Charge Stop**, to prevent AC power usage between certain times of each day. By default, the **Adaptive** option is selected. Battery settings are adaptively optimized based on your typical battery usage pattern.
Advanced Configuration	

Table 38. System Setup options—Power menu (continued)

Power	
Enable Advanced Battery Charge Configuration	Enables Advanced Battery Charge Configuration from the beginning of the day to a specified work period. When enabled, Advanced Battery Charged maximizes battery health while still supporting heavy use during the work day. By default, the **Enable Advanced Battery Charge Configuration** option is disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Peak Shift	
Enable Peak Shift	Enables or disables the computer to run on battery during peak power usage hours. By default, the **Enable Peak Shift** option is disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Thermal Management	This setting allows for cooling of fan and processor heat management to adjust system performance, noise and temperature. By default, the **Optimized** option is selected.
USB Wake Support	
Wake on Dell USB-C Dock	When enabled, connecting a Dell USB-C Dock wakes the computer from Standby, Hibernate, and Power Off. By default, the **Wake on Dell USB-C Dock** option is enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Block Sleep	Enables or disables the computer from entering Sleep (S3) mode in the operating system. By default, the **Block Sleep** option is disabled. **NOTE:** When enabled, the computer does not go to Sleep, Intel® Rapid Start is disabled automatically, and the operating system power option is blank if it was set to Sleep. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Lid Switch	
Enable Lid Switch	Enables or disables the Lid Switch. By default, the **Enable Lid Switch** option is enabled.
Power On Lid Open	When enabled, the feature allows the computer to turn on from the off state whenever the lid is opened. By default, the **Power On Lid Open** option is enabled.

Table 39. System Setup options—Security menu

Security	
TPM 2.0 Security	Trusted Platform Module (TPM) is a security device that stores computer-generated keys for encryption and features such as BitLocker, Virtual Secure Mode, remote Attestation. By default, the **TPM 2.0 Security** option is enabled.

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

Security	
	For additional security, Dell Technologies recommends keeping the Trusted Platform Module (TPM) enabled to allow these security technologies to fully function.
TPM 2.0 Security On	Enables or disables the TPM. By default, the **TPM 2.0 Securty On** option is enabled. For additional security, Dell Technologies recommends keeping TPM enabled to allow these security technologies to fully function. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Attestation Enable	The **Attestation Enable** option controls the endorsement hierarchy of TPM. Disabling the **Attestation Enable** option prevents TPM from being used to digitally sign certificates. By default, the **Attestation Enable** option is enabled. For additional security, Dell Technologies recommends keeping the **Attestation Enable** option enabled. **NOTE:** When disabled, this feature may cause compatibility issues or loss of functionality in some operating systems. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Key Storage Enable	The **Key Storage Enable** option controls the storage hierarchy of TPM, which is used to store digital keys. Disabling the **Key Storage Enable** option restricts the ability of TPM to store owner's data. By default, the **Key Storage Enable** option is enabled. For additional security, Dell Technologies recommends keeping the **Key Storage Enable** option enabled. **NOTE:** When disabled, this feature may cause compatibility issues or loss of functionality in some operating systems. **NOTE:** To view this option, enable **Service** options as described in View Service options.
Clear	When enabled, the **Clear** option clears information that is stored in the TPM after exiting the system's BIOS. This option returns to the disabled state when the computer restarts. By default, the **Clear** option is disabled. Dell Technologies recommends enabling the **Clear** option only when TPM data is required to be cleared. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Physical Presence Interface (PPI) Bypass for Clear Commands	The PPI Bypass for Clear Commands option allows the operating system to manage certain aspects of PTT. When enabled, you are not prompted to confirm changes to the PTT configuration. By default, the **PPI Bypass for Clear Commands** option is disabled. For additional security, Dell Technologies recommends keeping the **PPI Bypass for Clear Commands** option disabled.
Chassis Intrusion	

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

Security	
Chassis Intrusion	Enables or disables the detection of chassis intrusion events. This feature notifies the user when the base cover has been removed from the computer. When set to **Enabled**, a notification is displayed on the next boot and the event is logged in the BIOS Events log. When set to **Disabled**, no notification is displayed and no event is logged in the BIOS Events log. When set to **On-Silent**, the event is logged in the BIOS Events log, but no notification is displayed. By default, the **Chassis Intrusion Detection** option is disabled. For additional security, Dell Technologies recommends keeping the **Chassis Intrusion** option enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Block Boot Until Cleared	The **Block Boot Until Clear** option is enabled when **Chassis Intrusion** is enabled. When enabled, the computer does not boot until the chassis intrusion is cleared. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
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 the data can no longer be recovered. When enabled, the data wipe option provides prompts to wipe any storage devices that are connected to the computer on the next boot. By default, the **Start Data Wipe** option is disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
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 **Absolute** option is enabled. For additional security, Dell Technologies recommends keeping the **Absolute** option enabled. **WARNING: The Permanently Disabled option can only be selected once. When Permanently Disabled is selected, Absolute Persistence cannot be reenabled. No further changes to the Enable/Disable states are allowed.** **NOTE:** The Enable/Disable options are unavailable while the computer is in the activated state. **NOTE:** When the Absolute features are activated, the Absolute integration cannot be disabled from the BIOS Setup screen.

