Dell 14 Plus

DB14250

Owner's Manual

Regulatory Model: P197G
Regulatory Type: P197G001
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DELL Technologies

Notes, cautions, and warnings

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

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

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

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1

Views of Dell 14 Plus DB14250

Right

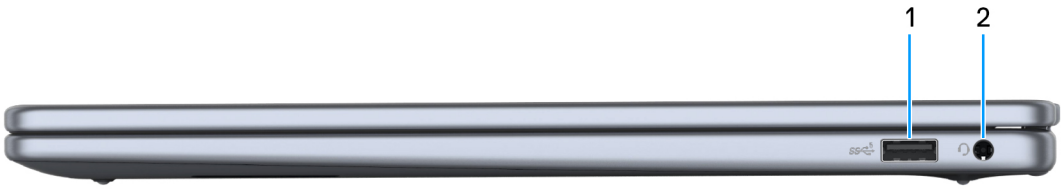


Figure 1. Right view

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

   Connect a device such as an external storage device or a printer. Provides a data transfer speed of up to 5 Gbps.

2. **Global headset jack**

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

Left



Figure 2. Left view

1. **HDMI 2.1**

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

2. **USB 3.2 Gen 2 Type-C port with DisplayPort 1.4 and Power Delivery**

   Connect a peripheral such as an external storage device, a printer, or an external display. Provides a data transfer rate of up to 10 Gbps.

   Supports DisplayPort and also enables you to connect to an external display using a display adapter.

3. **Thunderbolt 4 port with DisplayPort 2.1 and Power Delivery**

   Supports DisplayPort 2.1 and Thunderbolt 4; enables you to connect to an external display using a display adapter (sold separately). Provides a data transfer rate of up to 40 Gbps for Thunderbolt 4.

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

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

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

4. **Battery-status light**

   Indicates the battery-charge status.

   - Solid yellow: battery charge is low
   - Blinking yellow: battery charge is critical

Top

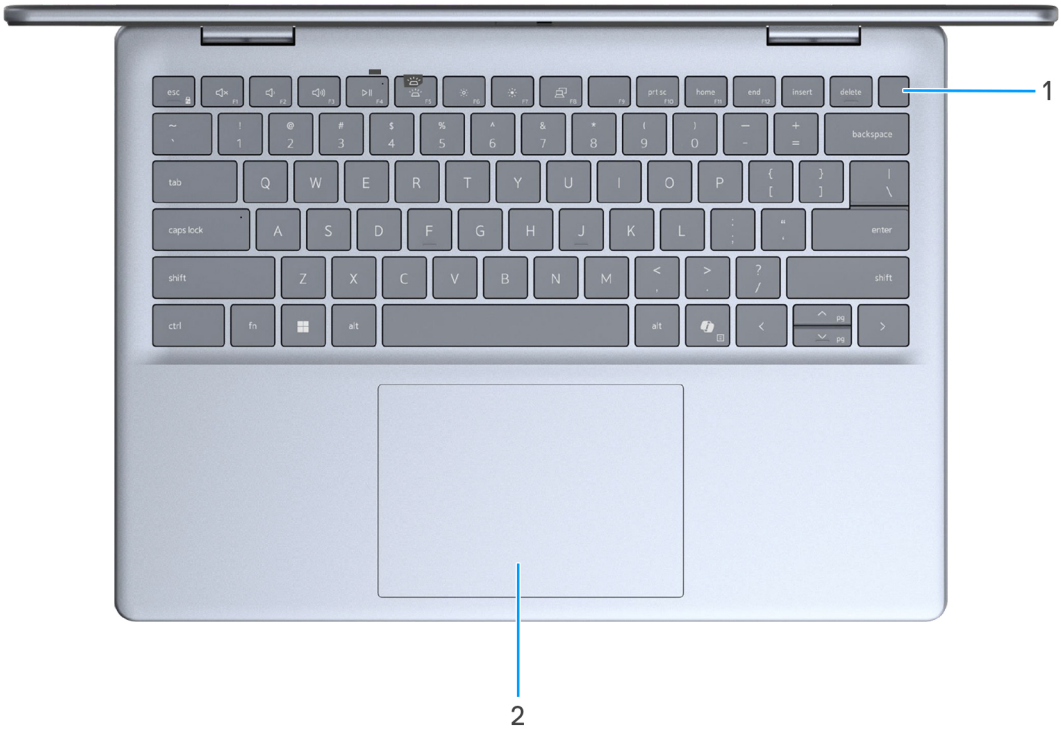


Figure 3. Top view

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 with fingerprint reader to put the computer into a sleep state; press and hold the power button with fingerprint reader 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: Register your fingerprint as password in Windows settings. You can customize the power-button behavior in Windows.

