

# Inspiron 14 Plus 7440

## Owner's Manual

## Notes, cautions, and warnings

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

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

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



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# Views of Inspiron 14 Plus 7440

## Right

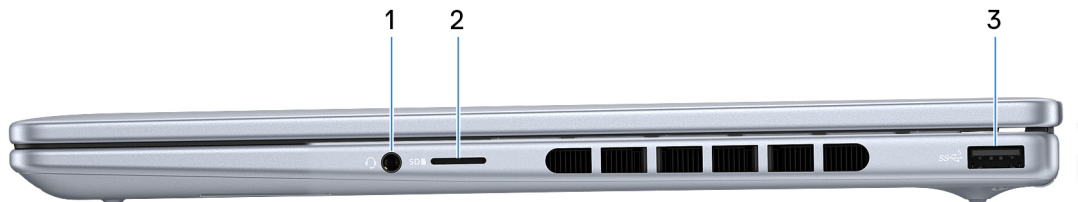


Figure 1. Right view

### 1. Universal audio jack

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

### 2. microSD-card slot

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

- microSecure Digital (microSD)
- microSecure Digital High Capacity (microSDHC)
- microSecure Digital Extended Capacity (microSDXC)

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

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

## Left



Figure 2. Left view

### 1. Power-adaptor port

Connect a power adapter to provide power to your computer and charge the battery.

### 2. Battery-status light

Indicates the battery-charge status.

- Solid yellow - Battery charge is low.
- Blinking yellow - Battery charge is critical.

### 3. HDMI 1.4 port

Connect to a TV, external display or another HDMI-in enabled device. Provides video and audio output.

#### 4. USB 3.2 Gen 1 (5 Gbps) port

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

#### 5. Thunderbolt 4.0 port with Power Delivery and DisplayPort

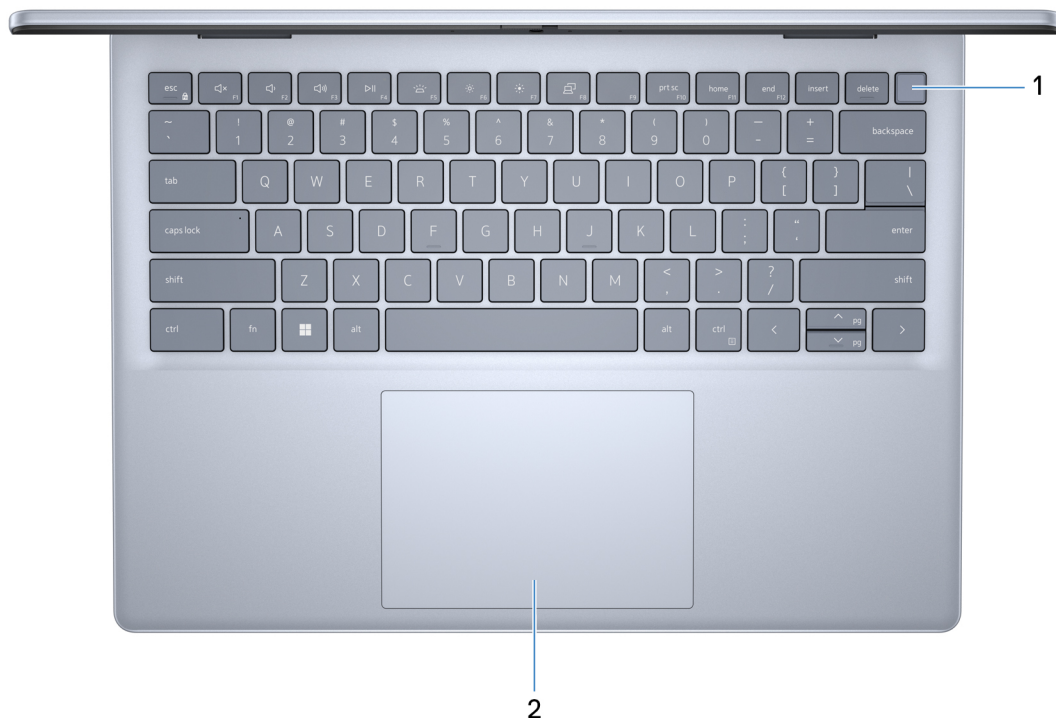
Supports Thunderbolt 4 and DisplayPort 1.4 (for computers shipped with 12th Generation Intel Core i5, 13th Generation Intel Core i5/i7 or Intel Core 5/7 processor) and DisplayPort 2.1 (for computers shipped with Intel Core Ultra 5/7/9 processor). The port also enables you to connect to an external display using a display adapter. Provides data transfer rates 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.

## Top



**Figure 3. Top view**

#### 1. 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 a sleep state; press and hold the power button for 10 seconds to force shut-down the computer.

If the power button has a fingerprint reader, place your finger on the power button steadily to log in.

**NOTE:** The power-status light on the power button is available only on computers without the fingerprint reader. Computers that are shipped with the fingerprint reader that is integrated on the power button will not have the power-status light on the power button.

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

## 2. 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 4. Front view**

### 1. Left microphone

Provides digital sound input for audio recording and voice calls.

### 2. Privacy shutter

Slide the privacy shutter to cover the camera lens and protect your privacy when the camera is not in use.

### 3. Camera

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

### 4. Camera-status light

Turns on when the camera is in use.

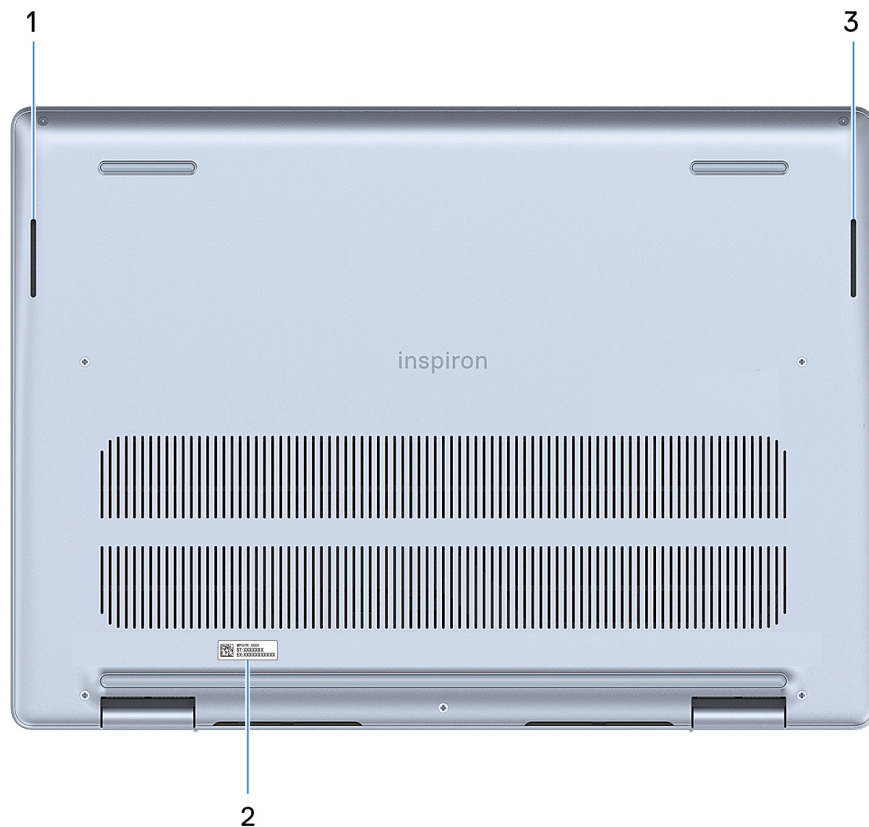
### 5. Right microphone

Provides digital sound input for audio recording and voice calls.

### 6. Display panel

Provides visual output to the user.

## Bottom



**Figure 5. Bottom view**

**1. Left speaker**

Provide audio output.

**2. Service Tag label**

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

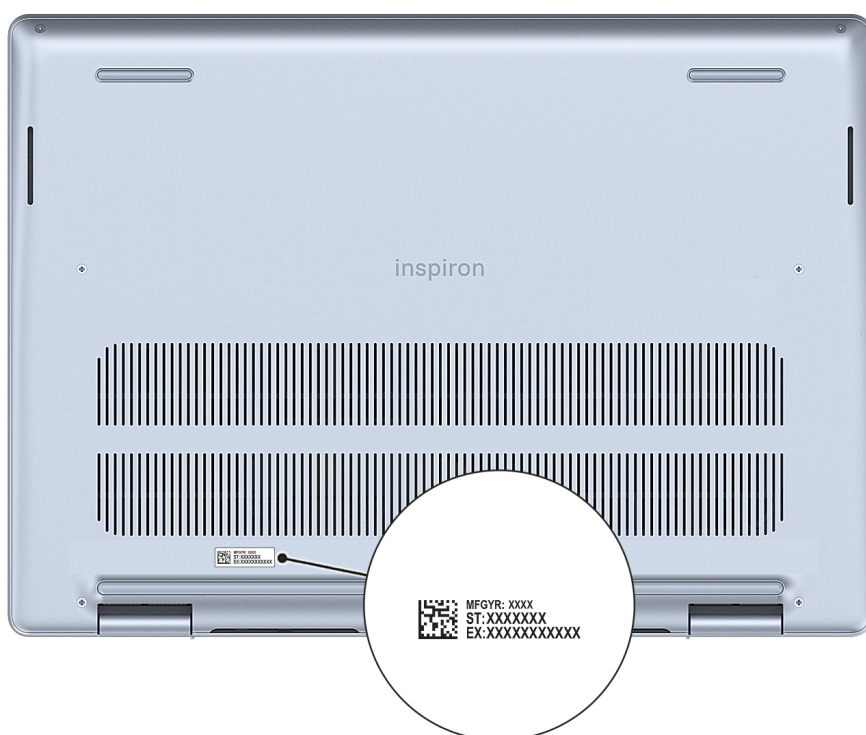
**3. Right speaker**

Provide audio output.

## Service Tag

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





**Figure 6. Service Tag location**

## Battery-charge status light

The following table lists the battery-charge status light of your Inspiron 14 Plus 7440.

**Table 1. Battery charge and status light behavior**

Power source	LED behavior	System power state	Battery charge level
AC adapter	Off	S0 or S5	Fully charged
AC adapter	Solid white	S0 or S5	< Fully charged
Battery	Off	S0 or S5	11-100%
Battery	Solid amber (590+/-3 nm)	S0 or S5	< 10%

- S0 (ON): Computer is turned on.
- 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 when the computer is turned on.
- S5 (OFF): The computer is in a shutdown state.

# Set up your Inspiron 14 Plus 7440

## 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.



**Figure 7. Connect the power adapter**

**NOTE:** The battery may go into power-saving mode during shipment to conserve charge on the battery. Ensure that the power adapter is connected to your computer when it is turned on for the first time.

2. Finish the Windows setup.

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




- Connect to a network for Windows updates.

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





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

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

**Table 2. Locate Dell apps in Windows in S-mode**

Resources	Description
	<b>Dell Product Registration</b> Register your computer with Dell.
	<b>Dell Help and Support</b> Access help and support for your computer.
	<b>SupportAssist</b> SupportAssist proactively and predictively identifies hardware and software issues on your computer and automates the engagement process with Dell Technical support. It addresses performance and stabilization issues, prevents security threats, monitors, and detects hardware failures. For more information, see <i>SupportAssist for Home PCs User's Guide</i> at <a href="#">Serviceability Tools at Dell Site</a> . Click <b>SupportAssist</b> and then, click <b>SupportAssist for Home PCs</b> . <i>NOTE:</i> In SupportAssist, click the warranty expiry date to renew or upgrade your warranty.

**Table 3. Locate Dell apps in Windows**


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

# Specifications of Inspiron 14 Plus 7440

## Dimensions and weight

The following table lists the height, width, depth, and weight of your Inspiron 14 Plus 7440.

**Table 4. Dimensions and weight**

Description		Values
Height:		
	Front height	15.99 mm (0.63 in.)
	Rear height	17.06 mm (0.67 in.)
Width		314 mm (12.36 in.)
Depth		226.56 mm (8.92 in.)
Weight  <b>NOTE:</b> The weight of your computer depends on the configuration that is offered.		1.77 kg (3.90 lb), maximum


## Processor

The following table lists the details of the processors that are supported for your Inspiron 14 Plus 7440.

**Table 5. Processor**

Description	Option one	Option two	Option three	Option four
Processor type	Intel Core Ultra 5 125H	Intel Core Ultra 7 155H	Intel Core Ultra 9 185H	12th Generation Intel Core i5-12450H
Processor wattage	28 W	28 W	45 W	45 W
Processor total core count	14	16	16	8
Performance-cores	4	6	6	4
Efficient-cores	8	8	8	4
Processor total thread counts <i>i</i> <b>NOTE:</b> Intel Hyper-Threading Technology is only available on Performance-cores.	18	22	22	12
Processor speed	Up to 4.5 GHz	Up to 4.8 GHz	Up to 5.1 GHz	Up to 4.4 GHz
Performance-cores frequency				
Processor base frequency	1.2 GHz	1.4 GHz	2.3 GHz	2 GHz
Maximum turbo frequency	4.5 GHz	4.8 GHz	5.1 GHz	4.4 GHz
Efficient-cores frequency				
Processor base frequency	0.7 GHz	0.9 GHz	1.8 GHz	1.5 GHz
Maximum turbo frequency	3.6 GHz	3.8 GHz	3.8 GHz	3.3 GHz
Processor cache	18 MB	24 MB	24 MB	12 MB
Integrated graphics	Intel Arc Graphics	Intel Arc Graphics	Intel Arc Graphics	Intel UHD Graphics

**Table 6. Processor**

Description	Option five	Option six	Option seven	Option eight
Processor type	13th Generation Intel Core i5-13420H	13th Generation Intel Core i7-13620H	Intel Core 5 210H	Intel Core 7 240H
Processor wattage	45 W	45 W	45 W	45 W
Processor total core count	8	10	8	10
Performance-cores	4	6	4	6
Efficient-cores	4	4	4	4
Processor total thread counts  <b>NOTE:</b> Intel Hyper-Threading Technology is only available on Performance-cores.	12	16	12	16
Processor speed	Up to 4.6 GHz	Up to 4.9 GHz	Up to 4.8 GHz	Up to 5.2 GHz
Performance-cores frequency				
Processor base frequency	2.1 GHz	2.4 GHz	2.2 GHz	2.5 GHz
Maximum turbo frequency	4.6 GHz	4.9 GHz	4.8 GHz	5.2 GHz
Efficient-cores frequency				
Processor base frequency	1.5 GHz	1.8 GHz	1.6 GHz	1.8 GHz
Maximum turbo frequency	3.4 GHz	3.6 GHz	3.6 GHz	4 GHz
Processor cache	12 MB	24 MB	12 MB	24 MB
Integrated graphics	Intel UHD Graphics	Intel UHD Graphics	Intel Graphics	Intel Graphics

## Chipset

The following table lists the details of the chipset that is supported in your Inspiron 14 Plus 7440.

**Table 7. Chipset**

Description	Option one	Option two
Processors	<ul style="list-style-type: none"> <li>12th Generation Intel Core i5</li> <li>13th Generation Intel Core i5/i7</li> <li>Intel Core Processor 5/7</li> </ul>	Intel Core Ultra Processor 5/7/9
Chipset	Integrated in the processor	Integrated in the processor
DRAM bus width	64-bit	64-bit

**Table 7. Chipset (continued)**

Description	Option one	Option two
Flash EPROM	32 MB	32 MB + 16 MB
PCIe bus	Up to Gen4	Up to Gen4

## Operating system

Your Inspiron 14 Plus 7440 supports the following operating systems:

- Windows 11 Pro, 64-bit
- Windows 11 Pro National Education, 64-bit
- Windows 11 Home, 64-bit

## Memory

The following table lists the memory specifications of your Inspiron 14 Plus 7440.

**Table 8. Memory specifications**

Description	In computers shipped with 12th Generation Intel Core i5 or 13th Generation Intel Core i5/i7 processor	In computers shipped with Intel Core Ultra 5/7/9 processor	In computers shipped with Intel Core 5/7 processor
Memory slots	Onboard memory (no slots)	Onboard memory (no slots)	Onboard memory (no slots)
Memory type	Dual-channel LPDDR5x	Dual-channel LPDDR5x	Dual-channel LPDDR5x
Memory speed	4800 MT/s	6400 MT/s	5200 MT/s
Maximum memory configuration	16	16	16
Minimum memory configuration	16	32	16
Memory configurations supported	16 GB: 2 x 8 GB, LPDDR5x, dual-channel, 4800 MT/s	<ul style="list-style-type: none"> <li>• 16 GB: 2 x 8 GB, LPDDR5x, dual-channel, 6400 MT/s</li> <li>• 32 GB: 2 x 16 GB, LPDDR5x, dual-channel, 6400 MT/s</li> </ul>	16 GB: 2 x 8 GB, LPDDR5x, dual-channel, 5200 MT/s

## External ports and slots

The following table lists the external ports and slots on your Inspiron 14 Plus 7440.

**Table 9. External ports and slots**

Description	Values
USB ports	<ul style="list-style-type: none"> <li>• Two USB 3.2 Gen 1 (5 Gbps) ports</li> <li>• One Thunderbolt 4 port with DisplayPort Alt Mode and Power Delivery</li> </ul>
Audio port	One universal audio jack
Video port(s)	One HDMI 1.4 port

**Table 9. External ports and slots (continued)**

Description	Values
Media-card reader	One microSD-card slot
Power-adaptor port	One 4.50 mm x 2.90 mm DC-in
Security-cable slot	Not supported

## Internal slots

The following table lists the internal slots of your Inspiron 14 Plus 7440.

**Table 10. Internal slots**

Description	Values
M.2	<ul style="list-style-type: none"> <li>One M.2 2230 slot for WiFi and Bluetooth combo card</li> <li>One M.2 2230 or M.2 2280 slot for solid-state drive</li> </ul> <p><b>NOTE:</b> To learn more about the features of different types of M.2 cards, search in the Knowledge Base Resource at <a href="#">Dell Support Site</a>.</p>

## Wireless module

The following table lists the Wireless Local Area Network (WLAN) module specifications of your Inspiron 14 Plus 7440.

**Table 11. Wireless module specifications**

Description	In computers shipped with 12th Generation Intel Core i5, 13th Generation Intel Core i5/i7, or Intel Core 5/7 processor	In computers shipped with Intel Core Ultra 5/7/9 processor	In computers shipped with Intel Core Ultra 5/7/9 processor
Model number	Realtek RTL8852BE	Intel AX211	Intel BE200
Transfer rate	Up to 1201 Mbps	Up to 2400 Mbps	Up to 5760 Mbps
Frequency bands supported	2.4 GHz/5 GHz	2.4 GHz/5 GHz/6 GHz	2.4 GHz/5 GHz/6 GHz
Wireless standards	<ul style="list-style-type: none"> <li>WiFi 802.11a/b/g</li> <li>Wi-Fi 4 (WiFi 802.11n)</li> <li>Wi-Fi 5 (WiFi 802.11ac)</li> <li>Wi-Fi 6 (WiFi 802.11ax)</li> </ul>	<ul style="list-style-type: none"> <li>WiFi 802.11a/b/g</li> <li>Wi-Fi 4 (WiFi 802.11n)</li> <li>Wi-Fi 5 (WiFi 802.11ac)</li> <li>Wi-Fi 6E (WiFi 802.11ax)</li> </ul>	<ul style="list-style-type: none"> <li>WiFi 802.11a/b/g</li> <li>Wi-Fi 4 (WiFi 802.11n)</li> <li>Wi-Fi 5 (WiFi 802.11ac)</li> <li>Wi-Fi 6E (WiFi 802.11ax)</li> <li>Wi-Fi 7 (WiFi 802.11be)</li> </ul>
Encryption	<ul style="list-style-type: none"> <li>64-bit/128-bit WEP</li> <li>AES-CCMP</li> <li>TKIP</li> </ul>	<ul style="list-style-type: none"> <li>64-bit/128-bit WEP</li> <li>AES-CCMP</li> <li>TKIP</li> </ul>	<ul style="list-style-type: none"> <li>64-bit/128-bit WEP</li> <li>AES-CCMP</li> <li>TKIP</li> </ul>
Bluetooth wireless card	Bluetooth 5.3 wireless card	Bluetooth 5.3 wireless card	Bluetooth 5.4 wireless card
	<p><b>NOTE:</b> The functionality of the Bluetooth wireless card may vary depending on the operating system that is installed on your computer.</p>		



# Audio

The following table lists the audio specifications of your Inspiron 14 Plus 7440.

**Table 12. Audio specifications**

Description		Values
Audio controller		Realtek ALC3254
Stereo conversion		Supported
Internal audio interface		High-definition audio interface
External audio interface		One universal audio jack
Number of speakers		2
Internal-speaker amplifier		Supported
External volume controls		Keyboard shortcut controls
Speaker output:		
	Average	2 W x 2 = 4 W
	Peak	2.5 W x 2 = 5 W
Microphone		Digital-array microphones in camera assembly

# Storage

This section lists the storage options on your Inspiron 14 Plus 7440.

Your Inspiron 14 Plus 7440 supports one M.2 2230 or M.2 2280 solid-state drive. The primary drive of your Inspiron 14 Plus 7440 is the M.2 solid-state drive installed.

**Table 13. Storage specifications**

Storage type	Interface type	Capacity
M.2 2230 solid-state drive	PCIe NVMe Gen4 x4, up to 64 Gbps	Up to 1 TB
M.2 2280 solid-state drive	PCIe NVMe Gen4 x4, up to 64 Gbps	Up to 2 TB

# Media-card reader

The following table provides the specification of media cards supported by your Inspiron 14 Plus 7440.

**Table 14. Media-card reader specifications**

Description	Values
Media-card slot type	One microSD card slot
Media-cards supported	<ul style="list-style-type: none"><li>microSecure Digital (microSD)</li><li>microSecure Digital High Capacity (microSDHC)</li><li>microSecure Digital Extended Capacity (microSDXC)</li></ul>

Table 14. Media-card reader specifications (continued)

Description	Values
<div><div></div><div><b>NOTE:</b> The maximum capacity that is supported by the media-card reader varies depending on the standard of the media card that is installed on your computer.</div></div>	

## Keyboard

The following table lists the keyboard specifications of your Inspiron 14 Plus 7440.

Table 15. Keyboard specifications

Description	Values
Keyboard type	<ul style="list-style-type: none"><li>Standard AI hotkey non-backlit keyboard (for computers shipped with 12th Generation Intel Core i5 processor only)</li><li>Standard backlit keyboard</li><li>Standard AI hotkey backlit keyboard</li></ul>
Keyboard layout	QWERTY
Number of keys	<ul style="list-style-type: none"><li>United States and Canada: 79 keys</li><li>United Kingdom: 80 keys</li><li>Japan: 83 keys</li></ul>
Keyboard size	X=19.05 mm key pitch Y=18.05 mm key pitch
Keyboard shortcuts	<p>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.</p> <div><div></div><div><b>NOTE:</b> You can define the primary behavior of the function keys (F1–F12) changing <b>Function Key Behavior</b> in the BIOS setup program.</div></div> <div><div></div><div><b>NOTE:</b> If Copilot in Windows is not available on your computer, pressing the Copilot key launches Windows search. For more information about Copilot in Windows, search in the Knowledge Base Resource at the <a href="#">Dell Support site</a>.</div></div>

## Keyboard shortcuts of Inspiron 14 Plus 7440



**NOTE:** Keyboard characters may differ depending on the keyboard language configuration. Keys 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 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 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 multi-media control, as indicated by the icon at the bottom of the key. Press the function key to invoke 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, multi-media functionality can be disabled by pressing **fn** + **Esc**. Subsequently, multi-media control can be invoked by pressing **fn** and the respective function key. For example, mute audio by pressing **fn** + **F1**.

**Table 16. List of keyboard shortcuts**

Function key	Primary behavior
F1	Mute audio
F2	Decrease volume
F3	Increase volume
F4	Play/Pause
F5	Keyboard-backlight  <b>NOTE:</b> Toggle to cycle the keyboard backlight status through off, low-backlight, and high-backlight  <b>NOTE:</b> Not applicable to computers shipped with 12th Generation Intel Core i5 processor.
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 other secondary functions.

**Table 17. Secondary behavior**

Function key	Behavior
fn + B	Pause/Break
fn + S	Toggle scroll lock
fn + R	System request
fn + T	Toggle Ultra performance mode
fn + Right ctrl	Open the application menu
fn + /  <b>NOTE:</b> Brazilian keyboard only	Open the application menu
fn + Space bar	Open Emoji menu
fn + esc	Toggle fn-key lock
fn + Left arrow	Home
fn + Right arrow	End
fn + Copilot	Open the application menu

# Camera

The following table lists the camera specifications of your Inspiron 14 Plus 7440.

Table 18. Camera specifications

Description		Values
Number of cameras		One
Camera type		FHD camera
Camera location		Front camera
Camera sensor type		CMOS sensor technology
Camera resolution:		
	Still image	2.07 megapixel
	Video	1920 x 1080 (FHD) at 30 fps
Diagonal viewing angle		82.2 degrees

# Touchpad

The following table lists the touchpad specifications of your Inspiron 14 Plus 7440.

Table 19. Touchpad specifications

Description		Values
Touchpad resolution:		> 300 dpi
Touchpad dimensions:		
	Horizontal	115 mm (4.53 in.)
	Vertical	80 mm (3.15 in.)
Touchpad gestures		For more information about the touchpad gestures available on Windows, see the Microsoft Knowledge Base article at <a href="#">Microsoft Support Site</a> .


# Power adapter

The following table lists the power adapter specifications of your Inspiron 14 Plus 7440.

Table 20. Power-adapter specifications

Description		For computers shipped with 12th Generation Intel Core i5 processor	For computers shipped with 13th Generation Intel Core i5/i7, Intel Core Ultra 5/7/9, or Intel Core 5/7 processor	For computers shipped with Intel Core Ultra 5/7/9 processor
Type		65 W AC, 4.50 mm barrel (65 W DC-in, 4.50 mm E4)	90 W AC, 4.50 mm barrel (90 W DC-in, 4.50 mm E4)	100 W, USB Type-C (100 W, USB Type-C for Intel Evo)
Connector dimensions:				
	External diameter	4.50 mm	4.50 mm	Not applicable

**Table 20. Power-adaptor specifications (continued)**

Description		For computers shipped with 12th Generation Intel Core i5 processor	For computers shipped with 13th Generation Intel Core i5/i7, Intel Core Ultra 5/7/9, or Intel Core 5/7 processor	For computers shipped with Intel Core Ultra 5/7/9 processor
	Internal diameter	2.90 mm	2.90 mm	Not applicable
	Input voltage	100 VAC–240 VAC	100 VAC–240 VAC	100 VAC–240 VAC
	Input frequency	50 Hz–60 Hz	50 Hz–60 Hz	50 Hz–60 Hz
	Input current (maximum)	1.70 A	1.50 A	1.70 A
	Output current (continuous)	3.34 A	4.62 A	<ul style="list-style-type: none"> <li>• 20 V/5 A</li> <li>• 15 V/3 A</li> <li>• 9 V/3 A</li> <li>• 5 V/3 A</li> </ul>
	Rated output voltage	19.50 VDC	19.50 VDC	<ul style="list-style-type: none"> <li>• 20 V</li> <li>• 15 V</li> <li>• 9 V</li> <li>• 5 V</li> </ul>
Temperature range:				
	Operating	0°C to 40°C (32°F to 104°F)	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)	-40°C to 70°C (-40°F to 158°F)
	GPU—Integrated	Intel UHD Graphics	<ul style="list-style-type: none"> <li>• Intel UHD Graphics</li> <li>• Intel Arc Graphics</li> </ul>	Intel Arc Graphics
 <b>CAUTION:</b> 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.				

## Battery

The following table lists the battery specifications of your Inspiron 14 Plus 7440.

**Table 21. Battery specifications**

Description		In computers shipped with 12th Generation Intel Core i5, 13th Generation Intel Core i5/i7, Intel Core Ultra 5/7/9, or Intel Core 5/7 processor	In computers shipped with Intel Core Ultra 5/7/9 processor
	Battery type	4-cell, 54 Wh "smart" lithium-ion	4-cell, 64 Wh "smart" lithium-ion
	Battery voltage	15 VDC	15.20 VDC
	Battery weight (maximum)	0.235 kg (0.52 lb)	0.260 kg (0.57 lb)
Battery dimensions:			
	Height	5.75 mm (0.23 in.)	5.75 mm (0.23 in.)
	Width	271.90 mm (10.70 in.)	271.90 mm (10.70 in.)
	Depth	82 mm (3.23 in.)	82 mm (3.23 in.)
Temperature range:			

**Table 21. Battery specifications (continued)**

Description		In computers shipped with 12th Generation Intel Core i5, 13th Generation Intel Core i5/i7, Intel Core Ultra 5/7/9, or Intel Core 5/7 processor	In computers shipped with Intel Core Ultra 5/7/9 processor
	Operating	<ul style="list-style-type: none"> <li>Charge: 0°C to 45°C (32°F to 113°F):</li> <li>Discharge: 0°C to 70°C (32°F to 158°F)</li> </ul>	<ul style="list-style-type: none"> <li>Charge: 0°C to 45°C (32°F to 113°F):</li> <li>Discharge: 0°C to 70°C (32°F to 158°F)</li> </ul>
	Storage	-20°C to 60°C (-4°F to 140°F)	-20°C to 60°C (-4°F to 140°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) <b>i NOTE:</b> 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 <a href="#">Dell Support Site</a> .		<ul style="list-style-type: none"> <li>2 hours (ExpressCharge)</li> <li>3 hours (standard charge)</li> </ul>	<ul style="list-style-type: none"> <li>2 hours (ExpressCharge)</li> <li>3 hours (standard charge)</li> </ul>
Coin-cell battery		Not supported	Not supported
<b>⚠ CAUTION:</b> 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.			
<b>⚠ CAUTION:</b> Dell Technologies recommends that you charge the battery regularly for optimal power consumption.			