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

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. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Authenticated BIOS Interface	
Enable Authenticated BIOS Interface	Enables or disables the authenticated BIOS Interface. By default, the **Enable Authenticated BIOS Interface** option is disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Clear Certificate Store	Deletes the certificates from KMS storage. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Legacy Manageability Interface Access	Allows access to the Legacy Manageability Interface. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
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 message is displayed on the computer and a tamper detection event is logged in the BIOS Events log. The computer fails to reboot until the event is cleared. By default, the **Firmware Device Tamper Detection** option is enabled. For additional security, Dell Technologies recommends keeping the **Firmware Device Tamper Detection** option enabled.
Clear Firmware Device Tamper Detection	Allows you to clear the events that are logged when tampering of firmware device is detected. By default, the **Clear Firmware Device Tamper Detection** option is disabled.
Intel® Total Memory Encryption	
Multi-Key Total Memory Encryption (Up to 16 keys)	Allows you to clear the events that are logged when tampering of firmware device is detected. By default, the **Multi-Key Total Memory Encryption (Up to 16 keys)** option is disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.

Table 40. System Setup options—Passwords menu

Passwords	
Admin Password	The Administrator Password prevents unauthorized access to the BIOS Setup options. Once the administrator password is set, the BIOS Setup options can only be modified after providing the correct password. The following rules and dependencies apply to the Administrator Password - • The administrator password cannot be set if system and/or internal storage passwords are previously set.

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

Passwords	
	• The administrator password can be used in place of the system and/or internal storage passwords. • When set, the administrator password must be provided during a firmware update. • Clearing the administrator password also clears the system password (if set). Dell Technologies recommends using an administrator password to prevent unauthorized changes to BIOS Setup options.
System Password	The System Password prevents the computer from booting to an operating system without entering the correct password. The following rules and dependencies apply when the System Password is used - • The computer shuts down when idle for approximately 10 minutes at the system password prompt. • The computer shuts down after three incorrect attempts to enter the system password. • The computer shuts down when the **Esc** key is pressed at the **System Password** prompt. • The system password is not prompted when the computer resumes from standby mode. Dell Technologies recommends using the system password in situations where it is likely that a computer may be lost or stolen.
M.2 PCIe SSD-1	The M.2 PCIe SSD-1 password prevents the computer from booting to an operating system without entering the correct password. The following rules and dependencies apply when the System Password is used - • The computer shuts down when idle for approximately 10 minutes at the system password prompt. • The computer shuts down after three incorrect attempts to enter the system password. • The computer shuts down when the **Esc** key is pressed at the **System Password** prompt. • The system password is not prompted when the computer resumes from standby mode. Dell Technologies recommends using the system password in situations where it is likely that a computer may be lost or stolen.
Password Configuration	The Password Configuration page includes several options for changing the requirements of BIOS passwords. You can modify the minimum and maximum length of the passwords as well as require passwords to contain certain character classes (upper case, lower case, digit, special character). When the **Lower Case Letter** option is enabled, the password requires at least one lower case letter. When the **Upper Case Letter** option is enabled, the password requires at least one upper case letter. When the **Digit** option is enabled, the password requires at least one numeric digit. When the **Special Character** option is enabled, the password requires at least one special character from the set: !"#$%&'()*+,-./:;<=>?@[\]^_`{|}~. When setting **Minimum Characters** for password length, Dell Technologies recommends setting the minimum password length to at least eight characters. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.

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

Passwords	
Password Bypass	The **Password Bypass** option allows the computer to reboot from the operating system without entering the system or hard drive password. If the computer has already booted to the operating system, it is presumed that the user has already entered the correct system or hard drive password. **NOTE:** This option does not remove the requirement to enter the password after shutting down. By default, the **Password Bypass** option is disabled. For additional security, Dell Technologies recommends keeping the **Password Bypass** option enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Password Changes	
Allow Non-Admin Password Changes	The **Allow Non-Admin Password Changes** option in BIOS Setup allows an end user to set or change the system or hard drive passwords without entering the administrator password. This gives an administrator control over the BIOS settings but enables an end user to provide their own password. By default, the **Allow Non-Admin Password Changes** option is enabled. For additional security, Dell Technologies recommends keeping the **Allow Non-Admin Password Changes** option disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Admin Setup Lockout	
Enable Admin Setup Lockout	The **Admin Setup Lockout** option prevents an end user from even viewing the BIOS Setup configuration without first entering the administrator password (if set). By default, the **Enable Admin Setup Lockout** option is disabled. For additional security, Dell Technologies recommends keeping the **Admin Setup Lockout** option disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Master Password Lockout	
Enable Master Password Lockout	The **Master Password Lockout** option allows you to disable the Recovery Password feature. If the system, administrator, or hard drive password is forgotten, the computer becomes unusable. **NOTE:** When the owner password is set, the Master Password Lockout option is not available. **NOTE:** When an internal hard drive password is set, it must first be cleared before Master Password Lockout can be changed. By default, the **Enable Master Password Lockout** option is disabled. Dell Technologies does not recommend enabling the **Master Password Lockout** unless you have implemented your own password recovery system. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Allow Non-Admin PSID Revert	
Enable Allow Non-Admin PSID Revert	The **Allow Non-Admin PSID Revert** option allows a user to clear the hard drive password without entering the BIOS Admin Password. When an Admin Password