2. **Touchpad**

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

Front



Figure 4. Front view

1. **Left microphone**

   Provides digital sound input for audio recording and voice calls.

2. **Infrared emitter (optional)**

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

3. **Infrared camera (optional)**

   Enhances security when paired with Windows Hello face authentication.

4. **Camera shutter**

   Slide the privacy shutter to the left to access the camera lens.

5. **Camera**

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

6. **Camera-status light**

   Turns on when the camera is in use.

7. **Right microphone**

   Provides digital sound input for audio recording and voice calls.

Bottom

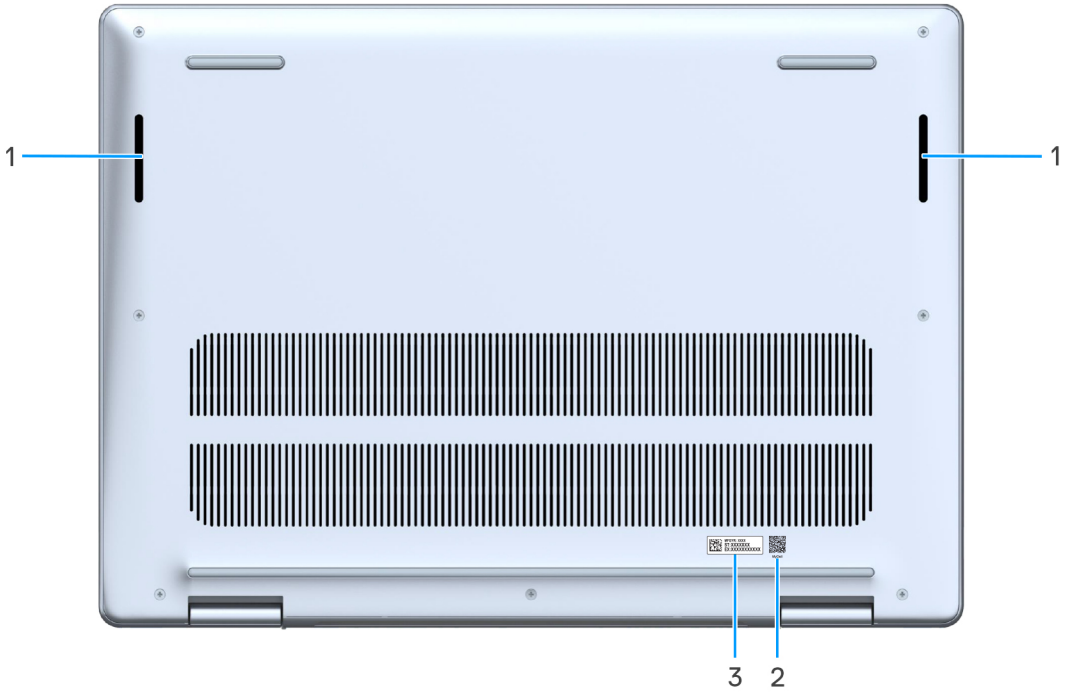


Figure 5. Bottom view

1. **Speakers**

   Provide audio output.

2. **MyDell QR code**

   MyDell is your hub for content personalized to your Dell 16 Plus DB16250, including videos, articles, manuals, and access to support.

3. **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.