## Display

The following table lists the display specifications of your Inspiron 14 Plus 7440.

**Table 22. Display specifications**

Description	For computers shipped with 12th Generation Intel Core i5 processor or 13th Generation Intel Core i5/i7 processor	For computers shipped with 12th Generation Intel Core i5 processor, 13th Generation Intel Core i5/i7, or Intel Core Ultra 5/7/9 processor	For computers shipped with Intel Core Ultra 5/7/9 processor	For computers shipped with Intel Core 5/7 processor	For computers shipped with Intel Core 5/7 processor
Display type	14-inch, Full High Definition Plus (FHD+) with ComfortView	14-inch, 2.2K with Dolby Vision	14-inch, 2.8K with Dolby Vision	14-inch, Full High Definition Plus (FHD+) with ComfortView	14-inch, 2.5K with ComfortView Plus
Touch options	Not supported	Not supported	Not supported	Not supported	Not supported
Display-panel technology	Wide-viewing angle (WVA)	Wide-viewing angle (WVA)	Wide-viewing angle (WVA)	Wide-viewing angle (WVA)	Wide-viewing angle (WVA)
Display-panel dimensions (active area):					

**Table 22. Display specifications (continued)**

Description		For computers shipped with 12th Generation Intel Core i5 processor or 13th Generation Intel Core i5/i7 processor	For computers shipped with 12th Generation Intel Core i5 processor, 13th Generation Intel Core i5/i7, or Intel Core Ultra 5/7/9 processor	For computers shipped with Intel Core Ultra 5/7/9 processor	For computers shipped with Intel Core 5/7 processor	For computers shipped with Intel Core 5/7 processor
	Height	301.59 mm (11.87 in.)	301.59 mm (11.87 in.)	301.59 mm (11.87 in.)	301.59 mm (11.87 in.)	301.59 mm (11.87 in.)
	Width	188.50 mm (7.42 in.)	188.50 mm (7.42 in.)	188.50 mm (7.42 in.)	188.50 mm (7.42 in.)	188.50 mm (7.42 in.)
	Diagonal	355.65 mm (14 in.)	355.65 mm (14 in.)	355.65 mm (14 in.)	355.65 mm (14 in.)	355.65 mm (14 in.)
Display-panel native resolution		1920 x 1200	2240 x 1400	2880 x 1800	1920 x 1200	2560 x 1600
Luminance (typical)		250 nits	300 nits	300 nits	300 nits	300 nits
Megapixels		2.3	3.10	5.18	2.3	4.1
Color gamut		45% NTSC (typical)	100% sRGB (typical)	100% sRGB (typical)	45% NTSC (typical)	100% sRGB (typical)
Pixels Per Inch (PPI)		141	189	243	162	216
Contrast ratio (typical)		<ul style="list-style-type: none"> <li>600:1 (minimum)</li> <li>800:1 (typical)</li> </ul>	<ul style="list-style-type: none"> <li>1000:1 (minimum)</li> <li>1200:1 (typical)</li> </ul>	<ul style="list-style-type: none"> <li>1000:1 (minimum)</li> <li>1200:1 (typical)</li> </ul>	<ul style="list-style-type: none"> <li>600:1 (minimum)</li> <li>800:1 (typical)</li> </ul>	<ul style="list-style-type: none"> <li>1000:1 (minimum)</li> <li>1200:1 (typical)</li> </ul>
Response time (maximum)		35 ms	35 ms	35 ms	35 ms	35 ms
Refresh rate		60 Hz	60 Hz	90 Hz	60 Hz	90 Hz
Horizontal view angle		<ul style="list-style-type: none"> <li>+/- 80 degrees (minimum)</li> <li>+/- 85 degrees (typical)</li> </ul>	<ul style="list-style-type: none"> <li>+/- 80 degrees (minimum)</li> <li>+/- 85 degrees (typical)</li> </ul>	<ul style="list-style-type: none"> <li>+/- 80 degrees (minimum)</li> <li>+/- 85 degrees (typical)</li> </ul>	<ul style="list-style-type: none"> <li>+/- 80 degrees (minimum)</li> <li>+/- 85 degrees (typical)</li> </ul>	<ul style="list-style-type: none"> <li>+/- 80 degrees (minimum)</li> <li>+/- 85 degrees (typical)</li> </ul>
Vertical view angle		<ul style="list-style-type: none"> <li>+/- 80 degrees (minimum)</li> <li>+/- 85 degrees (typical)</li> </ul>	<ul style="list-style-type: none"> <li>+/- 80 degrees (minimum)</li> <li>+/- 85 degrees (typical)</li> </ul>	<ul style="list-style-type: none"> <li>+/- 80 degrees (minimum)</li> <li>+/- 85 degrees (typical)</li> </ul>	<ul style="list-style-type: none"> <li>+/- 80 degrees (minimum)</li> <li>+/- 85 degrees (typical)</li> </ul>	<ul style="list-style-type: none"> <li>+/- 80 degrees (minimum)</li> <li>+/- 85 degrees (typical)</li> </ul>
Pixel pitch		0.180 mm	0.1346 mm x 0.1346 mm	0.1047 mm x 0.1047 mm	0.1571 mm x 0.1571 mm	0.1178 mm x 0.1178 mm
Power consumption (maximum)		4.40 W (at mosaic pattern, 60 Hz)	4.40 W (at mosaic pattern, 60 Hz)	4.63 W (at mosaic pattern, 90 Hz)	3.68 W (at mosaic pattern, 60 Hz)	4.63 W (at mosaic pattern, 90 Hz)
Anti-glare vs glossy finish		Anti-glare	Anti-glare	Anti-glare	Anti-glare	Anti-glare

# Fingerprint reader (optional)

The following table lists the specifications of the optional fingerprint-reader of your Inspiron 14 Plus 7440.

Table 23. Fingerprint reader specifications

Description	Values
Sensor technology	Trans-capacitive sensing
Sensor resolution	500 dpi
Sensor pixel size	108 x 88 pixels

# GPU—Integrated

The following table lists the specifications of the integrated Graphics Processing Unit (GPU) supported by your Inspiron 14 Plus 7440.

Table 24. GPU—Integrated


Controller	Memory size	Processor
Intel UHD Graphics	Shared system memory	12th Generation Intel Core i5
Intel UHD Graphics	Shared system memory	13th Generation Intel Core i5/i7
Intel Arc Graphics	Shared system memory	Intel Core Ultra Processor 5/7/9
Intel Graphics	Shared system memory	Intel Core Processor 5/7

# Operating and storage environment

This table lists the operating and storage specifications of your Inspiron 14 Plus 7440.

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

Table 25. 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)
 <b>CAUTION:</b> 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](#).

## ComfortView

 **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.

Dell ComfortView software technology reduces harmful blue light emissions to make extended screen time easy on your eyes.

ComfortView mode can be enabled and configured using the Dell CinemaColor application.

ComfortView mode complies with TÜV Rheinland's requirement for low blue light displays.

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.

## ComfortView Plus

 **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.

# 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.
-  **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. See the safety instructions that are shipped with the product or at [Dell Regulatory Compliance Home Page](#).
-  **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


### Steps

1. Save and close all open files and exit all open applications.
2. Shut down your computer. For Windows operating system, click **Start** >  **Power** > **Shut down**.  
 **NOTE:** If you are using a different operating system, see the documentation of your operating system for shut-down instructions.
3. Disconnect your computer and all attached devices from their electrical outlets.
4. Disconnect all attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.
5. Remove any media card and optical disk from your computer, if applicable.
6. Enter the service mode, if you are able to power on your computer.


### Service Mode

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

 **CAUTION:** If you are unable to turn on the computer to put it into Service Mode or the computer does not support Service Mode then proceed to 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 AC adapter is disconnected.

- a. Hold <B> key on the keyboard and press the power button for 3 seconds or until the Dell logo appears on the screen.
- b. Press any key to continue.
- c. If the AC adapter is not disconnected, a message prompting you to remove the AC adapter appears on the screen. Remove the AC adapter and then press any key to continue the **Service Mode** procedure. The **Service Mode** procedure 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.
- e. Once the computer shuts down, it has successfully entered Service Mode.

 **NOTE:** If you are unable to power on your computer or unable to enter service mode skip this process.

## Safety precautions

This section details the primary steps to be followed before performing any disassembly instructions.

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

- Turn off the 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 any to avoid electrostatic discharge (ESD) damage.
- Place the removed component on an anti-static mat after removing it from the computer.
- Wear shoes with nonconductive rubber soles to reduce the chance of getting electrocuted.
- Unplugging, pressing, and holding the power button for 15 seconds should discharge residual power in the system board.

## Standby power

Dell products with standby power must be unplugged before you open the back cover. Systems that are equipped with standby power are powered while turned off. The internal power enables the computer to be remotely turned on (Wake-on-LAN) and suspended into a sleep mode and has other advanced power management features.

## Bonding

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

## Electrostatic discharge—ESD protection

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

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

- **Catastrophic** – Catastrophic failures represent approximately 20 percent of ESD-related failures. The damage causes an immediate and complete loss of device functionality. An example of catastrophic failure is a memory module that has

received a static shock and immediately generates a "No POST/No Video" symptom with a beep code that is emitted for missing or nonfunctional memory.

- **Intermittent** – Intermittent failures represent approximately 80 percent of ESD-related failures. The high rate of intermittent failures means that most of the time when damage occurs, it is not immediately recognizable. The memory module receives a static shock, but the tracing is merely weakened and does not immediately produce outward symptoms that are related to the damage. The weakened trace may take weeks or months to melt, and in the meantime may cause degradation of memory integrity, intermittent memory errors, and so on.


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

Perform the following steps to prevent ESD damage:

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

## ESD Field Service kit

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

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

## Working Environment

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

## ESD Packaging

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


## Components of an ESD Field Service kit

The components of an ESD Field Service kit are:

- **Anti-Static Mat** – The anti-static mat is dissipative and parts can be placed on it during service procedures. When using an anti-static mat, your wrist strap should be snug and the bonding wire should be connected to the anti-static mat and to any bare metal on the computer being worked on. Once deployed properly, service parts can be removed from the ESD bag and placed directly on the anti-static mat. ESD-sensitive items are safe in your hand, on the anti-static mat, in the computer, or inside an ESD bag.
- **Wrist Strap and Bonding Wire** – The wrist strap and bonding wire can be either directly connected between your wrist and bare metal on the hardware if the anti-static mat is not required, or connect to the anti-static mat to protect hardware that is temporarily placed on the mat. The physical connection of the wrist strap and bonding wire between your skin, the anti-static mat, and the hardware is known as bonding. Use only Field Service kits with a wrist strap, anti-static mat, and

bonding wire. Never use wireless wrist straps. Always be cautious that the internal wires of a wrist strap are prone to damage from normal wear and tear, and must be checked regularly with a wrist strap tester in order to avoid accidental ESD hardware damage. It is recommended to test the wrist strap and bonding wire at least once per week.

- **ESD Wrist Strap Tester** – The wires inside an ESD strap are prone to damage over time. When using an unmonitored kit, it is a best practice to regularly test the strap prior to each service, and at a minimum, test once per week. A wrist strap tester is the best method for doing this test. To perform the test, plug the bonding-wire of the wrist-strap into the tester while it is strapped to your wrist and push the button to test. A green LED is lit if the test is successful; a red LED is lit and an alarm sounds if the test fails.

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

## Transporting sensitive components

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

## 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

 **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 progress, and the system 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 systems with BitLocker enabled](#).

The installation of the following components triggers BitLocker:




- Hard disk drive or solid-state drive
- System board

## Recommended tools

















The procedures in this document may require the following tools:

- Phillips screwdriver #0
- Plastic scribe

# Screw list

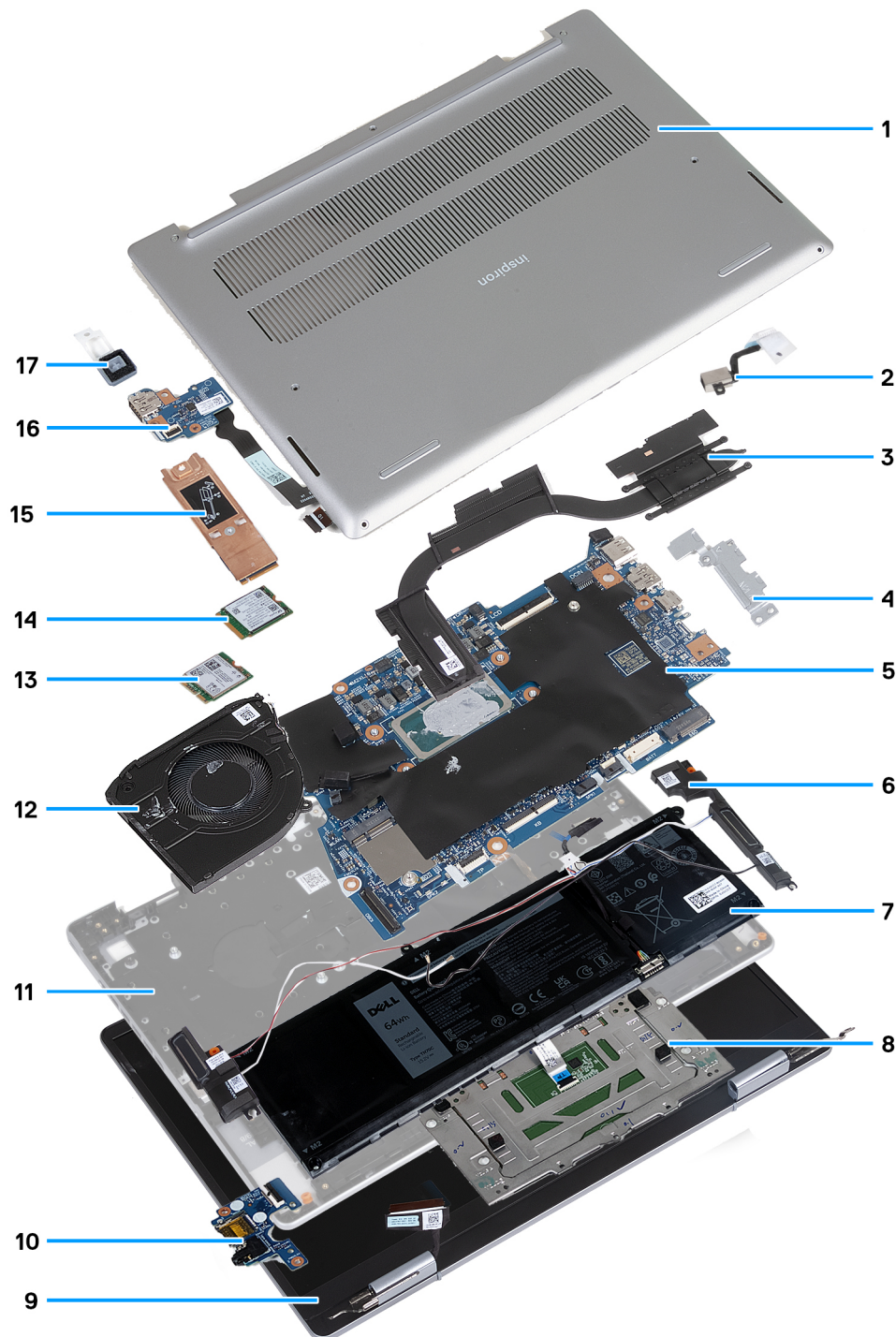
-  **NOTE:** When removing screws from a component, it is recommended to note the screw type and the quantity of screws, and then place them in a screw storage box. This is to ensure that the correct number of screws and correct screw type is restored when the component is replaced.
-  **NOTE:** Some 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 26. Screw list**

Component	Screw type	Quantity	Screw image
Base cover	M2x4	5	
Base cover	Captive screws (M2x8.6)	2	
Battery	M2x3	4	
M.2 2230 solid-state drive and M.2 thermal shield	M2x3	1	
M.2 2280 solid-state drive and M.2 thermal shield	M2x3	1	
M.2 thermal shield	M2x1.8	1	
Fan	M2x3	2	
Wireless-card bracket	M2x3	1	
Power-button with an optional fingerprint reader	M2x3	1	
Type-C port bracket	M2x4	2	
Display assembly	M2.5x5	4	
I/O board	M2x3	2	
USB board	M2x3	1	
System board	M2x1.8	2	
Touchpad	M2x1.8	4	
Touchpad	M2x2.5	5	

# Major components of Inspiron 14 Plus 7440

The following image shows the major components of Inspiron 14 Plus 7440.




**Figure 8. Image: Major components of Inspiron 14 Plus 7440**

1. Base cover
2. Power-adapter port
3. Heat sink
4. USB Type-C port bracket
5. System board
6. Speakers with antenna cables (2)
7. Battery
8. Display assembly
9. Keyboard
10. Touchpad
11. Keyboard bezel
12. Fan
13. SSD
14. RAM
15. Wi-Fi card
16. USB Type-C port
17. Power button



7. Battery
8. Touchpad
9. Display assembly
10. I/O board
11. Palm-rest and keyboard assembly
12. Fan
13. M.2 wireless card
14. M.2 solid-state drive (M.2 2230 solid-state drive shown)
15. M.2 solid-state drive thermal shield
16. USB board
17. Power button


 **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.



# 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.

## 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 **step 6** in [Before working inside your computer](#).

#### About this task

 **NOTE:** Before removing the base cover, ensure that there is no microSD card installed in the microSD-card slot on your computer.

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



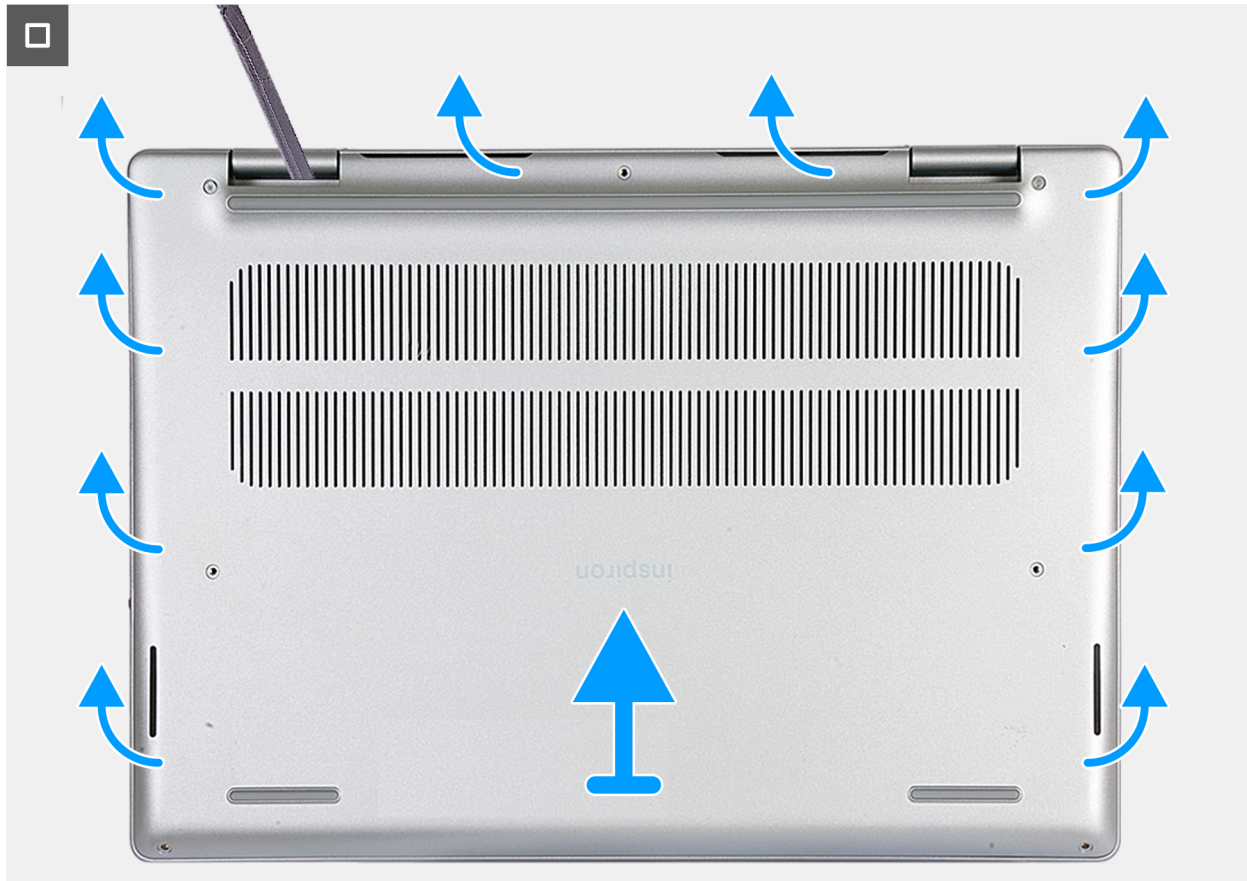
2x



5x  
M2x4



Figure 9. Removing the base cover



**Figure 10. Removing the base cover 2**

#### Steps

1. Remove the five screws (M2x4) that secure the base cover to the palm-rest and keyboard assembly.
2. Loosen the two captive screws (M2x8.6) that secure the base cover to the palm-rest and keyboard assembly.
3. Using a plastic scribe, pry the base cover from the hinge area and continue prying on all its sides to loosen the base cover.
4. Lift the base cover off the palm-rest and keyboard assembly.

## Installing the base cover

#### Prerequisites

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

#### About this task

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



2x



5x  
M2x4

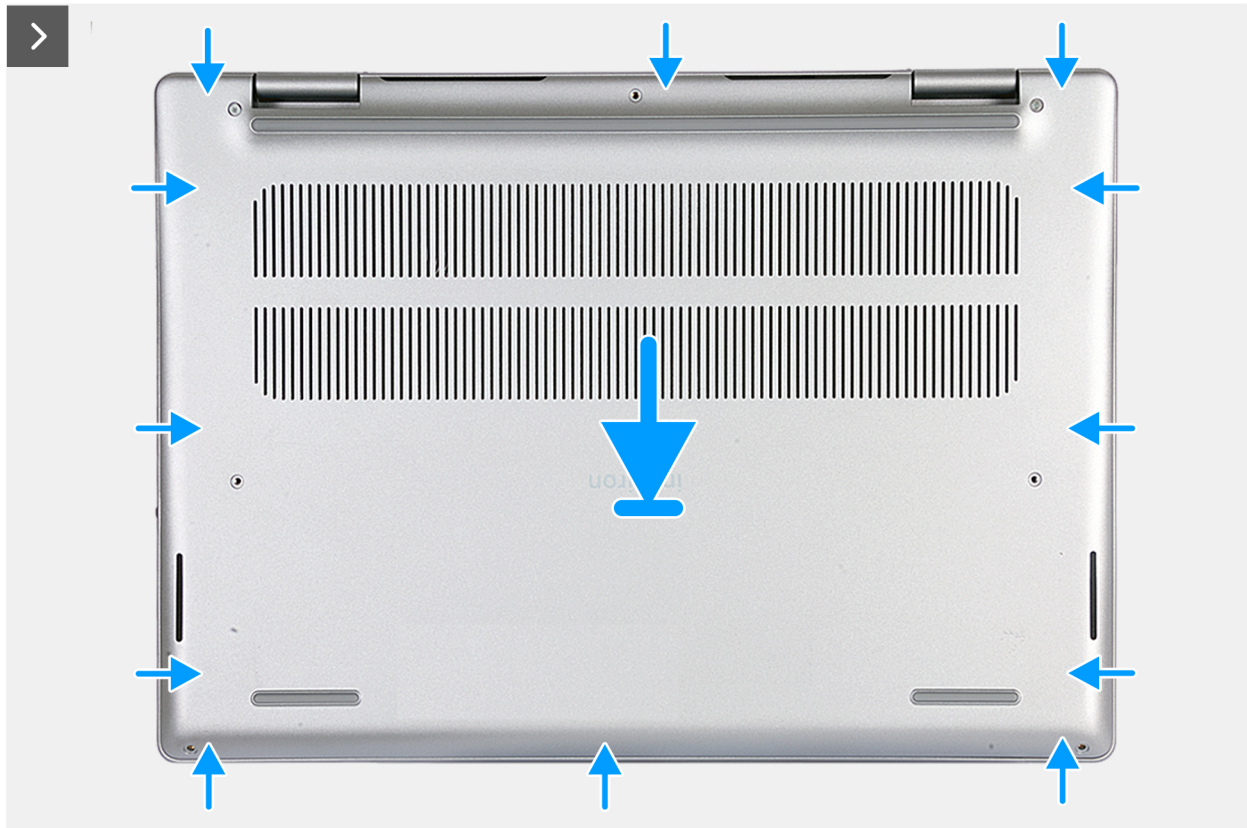


Figure 11. Installing the base cover





**Figure 12. Installing the base cover 2**

#### Steps

1. Place the base cover on the palm-rest and keyboard assembly.
2. Press on the sides of the base cover to snap it into place.
3. Tighten the two captive screws (M2x8.6) that secure the base cover to the palm-rest and keyboard assembly.
4. Replace the five screws (M2x4) that secure the base cover to the palm-rest and keyboard assembly.

#### Next steps

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

## Solid-state drive

### Removing the M.2 2230 solid-state drive

#### Prerequisites

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

**NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

2. Remove the [base cover](#).

#### About this task

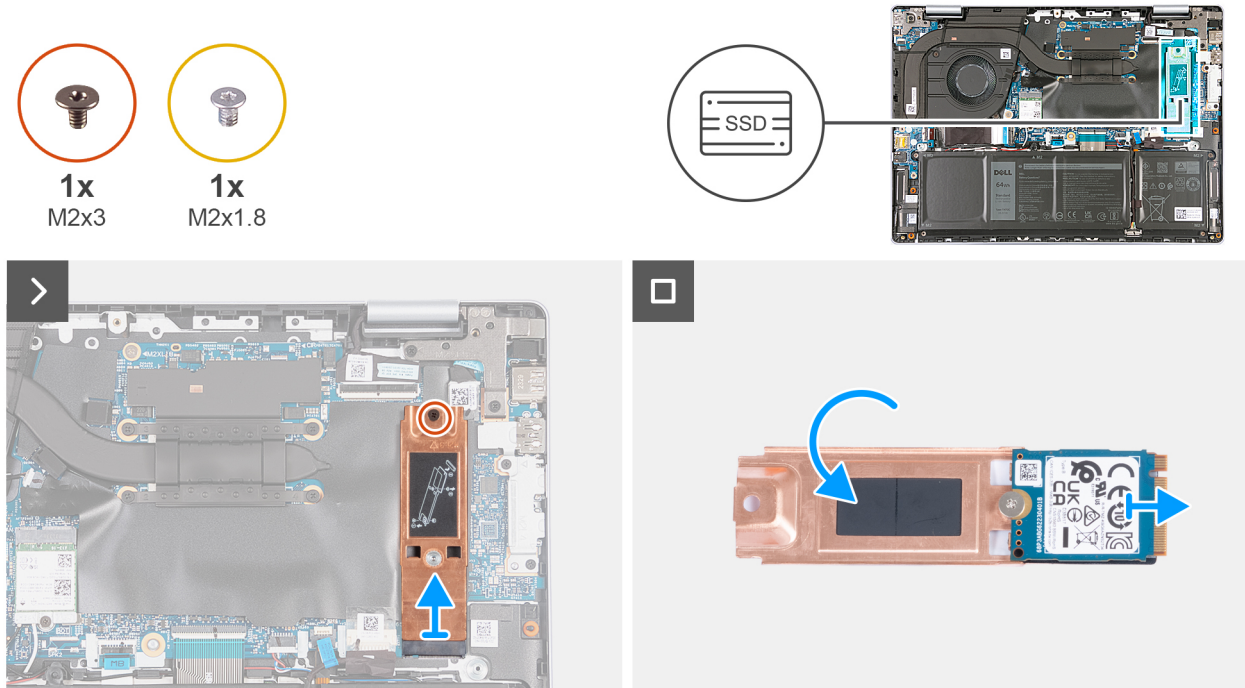
**NOTE:** This procedure applies only to computers shipped with an M.2 2230 solid-state drive installed.

**NOTE:** A M.2 thermal shield for the M.2 2230 solid-state drive is required. Do not install the M.2 2230 solid-state drive without its M.2 thermal shield.

**NOTE:** The M.2 solid-state drive that is installed on your computer depends on the configuration ordered. The M.2 slot supports one of the following solid-state drives:

- M.2 2230 solid-state drive and an M.2 2230 thermal shield.  
Your M.2 2230 is mounted on a 2230-specific thermal shield.
- M.2 2280 solid-state drive and a 2280-specific thermal shield.

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



**Figure 13. Removing the M.2 2230 solid-state drive**

### Steps

1. Remove the screw (M2x3) that secures the M.2 2230 thermal shield to the system board.
2. Lift at an angle and slide the M.2 2230 solid-state drive assembly from the M.2 solid-state drive slot on the system board.
3. Flip over the M.2 2230 solid-state drive assembly and place it on a flat surface.
4. Remove the screw (M2x1.8) that secures the M.2 2230 solid-state drive to the M.2 2230 thermal shield.
5. Remove the M.2 2230 solid-state drive from the M.2 2230 thermal shield.