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

Passwords	
	is set, the ability to enter the PSID is protected by requiring authentication with the Admin Password. If this option is enabled, any user can clear the drive without entering the Admin Password. By default, the **Enable Allow Non-Admin PSID Revert** option is disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.

Table 41. System Setup options—Update, Recovery menu

Update, Recovery	
BIOS Recovery from Hard Drive	Enables or disables the user to recover from certain corrupted BIOS conditions from a recovery file on the user primary hard drive or an external USB drive. By default, the **BIOS Recovery from Hard Drive** option is enabled. **NOTE:** BIOS Recovery from Hard Drive is not available for self-encrypting drives (SED). **NOTE:** BIOS recovery is designed to fix the main BIOS block and cannot work if the Boot Block is damaged. In addition, this feature cannot work in the event of EC corruption, ME corruption, or a hardware issue. The recovery image must exist on an unencrypted partition on the drive. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
BIOS Downgrade	
Allow BIOS Downgrade	Allows downgrading of the system firmware to previous revisions. By default, the **Allow BIOS Downgrade** option is enabled.
SupportAssist OS Recovery	Enables or disables the boot flow for SupportAssist OS Recovery tool if certain system errors occur. By default, the **SupportAssist OS Recovery** option is enabled.
BIOSConnect	Enables or disables cloud service operating system recovery if the main operating system fails to boot with the number of failures equal to or greater than the value specified by the Auto OS Recovery Threshold setup option and local service operating system does not boot or is not installed. By default, the **BIOSConnect** option is enabled.
Dell Auto OS Recovery Threshold	Allows the control of the automatic boot flow for the SupportAssist System Resolution Console and the Dell OS Recovery Tool. By default, the **Dell Auto OS Recovery Threshold** value is set to **2**. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.

Table 42. System Setup options—System Management menu

System Management	
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Creates a computer Asset Tag that an IT administrator can use to uniquely identify a particular computer. **NOTE:** Once set in the BIOS, the Asset Tag cannot be changed.
AC Behavior	

Table 42. System Setup options—System Management menu (continued)

System Management	
Wake on AC	Enables or disables the computer to turn on and go to boot when AC power is supplied to the computer. By default, the **Wake on AC** option is disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Wake on LAN	Enables or disables the computer to turn on by a special LAN signal. By default, the **Wake on LAN** option is disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Auto On Time	Enable to set the computer to turn on automatically every day or on a preselected date and time. This option can be configured only if the Auto On Time is set to Everyday, Weekdays, or Selected Days. By default, the **Auto On Time** option is disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Intel® AMT capability	
Enable Intel® AMT capability	Configure Intel® Active Management Technology (AMT) options, which can be enabled, disabled, or restricted. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
First Power On Date	
Set Ownership Date	Enables setting up ownership date. By default, the **Set Ownership Date** option is disabled.
Diagnostics	
OS Agent Requests	Enable or disable the option for applications running in the operating system to run with preboot diagnostics on subsequent boots. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Power-On-Self-Test Automatic Recovery	Enable or disable the automatic recovery of the computer from no power or no-POST failure by applying mitigation steps. By default, the **Power-On-Self-Test Automatic Recovery** option is enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.

Table 43. System Setup options—Keyboard menu

Keyboard	
Fn Lock Options	
Fn Lock Options	Enables or disables the Fn Lock option. By default, the **Fn Lock** option is enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Lock Mode	By default, the **Lock Mode Secondary** option is selected. With this option, the F1-F12 keys scan the code for their secondary functions.

Table 43. System Setup options—Keyboard menu (continued)

Keyboard	
	NOTE: To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Keyboard Illumination	Configures the operating mode of the keyboard illumination feature. By default, the **Disabled** option is selected. The keyboard illumination is always off.
Keyboard Backlight Timeout on AC	Sets the timeout value for the keyboard backlight when an AC adapter is connected to the computer. By default, the **10 seconds** option is selected. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Keyboard Backlight Timeout on Battery	Sets the timeout value for the keyboard backlight when the computer is running only on the battery power. The keyboard backlight timeout value is only effective when the backlight is enabled. By default, the **10 seconds** option is selected. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Device Configuration HotKey Access	Allows you to control whether you can access device configuration screens through hotkeys during system startup. By default, the **Device Configuration HotKey Access** option is enabled. **NOTE:** This setting controls only the Intel® RAID (CTRL+I), MEBX (CTRL+P), and LSI RAID (CTRL+C) Option ROMs. Other preboot Option ROMs, which support entry using a key sequence, are not affected by this setting. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.