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

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

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

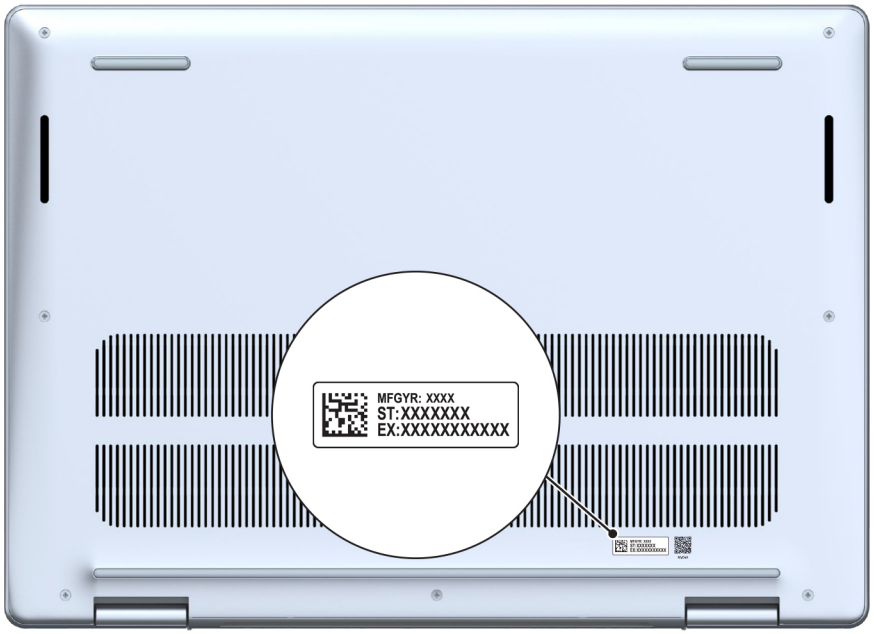


Figure 6. Service Tag/Express Service Code location

Battery-status light

The following table lists the battery-status light of your Dell 14 Plus DB14250.

Table 1. Battery-status light behavior

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

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

2

Set up your Dell 14 Plus DB14250

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 and press the power button.

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 operating system setup.

   Follow the on-screen instructions to complete the setup. When setting up, it is recommended that you:

   - Connect to a network for Windows updates.

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

   - If connected to the Internet, sign in with an existing Microsoft account or create a new 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

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

3

Specifications of Dell 14 Plus DB14250

Dimensions and weight

The following table lists the height, width, depth, and weight of your Dell 14 Plus DB14250.

Table 3. Dimensions and weight

Description	Values
Height:	
Front height	14 mm (0.55 in.)
Rear height	14.70 mm (0.58 in.)
Width	314 mm (12.36 in.)
Depth	226.15 mm (8.90 in.)
Weight **NOTE:** The weight of your computer depends on the configuration that you ordered.	• Non-touch screen: 1.55 kg (3.42 lb) • Touch screen: 1.60 kg (3.53 lb)

Processor

The following tables list the details of the processors that are supported in your Dell 14 Plus DB14250.

Table 4. Processor

Description	Option 1	Option 2	Option 3	Option 4	Option 5
Processor type	Intel Core Ultra 5 226V	Intel Core Ultra 5 228V	Intel Core Ultra 7 256V	Intel Core Ultra 7 258V	Intel Core Ultra 9 288V
Processor wattage	17 W	17 W	17 W	17 W	30 W
Processor total core count	8	8	8	8	8
Performance-cores	4	4	4	4	4
Efficient-cores	4	4	4	4	4
Processor total thread count **NOTE:** Intel Hyper-Threading Technology is available only on Performance-cores.	8	8	8	8	8
Processor speed	Up to 4.5 GHz	Up to 4.5 GHz	Up to 4.8 GHz	Up to 4.8 GHz	Up to 5.1 GHz
Frequency—Performance cores					
Processor base frequency	2.1 GHz	2.1 GHz	2.2 GHz	2.2 GHz	3.3 GHz
Maximum turbo frequency	4.5 GHz	4.5 GHz	4.8 GHz	4.8 GHz	5.1 GHz
Frequency—Efficient cores					
Processor base frequency	2.1 GHz	2.1 GHz	2.2 GHz	2.1 GHz	3.3 GHz
Maximum turbo frequency	3.5 GHz	3.5 GHz	3.7 GHz	3.7 GHz	3.7 GHz
Processor cache	8 MB	8 MB	12 MB	12 MB	12 MB
Integrated graphics	Intel Arc Graphic 130V	Intel Arc Graphic 130V	Intel Arc Graphic 140V	Intel Arc Graphic 140V	Intel Arc Graphic 140V

Chipset

The following table lists the details of the chipset that is supported by your Dell 14 Plus DB14250.

Table 5. Chipset

Description	Values
Chipset	Integrated in the processor
Processor	Intel Core Ultra i5/i7/i9
DRAM bus width	2 channels of 64-bit

Table 5. Chipset (continued)

Description	Values
Flash EPROM	32 MB + 8 MB
PCIe bus	Up to Gen4

Operating system

Your Dell 14 Plus DB14250 supports the following operating systems:

- Windows 11 Pro
- Windows 11 Pro National Education
- Windows 11 Home

Memory

The following table lists the memory specifications of your Dell 14 Plus DB14250.