## Installing the M.2 2230 solid-state drive

### Prerequisites

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

### About this task

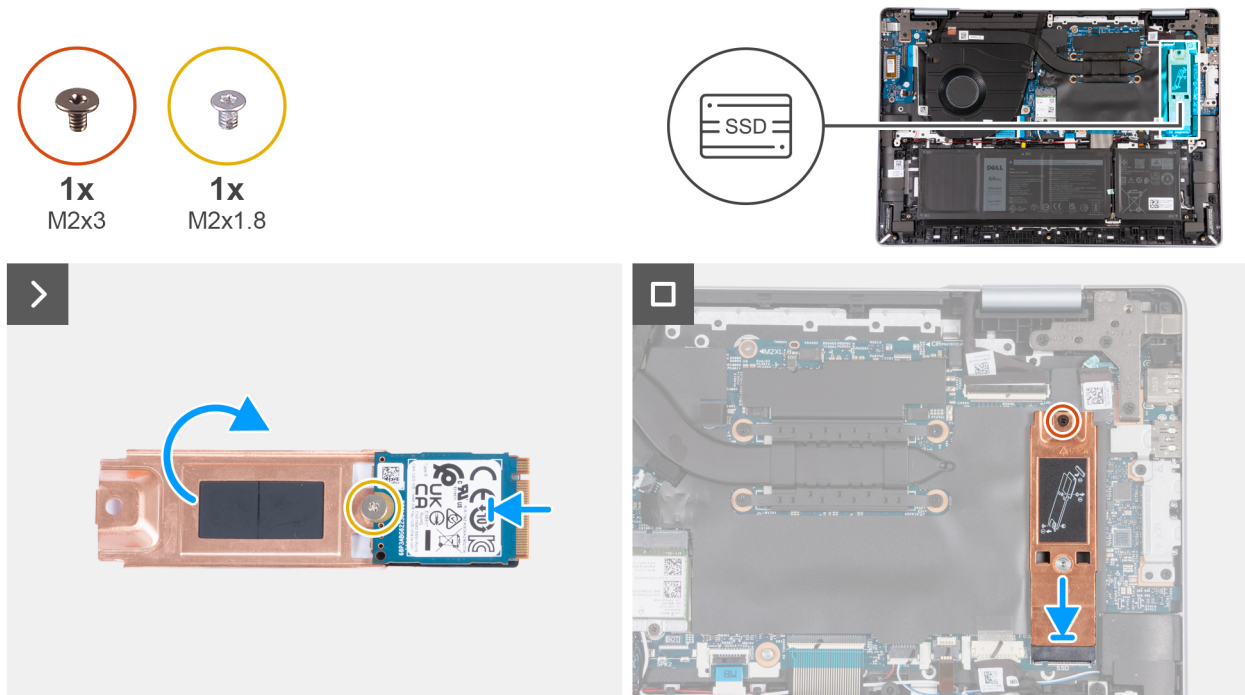
**NOTE:** This procedure applies if you are installing an M.2 2230 solid-state drive.

**NOTE:** An M.2 2230 thermal shield is required to install an M.2 2230 solid-state drive. If this thermal shield is not present on your computer, contact Dell support to purchase the M.2 2230 thermal shield.

**NOTE:** The M.2 slot supports the installation of one of the following solid-state drives:

- M.2 2230 solid-state drive and an M.2 2230 thermal shield.  
Your M.2 2230 is mounted on a 2230-specific thermal shield.
- M.2 2280 solid-state drive and a 2280-specific thermal shield.

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



**Figure 14. Installing the M.2 2230 solid-state drive**

#### Steps

1. Place the M.2 2230 solid-state drive on the M.2 2230 thermal shield.
2. Align the screw hole on the M.2 2230 solid-state drive with the screw hole on the M.2 2230 thermal shield.
3. Replace the screw (M2x1.8) that secures the M.2 2230 solid-state drive to the M.2 2230 thermal shield.
4. Flip over the M.2 2230 solid-state drive assembly.
5. Align the notch on the M.2 2230 solid-state drive with the tab on the solid-state drive slot on the system board.
6. Slide the M.2 2230 solid-state drive assembly into the M.2 solid-state drive slot on the system board.
7. Replace the screw (M2x3) that secures the M.2 2230 thermal shield to the system board.

#### Next steps

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

## Removing the M.2 2280 solid-state drive

#### Prerequisites

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

**NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

2. Remove the [base cover](#).



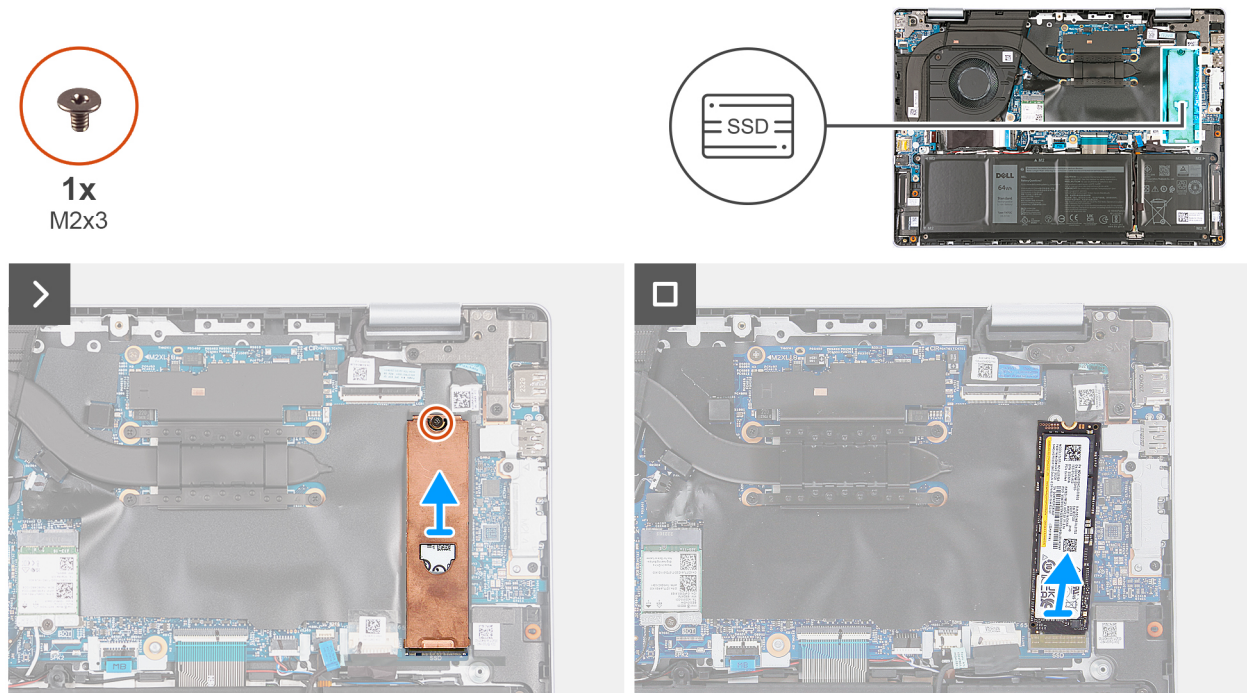
### About this task

**NOTE:** This procedure applies only to computers shipped with an M.2 2280 solid-state drive installed.

**NOTE:** The M.2 solid-state drive installed on your computer depends on the configuration ordered. The M.2 slot supports one of the following solid-state drives:

- M.2 2230 solid-state drive and an M.2 2230 thermal shield.  
Your M.2 2230 is mounted on a 2230-specific thermal shield.
- M.2 2280 solid-state drive and a 2280-specific thermal shield.

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



**Figure 15. Removing the M.2 2280 solid-state drive**

### Steps

1. Remove the screw (M2x3) that secures the M.2 2280 thermal shield to the system board.
2. Slide and lift the M.2 2280 thermal shield off the M.2 2280 solid-state drive.
3. Lift at an angle and remove the M.2 2280 solid-state drive from the M.2 solid-state drive slot on the system board.

## Installing the M.2 2280 solid-state drive

### Prerequisites

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

### About this task

**NOTE:** This procedure applies if you are installing an M.2 2280 solid-state drive.

**NOTE:** An M.2 2280 thermal shield is required to install an M.2 2280 solid-state drive. If this thermal shield is not present on your computer, contact Dell support to purchase the M.2 2280 thermal shield.

**NOTE:** The M.2 slot supports the installation of one of the following solid-state drives:

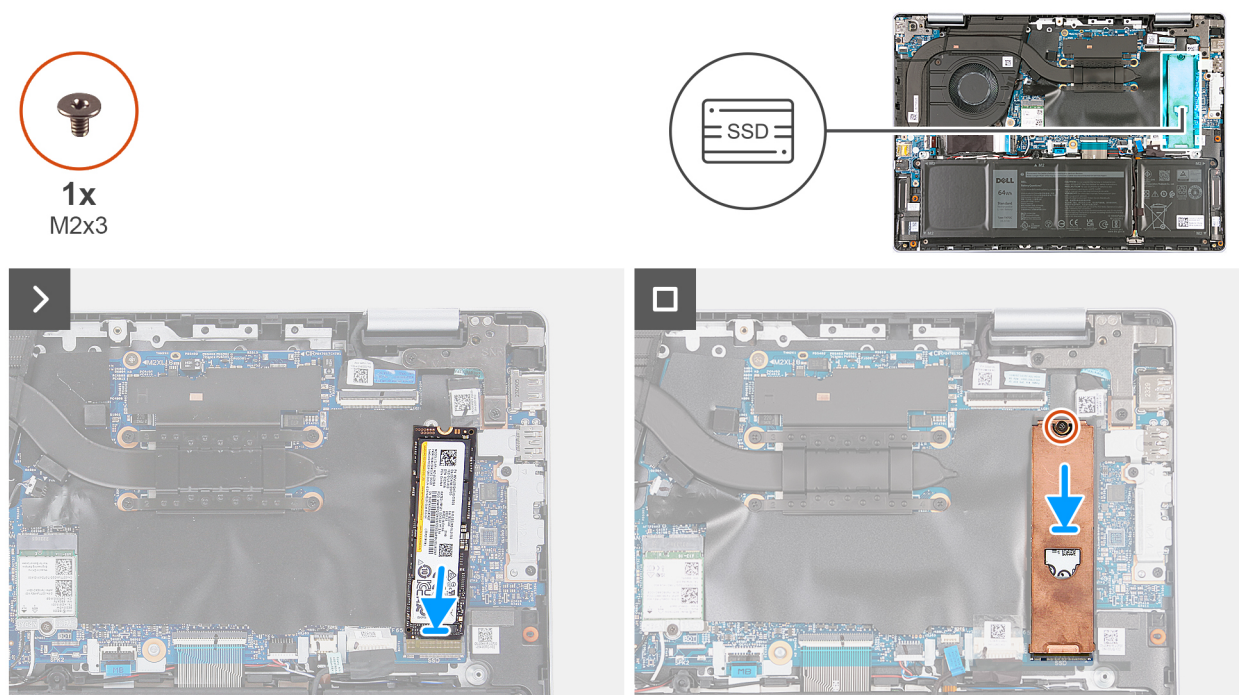
- M.2 2230 solid-state drive and an M.2 2230 thermal shield.



Your M.2 2230 is mounted on a 2230-specific thermal shield.

- M.2 2280 solid-state drive and a 2280-specific thermal shield.

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



**Figure 16. Installing the M.2 2280 solid-state drive**

#### Steps

1. Align the notch on the M.2 2280 solid-state drive with the tab on the M.2 solid-state drive slot on the system board.
2. Slide the M.2 2280 solid-state drive into the M.2 solid-state drive slot on the system board.
3. Place the M.2 2280 thermal shield on the M.2 2280 solid-state drive.
4. Replace the screw (M2x3) that secures the M.2 2280 solid-state drive and thermal shield to the system board.

#### Next steps

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

## Fan

### Removing the fan

#### Prerequisites

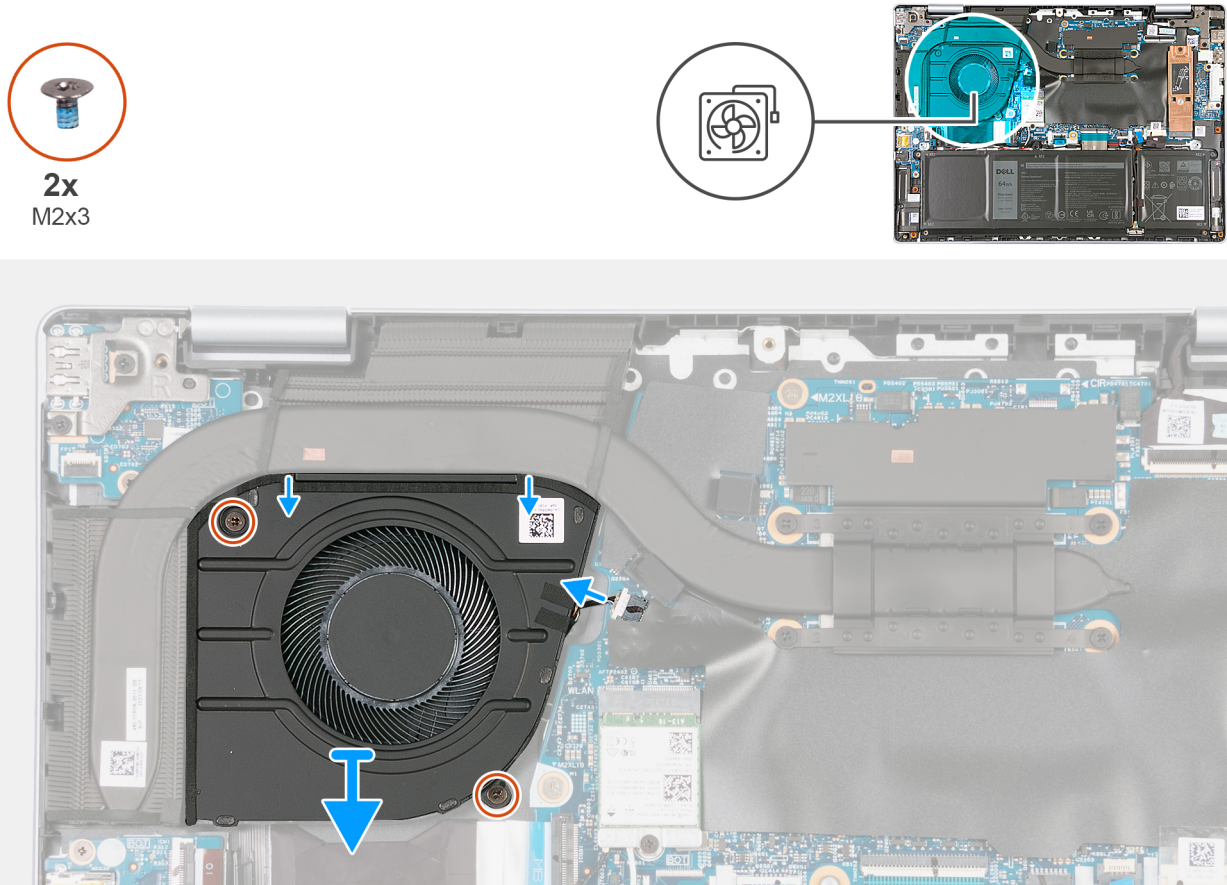
1. Follow the procedure in [Before working inside your computer](#).

**NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

2. Remove the [base cover](#).

### About this task

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



**Figure 17. Removing the fan**

### Steps

1. Disconnect the fan cable from its connector on the system board.
2. Remove the two screws (M2x3) that secure the fan to the palm-rest and keyboard assembly.
3. Lift the fan off the palm-rest and keyboard assembly.

## Installing the fan

### Prerequisites

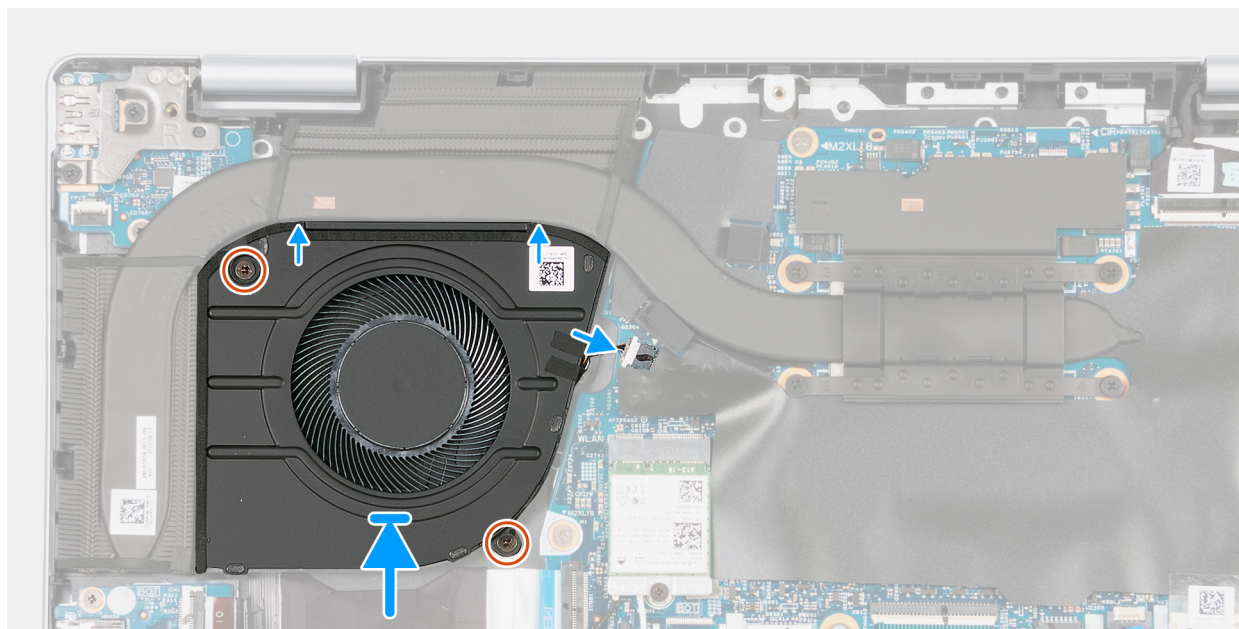
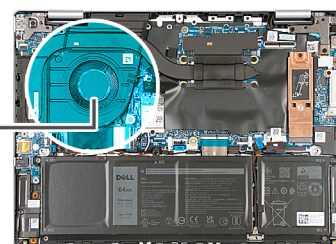
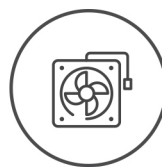
If you are replacing a component, remove the existing component before performing the installation process.

### About this task

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



2x  
M2x3



**Figure 18. Installing the fan**

#### Steps

1. Place the fan on the palm-rest and keyboard assembly and align the screw holes of the fan with the screw holes on the palm-rest and keyboard assembly.
2. Replace the two screws (M2x3) that secure the fan to the palm-rest and keyboard assembly.
3. Connect the fan cable to its connector on the system board.

#### Next steps

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

## Wireless card

### Removing the wireless card

#### Prerequisites

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

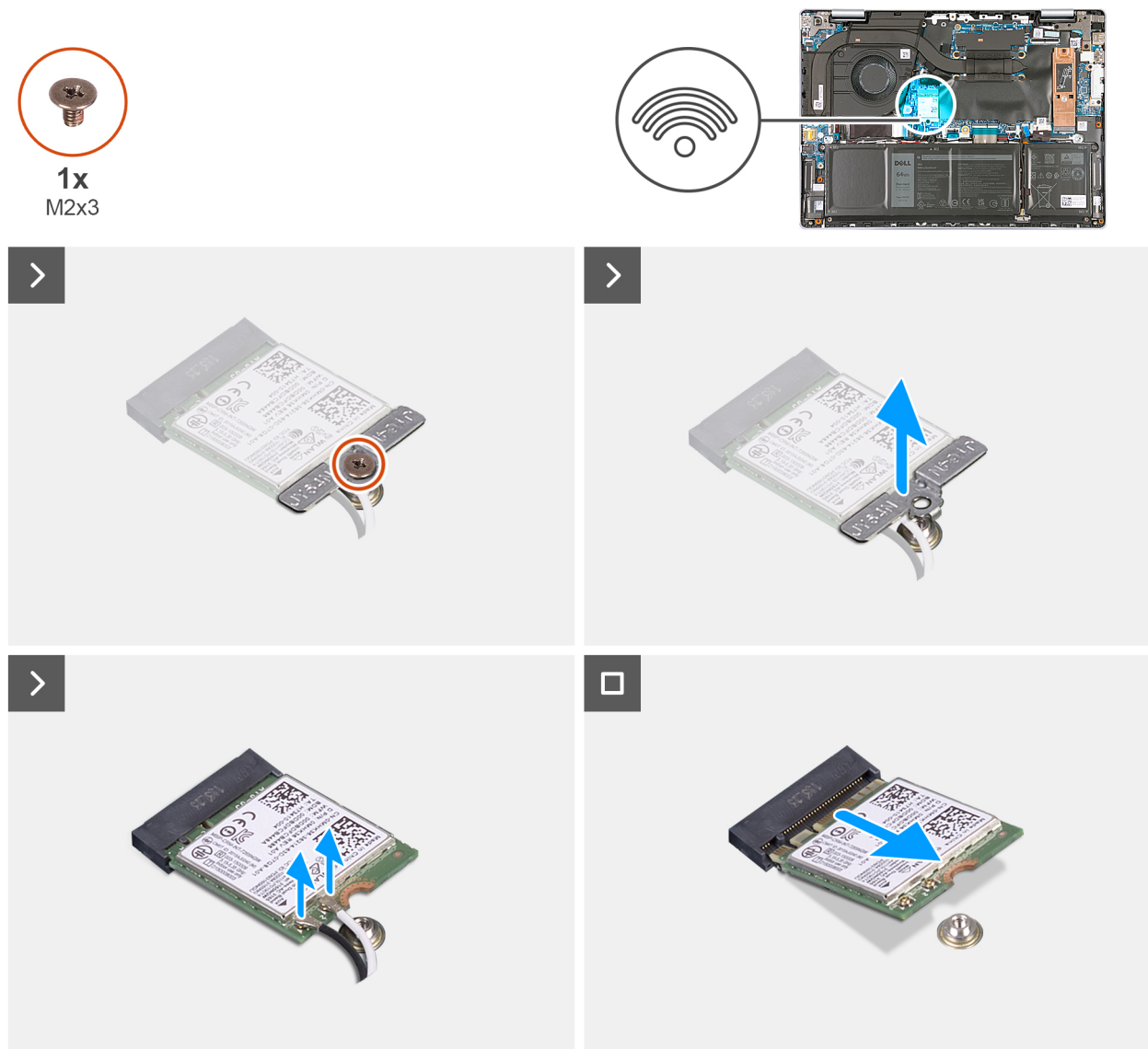
**NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

2. Remove the [base cover](#).



### About this task

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



**Figure 19. Removing the wireless card**

### Steps

1. Remove the screw (M2x3) that secures the wireless-card bracket to the system board.
2. Lift the wireless-card bracket off the wireless card.
3. Disconnect the antenna cables from the wireless card.
4. Lift the wireless card at an angle and slide the wireless card out from the M.2 wireless card slot on the system board.

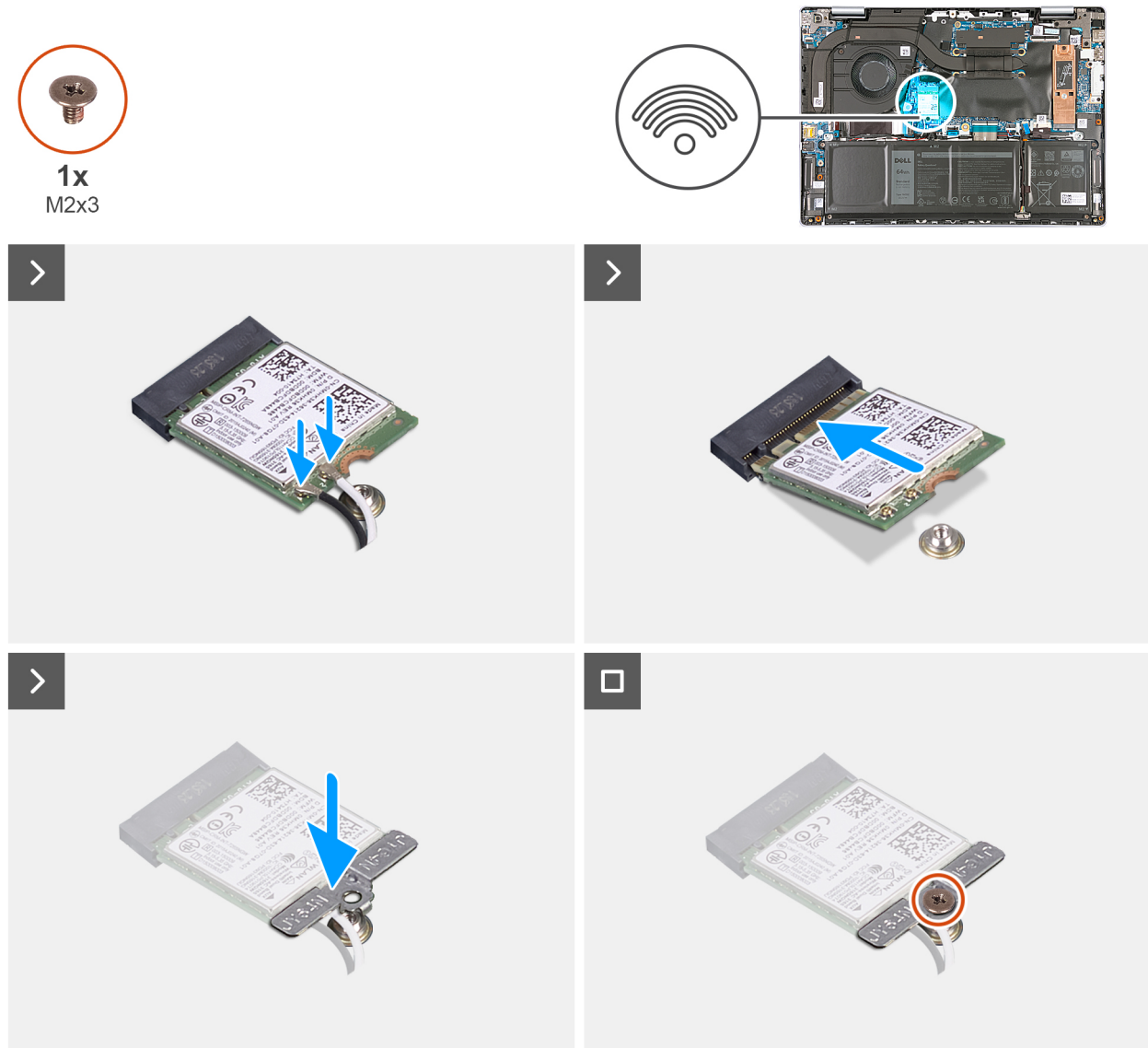
## Installing the wireless card

### Prerequisites

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

### About this task

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



**Figure 20. Installing the wireless card**

#### Steps

1. Connect the antenna cables to the wireless card.

**Table 27. Antenna-cable color scheme**

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

2. Align the notch on the wireless card with the tab on the M.2 wireless-card slot on the system board.
3. Slide the wireless card into the M.2 wireless-card slot on the system board.
4. Place the wireless-card bracket on the M.2 wireless card.
5. Align the screw hole on the wireless-card bracket to the screw mount on the system board.
6. Replace the screw (M2x3) that secures the wireless-card bracket to the system board.

#### Next steps


1. Install the [base cover](#).

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

# Removing and installing Field Replaceable Units (FRUs)


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

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

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


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

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

## Battery

### Rechargeable Li-ion battery precautions

-  **CAUTION:**
- 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 this product.
  - If the battery gets stuck inside your computer as a result of swelling, do not try to release it as puncturing, bending, or crushing a rechargeable Li-ion battery can be dangerous. In such an instance, contact Dell technical support for assistance. See [Contact Support at Dell Support Site](#).
  - 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

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

## Prerequisites

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

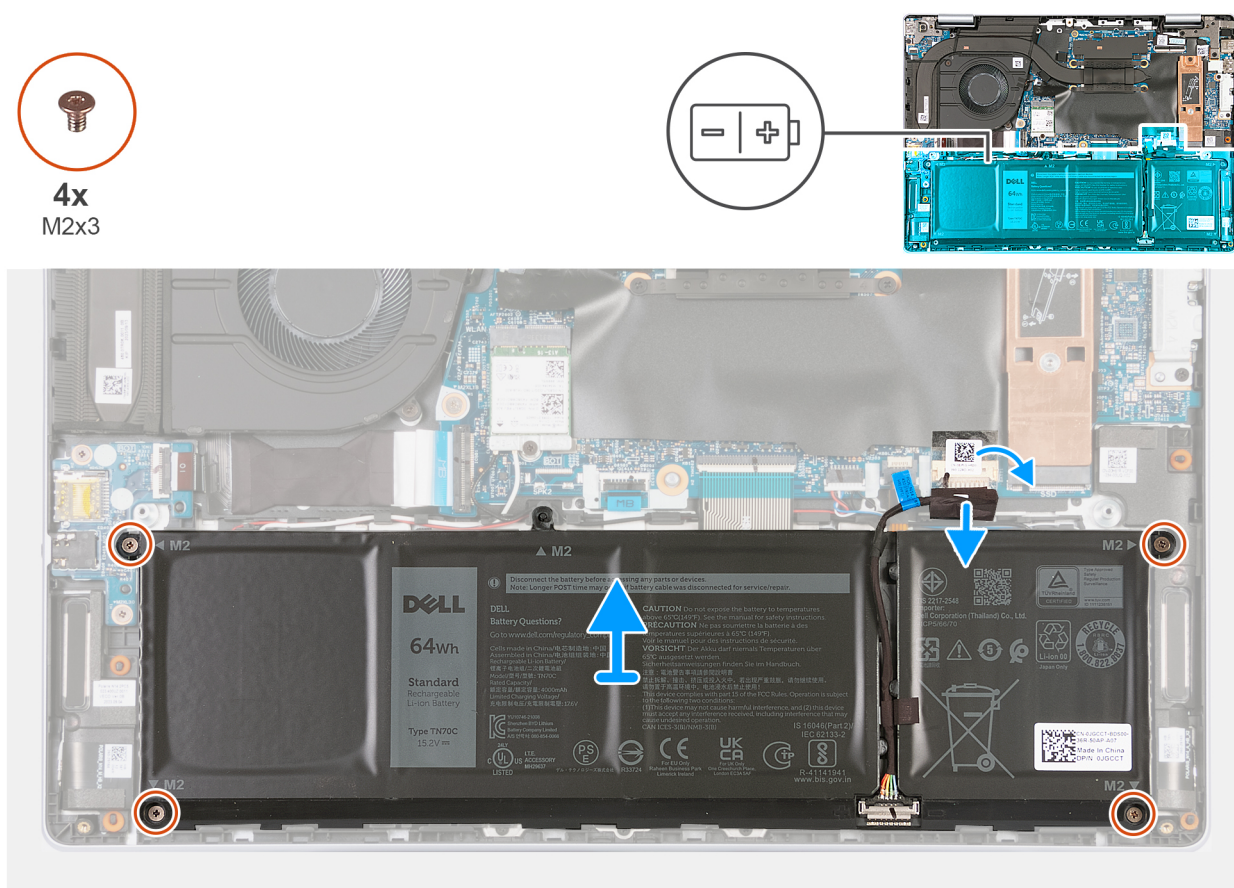
**NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

2. Remove the [base cover](#).

## About this task

**NOTE:** Before removing the base cover, ensure that there is no microSD card installed in the microSD-card slot on your computer.