Table 44. System Setup options—Pre-boot Behavior menu

Pre-boot Behavior	
Adapter Warnings	
Enable Adapter Warnings	Enables the warning messages during boot when the adapters with less power capacity are detected. By default, the **Enable Adapter Warnings** option is enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Warnings and Errors	Enables or disables the action to be taken when a warning or error is encountered. By default, the **Prompt on Warnings and Errors** option is selected. **NOTE:** Errors deemed critical to the operation of the computer hardware stop the functioning of the computer. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
USB-C Warnings	
Enable Dock Warning Messages	Enable or disable dock warning messages. By default, the **ON** option is selected.

Table 44. System Setup options—Pre-boot Behavior menu (continued)

Pre-boot Behavior	
Extend BIOS POST Time	Sets the BIOS POST (Power-On Self-Test) load time. By default, the **0 seconds** option is selected. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
MAC Address Pass-Through	Replaces the external NIC MAC address (in a supported dock or dongle) with the selected MAC address from the computer. By default, the **System Unique MAC Address** option is selected.
Sign of Life	
Early Keyboard Backlight	Enables or disables the Keyboard Backlight Sign of Life. By default, the **Disabled** option is enabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.

Table 45. System Setup options—Virtualization menu

Virtualization Support	
Intel® Trusted Execution Technology (TXT)	
Enable Intel® Trusted Execution Technology (TXT)	Specifies whether a measured Virtual Machine Monitor (MVMM) can use the additional hardware capabilities provided by Intel® Trusted Execution Technology. The following must be enabled in order to enable Intel® TXT - • Trusted Platform Module (TPM) • Intel® Hyper-Threading • All CPU cores (Multi-Core Support) • Intel® Virtualization Technology • Intel® VT for Direct I/O By default, the **Enable Intel® Trusted Execution Technology (TXT)** option is disabled. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
DMA Protection	
Enable Pre-Boot DMA Support	Allows you to control the Pre-Boot DMA protection for both internal and external ports. This option does not directly enable DMA protection in the operating system. **NOTE:** This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi). By default, the **Enable Pre-Boot DMA Support** option is enabled. For additional security, Dell Technologies recommends keeping the **Enable Pre-Boot DMA Support** option enabled. **NOTE:** This option is provided only for compatibility purposes, since some older hardware is not DMA capable. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Enable OS Kernel DMA Support	Allows you to control the Kernel DMA protection for both internal and external ports. This option does not directly enable DMA protection in the operating system. For operating systems that support DMA protection, this setting indicates to the operating system that the BIOS supports the feature.

Table 45. System Setup options—Virtualization menu (continued)

Virtualization Support	
	NOTE: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi). By default, the **Enable OS Kernel DMA Support** option is enabled. **NOTE:** This option is provided only for compatibility purposes, since some older hardware is not DMA-capable. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.
Internal Port DMA Compatibility Mode	When enabled, BIOS will notify the operating system if the internal ports are not DMA capable. **NOTE:** This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi). By default, the **Internal Port DMA Compatibility Mode** option is disabled. **NOTE:** This option is provided only for compatibility purposes, since some older hardware is not DMA capable. **NOTE:** To view this option, enable **Advanced Setup** mode as described in View Advanced Setup options.

Table 46. System Setup options—Performance menu

Performance	
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 **Enable Intel® SpeedStep Technology** option is enabled. **NOTE:** To view this option, enable **Service** options as described in View Service options.
Adaptive Optimization	
Adaptive Optimization	Enables or disables the Adaptive Optimization Performance feature. By default, the **Adaptive Optimization** option is enabled.

Table 47. System Setup options—System Logs menu

System Logs	
BIOS Event Log	
Clear BIOS Event Log	Select the option to keep or clear BIOS events logs. By default, the **Keep Log** option is selected.
Thermal Event Log	
Clear Thermal Event Log	Select the option to keep or clear thermal events logs. By default, the **Keep Log** option is selected.
Power Event Log	
Clear Power Event Log	Select the option to keep or clear power events logs. By default, the **Keep Log** option is selected.

Clearing Chassis Intrusion Alerts

The computer features a chassis intrusion switch that detects the removal of the base cover. This feature can be configured to notify the user of any such intrusions through the Chassis Intrusion field in the Security sub-menu of the BIOS setup menu.

When enabled, the **Block Boot Until Cleared** field allows the user to prevent normal boot-up of the computer until the intrusion alert is cleared.