Table 6. Memory specifications

Description	Values
Memory slots	Memory on processor (no slots)
Memory type	Dual-channel LPDDR5x
Memory speed	8533 MT/s
Maximum memory configuration	32 GB
Minimum memory configuration	16 GB
Memory configurations supported	• 16 GB: 2 x 8 GB, LPDDR5x, 8533 MT/s, dual-channel • 32 GB: 2 x 16 GB, LPDDR5x, 8533 MT/s, dual-channel

External ports and slots

The following table lists the external ports and slots on your Dell 14 Plus DB14250.

Table 7. External ports and slots

Description	Values
USB ports	• One USB 3.2 Gen 1 (5 Gbps) port • One USB 3.2 Gen 2 (10 Gbps) port with DisplayPort 1.4 and Power Delivery **NOTE:** You can connect a Dell Docking Station to this port. For more information, search in the Knowledge Base Resource at Dell Support Site. • One Thunderbolt 4 port with DisplayPort 2.1 and Power Delivery

Table 7. External ports and slots (continued)

Description	Values
	NOTE: You can connect a Dell Docking Station to this port. For more information, search in the Knowledge Base Resource at Dell Support Site.
Audio port	One global headset jack
Video port(s)	One HDMI 2.1 port
Media-card reader	Not supported
Power-adapter port	USB Type-C
Security-cable slot	Not supported

Internal slots

The following table lists the internal slots of your Dell 14 Plus DB14250.

Table 8. Internal slots

Description	Values
M.2	• One M.2 2230 slot for Wi-Fi and Bluetooth combo card • One M.2 2230 slot for solid-state drive **NOTE:** To learn more about the features of different types of M.2 cards, search in the Knowledge Base Resource at Dell Support Site.

Wireless module

The following table lists the Wireless Local Area Network (WLAN) modules that are supported on your Dell 14 Plus DB14250.

Table 9. Wireless module specifications

Description	Option one	Option two
Model number	Intel AX211	Intel BE201
Transfer rate	Up to 2400 Mbps	Up to 5760 Mbps
Frequency bands supported	2.4 GHz/5 GHz/6 GHz	2.4 GHz/5 GHz/6 GHz
Wireless standards	• WiFi 802.11a/b/g • Wi-Fi 4 (WiFi 802.11n) • Wi-Fi 5 (WiFi 802.11ac) • Wi-Fi 6 (WiFi 802.11ax)	• WiFi 802.11a/b/g • Wi-Fi 4 (WiFi 802.11n) • Wi-Fi 5 (WiFi 802.11ac) • Wi-Fi 6 (WiFi 802.11ax) • Wi-Fi 6 (WiFi 802.11be)
Encryption	• 64-bit/128-bit WEP • AES-CCMP • TKIP	• 64-bit/128-bit WEP • AES-CCMP • TKIP
Bluetooth wireless card	Bluetooth 5.3	Bluetooth 5.4

Table 9. Wireless module specifications (continued)

Description	Option one	Option two
	NOTE: The functionality of the Bluetooth wireless card may vary depending on the operating system that is installed on your computer.	

Audio

The following table lists the audio specifications of your Dell 14 Plus DB14250.

Table 10. Audio specifications

Description		Values
Audio controller		Realtek ALC3329
Stereo conversion		Supported
Internal audio interface		Soundwire audio interface
External audio interface		One global headset jack
Number of speakers		2
Internal-speaker amplifier		Supported (audio codec integrated)
External volume controls		Keyboard shortcut controls
Speaker output:		
	Average	2 W
	Peak	2.5 W
Microphone		Digital-array microphones in camera assembly

Storage

This section lists the storage options on your Dell 14 Plus DB14250.

Your Dell 14 Plus DB14250 supports one M.2 2230 solid-state drive. The primary drive is the M.2 2230 solid-state drive.

Table 11. Storage specifications

Storage type	Interface type	Capacity
M.2 2230 solid-state drive	Gen4 PCIe NVMe, Class 25	512 GB
M.2 2230 solid-state drive	Gen4 PCIe NVMe, Class 25	1 TB
M.2 2230 solid-state drive	Gen4 PCIe NVMe, Class 25	2 TB
M.2 2230 solid-state drive	Gen4 PCIe NVMe, Class 35	1 TB

Keyboard

The following table lists the keyboard specifications of your Dell 14 Plus DB14250.