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



**Figure 21. Removing the battery**

## Steps

1. Peel the tape that secures the battery cable to the system board.
2. Disconnect the battery cable from its connector on the system board.
3. Remove the four screws (M2x3) that secure the battery to the palm-rest and keyboard assembly.
4. Lift the battery off the palm-rest and keyboard assembly.

## Installing the battery

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

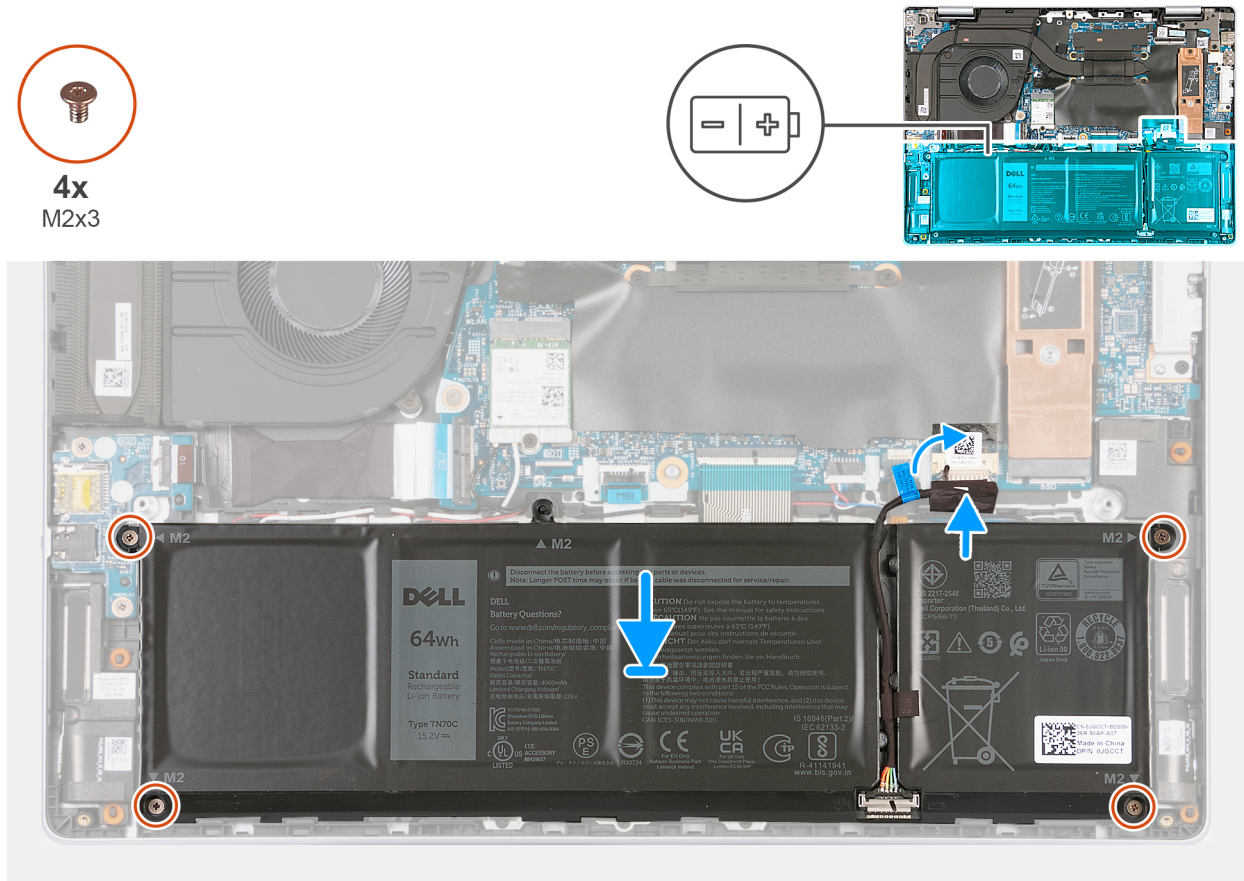


## Prerequisites

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

## About this task

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



**Figure 22. Installing the battery**

## Steps

1. Place the battery on the palm-rest and keyboard assembly.
2. Align the screw holes on the battery with the screw holes on the palm-rest and keyboard assembly.
3. Replace the four screws (M2x3) that secure the battery to the palm-rest and keyboard assembly.
4. Connect the battery cable to its connector on the system board.
5. Adhere the tape that secures the battery cable to the connector on the system board.

## Next steps

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

# Battery cable

## Removing the battery cable

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

## Prerequisites

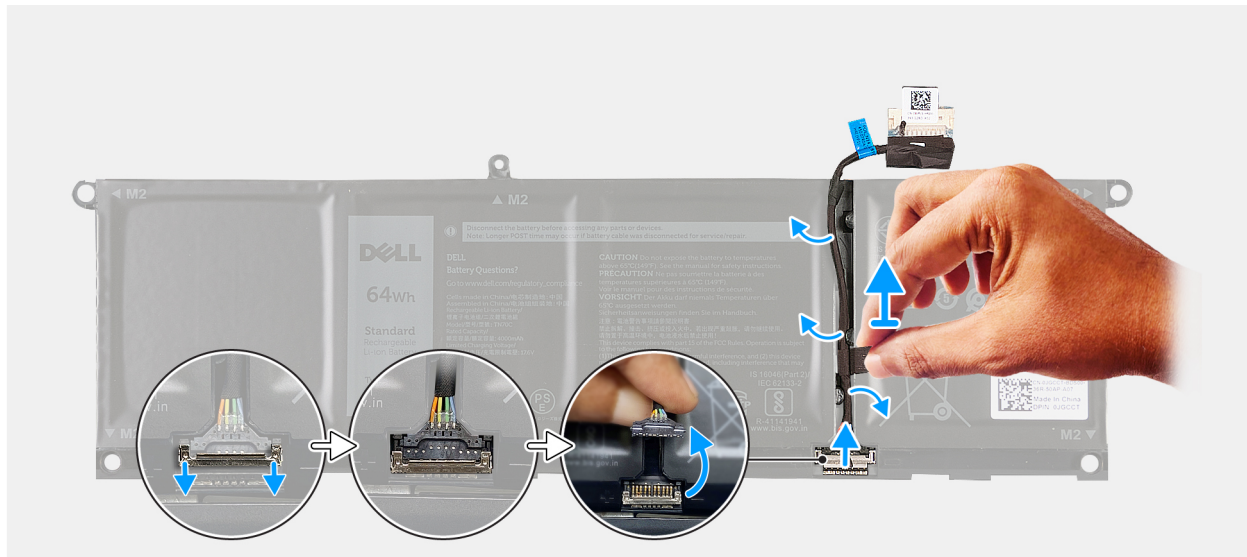
1. Follow the procedure in [Before working inside your computer](#).

**NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

2. Remove the [base cover](#).
3. Remove the [battery](#).

## About this task

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



**Figure 23. Removing the battery cable**

## Steps

1. Remove the battery cable from the routing guides on the battery.
2. Slide down the clamp that secures the battery cable to the battery.
3. Disconnect and remove the battery cable from the battery.
4. Lift the battery cable off the battery.

## Installing the battery cable

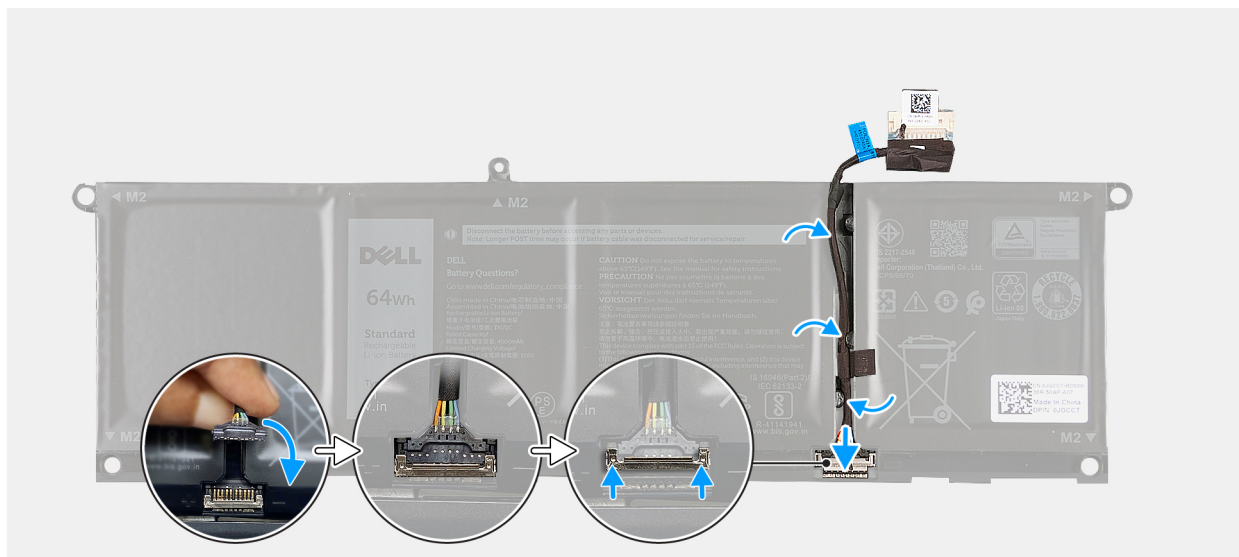
**CAUTION:** The information in this section is intended for authorized service technicians only.

## Prerequisites

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

## About this task

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



**Figure 24. Installing the battery cable**

### Steps

1. Route the battery cable through the routing guides on the battery.
2. Connect the battery cable to its connector on the battery.
3. Slide the clamp upwards to secure the battery cable to the battery.

### Next steps

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

## Display assembly

### Removing the display assembly

#### Prerequisites

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

**NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

2. Remove the [base cover](#).

#### About this task

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



4x  
M2.5x5

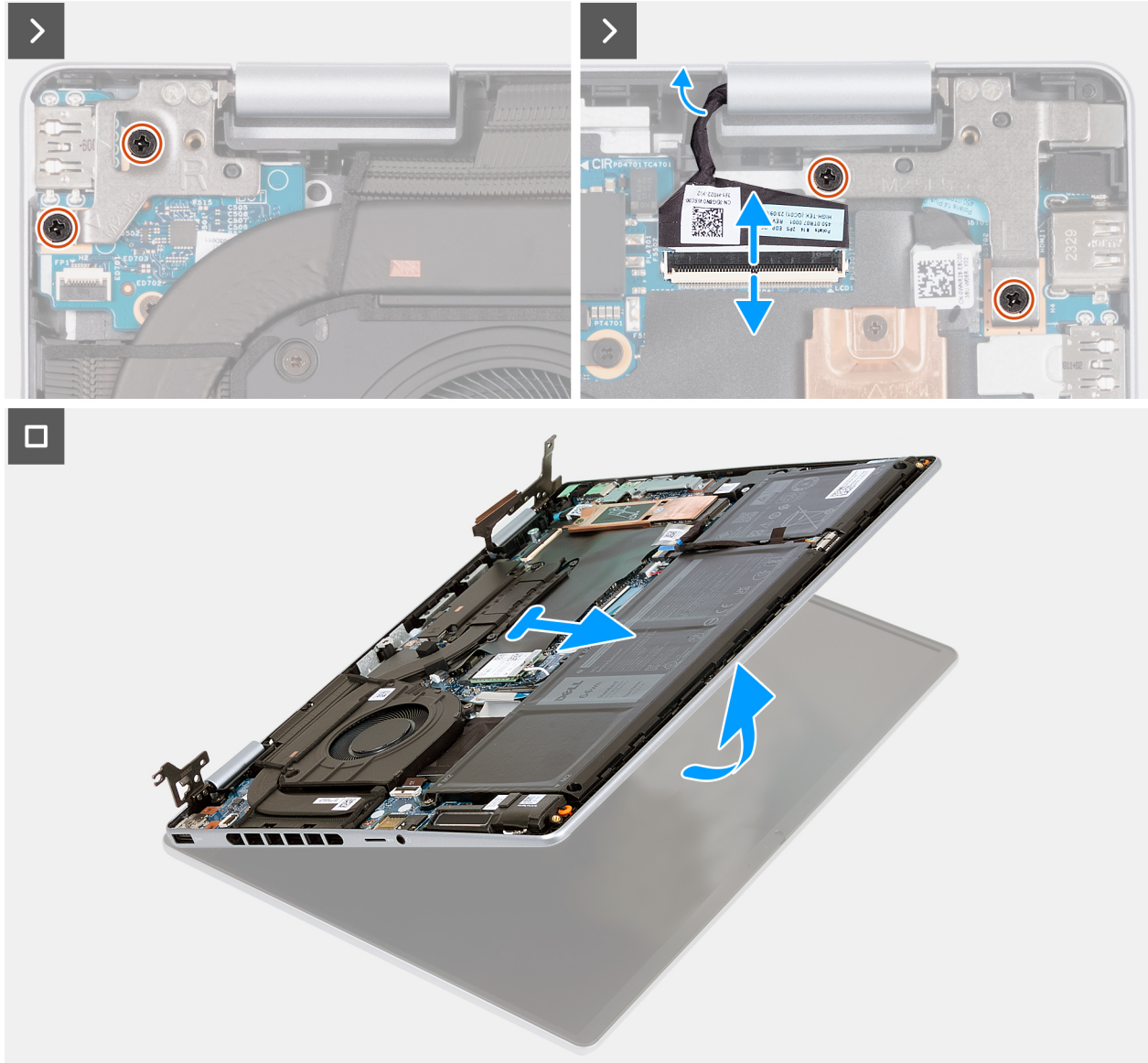
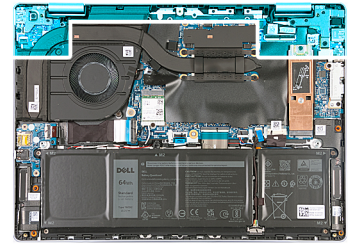


Figure 25. Removing the display assembly





**Figure 26. Display assembly**

### Steps

1. Lift the latch and disconnect the display-assembly cable from its connector on the system board.
2. Remove the two screws (M2.5x5) that secure the left display-assembly hinge to the system board.
3. Pry open the left display-assembly hinge at a 90-degree angle.
4. Peel the tape that secures the display-assembly cable to its latch on the system board.
5. Remove the two screws (M2.5x5) that secure the right display-assembly hinge to the system board.
6. Pry open the right display-assembly hinge at a 90-degree angle.
7. Lift the palm-rest and keyboard assembly at an angle off the display assembly.

## Installing the display assembly

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

### Prerequisites

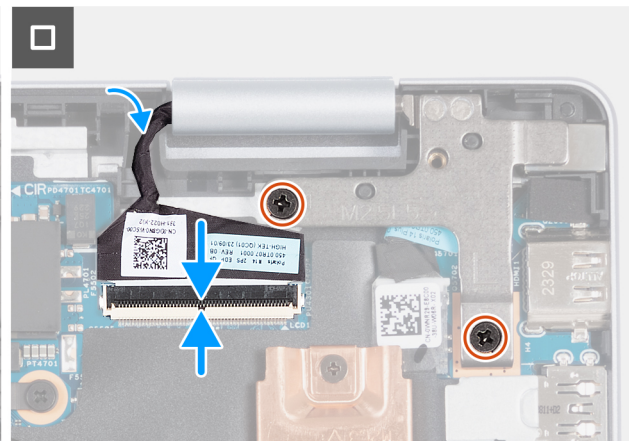
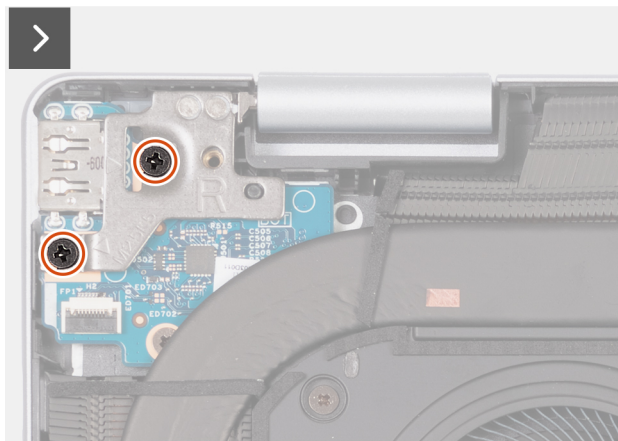
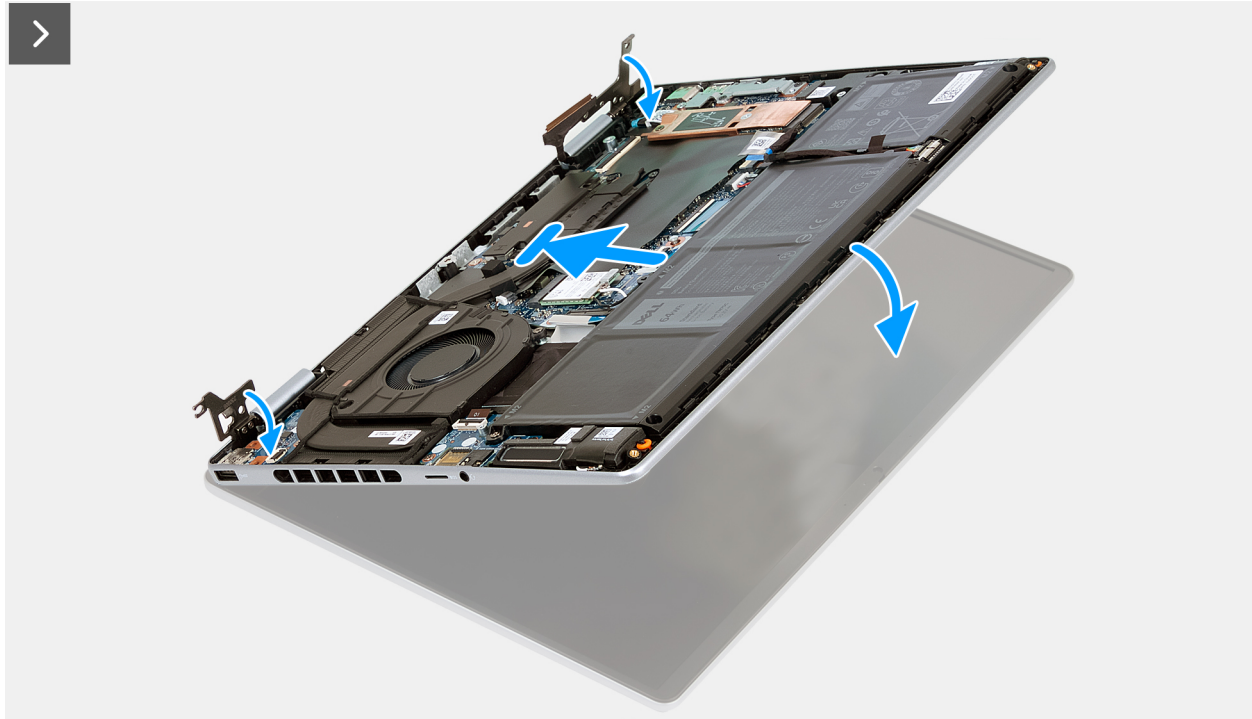
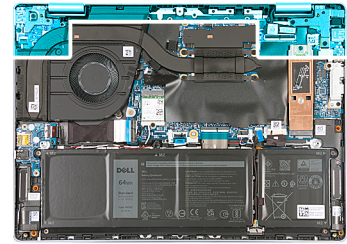
If you are replacing a component, remove the existing component before performing the installation process.

### About this task

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



4x  
M2.5x5



**Figure 27. Installing the display assembly**

### Steps

1. Place the display assembly on a clean and flat surface with the display panel facing up.
2. Align and place the palm-rest and keyboard assembly under the display hinges.
3. Close the left-display hinge and align the screw holes on the left-display hinge with the screw holes on the palm-rest and keyboard assembly.
4. Replace the two screws (M2.5x5) that secure the left display-assembly hinge to the palm-rest and keyboard assembly.
5. Close the right-display hinge and align the screw holes on the right-display hinge with the screw holes on the palm-rest and keyboard assembly.
6. Replace the two screws (M2.5x5) that secure the right display-assembly hinge to the palm-rest and keyboard assembly.

7. Connect the display-assembly cable to its connector on the system board and close the latch.
8. Adhere the tape that secures the display-assembly cable to its latch on the system board.

### Next steps

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

## WLAN board

### Removing the I/O board

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

#### Prerequisites

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

**NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

2. Remove the [base cover](#).

#### About this task

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

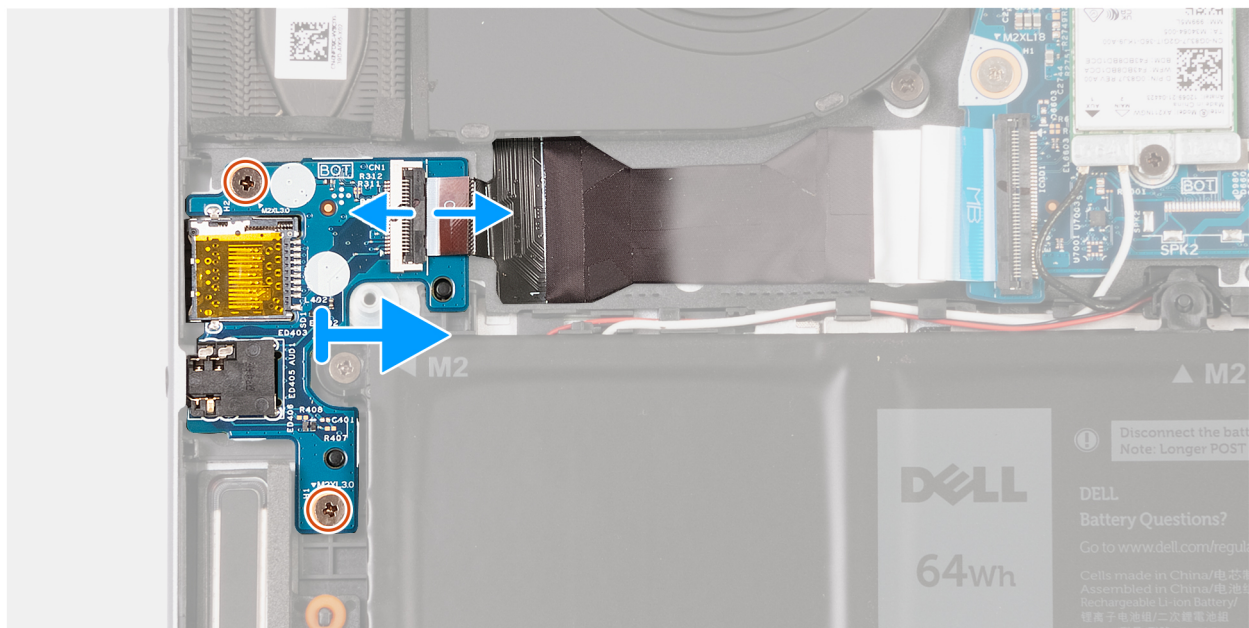
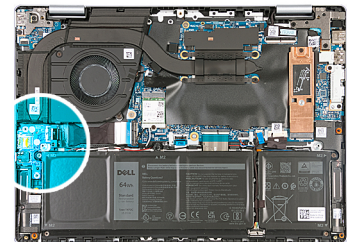


Figure 28. Removing the IO board



## Steps

1. Lift the latch and disconnect the I/O-board cable from its connector on the I/O board.
2. Remove the two screws (M2x3) that secure the I/O board to the palm-rest and keyboard assembly.
3. Lift the I/O board off the palm-rest and keyboard assembly.

## Installing the I/O board

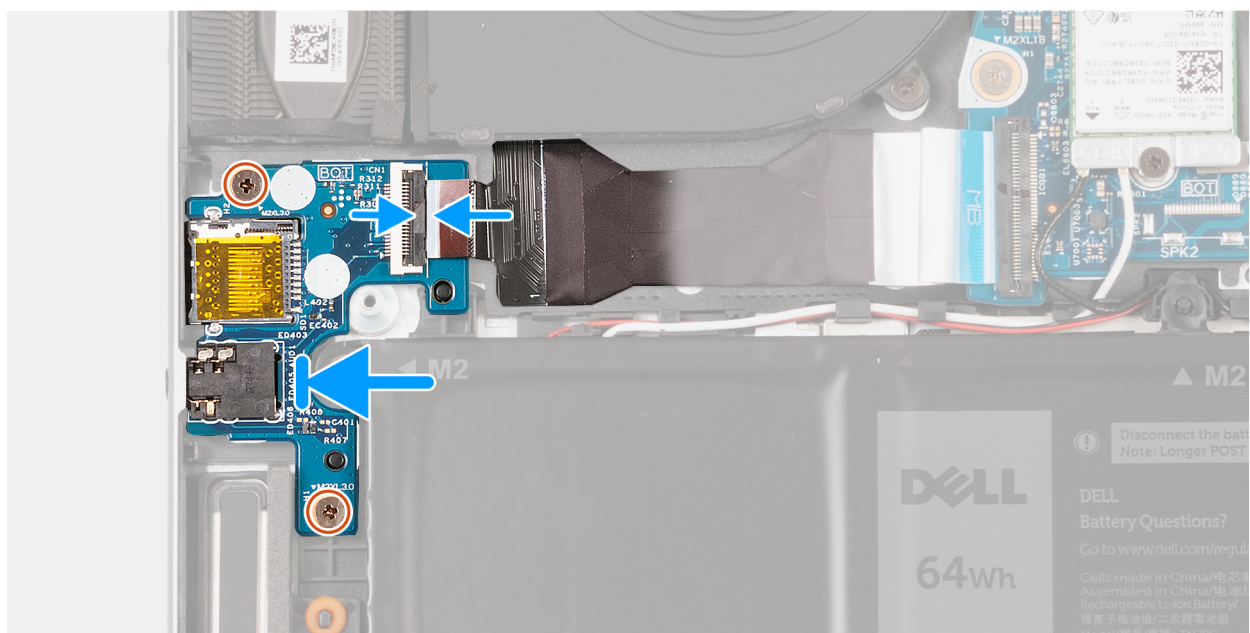
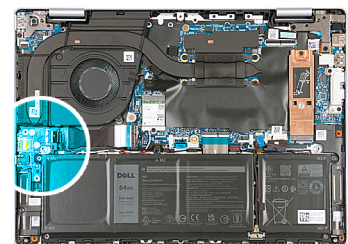
 **CAUTION:** The information in this section is intended for authorized service technicians only.

### Prerequisites

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

### About this task

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



**Figure 29. Installing the I/O board**

## Steps


1. Place the I/O board onto the palm-rest and keyboard assembly.
2. Align the ports on the I/O board to the slots on the palm-rest and keyboard assembly.
3. Align the screw holes on the I/O board to the screw holes on the palm-rest and keyboard assembly.
4. Replace the two screws (M2x3) that secure the I/O board to the palm-rest and keyboard assembly.
5. Connect the I/O-board cable to its connector on the I/O board and close the latch.