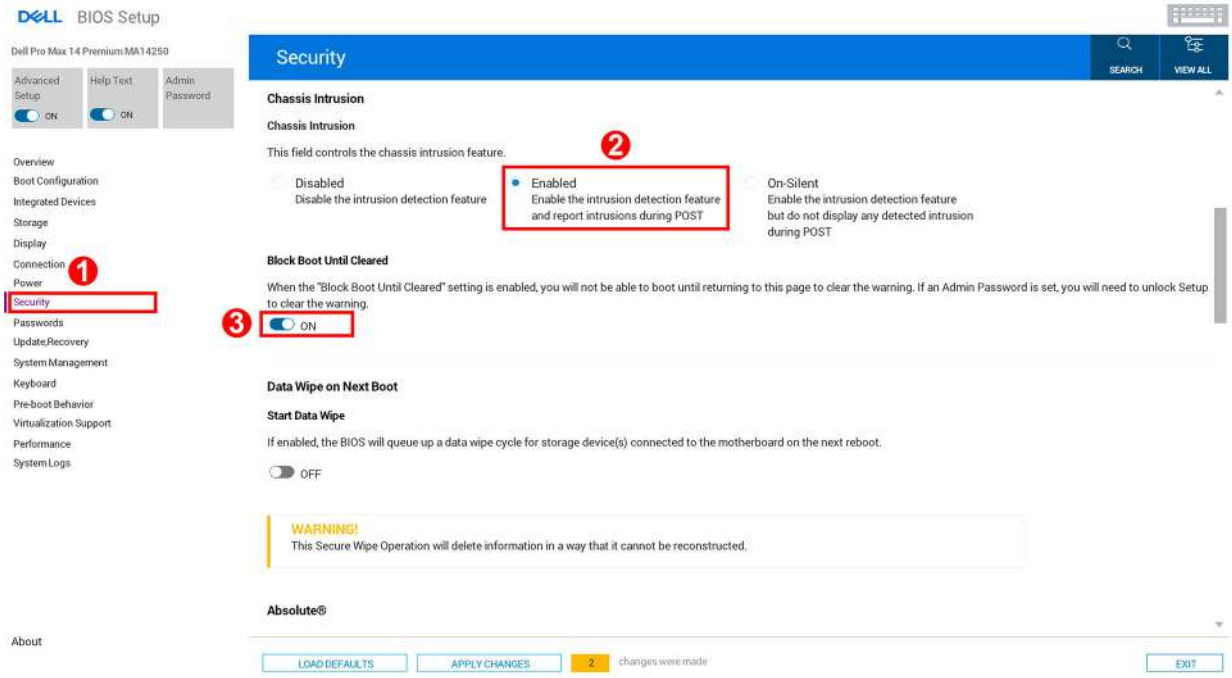


Figure 81. Chassis intrusion feature

If **Block Boot Until Cleared** is set to **ON**, select **BIOS-Setup** and clear the intrusion alert in order to boot up.

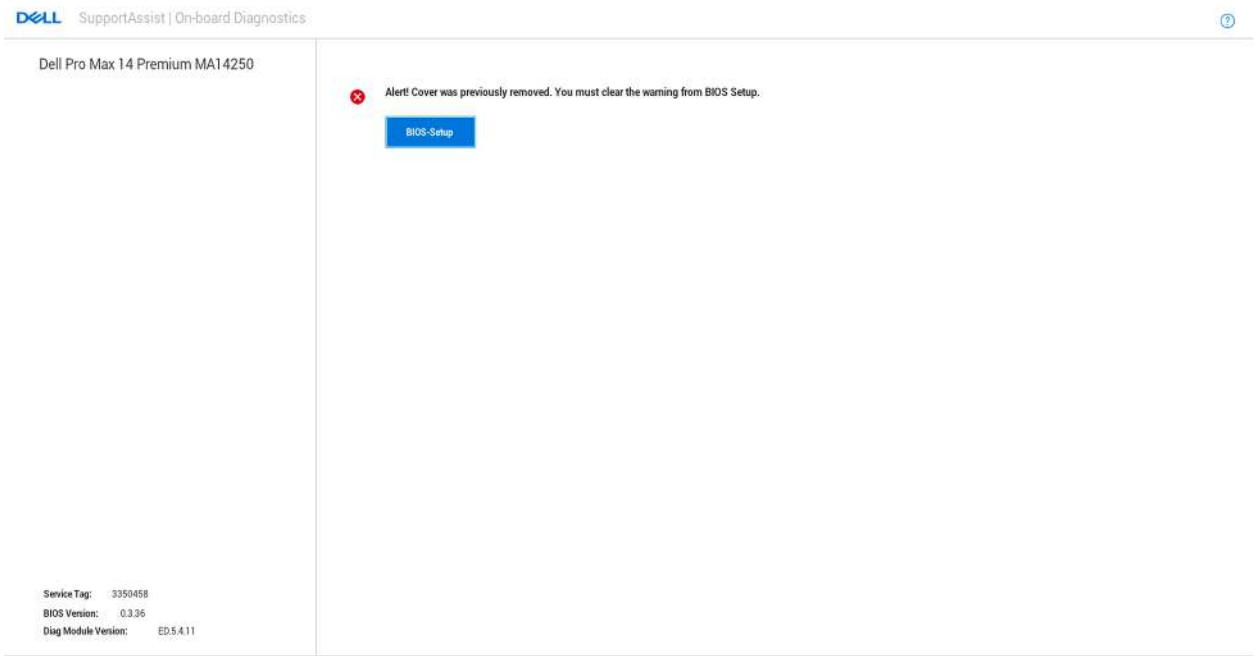


Figure 82. Chassis intrusion alert

If **Block Boot Until Cleared** is set to **OFF**, select **Continue** to boot up or select **BIOS-Setup** to clear the intrusion alert.