Table 12. Keyboard specifications

Description	Values
Keyboard type	Standard Copilot key hotkey backlit keyboard
Keyboard layout	QWERTY
Number of keys	• United States and Canada: 79 keys • United Kingdom: 80 keys • Japan: 83 keys • Brazil: 81 keys
Key pitch	X = 19.05 mm key pitch Y = 18.05 mm key pitch
Keyboard shortcuts	Some keys on your keyboard have two symbols on them. These keys can be used to type alternate characters or to perform secondary functions. To type the alternate character, press Shift and the desired key. To perform secondary functions, press Fn and the desired key. **NOTE:** You can define the primary behavior of the function keys (F1–F12) changing **Function Key Behavior** in the BIOS setup program. **NOTE:** If Copilot in Windows is not available on your computer, pressing the Copilot key launches Windows search. For more information about Copilot in Windows, search in the Knowledge Base Resource at the Dell Support site.

Keyboard function keys

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

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

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

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

Table 13. Function key primary behavior

Function key	Primary behavior
F1	Mute or unmute audio
F2	Decrease volume
F3	Increase volume

Table 13. Function key primary behavior (continued)

Function key	Primary behavior
F4	Play or Pause
F5	Turn on or turn off keyboard backlight. **NOTE:** Toggle to cycle the keyboard backlight status through off, low-backlight, and high-backlight.
F6	Decrease brightness
F7	Increase brightness
F8	Switch to external display
F10	Print screen
F11	Home
F12	End

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

Table 14. Secondary behavior

Function key	Secondary behavior
fn + esc	Toggle fn-key lock
fn + S	Toggle scroll lock
fn + B	Pause or Break
fn + R	System request
fn + P	Privacy screen
fn + Copilot	Open the application menu
fn + spacebar	Open the emoji menu
fn + T	Toggle ultra performance mode
fn + Left arrow	Home
fn + Right arrow	End

Keys with alternate characters

There are other keys on your keyboard with alternate characters. The symbols that are shown at the bottom of these keys are the main characters that are displayed when the key is pressed; the symbols that are shown at the top of these keys are displayed when the key is pressed with the shift key. For example, if you press **2**, **2** is displayed; if you press **Shift** and **2**, **@** is displayed.

Camera

The following table lists the camera specifications of your Dell 14 Plus DB14250.

Table 15. Camera specifications

Description	Option 1	Option 2
Number of cameras	One	One
Camera type	FHD camera	FHD + Infrared camera

Table 15. Camera specifications (continued)

Description		Option 1	Option 2
Camera location		Front	Front
Camera sensor type		CMOS sensor technology	CMOS sensor technology
Camera resolution:			
	Still image	2.07 megapixel	2.07 megapixel
	Video	1920 x 1080 (FHD) at 30 fps	1920 x 1080 (FHD) at 30 fps
Infrared camera resolution:			
	Still image	Not supported	0.23 megapixel
	Video	Not supported	640 x 360 (FHD) at 30 fps
Diagonal viewing angle:			
	Camera	82.20 degrees	80.20 degrees
	Infrared camera	Not supported	86.60 degrees

Touchpad

The following table lists the touchpad specifications of your Dell 14 Plus DB14250.

Table 16. Touchpad specifications

Description		Values
Touchpad resolution:		>300 DPI
Touchpad dimensions:		
	Horizontal	115
	Vertical	80
Touchpad gestures		For more information about the touchpad gestures available on Windows, see the Microsoft Knowledge Base article at Microsoft Support Site.

Power adapter

The following table lists the power adapter specifications of your Dell 14 Plus DB14250.

Table 17. Power-adapter specifications

Description		Values
Type		65 W, USB-C
Power-adapter dimensions:		
	Height	28 mm (1.10 in.)
	Width	51 mm (2.01 in.)

Table 17. Power-adapter specifications (continued)

Description	Values
Depth	112 mm (4.41 in.)
Input voltage	100 VAC–240 VAC
Input frequency	50 Hz–60 Hz
Input current (maximum)	1.70 A
Output current (continuous)	• 20 V/3.25 A (continuous) • 15 V/3 A (continuous) • 9 V/3 A (continuous) • 5 V/3 A (continuous)
Rated output voltage	• 20 V • 15 V • 9 V • 5 V
Temperature range:	
Operating	0°C to 40°C (32°F to 104°F)
Storage	–40°C to 70°C (–40°F to 158°F)
CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.	

Power adapter requirements of Dell 14 Plus DB14250

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

The following table lists the power adapter requirements for your Dell 14 Plus DB14250.