### Next steps

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

## Speaker and antenna assembly


 **NOTE:** The antenna cables are attached to the speakers as an assembly and cannot be replaced separately.

## Removing the speaker and antenna assembly

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


### Prerequisites

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

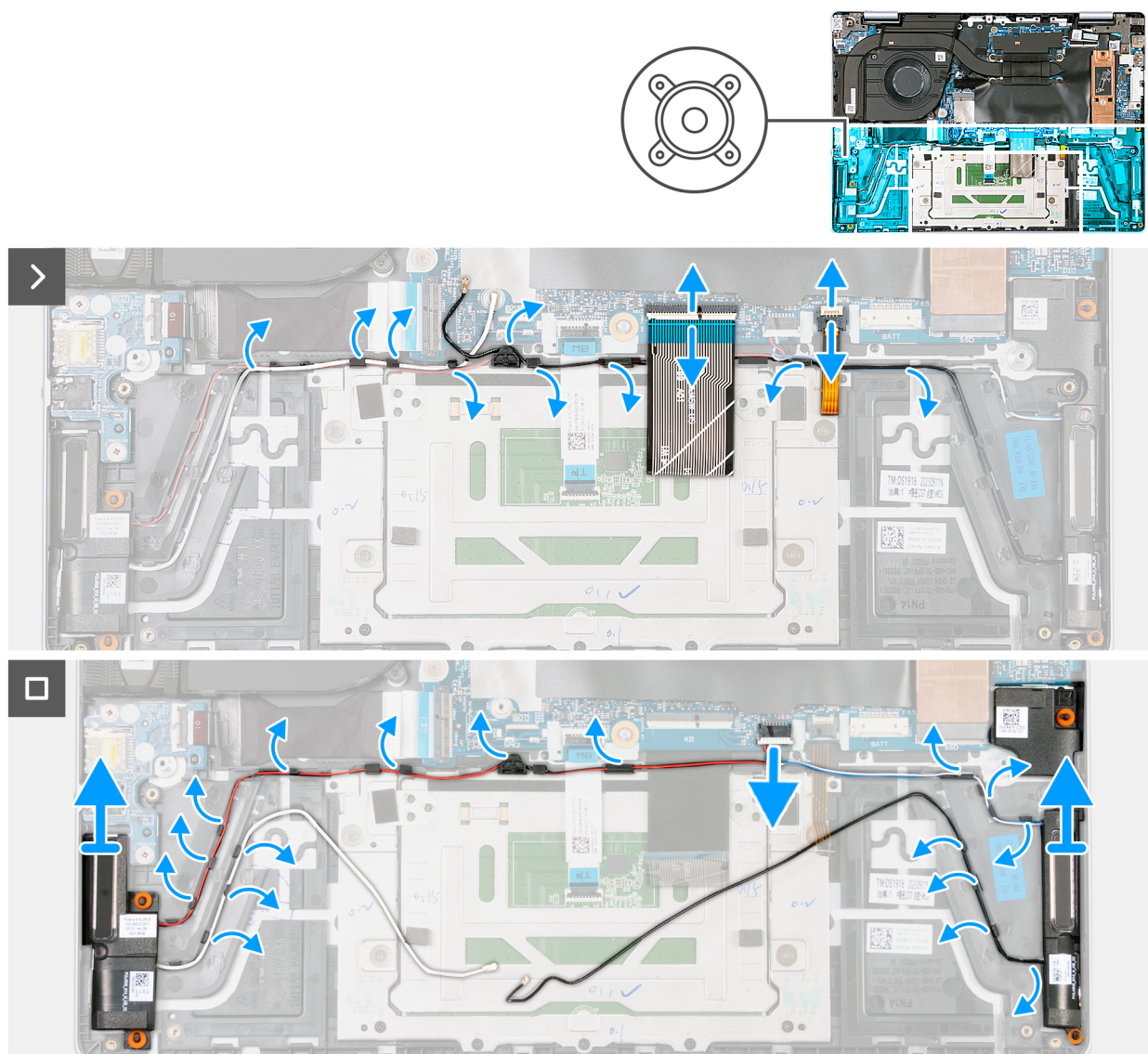
 **NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

2. Remove the [base cover](#).
3. Remove the [battery](#).
4. Remove the [wireless card](#).

### About this task

 **NOTE:** The wireless antennas are attached to the speakers as an assembly and cannot be separated for individual replacement. When the speakers or the wireless antennas need to be replaced, services will dispatch the speaker and antenna assembly as a single serviceable component.

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



**Figure 30. Removing the speaker and antenna assembly**

### Steps

1. Disconnect the speaker cable from its connector on the system board.
2. Lift the latch and disconnect the keyboard cable from its connector on the system board.
3. Move the keyboard cable off the speaker and antenna cables.
4. Lift the latch and disconnect the keyboard-backlight cable from its connector on the system board.
5. Move the keyboard-backlight cable off from the speaker and antenna cables.
6. Remove the speaker and the antenna cables from the routing guides on the palm-rest and keyboard assembly.
7. Lift the speaker and antenna assembly off the palm-rest and keyboard assembly.

**NOTE:** The antenna and cables are a part of the speaker and antenna assembly.

## Installing the speaker and antenna assembly

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

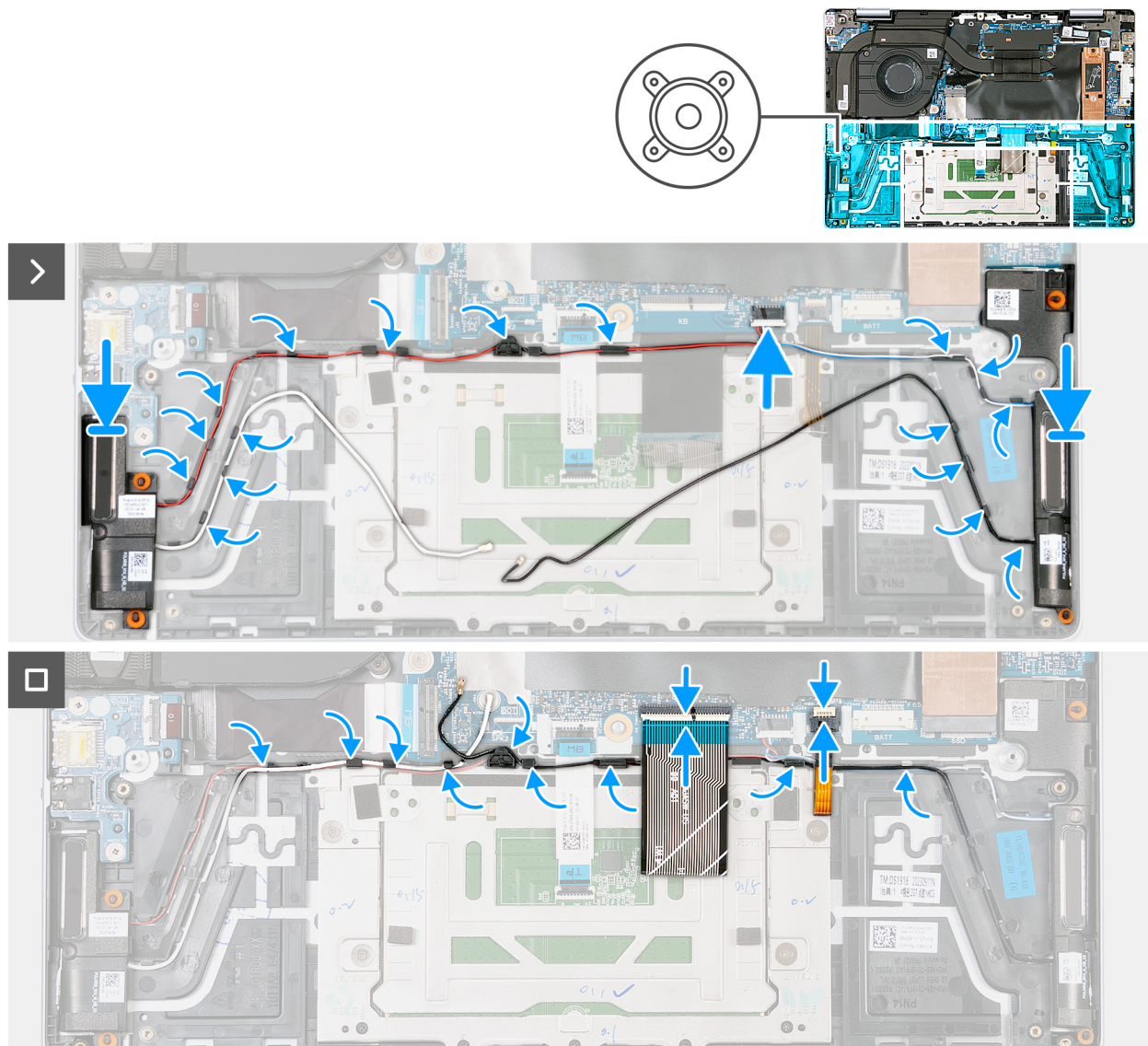
## Prerequisites

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

## About this task

**NOTE:** The wireless antennas are attached to the speakers as an assembly and cannot be separated for individual replacement. When the speakers or the wireless antennas need to be replaced, services will dispatch both the speaker and antenna assembly as a single serviceable component.

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



**Figure 31. Installing the speaker and antenna assembly**

## Steps

1. Using the alignment posts, place the left speaker and the right speaker on the palm-rest and keyboard assembly.

**NOTE:** Ensure that the four rubber grommets are seated into the slot and installed correctly on the speakers.

2. Route the speaker and antenna assembly cables through the routing guides on the palm-rest and keyboard assembly.
3. Connect the speaker cable to its connector on the system board.
4. Connect the keyboard cable to its connector on the system board.

Note: The keyboard cable should be placed over the speaker cables during the connection procedure.

5. Connect the keyboard-backlight cable to its connector on the system board.

Note: The keyboard-backlight cable should be placed over the speaker cables during the connection procedure.

#### Next steps

1. Install the [wireless card](#).
2. Install the [battery](#).
3. Install the [base cover](#).
4. Follow the procedure in [After working inside your computer](#).


## Heat sink

### Removing the heat sink

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

#### Prerequisites


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

 **NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

2. Remove the [base cover](#).

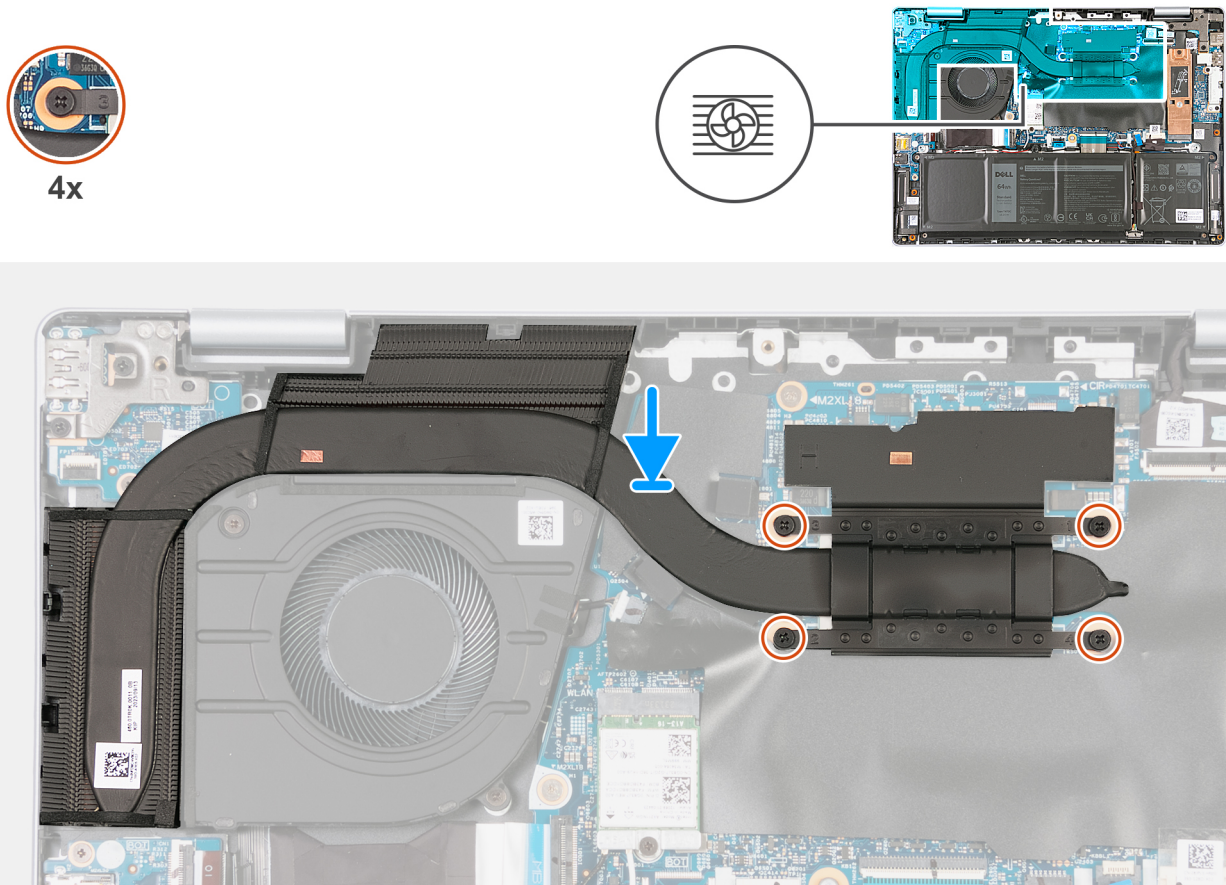
#### About this task

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

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

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





**Figure 32. Removing the heat sink**

### Steps

1. In reverse sequential order (4>3>2>1), loosen the four captive screws that secure the heat sink to the system board.
2. Lift the heat sink off the system board.

## Installing the heat sink

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

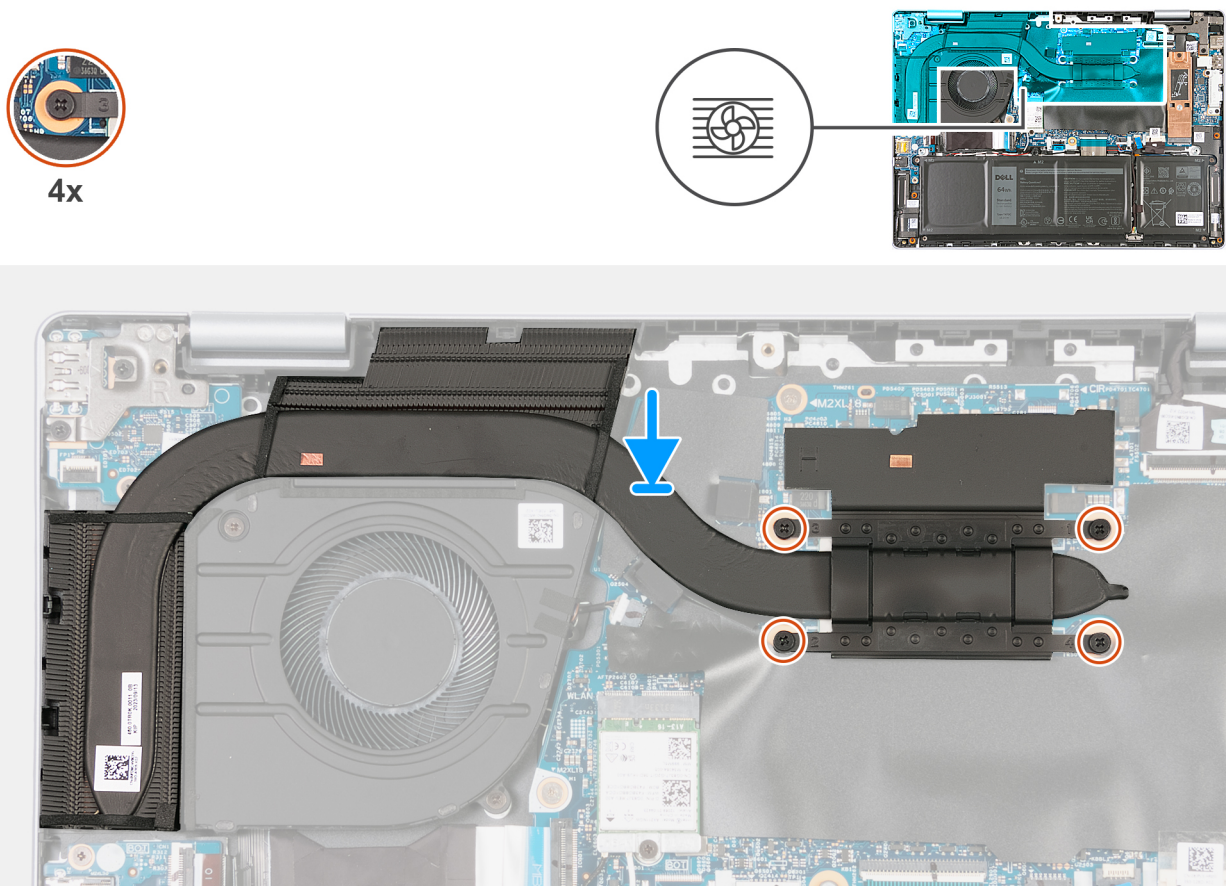
### Prerequisites

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

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



**Figure 33. Installing the heat sink**

#### Steps

1. Place the heat sink on the system board.
2. Align the captive screws on the heat sink to the screw holes on the system board.
3. In sequential order (1>2>3>4), tighten the four captive screws that secure the heat sink to the system board.

#### Next steps

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

## Power-adapter port

### Removing the power-adapter port

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

#### Prerequisites

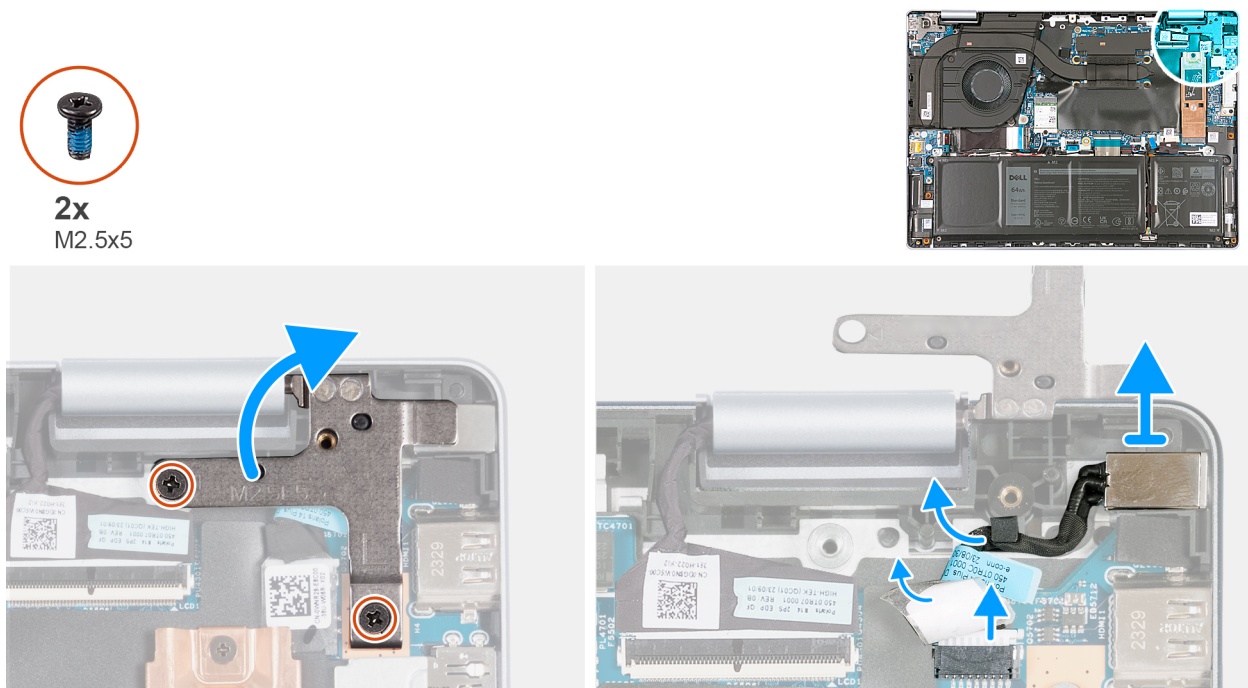
1. Follow the procedure in [Before working inside your computer](#).

**NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

2. Remove the [base cover](#).

### About this task

The following image(s) indicate the location of the power-adapter port and provides a visual representation of the removal procedure.



**Figure 34. Removing the power-adapter port**

### Steps

1. Remove the two screws (M2.5x5) that secure the left display-assembly hinge to the system board.
2. Pry open the left display-assembly hinge at a 90-degree angle.
3. Peel the tape that secures the power-adapter port cable to its connector on the system board.
4. Disconnect the power-adapter port cable from its connector on the system board.
5. Remove the power-adapter port cable from the routing guide on the palm-rest and keyboard assembly.
6. Lift the power-adapter port off the palm-rest and keyboard assembly.

## Installing the power-adapter port

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

### Prerequisites

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

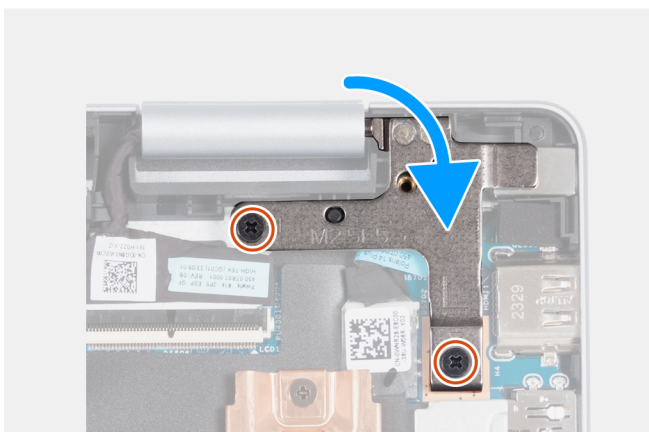
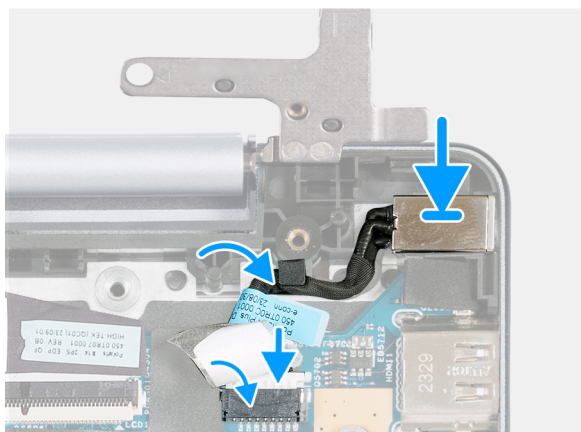
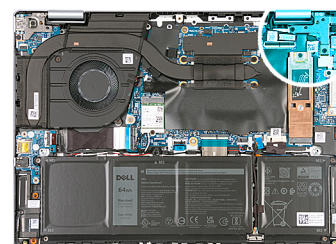
### About this task

The following image(s) indicate the location of the power-adapter port and provides a visual representation of the installation procedure.





**2x**  
M2.5x5



**Figure 35. Installing the power-adapter port**

### Steps

1. Place the power-adapter port into the power-adapter port slot on the palm-rest and keyboard assembly.
2. Route the power-adapter port cable through the routing guide on the palm-rest and keyboard assembly.
3. Connect the power-adapter port cable to its connector on the system board.
4. Adhere the tape that secures the power-adapter port cable to the power-adapter port cable connector on the system board.
5. Close the display hinge and align the screw holes on the display hinge with the screw holes on the palm-rest and keyboard assembly.
6. Replace the two screws (M2.5x5) that secure the left display-assembly hinge to the palm-rest and keyboard assembly.

### Next steps

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

## System board

### Removing the system board

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

### Prerequisites

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

**NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

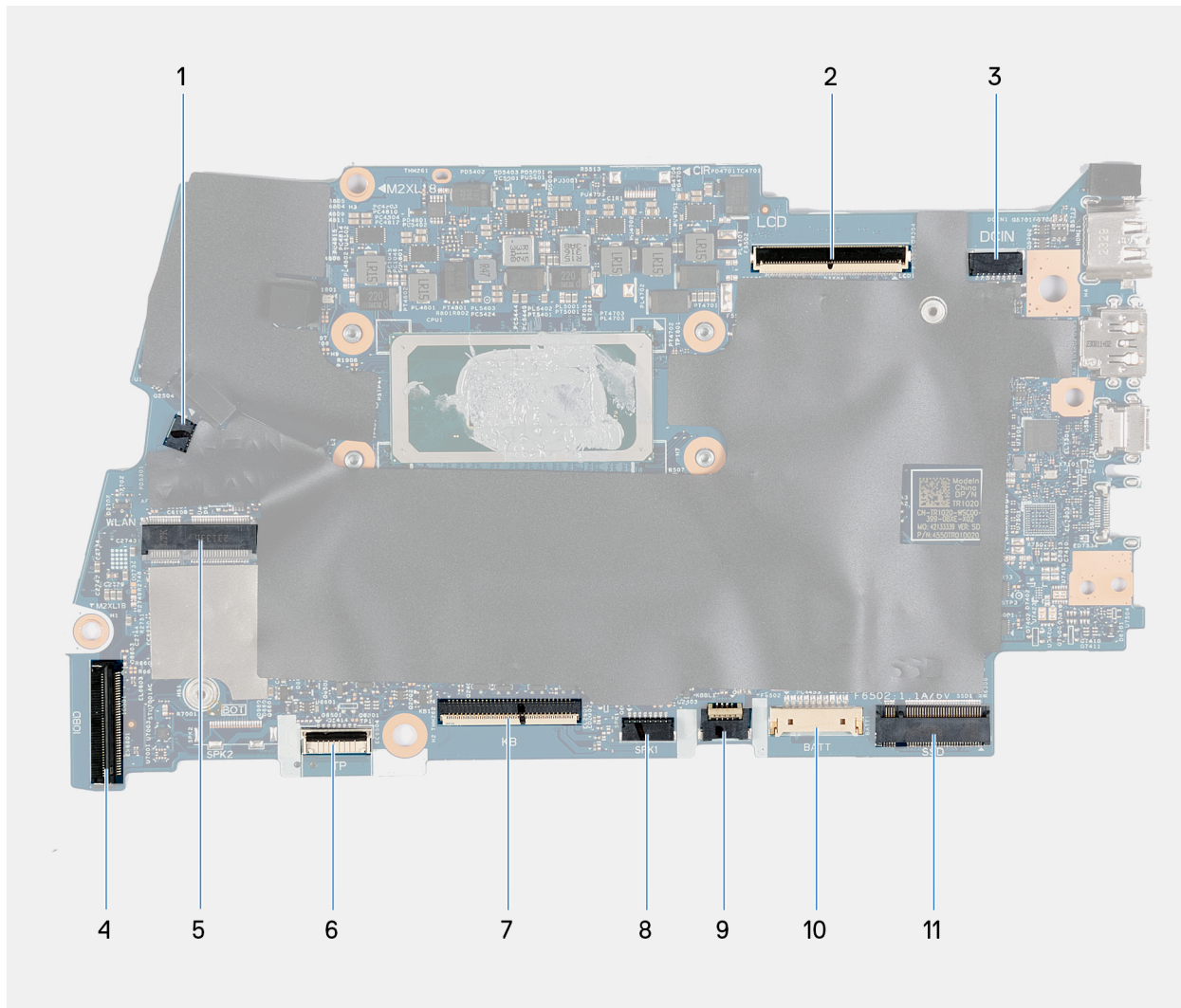
2. Remove the [base cover](#).
3. Remove the [battery](#).
4. Remove the [M.2 2230 solid-state drive](#) or the [M.2 2280 solid-state drive](#), whichever is applicable.
5. Remove the [wireless card](#).



6. Remove the [heat sink](#).
7. Remove the [display assembly](#).

### About this task

The following image indicates the connectors and M.2 card slots on your system board.

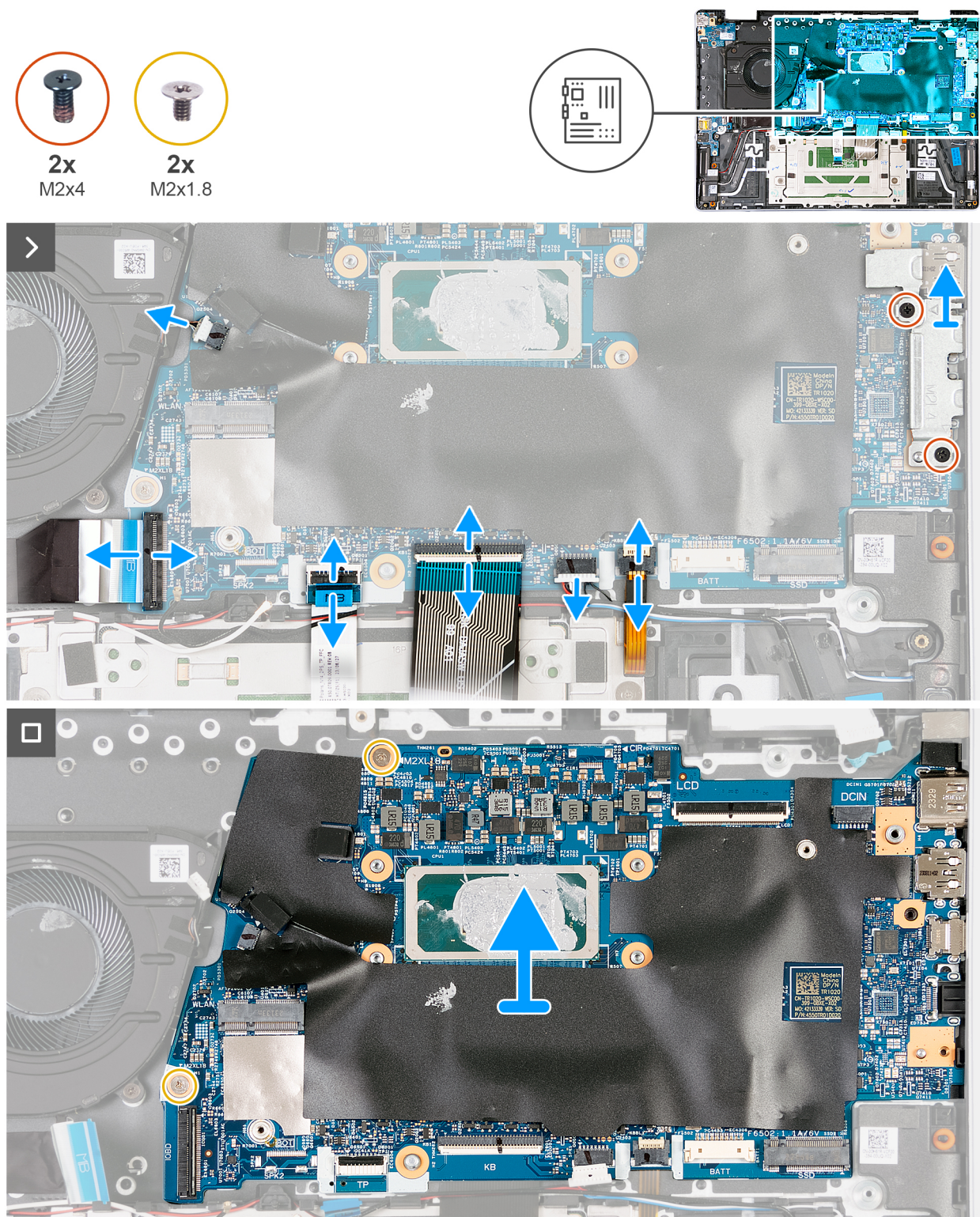


**Figure 36. System board callouts**

1. Fan cable connector
2. Display-assembly cable connector
3. Power-adaptor port cable connector
4. I/O-board and USB-board cable connector
5. M.2 wireless-card slot
6. Touchpad cable connector
7. Keyboard cable connector
8. Speaker cables connector
9. Keyboard-backlight cable connector
10. Battery cable connector
11. M.2 solid-state drive slot

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





**Figure 37. Removing the system board**

**NOTE:** The image shows the system board and its heat sink has been removed.

#### Steps

1. Lift the latch and disconnect the I/O-board and USB-board cable from its connector on the system board.
2. Lift the latch and disconnect the touchpad cable from its connector on the system board.