NOTE: If **Continue** is selected, the user continues to see the alert each time the computer is turned on until the alert is cleared.

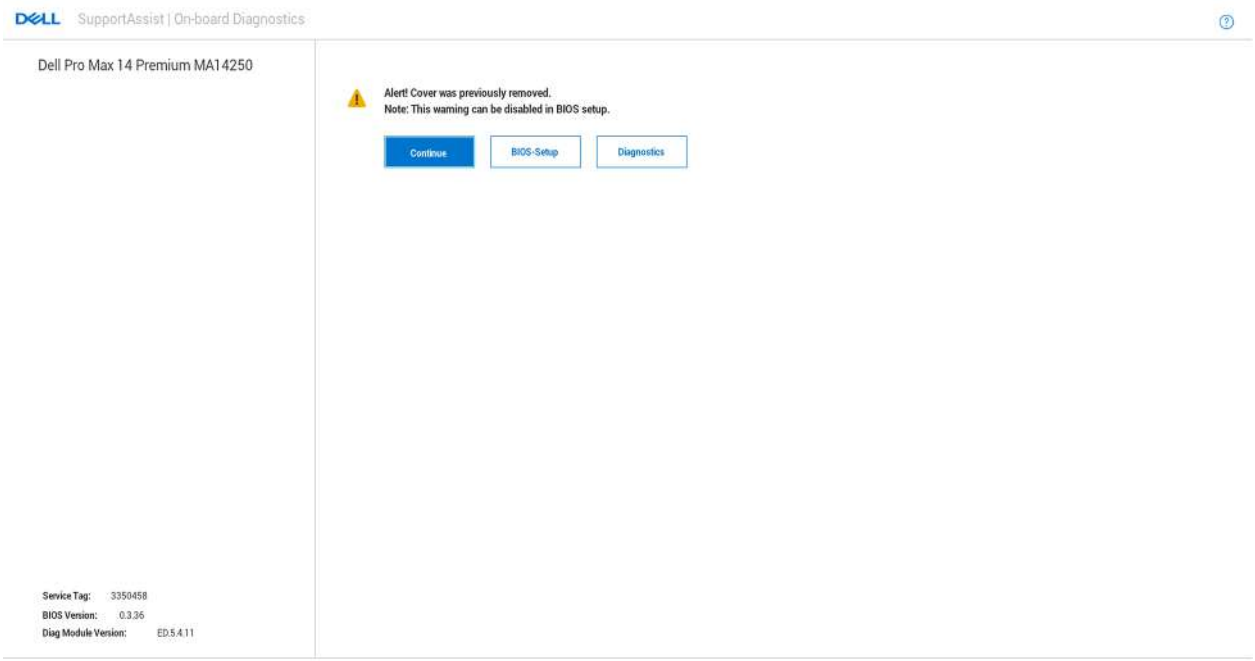


Figure 83. Chassis intrusion alert

Select **ON** in the **Clear Intrusion Warning** field in the **Security** sub-menu of the BIOS setup menu.