Table 18. Power adapter requirements

Description	Value
Power that is required from a power adapter to achieve optimal performance	65 W
Power that charges the computer at a slower speed **NOTE:** A warning message may appear informing you about the use of a lower-powered adapter and slower charging speed.	Less than 65 W
Minimum power that is required from a power adapter to operate the computer and charge the battery **NOTE:** A warning message appears informing you about the use of a lower-powered adapter and slower charging speed.	27 W
USB Power Delivery (PD) fast charging	Supported
ExpressCharge mode	Supported **NOTE:** Ensure that the computer with a 64 Wh battery is connected to a 65 W power adapter for this feature to be supported.

Table 18. Power adapter requirements (continued)

Description	Value
	NOTE: ExpressCharge mode must also be enabled in the BIOS Setup screen. Select **Power** > **Battery Configuration** > **ExpressCharge**, then press **Enter**.

Battery

The following table lists the battery specifications of your Dell 14 Plus DB14250.

Table 19. Battery specifications

Description		Values
Battery type		4-cell, 64 Wh Lithium Ion, ExpressCharge, ExpressCharge Boost
Battery voltage		15.20 VDC
Battery weight (maximum)		0.26 kg (0.57 lb)
Battery dimensions:		
	Height	5.75 mm (0.23 in.)
	Width	271.90 mm (10.70 in.)
	Depth	82 mm (3.23 in.)
Temperature range:		
	Operating	• Charge: 0°C to 45°C (32°F to 113°F) • Discharge: 0°C to 70°C (32°F to 158°F)
	Storage	–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.
Battery charging time (approximate) **NOTE:** You can control the charging time, duration, start and end time, and so on, using the Dell Power Manager application. For more information about Dell Power Manager, search in the Knowledge Base Resource at Dell Support Site.		• ExpressCharge: 2 hours • Standard charge: 3 hours (when the computer is off)
Coin-cell battery		Not supported
CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components. **CAUTION: Dell Technologies recommends that you charge the battery regularly for optimal power consumption.**		

Power requirements (for computers shipped with 4-cell, 64 Wh battery)

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

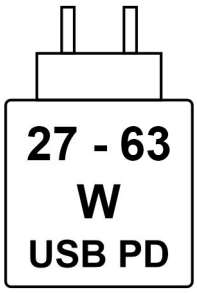


Figure 8. Pictogram for 64 Wh battery

The power that is delivered by the charger must be between a minimum of 27 Watts that is required by the radio equipment, and a maximum of 63 Watts in order to achieve the maximum charging speed.

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

Display

The following table lists the display specifications of your Dell 14 Plus DB14250.

Table 20. Display specifications

Description		Option 1	Option 2	Option 3
Display type		14-inch, 2.5K	14-inch, 2.5K	14-inch, Full High Definition Plus (FHD+)
Touch options		No	No	Yes, with cover glass
Display-panel technology		Wide-Viewing Angle	Wide-Viewing Angle	Wide-Viewing Angle
Display-panel dimensions (active area):				
	Height	301.59 mm (11.87 in.)	301.59 mm (11.87 in.)	301.59 mm (11.87 in.)
	Width	188.5 mm (7.42 in.)	188.5 mm (7.42 in.)	188.5 mm (7.42 in.)
	Diagonal	355.65 mm (14 in.)	355.65 mm (14 in.)	355.65 mm (14 in.)
Display-panel native resolution		2560 x 1600	2560 x 1600	1920 x 1200
Luminance (typical)		300 nits	300 nits	300 nits
Megapixels		4.09	4.09	2.30
Color gamut		100% sRGB (typical)	100% sRGB (typical)	45% NTSC (typical)
Pixels Per Inch (PPI)		216	216	162
Contrast ratio (minimum)		1000: (minimum), 1200:1 (typical)	1000: (minimum), 1200:1 (typical)	600: (minimum), 800:1 (typical)
Response time (maximum)		35 millisecond	35 millisecond	35 millisecond
Refresh rate		120 Hz	90 Hz	48 Hz/60 Hz
Horizontal view angle		80 +/– degrees (minimum), +/– 85 degrees (typical)	80 +/– degrees (minimum), +/– 85 degrees (typical)	80 +/– degrees (minimum), +/– 85 degrees (typical)

Table 20. Display specifications (continued)

Description	Option 1	Option 2	Option 3
Vertical view angle	80 +/– degrees (minimum), +/– 85 degrees (typical)	80 +/– degrees (minimum), +/– 85 degrees (typical)	80 +/– degrees (minimum), +/– 85 degrees (typical)
Pixel pitch	0.1178mm	0.1178mm	0.157
Power consumption (maximum)	4.80.W at mosaic pattern 120 Hz	4.63.W at mosaic pattern 90 Hz	3.68 W without touch @Mosaic
Anti-glare vs glossy finish	Anti-glare	Anti-glare	Glossy

Fingerprint reader (optional)

The following table lists the specifications of the optional fingerprint-reader of your Dell 14 Plus DB14250.