3. Lift the latch and disconnect the keyboard cable from its connector on the system board.
4. Disconnect the speaker cables from their connector on the system board.
5. Lift the latch and disconnect the keyboard-backlight cable from its connector on the system board.
6. Disconnect the battery cable from its connector on the system board.
7. Peel the tape that secures the power-adapter port cable to its connector on the system board.
8. Disconnect the power-adapter port cable from its connector on the system board.
9. Remove the two screws (M2x4) that secure the Type-C bracket to the system board.
10. Lift the Type-C port bracket off the system board.
11. Remove the two screws (M2x1.8) that secure the system board to the palm-rest and keyboard assembly.
12. Lift the system board off the palm-rest and keyboard assembly.


## Installing the system board

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

### Prerequisites

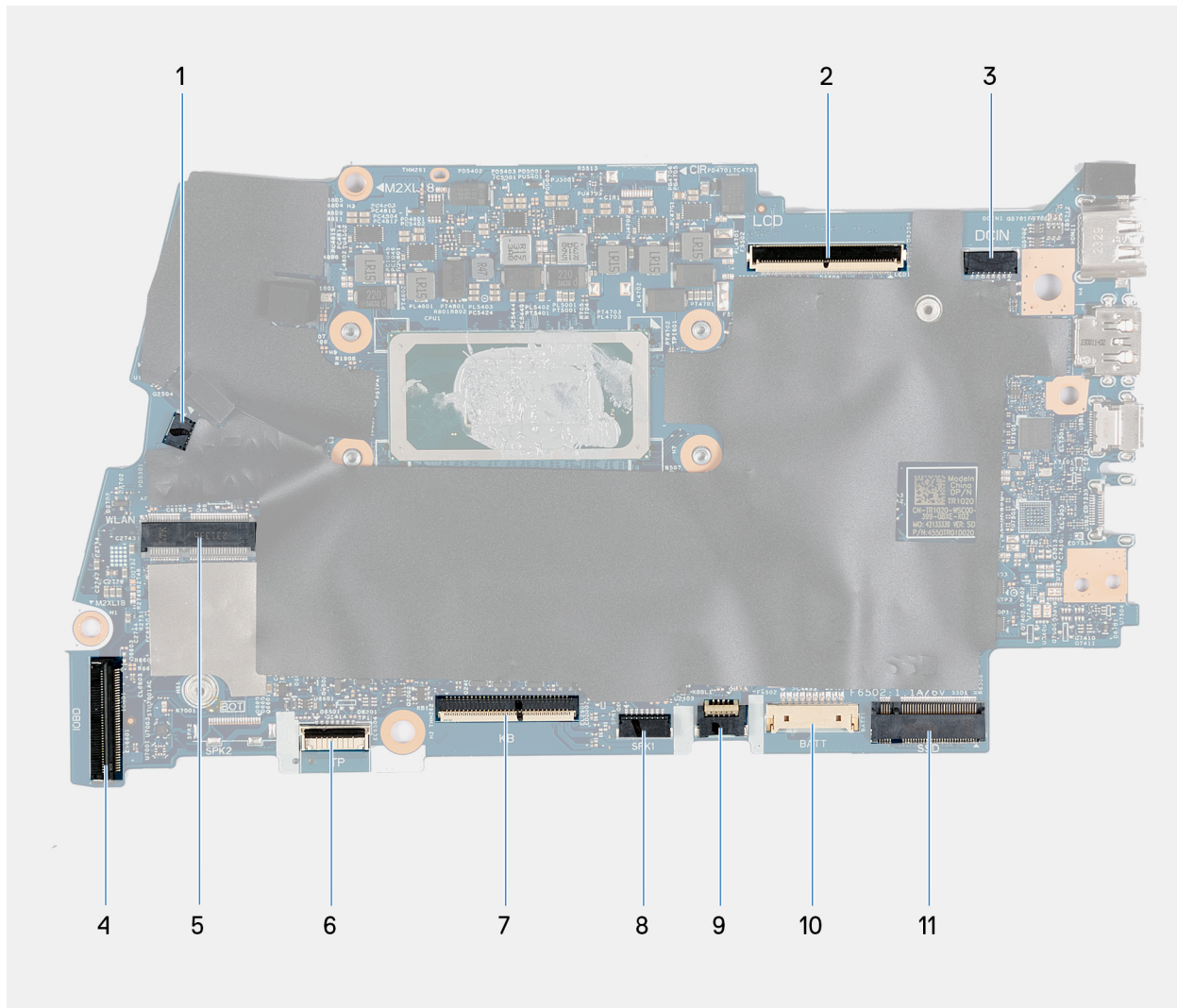
If you are replacing a component, remove the existing component before performing the installation process.

### 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 connectors and M.2 card slots on your system board.



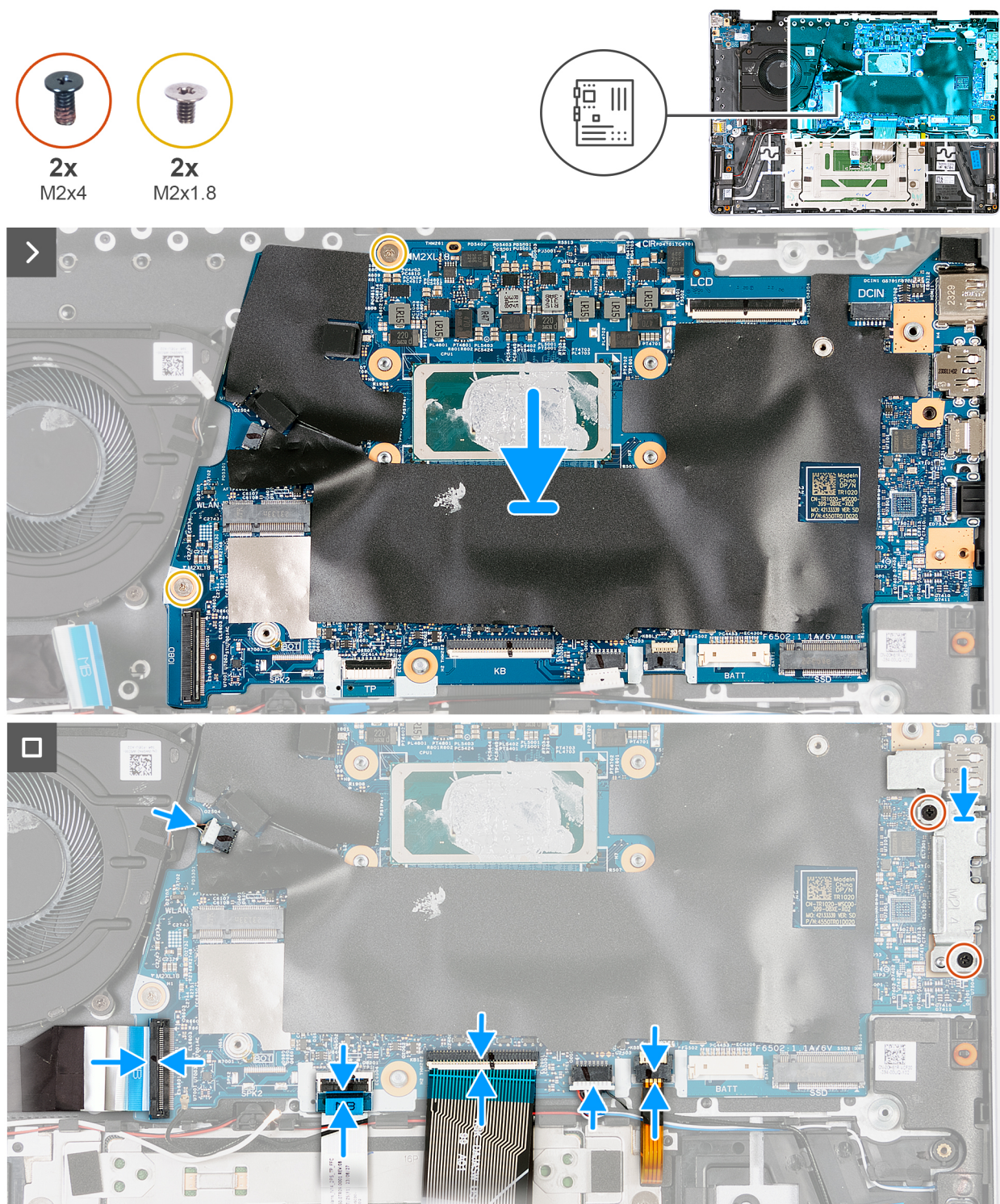


**Figure 38. System board callouts**

1. Fan cable connector
2. Display-assembly cable connector
3. Power-adaptor port cable connector
4. I/O-board and USB-board cable connector
5. M.2 wireless-card slot
6. Touchpad cable connector
7. Keyboard cable connector
8. Speaker cables connector
9. Keyboard-backlight cable connector
10. Battery cable connector
11. M.2 solid-state drive slot

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






**Figure 39. Installing the system board**

#### Steps

1. Place the system board on the palm-rest and keyboard assembly.
2. Align the ports on the system board with the ports on the palm-rest and keyboard assembly.
3. Align the screw holes on the system board with the screw holes on the palm-rest and keyboard assembly.
4. Replace the two screws (M2x1.8) that secure the system board to the palm-rest and keyboard assembly.
5. Place the Type-C port-bracket on the system board and align the screw holes of the Type-C port-bracket with the screw holes on the system board.


6. Replace the two screws (M2x4) that secure the Type-C port-bracket to the system board.

 **NOTE:** Do not secure the two screws (M2x4) into the system board without the Type-C port-bracket.

7. Connect the power-adapter port cable to its connector on the system board.
8. Replace the tape that secures the power-adapter port cable to its connector of the system board.
9. Connect the battery cable to its connector on the system board.
10. Connect the keyboard cable to its connector on the system board and close the latch.
11. Connect the touchpad cable to its connector on the system board and close the latch.
12. Connect the I/O-board and USB-board cable to its connector and secure the latch.

### Next steps

1. Install the [display assembly](#).
2. Install the [heat sink](#).

 **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.

3. Install the [wireless card](#).
4. Install the [M.2 2230 solid-state drive](#) or the [M.2 2280 solid-state drive](#), whichever is applicable.
5. Install the [battery](#).
6. Install the [base cover](#).
7. Follow the procedure in [After working inside your computer](#).


## USB board

### Removing the USB board

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

#### Prerequisites

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

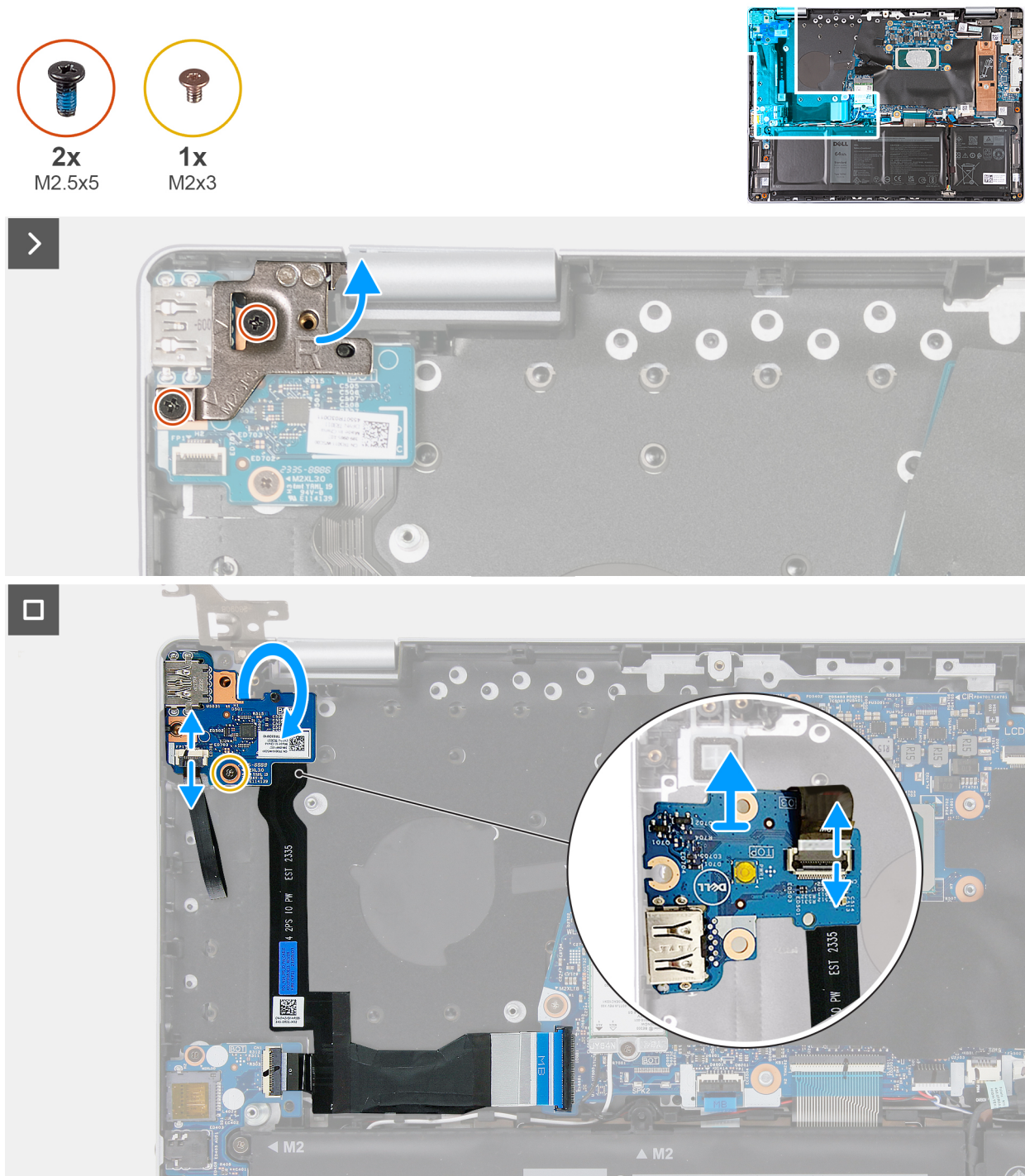
 **NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

2. Remove the [base cover](#).
3. Remove the [fan](#).
4. Remove the [heat sink](#).

#### About this task

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





**Figure 40. Image: Removing the USB board**


### Steps

1. Remove the two (M2.5x5) screws that secure the left display-assembly hinge on the palm-rest and keyboard assembly.
2. Pry open the left display-assembly hinge at a 90-degree angle.
3. Lift the latch and disconnect the fingerprint-reader cable from its connector on the USB board.

**NOTE:** This step is only applicable for computers that are shipped with the power button with an optional fingerprint reader.

4. Remove the screw (M2x3) that secures the USB board to the palm-rest and keyboard assembly.
5. Lift the USB board from the palm-rest and keyboard assembly and flip it over by folding the USB-board cable gently.



6. Hold the USB board in place and lift the latch to disconnect the USB-board cable from its connector on the USB board.
  7. Remove the USB board and place the USB-board cable back on the palm-rest and keyboard assembly.
-  **NOTE:** Do not peel the I/O-board and USB-board cable off the palm-rest and keyboard assembly.


## Installing the USB board

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

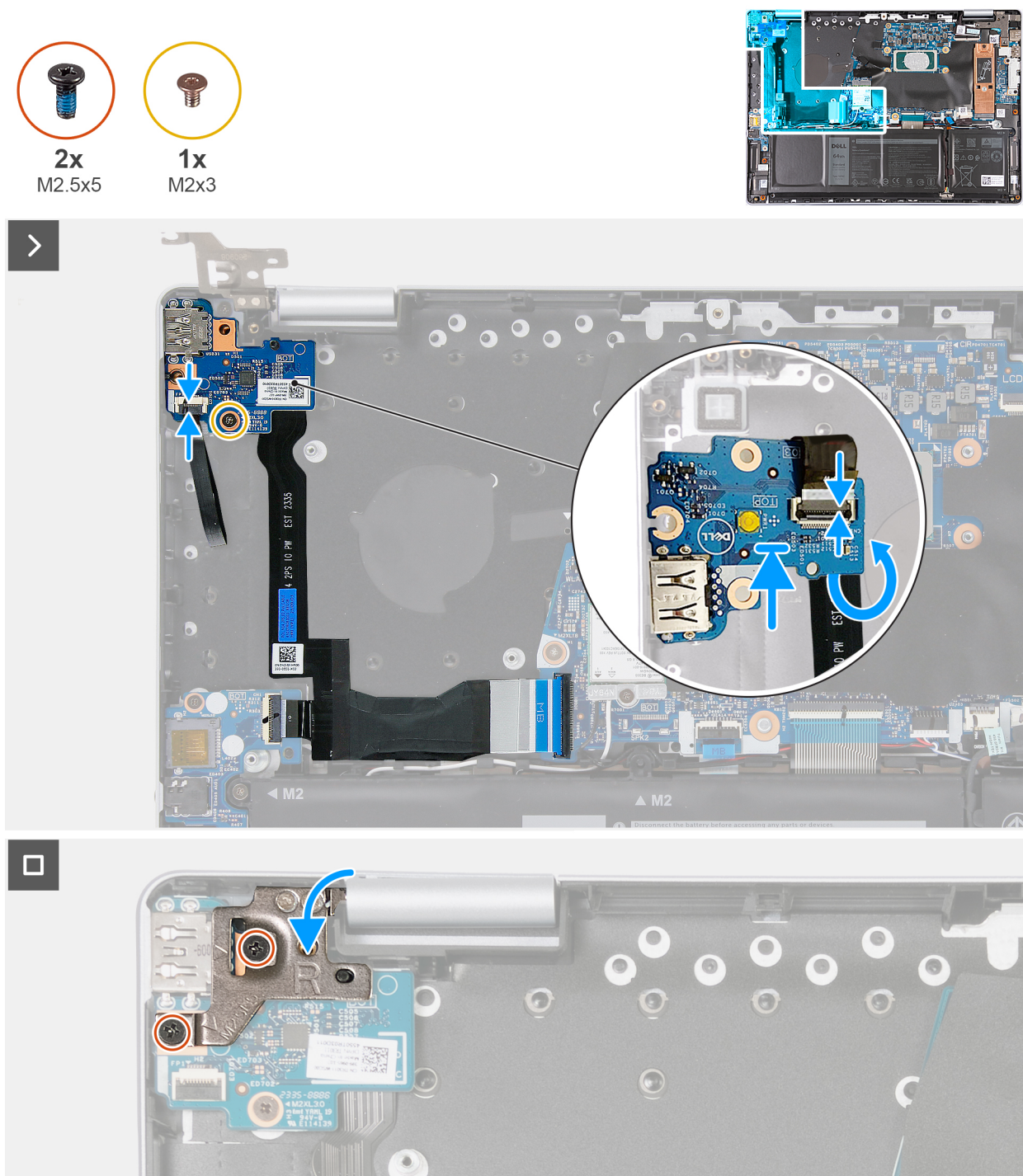
### Prerequisites

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

### 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(s) indicate the location of the USB board and provides a visual representation of the installation procedure.



**Figure 41. Installing the USB board**

### Steps

1. Position the USB board near the USB-board cable and ensure that the USB-board cable latch of the USB board is visible.
2. Fold the USB-board cable towards the USB board.
3. Connect the USB-board cable to its connector on the USB board and close the latch.
4. Flip over the USB board and fold the cable back towards the palm-rest and keyboard assembly.
5. Replace the screw (M2x3) that secures the USB board to the palm-rest and keyboard assembly.
6. Connect the fingerprint-reader cable to the USB board and close the latch.

 **NOTE:** This step is only applicable for computers that are shipped with the power button with an optional fingerprint reader.

7. Close the left-display hinge and align the screw holes on the left-display hinge with the screw holes on the palm-rest and keyboard assembly.
8. Replace the two (M2.5x5) screws that secure the left display-assembly hinge to the palm-rest and keyboard assembly.

#### Next steps

1. Install the [heat sink](#).
2. Install the [fan](#).
3. Install the [base cover](#).
4. Follow the procedure in [After working inside your computer](#).


## Power button

### Removing the power button

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

#### Prerequisites


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

 **NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

2. Remove the [base cover](#).
3. Remove the [fan](#).
4. Remove the [heat sink](#).
5. Remove the [USB board](#).

#### About this task

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

 **NOTE:** Depending on the configuration of your computer, you may have a power-button with an optional fingerprint reader installed.



1x  
M2x3

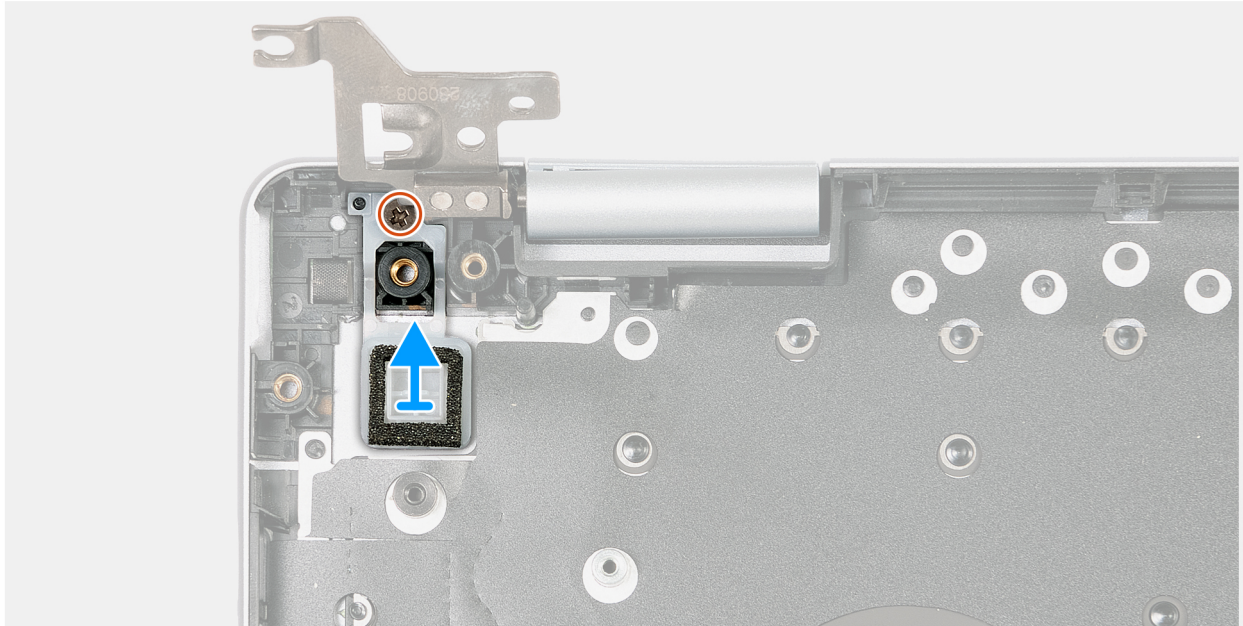
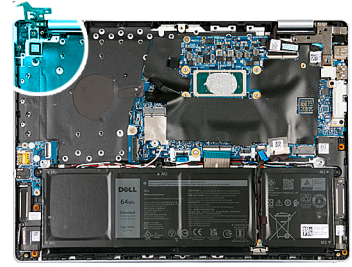
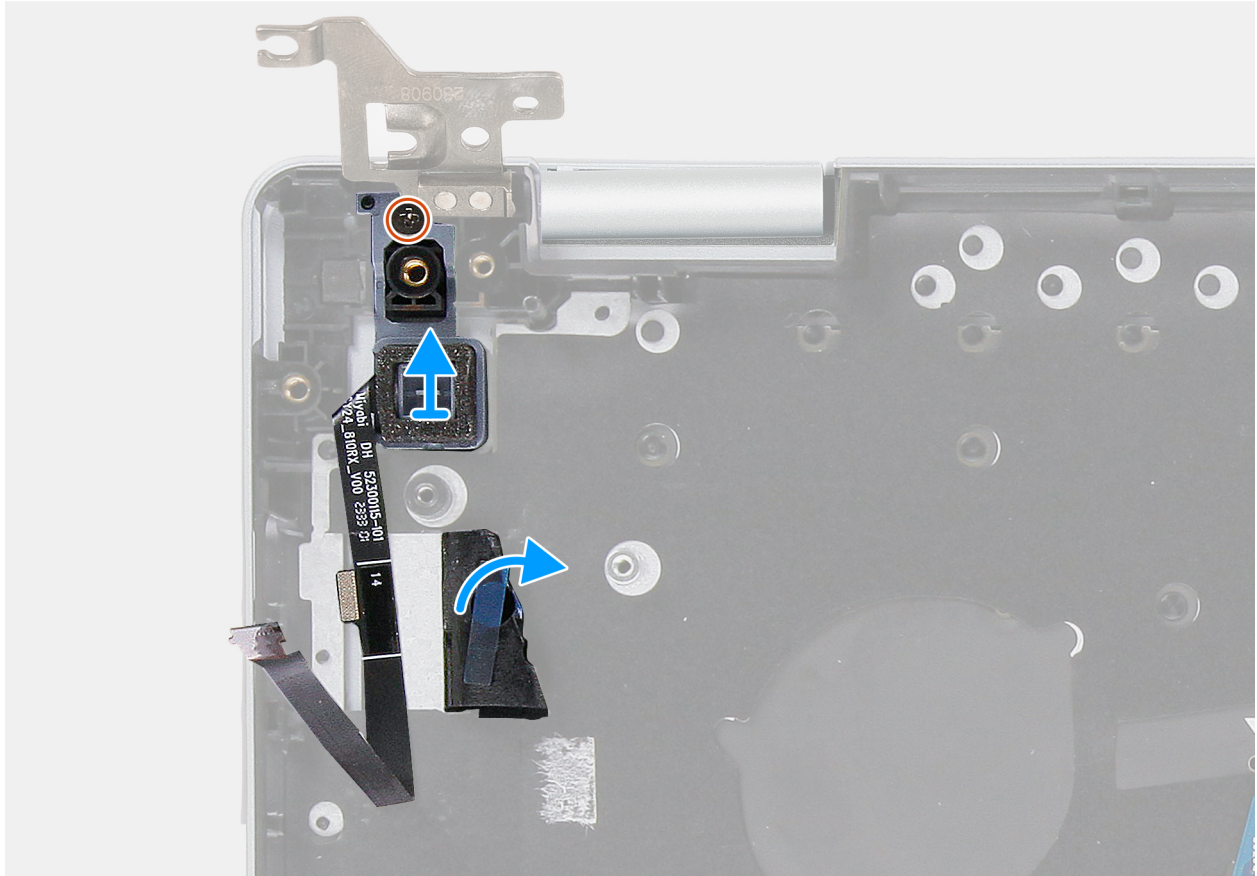
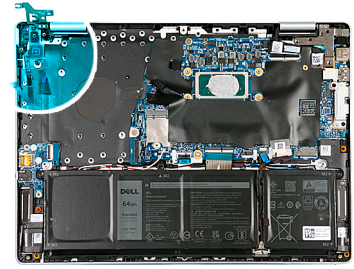


Figure 42. Removing the power button






1x  
M2x3



**Figure 43. Removing the power button with an optional fingerprint reader**

#### Steps

1. Remove the screw (M2x3) that secures the power button to the palm-rest and keyboard assembly.
2. Peel back the tape that secures the fingerprint-reader cable to the palm-rest and keyboard assembly.  
 **NOTE:** This step is only applicable for computers that are shipped with the power button with an optional fingerprint reader.
3. Lift the power button off the palm-rest and keyboard assembly.