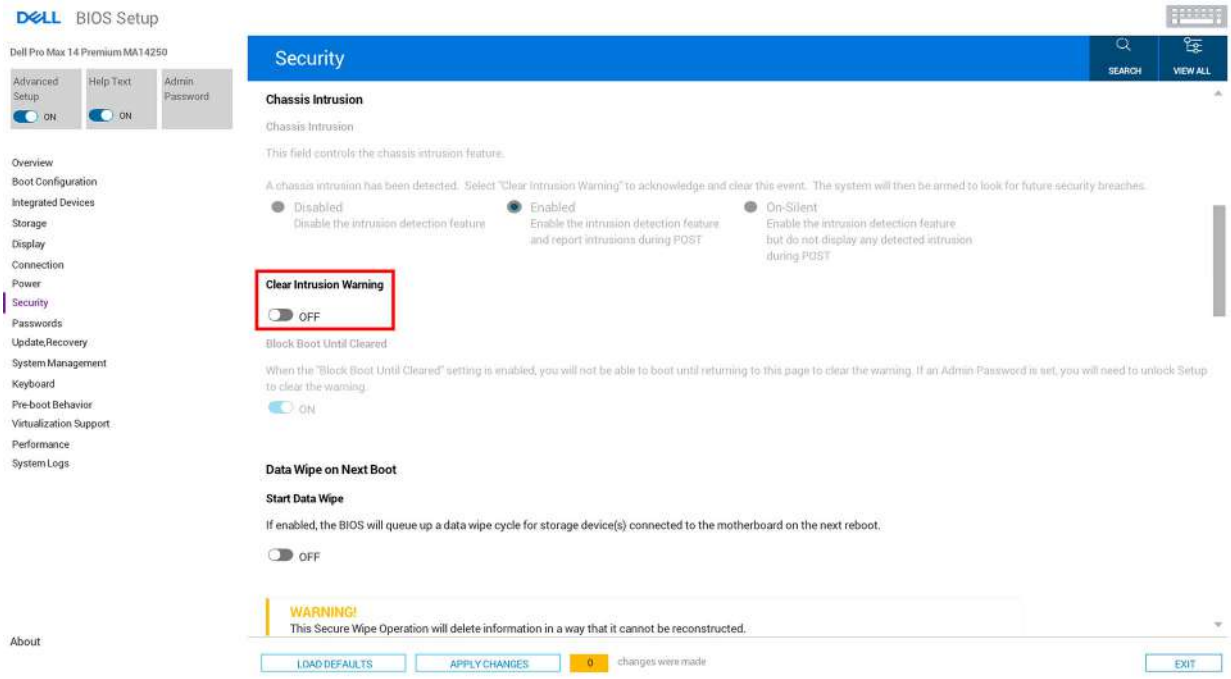


Figure 84. Clear the chassis intrusion alert

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 in Linux and Ubuntu

To update the system BIOS on a computer that is installed with Linux or Ubuntu, see the Dell Knowledge Base article 000131486 at Dell Support Site.

Updating the BIOS using the USB drive in Windows

About this task

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

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

Steps

1. Go to Dell Support Site.
2. Go to **Identify your product or 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 in the Knowledge Base Resource at Dell Support Site.
8. Copy the BIOS setup program file to the bootable USB drive.
9. Connect the bootable USB drive to the computer that needs the BIOS update.
10. Restart the computer and press **F12**.
11. Select the USB drive from the **One Time Boot Menu**.
12. Type the BIOS setup program filename and press **Enter**.
    The **BIOS Update Utility** appears.
13. Follow the on-screen instructions to complete the BIOS update.

Updating the BIOS from the One-Time boot menu

To update the BIOS from the One-Time boot menu, see Dell 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 48. 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 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.

9

Troubleshooting

Handling swollen rechargeable Li-ion batteries

Like most laptops, Dell laptops use Lithium-ion batteries. One type of Lithium-ion battery is the rechargeable Li-ion battery. Rechargeable Li-ion batteries have increased in popularity in recent years and have become a standard in the electronics industry due to customer preferences for a slim form factor (especially with newer ultra-thin laptops) and long battery life. Inherent to rechargeable Li-ion battery technology is the potential for swelling of the battery cells.

A swollen battery may impact the performance of the laptop. To prevent possible further damage to the device enclosure or internal components leading to malfunction, discontinue the use of the laptop and discharge it by disconnecting the AC adapter and letting the battery drain.

Swollen batteries should not be used and must be replaced and disposed of properly. We recommend contacting Dell Support for options to replace a swollen battery under the terms of the applicable warranty or service contract, including options for replacement by a Dell authorized service technician.

The guidelines for handling and replacing rechargeable Li-ion batteries are as follows:

- Exercise caution when handling rechargeable Li-ion batteries.
- Discharge the battery before removing it from the laptop. To discharge the battery, unplug the AC adapter from the computer and operate the computer only on battery power. The battery is fully discharged when the computer no longer turns on when the power button is pressed.
- Do not crush, drop, mutilate, or penetrate the battery with foreign objects.
- Do not expose the battery to high temperatures, or disassemble battery packs and cells.
- Do not apply pressure to the surface of the battery.
- Do not bend the battery.
- Do not use tools of any type to pry on or against the battery.
- If a battery gets stuck in a device as a result of swelling, do not try to free it as puncturing, bending, or crushing a battery can be dangerous.
- Do not attempt to reassemble a damaged or swollen battery into a laptop.
- Swollen batteries that are covered under warranty should be returned to Dell in an approved shipping container (provided by Dell)—this is to comply with transportation regulations. Swollen batteries that are not covered under warranty should be disposed of at an approved recycling center. Contact Dell Support at Dell Support Site for assistance and further instructions.
- Using a non-Dell or incompatible battery may increase the risk of fire or explosion. Replace the battery only with a compatible battery purchased from Dell that is designed to work with your Dell computer. Do not use a battery from other computers with your computer. Always purchase genuine batteries from Dell Site or otherwise directly from Dell.

Rechargeable Li-ion batteries can swell for various reasons such as age, number of charge cycles, or exposure to high heat. For more information about how to improve the performance and lifespan of the laptop battery and to minimize the possibility of occurrence of the issue, search Dell laptop battery in the Knowledge Base Resource at Dell Support Site.