Table 21. Fingerprint reader specifications

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

GPU—Integrated

The following table lists the specifications of the integrated Graphics Processing Unit (GPU) supported by your Dell 14 Plus DB14250.

Table 22. GPU—Integrated

Controller	Memory size	Processor
Intel Arc 130V GPU	Shared system memory	Intel Core Ultra i5
Intel Arc 140V GPU	Shared system memory	Intel Core Ultra i7/i9

External display support

The following table lists the external display support for your Dell 14 Plus 2-in-1 DB04250.

Table 23. External display support

Graphics card	Supported external displays with laptop display enabled	Supported external displays with laptop display disabled
iGPU	2	3

Operating and storage environment

This table lists the operating and storage specifications of your Dell 14 Plus DB14250.

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

Table 24. Computer environment

Description	Operating	Storage
Temperature range	0°C to 40°C (32 °F to 104°F)	–40°C to 65°C (–40°F to 149°F)
Relative humidity (maximum)	90% (non-condensing)	95% (non-condensing)
Vibration (maximum)*	0.66 GRMS	Not available
Shock (maximum)	140 G†	Not available
Altitude range	Not available	Not available
CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.		

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

† Measured using a 2 ms half-sine pulse.

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.

4

Working inside your computer

Safety instructions

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

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

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

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

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

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

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

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

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

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

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

Before working inside your computer

Steps

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

   NOTE: If you are using a different operating system, see the documentation of your operating system for instructions.
3. Turn off all the attached peripherals.
4. Disconnect your computer from the electrical outlet.
5. Disconnect all attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.

6. Remove any media card and optical drive from your computer, if applicable.
7. To clean the air vents, use a soft brush and move vertically.

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

8. Enter the Service Mode.

   Service Mode

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

   CAUTION: If you are unable to turn on the computer to put it into Service Mode, 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 power adapter is disconnected.

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

Safety precautions

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

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

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

Bonding

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

Electrostatic discharge—ESD protection

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

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

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

that are related to the damage. The weakened trace may take weeks or months to melt, and in the meantime may cause degradation of memory integrity, intermittent memory errors, and so on.

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

Perform the following steps to prevent ESD damage:

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

ESD Field Service kit

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

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

Working Environment

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

ESD Packaging

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

Components of an ESD Field Service kit

The components of an ESD Field Service kit are:

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

is the best method for doing this test. To perform the test, plug the bonding-wire of the wrist-strap into the tester while it is strapped to your wrist and push the button to test. A green LED is lit if the test is successful; a red LED is lit and an alarm sounds if the test fails.

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

Transporting sensitive components

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

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 that you reboot the computer. You will be prompted to enter the recovery key to progress, and the computer displays a prompt for the recovery key on each reboot. If the recovery key is not known, this can result in data loss or an operating system reinstall. For more information, see Knowledge Article: updating the BIOS on Dell computers with BitLocker enabled.

The installation of the following components triggers BitLocker:

- Hard disk drive or solid state drive
- System board

Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver #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 25. Screw list

Component	Screw type	Quantity	Screw image
Base cover	M2x4	5	
Base cover	Captive	2	
Battery	M2x3	4	
M.2 2230 mounting bracket	M2x3	1	
M.2 2230 solid state drive + M.2 mounting bracket	M2x1.8	1	
Fan	M2x3	2	
Wireless-card bracket	M2x3	1	
Type-C port bracket	M2x4	2	
Display assembly	M2.5x4	5	
I/O board	M2x3	1	
System board	M2x1.8	2	
Touchpad	M2x2.5	2	
Touchpad	M1.6x1.5	6	
Power button	M2x3	1	

Major components of Dell 14 Plus DB14250

The following image shows the major components of Dell 14 Plus DB14250.