## Installing the power button

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

#### Prerequisites

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

### About this task

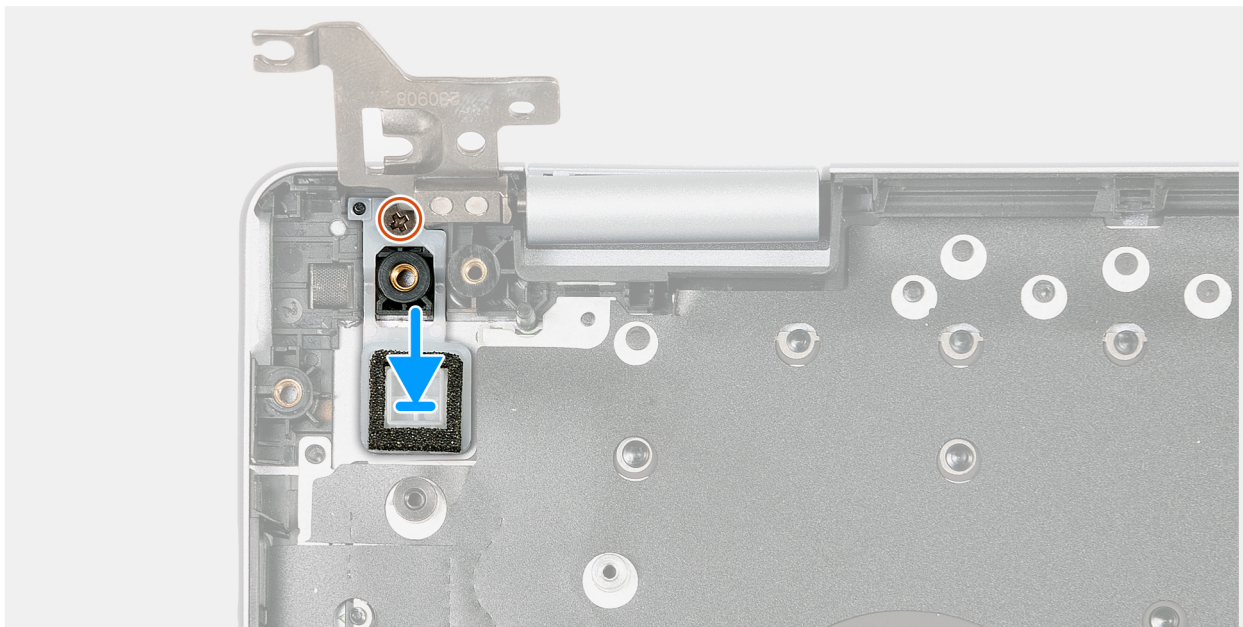
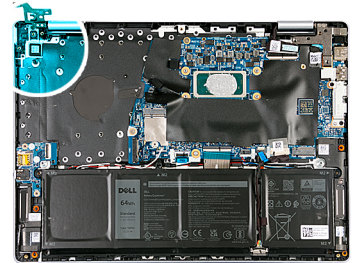
**NOTE:** If either the system board or the heat sink is replaced, use the thermal grease that is provided in the kit to ensure that thermal conductivity is achieved.

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

**NOTE:** Depending on the configuration of your computer, you may have a power-button with an optional fingerprint reader installed.

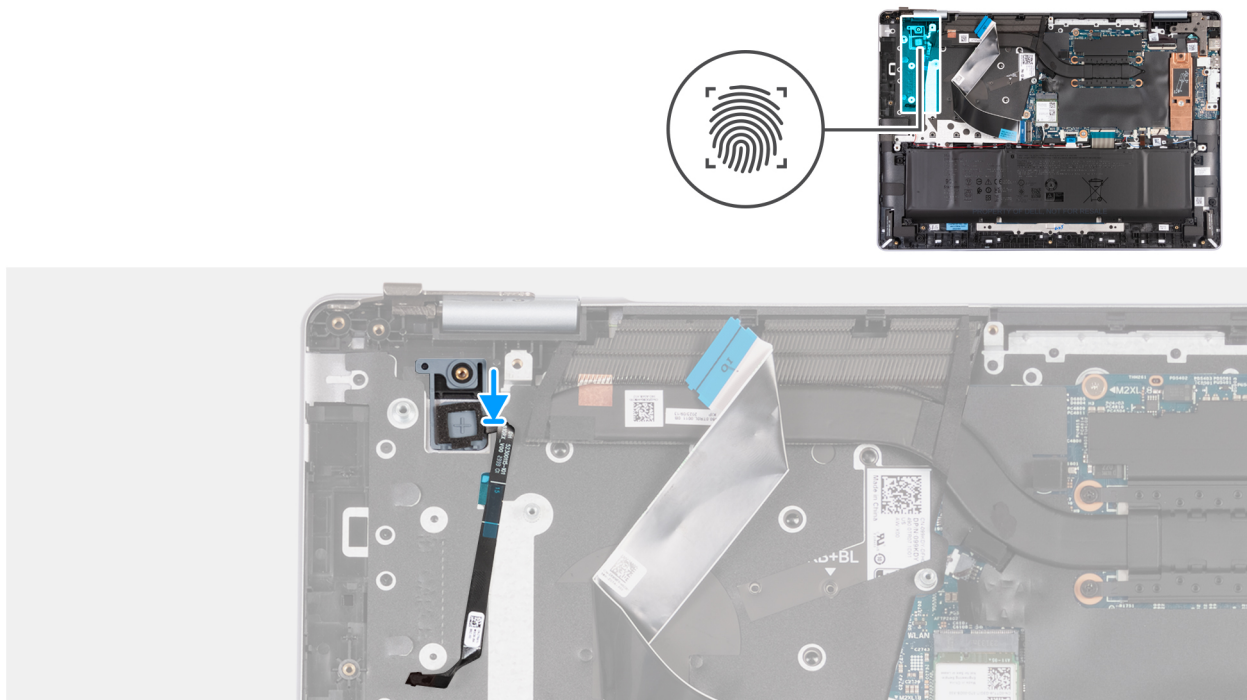


**1x**  
M2x3

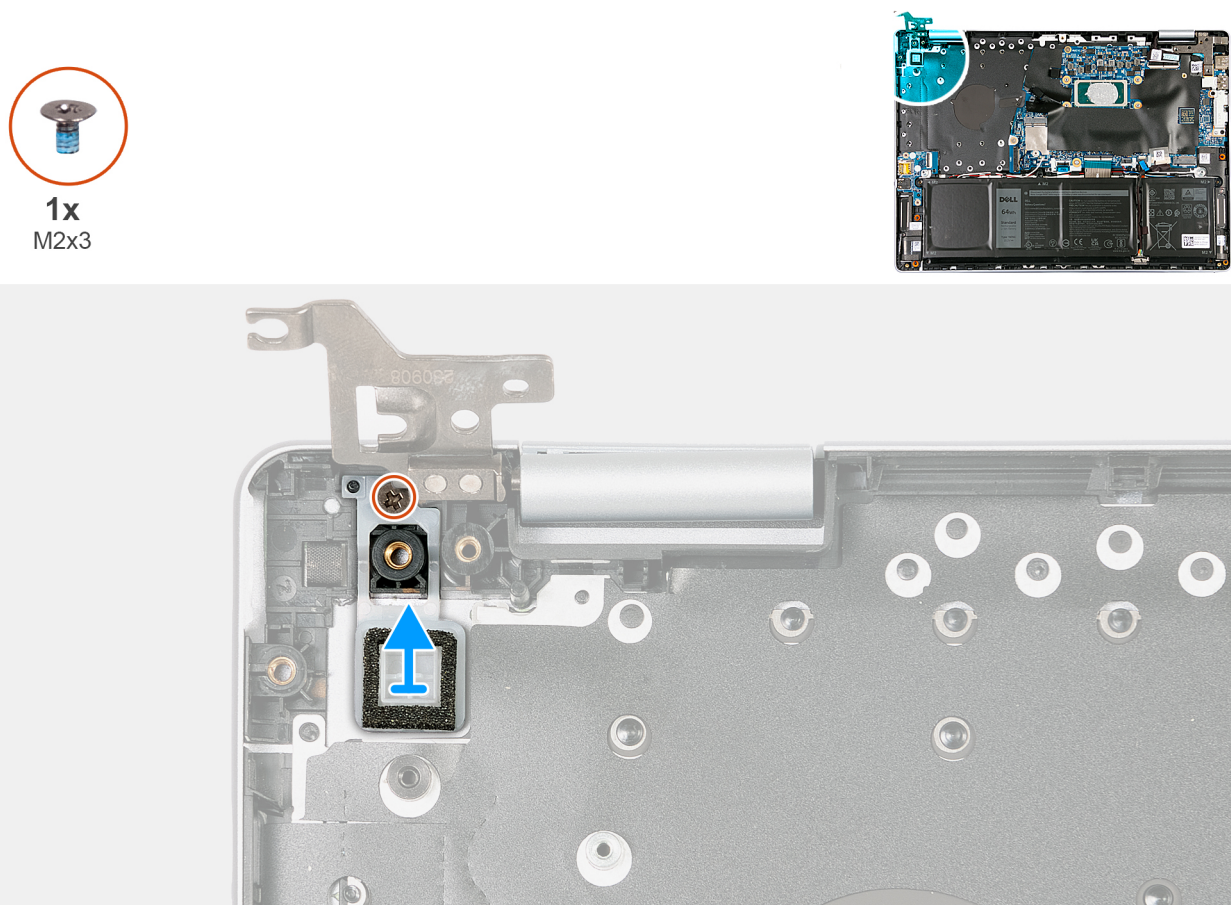


**Figure 44. Installing the power button**





**Figure 45. Installing the power button with an optional fingerprint reader**




**Figure 46. Installing the power button**

#### Steps

1. Place the power button into its slot on the palm-rest and keyboard assembly.



2. Align the screw hole on the power button to the screw hole on the palm-rest and keyboard assembly.
3. Replace the screw (M2x3) that secures the power button to the palm-rest and keyboard assembly.
4. Replace the tape that secures the fingerprint-reader cable to the palm-rest and keyboard assembly.

 **NOTE:** This step is only applicable for computers that are shipped with the power button with an optional fingerprint reader.

#### Next steps

1. Install the [USB board](#).
2. Install the [fan](#).
3. Install the [heat sink](#).
4. Install the [base cover](#).
5. Follow the procedure in [After working inside your computer](#).


## Touchpad

### Removing the touchpad

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


#### Prerequisites

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

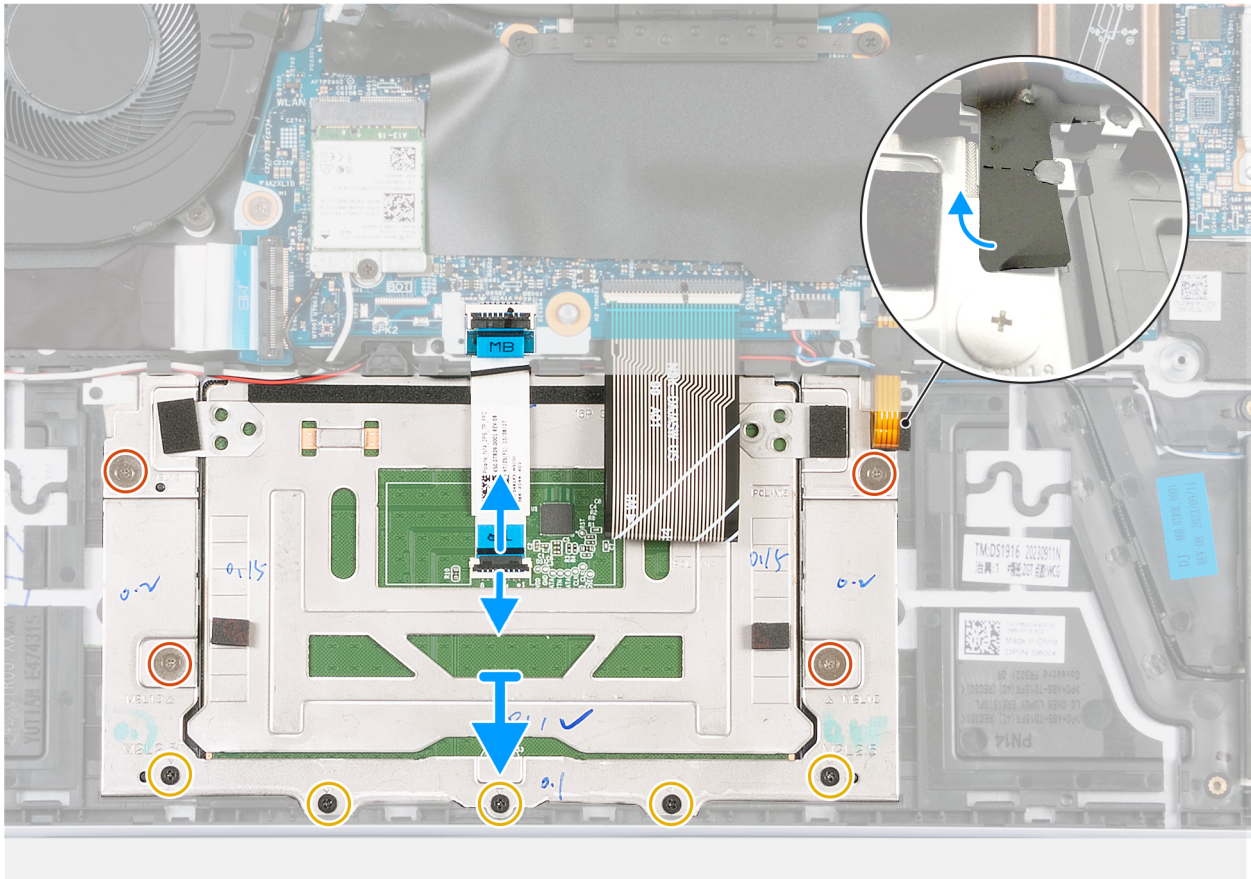
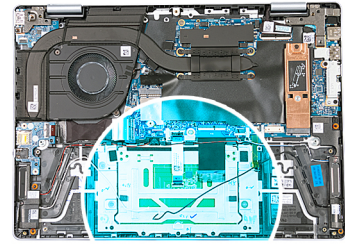
 **NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

2. Remove the [base cover](#).
3. Remove the [battery](#).

#### About this task

 **NOTE:** Before removing the base cover, ensure that there is no SD card installed in the SD card slot on your computer.

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



**Figure 47. Removing the touchpad**

### Steps

1. Pry open the touchpad cable connector latch and disconnect the touchpad cable from the touchpad cable connector on the system board.
2. Pry open the touchpad cable connector latch and disconnect the touchpad cable from the touchpad cable connector on the touchpad.
3. Lift the touchpad cable off the system board.
4. Remove the four screws (M2x1.8) and the five screws (M2x2.5) that secure the touchpad bracket to the palm-rest and keyboard assembly.
5. Peel back the tape on the upper right edge of the touchpad bracket.
6. Lift the touchpad bracket off the palm-rest and keyboard assembly.
7. Lift the touchpad off the palm-rest and keyboard assembly.

## Installing the touchpad

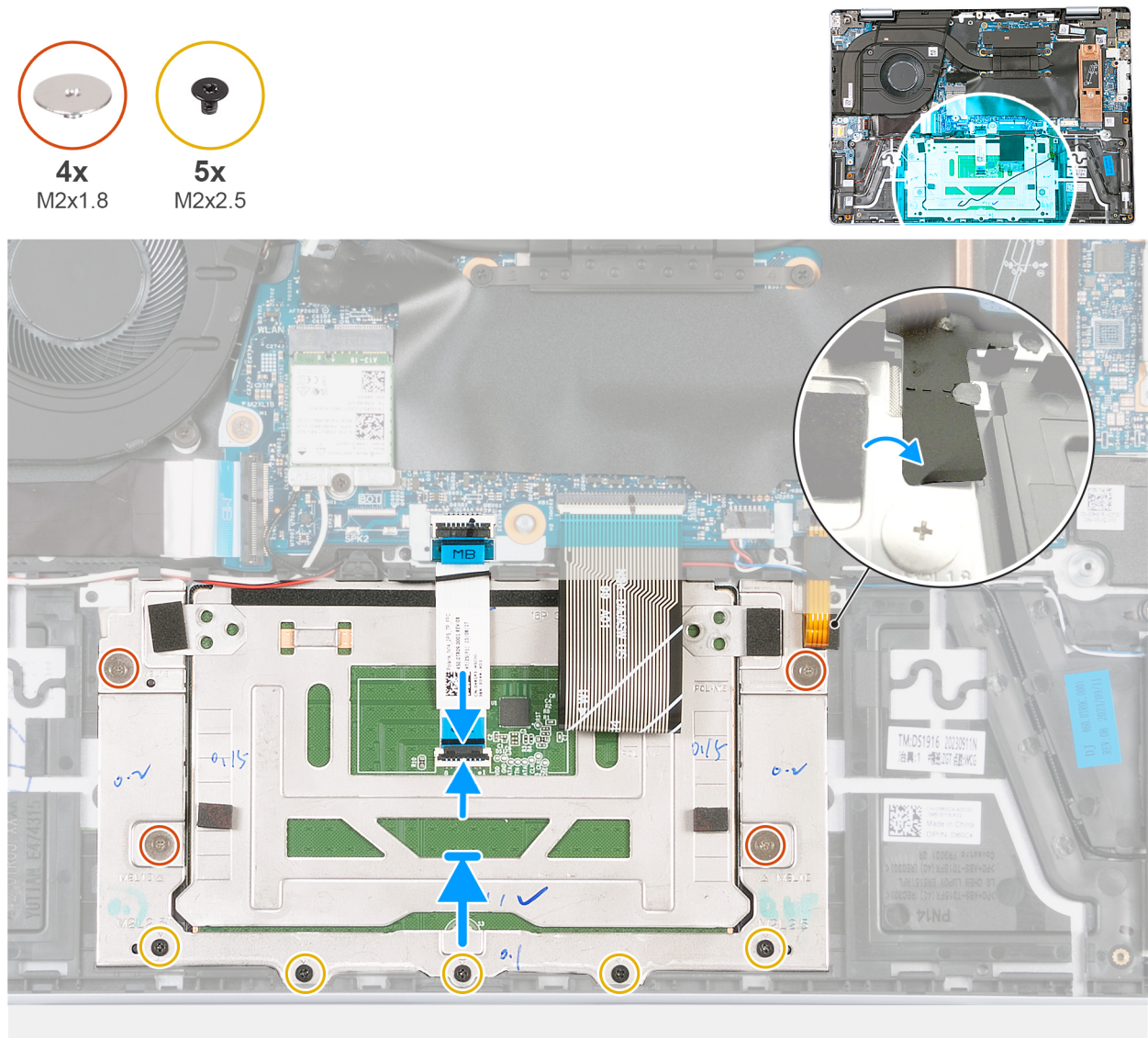
### Prerequisites

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

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

### About this task

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



**Figure 48. Installing the touchpad**

### Steps

1. Place the touchpad into its slot on the palm-rest and keyboard assembly.
2. Place the touchpad bracket onto the touchpad.
3. Align the touchpad bracket to the screw holes on the palm-rest and keyboard assembly.
4. Replace the four screws (M2x1.8) and the five screws (M2x2.5) that secure the touchpad bracket to the palm-rest and keyboard assembly.
5. Adhere the tape to the upper right edge of the touchpad bracket.
6. Place the touchpad cable on the palm-rest and keyboard assembly.
7. Connect the touchpad cable to its connector on the touchpad and close the latch.
8. Connect the touchpad cable to its connector on the system board and close the latch.

### Next steps

1. Install the [battery](#).



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


## I/O-board and USB-board cable

### Removing the I/O-board and USB-board cable

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

#### Prerequisites

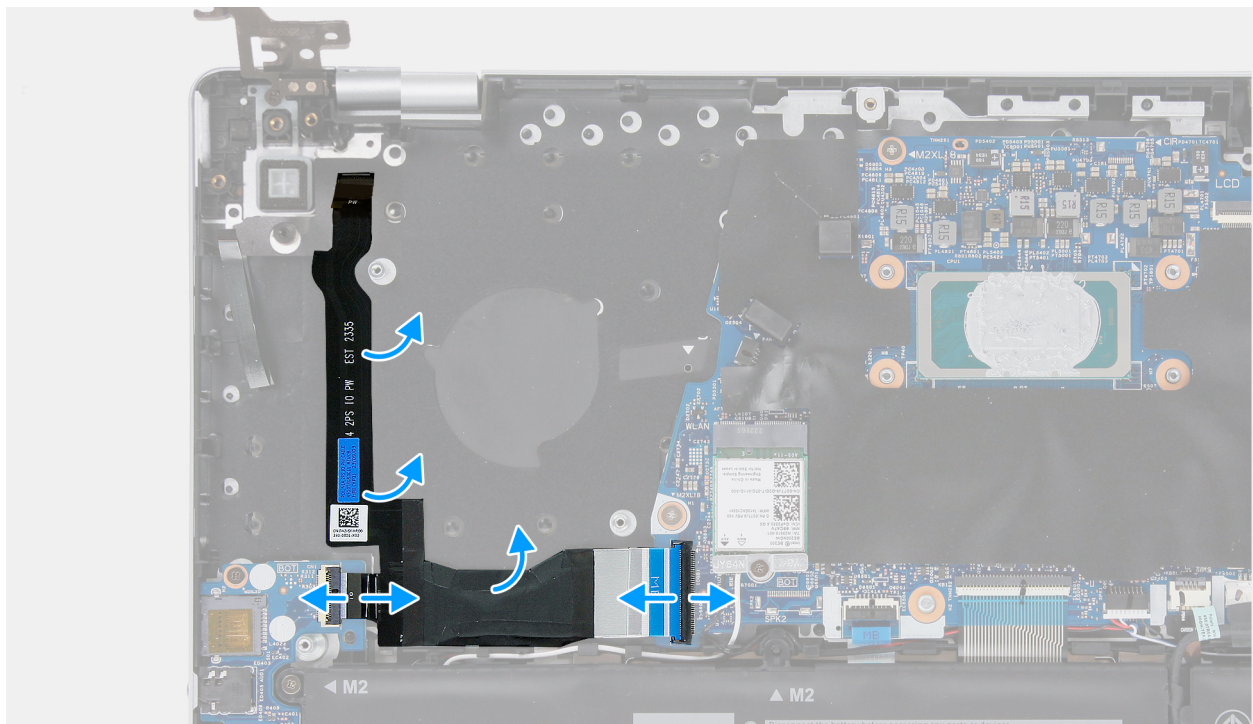
1. Follow the procedure in [Before working inside your computer](#).

 **NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

2. Remove the [base cover](#).
3. Remove the [fan](#).
4. Remove the [heat sink](#).
5. Remove the [USB board](#).

#### About this task

The following image(s) indicate the location of the I/O-board and USB-board cable and provides a visual representation of the removal procedure.



**Figure 49. Removing the I/O-board and USB-board cable**

#### Steps

1. Lift the latch and disconnect the I/O-board cable from its connector on the system board.
2. Lift the latch and disconnect the I/O-board cable from its connector on the I/O board.
3. Peel the I/O-board and USB-board cable off the palm-rest and keyboard assembly.

## Installing the I/O-board and USB-board cable

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

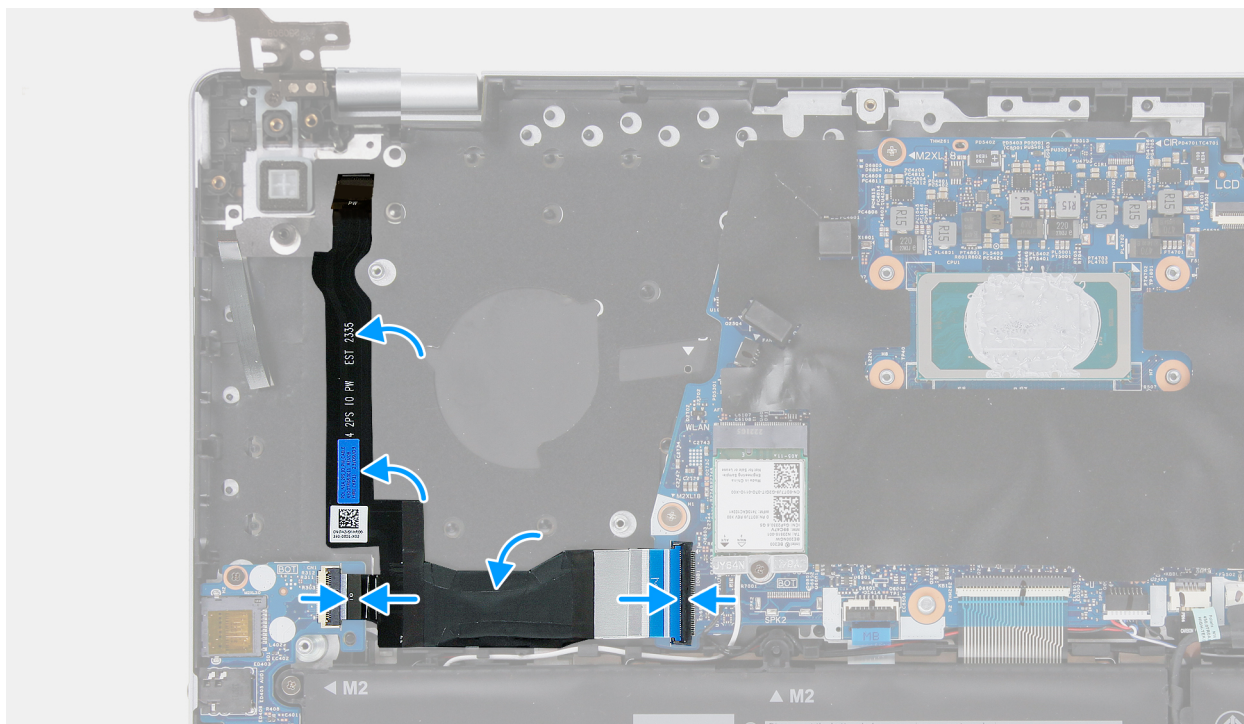
### Prerequisites

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

### 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(s) indicate the location of the palm-rest and keyboard assembly and provides a visual representation of the installation procedure.



**Figure 50. Installing the I/O-board and USB-board cable**

### Steps

1. Replace the I/O-board and USB-board cable on the palm-rest and keyboard assembly.
2. Connect the I/O-board cable to its connector on the system board and close the latch.
3. Connect the I/O-board cable to its connector on the I/O board and close the latch.

### Next steps

1. Install the [USB board](#).
2. Install the [heat sink](#).
3. Install the [fan](#).
4. Install the [base cover](#).
5. Follow the procedure in [After working inside your computer](#).


# Palm-rest and keyboard assembly

## Removing the palm-rest and keyboard assembly


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

### Prerequisites

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

 **NOTE:** Ensure that your computer is in Service Mode. For more information, see **step 6** in [Before working inside your computer](#).

2. Remove the [base cover](#).
3. Remove the [battery](#).
4. Remove the [M.2 2230 solid-state drive](#) or the [M.2 2280 solid-state drive](#), whichever is applicable.
5. Remove the [display assembly](#).
6. Remove the [fan](#).
7. Remove the [wireless card](#).
8. Remove the [speaker and antenna assembly](#).
9. Remove the [power-adaptor port](#).
10. Remove the [system board](#).

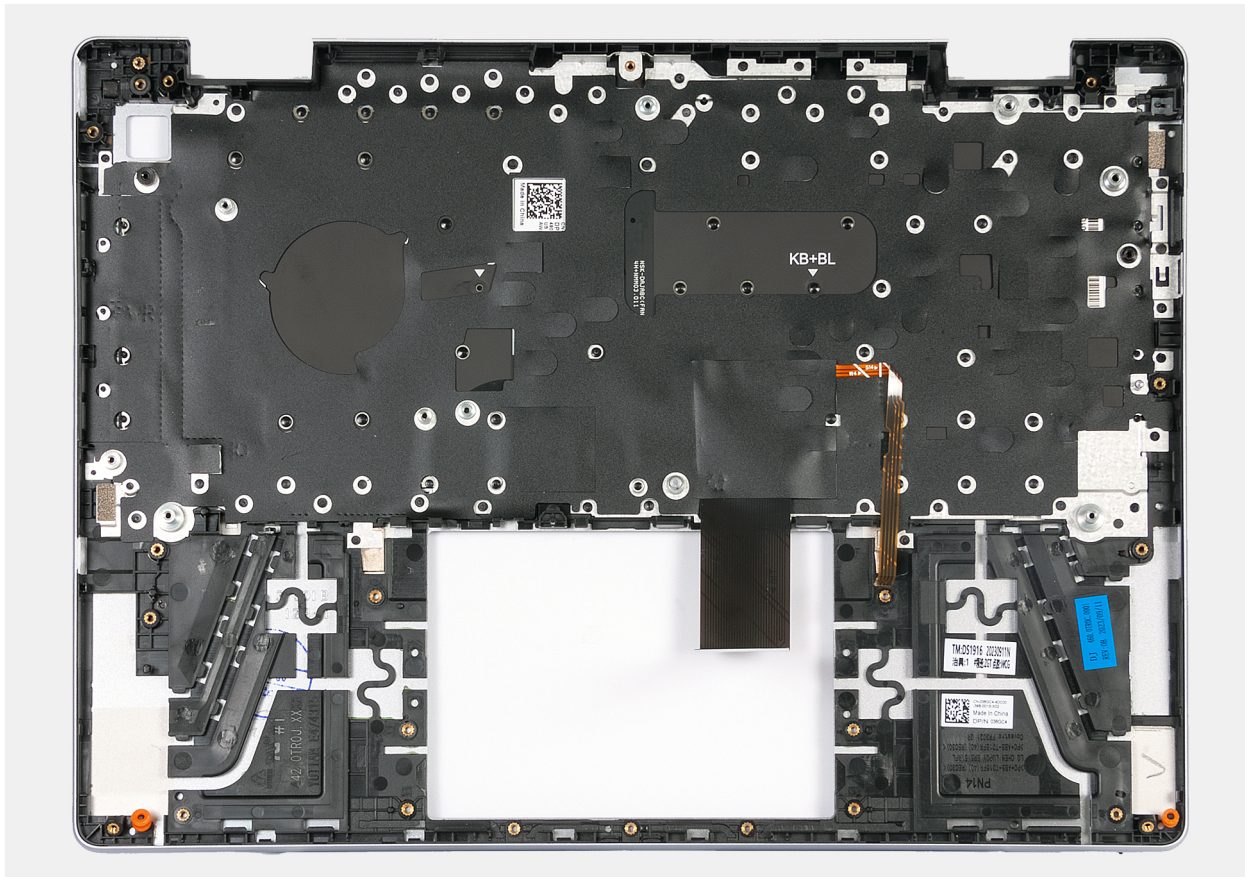
 **NOTE:** The system board can be removed with the heat sink attached.

11. Remove the [I/O board](#).
12. Remove the [USB board](#).
13. Remove the [I/O-board and USB-board cable](#).
14. Remove the [power button](#).
15. Remove the [touchpad](#).

### About this task

The following image(s) indicate the location of the palm-rest and keyboard assembly and provides a visual representation of the removal procedure.





**Figure 51. Palm-rest and keyboard assembly**

### Steps

After performing the steps in [Prerequisites](#), you are left with the palm-rest and keyboard assembly.