Dell SupportAssist Pre-boot System Performance Check diagnostics

About this task

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

- Run tests automatically or in an interactive mode.
- Repeat the tests.
- Display or save test results.
- Run thorough tests to add more options and obtain details about any failed devices.

- View status messages that inform you when the tests are completed successfully.
- View error messages that inform you of problems encountered during testing.

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

For more information, see the knowledge base article 000181163.

Running the SupportAssist Pre-Boot System Performance Check

Steps

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

Built-in self-test (BIST)

Motherboard Built-In Self-Test (M-BIST)

M-BIST is the system board onboard self-test diagnostics tool that improves the diagnostics accuracy of system board Embedded Controller (EC) failures.

NOTE: M-BIST can be manually initiated before Power On Self-Test (POST).

How to run M-BIST

NOTE: Before initiating M-BIST, ensure that the computer is in a power-off state.

1. Press and hold both the **M** key and the power button to initiate M-BIST.
2. The battery-status light may exhibit two states:
   - Off: No fault was detected.
   - Amber and White: Indicates a problem with the system board.
3. If there is a failure with the system board, the battery-status light flashes one of the following error codes for 30 seconds:

Table 49. LED error codes

Blinking Pattern		Possible Problem
Amber	**White**	
2	1	CPU Failure
2	8	LCD Power Rail Failure
1	1	TPM Detection Failure
2	4	Memory/RAM failure

4. If there is no failure with the system board, the LCD cycles through the solid color screens (that are described in the LCD-BIST) for 30 seconds and then turn off.

Logic Built-in Self-test (L-BIST)

L-BIST is an enhancement to the single LED error code diagnostics and is automatically initiated during POST. L-BIST will check the LCD power rail. If there is no power being supplied to the LCD (that is if the L-BIST circuit fails), the battery status LED flashes either an error code [2,8] or an error code [2,7].

NOTE: If L-BIST fails, LCD-BIST cannot function as no power will be supplied to the LCD.

How to invoke the L-BIST

1. Turn on your computer.
2. If the computer does not start up normally, look at the battery status LED:
   - If the battery status LED flashes an error code [2,7], the display cable may not be connected properly.
   - If the battery status LED flashes an error code [2,8], there is a failure on the LCD power rail of the system board, hence there is no power that is supplied to the LCD.
3. For cases, when a [2,7] error code is shown, check to see if the display cable is properly connected.
4. For cases when a [2,8] error code is shown, replace the system board.

LCD Built-in Self-Test (LCD-BIST)

Dell laptops have a built-in diagnostic tool that helps you determine if the screen abnormality you are experiencing is an inherent problem with the LCD (screen) of the Dell laptop or with the video card (GPU) and computer settings.

When you notice screen abnormalities like flickering, distortion, clarity issues, fuzzy or blurry image, horizontal or vertical lines, color fade, it is always a good practice to isolate the LCD (screen) by running the LCD-BIST.

How to invoke the LCD-BIST

1. Turn off your computer.
2. Disconnect any peripherals that are connected to the computer. Connect only the AC adapter (charger) to the computer.
3. Ensure that the LCD (screen) is clean (no dust particles on the surface of the screen).
4. Press and hold the **D** key and press the power button to enter LCD-BIST mode. Continue to hold the **D** key until the computer boots up.
5. The screen displays solid colors and changes colors on the entire screen to white, black, red, green, and blue twice.
6. Then it displays the colors white, black, and red.
7. Carefully inspect the screen for abnormalities (any lines, fuzzy color, or distortion on the screen).
8. At the end of the last solid color (red), the computer shuts down.

NOTE: Dell SupportAssist Preboot diagnostics upon launch initiates an LCD-BIST first, expecting a user intervention to confirm functionality of the LCD.

System-diagnostic lights

This section lists the system-diagnostic lights of your Dell Pro Max 14 Premium MA14250.

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

- The Service LED blinks the number of times equal to the value of the first digit and turns off with a short pause.
- After that, the Service LED blinks the number of times equal to the value of the second digit.
- The Service LED turns off again with a longer pause.
- After the second pause, the blinking pattern will be repeated.

Table 50. Diagnostic light codes

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

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 enables you or the service technician to recover Dell computers from No POST/No Power/No Boot situations.

Start the RTC reset with the computer powered off and connected to AC power. Press and hold the power button for twenty-five seconds. The computer RTC Reset occurs after you release the power button.

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.

Drain flea power (perform hard reset)

About this task

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

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

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

Perform the following steps to drain the flea power:

Steps

1. Turn off the computer.
2. Disconnect the power adapter from the computer.
3. Remove the base cover.
4. Remove the battery.

5. Press and hold the power button for 20 seconds to drain the flea power.
6. Install the battery.
7. Install the base cover.
8. Connect the power adapter to the computer.
9. Turn on the computer.

NOTE: For more information about performing a hard reset, go to Dell Support Site. On the menu bar at the top of the Support page, select Support > Support Library. 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.

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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 51. 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 52. Revision history

Revision	Date	Description
A00	07-17-2025	Original publish date.