**NOTE:** The palm-rest and keyboard assembly consists of the following:

- Palm rest
- Keyboard

## Installing the palm-rest and keyboard assembly

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

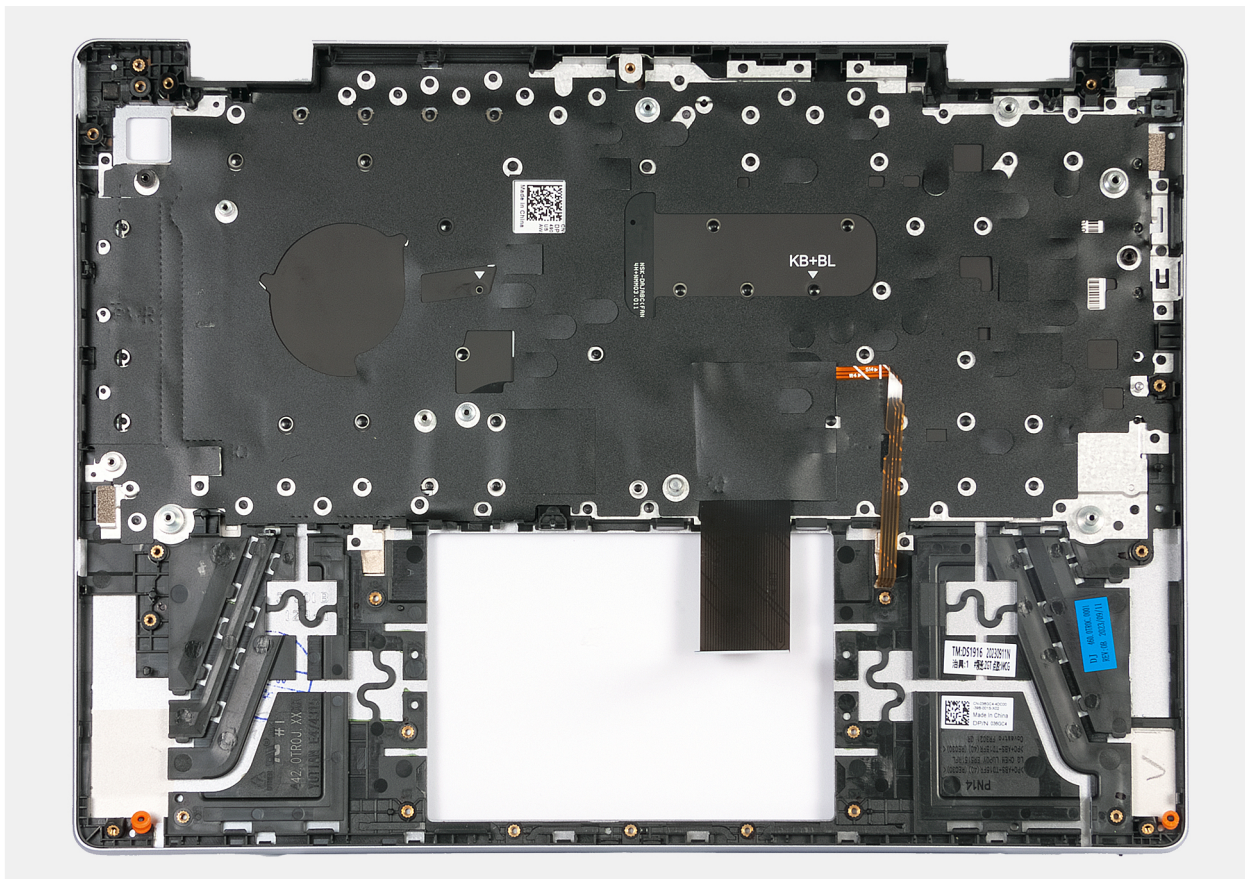
### Prerequisites

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

### 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(s) indicate the location of the palm-rest and keyboard assembly and provides a visual representation of the installation procedure.



**Figure 52. Palm-rest and keyboard assembly**

### Steps

Place the palm-rest and keyboard assembly on a flat and clean surface and perform the tasks in the [Post-requisites](#) to install the palm-rest and keyboard assembly.

**i NOTE:** The palm-rest and keyboard assembly consists of the following:

- Palm rest
- Keyboard

### Next steps

1. Install the [touchpad](#).
2. Install the [power button](#).
3. Install the [I/O-board and USB-board cable](#).
4. Install the [USB board](#).
5. Install the [I/O board](#).
6. Install the [system board](#).

**i NOTE:** The system board can be installed with the heat sink pre-attached.

7. Install the [power-adaptor port](#).
8. Install the [speaker and antenna assembly](#).
9. Install the [wireless card](#).
10. Install the [fan](#).
11. Install the [display assembly](#).
12. Install the [M.2 2230 solid-state drive](#) or the [M.2 2280 solid-state drive](#), whichever is applicable.
13. Install the [battery](#).
14. Install the [base cover](#).
15. Follow the procedure in [After working inside your computer](#).

# Software

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

## Operating system


Your Inspiron 14 Plus 7440 supports the following operating systems:


- Windows 11 Pro, 64-bit
- Windows 11 Pro National Education, 64-bit
- Windows 11 Home, 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](#).

# BIOS Setup

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

 **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.

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 a user-selectable option, such as the user password, type of storage device installed, and enable or disable base devices.

## Entering BIOS Setup program

### About this task

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

## Navigation keys


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

**Table 28. Navigation keys**

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

## F12 One Time Boot menu

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


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

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

- Removable Drive (if available)




- STXXXX Drive (if available)

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

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

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

## System setup options

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


**Table 29. System setup options—Overview menu**

Overview	
<b>Inspiron 14 Plus 7440</b>	
BIOS Version	Displays the BIOS version number.
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Displays the Asset Tag of the computer.
Manufacture Date	Displays the manufacture date of the computer.
Ownership Date	Displays the ownership date of the computer.
Express Service Code	Displays the express service code of the computer.
Ownership Tag	Displays the ownership tag of the computer.
Signed Firmware Update	Displays whether the signed firmware update is enabled. Default: Enabled
<b>BATTERY</b>	
Primary	Displays the battery health information.
Battery Level	Displays the primary battery.
Battery State	Displays the battery level.
Health	Displays the battery state.
AC Adapter	Displays the battery health.
<b>PROCESSOR</b>	
Processor Type	Displays whether an AC adapter is connected. If connected, the AC adapter type.
Maximum Clock Speed	Displays the processor type.
Minimum Clock Speed	Displays the maximum processor clock speed.
Current Clock Speed	Displays the minimum processor clock speed.
Core Count	Displays the current processor clock speed.
Processor ID	Displays the number of cores on the processor.
Processor L2 Cache	Displays the processor identification code.
Processor L3 Cache	Displays the processor L2 Cache size.
Microcode Version	Displays the processor L3 Cache size.
Intel® Hyper-Threading Capable	Displays the microcode version.
64-Bit Technology	Displays whether the processor is Hyper-Threading (HT) capable.
	Displays whether 64-bit technology is used.

**Table 29. System setup options—Overview menu (continued)**

Overview	
<b>MEMORY</b>	
Memory Installed	Displays the total computer memory installed.
Memory Available	Displays the total computer memory available.
Memory Speed	Displays the memory speed.
Memory Channel Mode	Displays single or dual channel mode.
Memory Technology	Displays the technology that is used for the memory.
<b>DEVICES</b>	
Panel Type	Displays the panel type of the computer.
Panel Revision	Displays the panel revision of the computer.
Video Controller	Displays the integrated graphics information of the computer.
Video Memory	Displays the video memory information of the computer.
Wi-Fi Device	Displays the Wi-Fi device installed in the computer.
Native Resolution	Displays the native resolution of the computer.
Video BIOS Version	Displays the video BIOS version of the computer.
Audio Controller	Displays the audio controller information of the computer.
Bluetooth® Device	Displays whether a Bluetooth device is installed in the computer.

**Table 30. System setup options—Boot Configuration menu**

Boot Configuration	
<b>Boot Sequence</b>	
Boot Mode: UEFI only	Displays the boot mode of this computer.
Boot Sequence	<p>Specifies the order that the BIOS searches the list of devices to find an operating system to boot.</p> <p>By default, Windows Boot Manager is selected.</p> <p>By default, UEFI Hard Drive is selected.</p>
<b>Secure Digital (SD) Card Boot</b>	
Enable Secure Digital (SD) Card Boot	Enable or disable booting from a Secure Digital (SD) card.
<b>Secure Boot</b>	
Enable Secure Boot	<p>Enables secure boot using only validated boot software.</p> <p>Default: OFF</p>
Enable Microsoft UEFI CA	<p>Enables UEFI CA to be included in the BIOS UEFI Secure Boot DB.</p> <p>Default: ON</p>
Secure Boot Mode	<p>Modifies the behavior of Secure Boot to allow evaluation or enforcement of UEFI driver signatures. Deployed Mode should be selected for normal operation of Secure Boot.</p> <p>By default, Deployed Mode is selected.</p>
<b>Expert Key Management</b>	
Enable Custom Mode	<p>Allows the PK, KEK, db, and dbx security key databases to be modified.</p> <p>Default: OFF</p>
<p> <b>NOTE:</b> If Custom Mode is not enabled, any changes made with respect to the keys will not be saved.</p>	



**Table 30. System setup options—Boot Configuration menu (continued)**

Boot Configuration	
Custom Mode Key Management	<p>Allows for selection of key database.</p> <ul style="list-style-type: none"> <li>• Save to File will save the key to a user-selected file.</li> <li>• Replace from File will replace the current key with a key from a user-selected file.</li> <li>• Append from File will add a key to the current database from a user-selected file.</li> <li>• Delete will delete the selected key.</li> <li>• Reset All Keys will reset all four keys to their default settings.</li> </ul> <p>By default, PK security key database is selected.</p> <p>By default, Save to File is selected.</p>

**Table 31. System setup options—Integrated Devices menu**

Integrated Devices	
<b>Date/Time</b>	
Date	Sets the computer date in MM/DD/YYYY format. Changes to the date take effect immediately.
Time	Sets the computer time in HH/MM/SS 24-hour format. You can switch between 12-hour and 24-hour clock. Changes to the time take effect immediately.
<b>Camera</b>	
Enable Camera	<p>Enables or disables the camera.</p> <p>By default, Enable Camera is selected.</p>
<b>Audio</b>	<p>Enables or disables all integrated audio controller.</p> <p>Default: ON</p>
Enable Microphone	<p>Enables or disables microphone.</p> <p>By default, Enable Microphone is selected.</p>
Enable Internal Speaker	<p>Enables or disables internal speaker.</p> <p>By default, Enable Internal Speaker is selected.</p>
<b>USB/Thunderbolt Configuration</b>	
Enable External USB Ports	<p>Enables or disables external USB ports.</p> <p>By default, Enable External USB Ports is selected.</p>
Enable USB Boot Support	<p>Enables or disables booting from USB mass storage devices such as external hard drive, optical drive, and USB drive.</p> <p>By default, Enable USB Boot Support is selected.</p>
<b>Enable Thunderbolt™ Boot Support</b>	<p>Enables or disables Thunderbolt adapter features during pre-boot.</p> <p>Default: OFF</p>
<b>Enable Thunderbolt™ (and PCIe behind TBT) pre-boot modules</b>	<p>Enables or disables pre-boot execution of option ROMs of PCIe devices that are connected through the Thunderbolt adapter features.</p> <p>Default: OFF</p>
<b>Miscellaneous Devices</b>	<p>Enable or disable the fingerprint reader device.</p>

**Table 32. System setup options—Storage menu**

Storage		
<b>SATA/NVMe Operation</b>		
SATA/NVMe Operation		Configures operating mode of the integrated storage device controller.  Default: RAID On. Storage device is configured to support RAID functions. When enabled, all NVMe and SATA devices will be mapped under VMD controller. Windows RST (Intel Rapid Restore Technology) driver, or Linux kernel VMD driver must be loaded in order to boot the OS.
<b>Storage Interface</b>		
Port Enablement		Enables or disables the onboard drives.  Default: ON
<b>Smart Reporting</b>		
Enable Smart Reporting		Enables BIOS to receive analytical information from integrated drives and send notifications during startup about possible future failure of the hard drive.  Default: OFF
<b>Drive Information</b>		
<b>M.2 PCIe SSD</b>		
Type		Displays the M.2 PCIe SSD type information of the system.
Device		Displays the M.2 PCIe SSD device information of the system.
<b>Enable MediaCard</b>		
		Enable or disable the Secure Digital (SD) card.  By default, <b>Secure Digital (SD) Card</b> is enabled.

**Table 33. System setup options—Display menu**

Display		
<b>Display Brightness</b>		
Brightness on battery power		Sets the screen brightness when the computer is running on battery power.  Default: 40
Brightness on AC power		Sets the screen brightness when the computer is running on AC power.  Default: 40
<b>Full Screen Logo</b>		
Full Screen Logo		Enables or disables display of full screen logo if the image matches screen resolution.  Default: OFF


**Table 34. System setup options—Connection menu**

Connection		
<b>Wireless Device Enable</b>		
WLAN		Enables or disables the internal WLAN device.  Default: Selected
Bluetooth®		Enables or disables the internal Bluetooth device.  Default: Selected
<b>Enable UEFI Network Stack</b>		
		Enables or disables the UEFI Network Stack.  Default: Selective Enabled

**Table 34. System setup options—Connection menu (continued)**

Connection	
<b>Dynamic Wireless Transmit Power</b>	Enables or disables increase of transmit power of WLAN device. Default: Selected
<b>HTTP(s) Boot Feature</b>	
HTTP(s) Boot	Enables or disables HTTP(s) boot. Default: ON
HTTP(s) Boot Modes	Enables selection of Auto or Manual boot mode. Default: Auto Mode
Upload	Enables uploading of CA certificate required for connecting to the HTTPs boot server.
Delete	Enables deleting of CA certificate.

**Table 35. System setup options—Power menu**

Power	
<b>Battery Configuration</b>	Configures basic battery settings. Default: Adaptive
<b>Advanced Configuration</b>	
Enable Advanced Battery Charge Configuration	Enables or disables advanced battery configuration settings for maximizing battery health. Default: OFF  Beginning of Day: Configures the beginning of day for Monday to Sunday. Default: 8.00 AM  Work Period: Configures the number of work hours for Monday to Sunday. Default: 10.00
<b>Thermal Management</b>	Configures settings for cooling fan and processor heat management. Default: Optimized
<b>USB Wake Support</b>	
Wake on Dell USB-C Dock	Enables or disables waking up a computer from Standby, Hibernate, or Power Off, when connecting a Dell USB-C Dock. Default: ON
<b>Block Sleep</b>	Allows or blocks Sleep (S3) mode in the operating system. Default: OFF
<b>Lid Switch</b>	
Enable Lid Switch	Enables or disables the lid switch. Default: ON
Power On Lid Open	Enables or disables the computer to power on from the off state when the lid is opened.  <b>NOTE:</b> For computers shipped with Intel Core Ultra 5/7/9 processor only. Default: ON

**Table 35. System setup options—Power menu (continued)**

Power	
<b>Intel Speed Shift Technology</b>	Enables or disables Intel Speed Shift Technology support. Default: ON

**Table 36. System setup options—Security menu**

Security	
<b>Intel® Platform Trust Security</b>	
Intel Platform Trust Security On	Select whether Intel® Platform Trust Security is visible to the operating system. Default: ON
PPI Bypass for Clear Commands	Controls whether the operating system can skip BIOS Physical Presence Interface (PPI) prompts when the Clear command is issued. Default: OFF
Clear	Clears PPI owner information and returns PTT to the default state. Default: OFF
<b>SMM Security Mitigation</b>	Enables or displays additional UEFI SMM Security Mitigation protections. Default: OFF
<b>Data Wipe on Next Boot</b>	
Start Data Wipe	Enables the BIOS to queue up a data wipe cycle for storage devices during next reboot. Default: OFF
<b>Absolute®</b>	Enables, disables, or permanently disables the BIOS module interface of the optional Absolute Persistence Module service from Absolute Software. Default: Enable Absolute
<b>UEFI Boot Path Security</b>	Selects whether or not administrator password is required when booting to a UEFI boot path device from the F12 boot menu. Default: Always Except Internal HDD

**Table 37. System setup options—Passwords menu**

Passwords	
<b>Admin Password</b>	Enables the user to set, change, or delete the administrator (admin) password. The admin password enables several security features
<b>System Password</b>	Enables the user to set, change, or delete the system password.
<b>M.2 PCIe SSD-0</b>	Enables the user to set, change, or delete the password for the internal storage.
<b>Password Configuration</b>	
Upper Case Letter	Forces the password to have at least one uppercase letter. Default: OFF
Lower Case Letter	Forces the password to have at least one lowercase letter. Default: OFF
Digit	Forces the password to have at least one digit number. Default: OFF
Special Character	Forces the password to have at least one special character.

**Table 37. System setup options—Passwords menu (continued)**

Passwords	
	Default: OFF
Minimum Characters	Sets the minimum characters allowed for the password. Default: 04
<b>Password Bypass</b>	Enables or disables prompting for system and hard drive passwords when powered on from the OFF state. Default: Disabled
<b>Password Changes</b>	
Allow Non-Admin Password Changes	Enables changing of system and hard drive passwords without the need for admin password. Default: ON
<b>Admin Setup Lockout</b>	
Enable Admin Setup Lockout	Enables administrators to control how the users can access the BIOS Setup. Default: OFF
<b>Master Password Lockout</b>	
Enable Master Password Lockout	Enables or disables master password support. Default: OFF
<b>Allow Non-Admin PSID Revert</b>	
Enable Allow Non-Admin PSID Revert	Allows or prohibits PSID revert without the need for BIOS administrator password. Default: OFF

**Table 38. System setup options—Update, Recovery menu**

Update, Recovery	
<b>UEFI Capsule Firmware Updates</b>	
Enable UEFI Capsule Firmware Updates	Enables or disables BIOS updates through UEFI capsule update packages. Default: ON
<b>BIOS Recovery from Hard Drive</b>	Enables or disables system recovery through BIOS recovery file on the primary hard drive or an external USB key. Default: ON
<b>BIOS Downgrade</b>	
Allow BIOS Downgrade	Enables or disables BIOS downgrade to earlier revisions. Default: ON
<b>SupportAssist OS Recovery</b>	Enables or disables the boot flow for SupportAssist OS Recovery tool, in the event of certain system error. Default: ON
<b>BIOSConnect</b>	Enables or disables cloud Service OS recovery if the main OS fails to boot within the number of failures equal or greater than the value specified by Dell Auto OS Recovery Threshold, and local Service does not boot, or is not installed. Default: ON



**Table 38. System setup options—Update,Recovery menu (continued)**

Update,Recovery	
<b>Dell Auto OS Recovery Threshold</b>	Controls the automatic boot flow for SupportAssist System Resolution Console and for Dell operating system Recovery tool.  Default: 2.

**Table 39. System setup options—System Management menu**

System Management	
<b>Service Tag</b>	Displays the Service Tag of the computer.
<b>Asset Tag</b>	Creates a system Asset Tag that can be used by an IT administrator to uniquely identify a particular system. Once set in BIOS, the Asset Tag cannot be changed.
<b>AC Behavior</b>	
Wake on AC	Enables the computer to briefly power on when AC power is connected.  Default: OFF
<b>Auto On Time</b>	Enables the computer to automatically power on for defined days or times.  Default: Disabled
<b>Diagnostics</b>	
OS Agent Requests	Enables or disables Dell OS Agents to schedule onboard diagnostics on a subsequent boot.  Default: ON

**Table 40. System setup options—Keyboard menu**

Keyboard	
<b>Keyboard Illumination</b>	Allows for selection of keyboard illumination settings.  Default: Bright
<b>Keyboard Backlight Timeout on AC</b>	Allows for selection of keyboard backlight timeout value, when an AC adapter is plugged into the computer.  Default: 1 minute
<b>Keyboard Backlight Timeout on Battery</b>	Allows for selection of keyboard backlight timeout value, when the computer is running on battery power.  Default: 1 minute

**Table 41. System setup options—Pre-boot Behavior menu**

Pre-boot Behavior	
<b>Adapter warnings</b>	
Enable Adapter warnings	Enables or disables the computer to display adapter warning messages when adapters with too little power capacity are detected.  Default: ON
<b>Warnings and Errors</b>	Selects an action on encountering a warning or error during boot.  Default: Prompt on Warnings and Errors. Stop, prompt, and wait for user input when warnings or errors are detected.
	<b>NOTE:</b> Errors deemed critical to the operation of the computer hardware will always halt the computer.
<b>USB-C Warnings</b>	

**Table 41. System setup options—Pre-boot Behavior menu (continued)**

<b>Pre-boot Behavior</b>	
Enable Dock Warning Messages	Enables or disables dock warning messages.
<b>Fastboot</b>	Selects the speed of the UEFI boot process Default: Thorough
<b>Extend BIOS Post Time</b>	Selects the BIOS POST load time. Default: 0 seconds

**Table 42. System setup options—Virtualization Support menu**

<b>Virtualization Support</b>	
<b>Intel® Virtualization Technology</b>	
Enable Intel Virtualization Technology (VT)	Enables or disables Intel Virtualization technology. Default: ON
<b>VT for Direct I/O</b>	
Enable Intel VT for Direct I/O	Enables or disables Intel Virtualization technology for direct I/O. Default: ON
<b>DMA Protection</b>	
Enable Pre-Boot DMA Support	Enables or disables pre-boot DMA protection for both internal and external ports. Default: ON
Enable OS Kernel DMA Support	Enables or disables Kernel DMA protection for both internal and external ports. Default: ON

**Table 43. System setup options—Performance menu**

<b>Performance</b>	
<b>Multi-core Support</b>	
Active Cores	Allows to change the number of CPU cores available to the operating system. Default: All Cores
Multiple Atom Cores	Allows to change the number of Atom cores available to the operating system. Default: All Cores
<b>Intel SpeedStep</b>	
Enable Intel® SpeedStep Technology	Enables or disables Intel® SpeedStep technology. Default: ON
<b>C-States Control</b>	
Enable C-State Control	Enables or disables C-states. Default: ON
<b>Intel® Turbo Boost Technology</b>	
Enable Turbo Boost Technology	Enables or disables Turbo Boost mode of the processor. Default: ON
<b>Intel® Hyper-Threading Technology</b>	
Enable Intel® Hyper-Threading Technology	Enables or disables Intel® Hyper-Threading technology. Default: ON


**Table 44. System setup options—System Logs menu**

System Logs		
<b>BIOS Event Log</b>		
Clear Bios Event Log		Select keep or clear BIOS events. Default: Keep Log
<b>Thermal Event Log</b>		
Clear Thermal Event Log		Select keep or clear Thermal events. Default: Keep Log
<b>Power Event Log</b>		
Clear Power Event Log		Select keep or clear Power events. Default: Keep Log

## Updating the BIOS


### Updating the BIOS in Windows

#### Steps

1. Go to [Dell Support Site](#).
2. Go to **Identify your product or search support**. In the box, enter the product identifier, model, service request or describe what you are looking for, and then click **Search**.  
 **NOTE:** If you do not have the Service Tag, use the SupportAssist to automatically identify your computer. You can also use the product ID or manually browse for your computer model.
3. Click **Drivers & Downloads**. Expand **Find drivers**.
4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. After the download is complete, browse the folder where you saved the BIOS update file.
8. Double-click the BIOS update file icon and follow the on-screen instructions.  
For more information about how to update the system BIOS, search in the Knowledge Base Resource at [Dell Support Site](#).

### Updating the BIOS using the USB drive in Windows

#### Steps

1. Go to [Dell Support Site](#).
2. Go to **Identify your product or search support**. In the box, enter the product identifier, model, service request or describe what you are looking for, and then click **Search**.  
 **NOTE:** If you do not have the Service Tag, use the SupportAssist to automatically identify your computer. You can also use the product ID or manually browse for your computer model.
3. Click **Drivers & Downloads**. Expand **Find drivers**.
4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. Create a bootable USB drive. For more information, search the Knowledge Base Resource at [Dell Support Site](#).
8. Copy the BIOS Setup program file to the bootable USB drive.
9. Connect the bootable USB drive to the computer that needs the BIOS update.

10. Restart the computer and press **F12**.
11. Select the USB drive from the **One Time Boot Menu**.
12. Type the BIOS Setup program filename and press **Enter**.  
The **BIOS Update Utility** appears.
13. Follow the on-screen instructions to complete the BIOS update.

## Updating the BIOS from the One-Time boot menu

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

### About this task

#### BIOS Update

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

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

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

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


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

### Steps

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

## System and setup password


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

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

**Table 45. System and setup password**

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

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

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

## Assigning a System Setup password

### Prerequisites

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

### Steps


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

## Deleting or changing an existing system password or setup password

### Prerequisites

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

### Steps

1. In the **System BIOS** or **System Setup** screen, select **System Security** and press Enter.  
The **System Security** screen is displayed.
2. In the **System Security** screen, verify that the **Password Status** is Unlocked.
3. Select **System Password**. Update or delete the existing system password, and press Enter or Tab.
4. Select **Setup Password**. Update or delete the existing setup password, and press Enter or Tab.  
 **NOTE:** If you change the system password and/or setup password, reenter the new password when prompted. If you delete the system password and/or setup password, confirm the deletion when prompted.
5. Press Esc. A message prompts you to save the changes.
6. Press Y to save the changes and exit from **System Setup**.  
The computer restarts.

## Clearing CMOS settings

### About this task

 **CAUTION:** Clearing the CMOS settings will reset the BIOS settings on your computer.




### Steps

1. Remove the [base cover](#).
2. Disconnect the battery cable from the system board.
3. Wait for one minute.
4. Connect the battery cable to the system board.
5. Replace the [base cover](#).

## Clearing system and setup passwords

### About this task

To clear the system or setup passwords, contact Dell technical support as described at [Contact Support](#).

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

# 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](#).

## Locating the Service Tag or Express Service Code of your Dell computer

Your Dell computer is uniquely identified with a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, we recommend entering the Service Tag or Express Service Code at [Dell Support Site](#).


For more information about how to find the Service Tag for your computer, see [Instructions on how to find your Service Tag or Serial Number](#).

# 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 built-in 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 indicator LED 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 LED flashes one of the following error codes for 30 seconds:


**Table 46. 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

- 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.

## Logical 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

- Turn on your computer.
- 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.
- For cases, when a [2,7] error code is shown, check to see if the display cable is properly connected.
- 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

- Turn off your computer.
- Disconnect any peripherals that are connected to the computer. Connect only the AC adapter (charger) to the computer.
- Ensure that the LCD (screen) is clean (no dust particles on the surface of the screen).
- 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.
- The screen displays solid colors and changes colors on the entire screen to white, black, red, green, and blue twice.
- Then it displays the colors white, black, and red.
- Carefully inspect the screen for abnormalities (any lines, fuzzy color, or distortion on the screen).
- 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 Inspiron 14 Plus 7440.

**Table 47. System-diagnostic lights**

Blinking pattern		Problem description
Amber	White	
1	1	TPM detection failure
1	2	Unrecoverable SPI flash failure
1	3	Short in hinge cable tripped OCP1
1	4	Short in hinge cable tripped OCP2
1	5	EC unable to program i-Fuse
1	6	EC internal failure
1	7	Non-RPMC Flash on boot guard fused system
2	1	Processor failure
2	2	System board: BIOS or ROM (Read-Only Memory) failure
2	3	No memory or RAM (Random-Access Memory) detected
2	4	Memory or RAM (Random-Access Memory) failure
2	5	Memory or RAM (Random-Access Memory) failure
2	6	System-board or chipset error
2	7	Display failure - SBIOS message
2	8	Display failure - EC detection of power rail failure
3	2	PCI of video card/chip failure
3	3	BIOS recovery image not found
3	4	BIOS recovery image found but invalid
3	5	Power-rail failure
3	6	System BIOS Flash corruption.
3	7	Management Engine (ME) error
4	1	Memory or RAM (Random-Access Memory) failure
4	2	Processor failure

**NOTE:** Blinking pattern 3-3-3 on Lock LED (Caps-Lock or Num-Lock), Power button LED (without Fingerprint reader), and Diagnostic LED indicates failure to provide input during LCD panel test on the "Dell SupportAssist Pre-boot System Performance Check" diagnostics.

**Camera status light:** Indicates whether the camera is in use.

- Solid white—Camera is in use.
- Off—Camera is not in use.

**Caps Lock status light:** Indicates whether Caps Lock is enabled or disabled.



- Solid white—Caps Lock enabled.
- Off—Caps Lock disabled.

## 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 in 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**.

## 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 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.



**CAUTION:** The battery is a Field Replaceable Unit (FRU) and the removal and installation procedures are intended for authorized service technicians only.

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.

# Getting help and contacting Dell Technologies

## Self-help resources


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


**Table 48. Self-help resources**

Self-help resources	Resource location
Information about Dell Technologies products and services	<a href="#">Dell Site</a>
MyDell app	
Tips	
Contact Support	In Windows search, type <code>Contact Support</code> , and press Enter.
Online help for operating system	<a href="#">Windows Support Site</a>
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals, and documents.	<p>Your Dell Technologies computer is uniquely identified using a Service Tag or Express Service Code. To view relevant support resources for your Dell Technologies computer, enter the Service Tag or Express Service Code at <a href="#">Dell Support Site</a>.</p> <p>For more information about how to find the Service Tag for your computer, see <a href="#">Instructions on how to find your Service Tag or Serial Number</a>.</p>
Dell Technologies knowledge base articles	<ol style="list-style-type: none"> <li>1. Go to <a href="#">Dell Support Site</a>.</li> <li>2. On the menu bar at the top of the Support page, select <b>Support &gt; Support Library</b>.</li> <li>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.</li> </ol>

## Contacting Dell Technologies

To contact Dell Technologies 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 about your purchase invoice, packing slip, bill, or Dell Technologies product catalog.