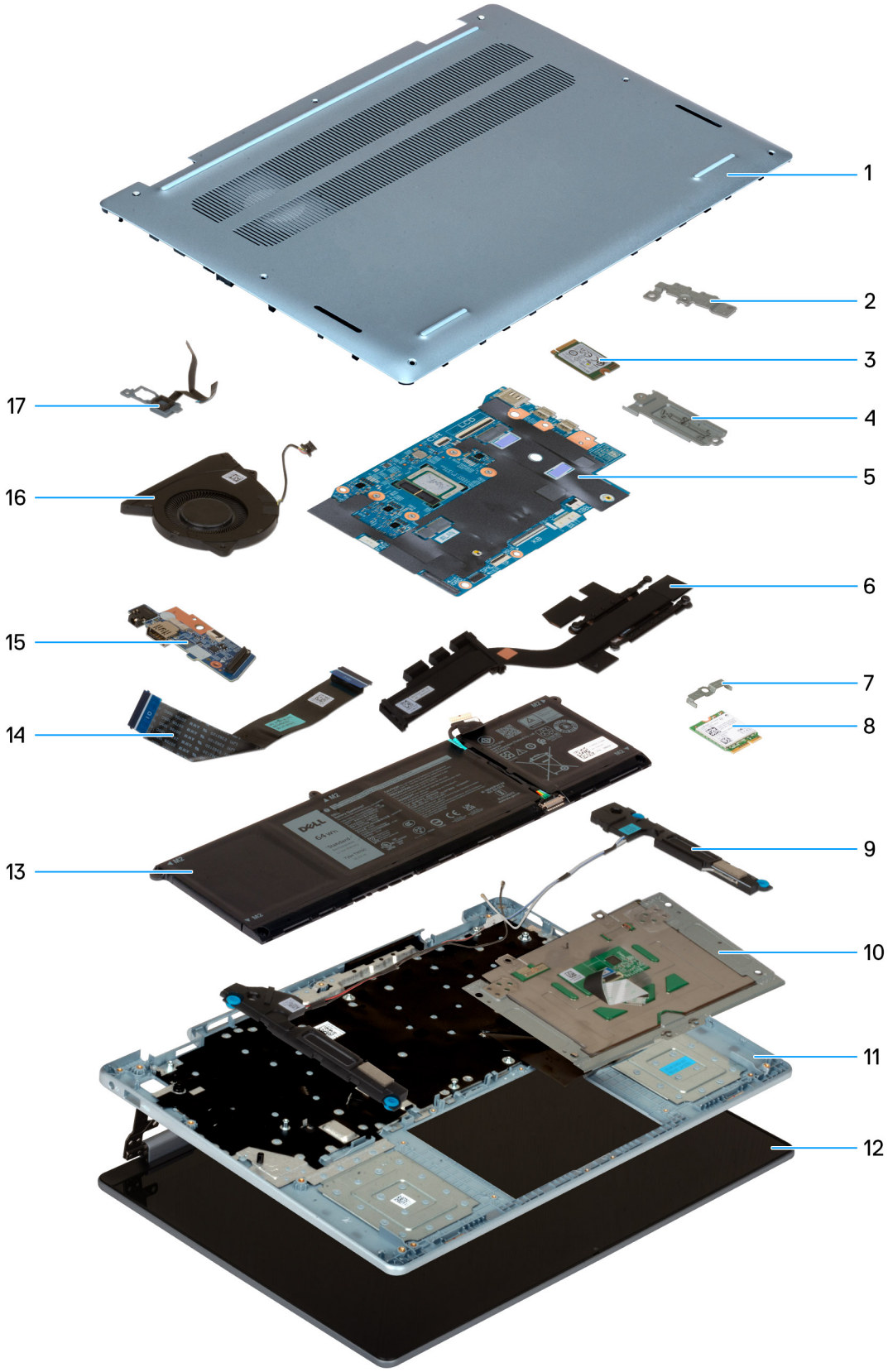


Figure 9. Image: Major components of Dell 14 Plus DB14250

1. Base cover
2. USB Type-C port bracket

3. M.2 2230 solid state drive
4. M.2 2230 solid state drive bracket
5. System board
6. Heat sink
7. Wireless-card bracket
8. M.2 wireless card
9. Speaker assembly
10. Touchpad
11. Palm-rest and keyboard assembly
12. Display assembly
13. Battery
14. Battery cable
15. I/O board
16. Fan
17. Power button with optional fingerprint reader

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

5

Removing and installing Customer Replaceable Units (CRUs)

The replaceable components in this chapter are Customer Replaceable Units (CRUs).

CAUTION: Customers can replace only the Customer Replaceable Units (CRUs) following the safety precautions and replacement procedures.

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

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 7** in Before working inside your computer.

CAUTION: If the computer does not turn on, does not enter Service Mode, or does not support Service mode, proceed to disconnect the battery cable.

About this task

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

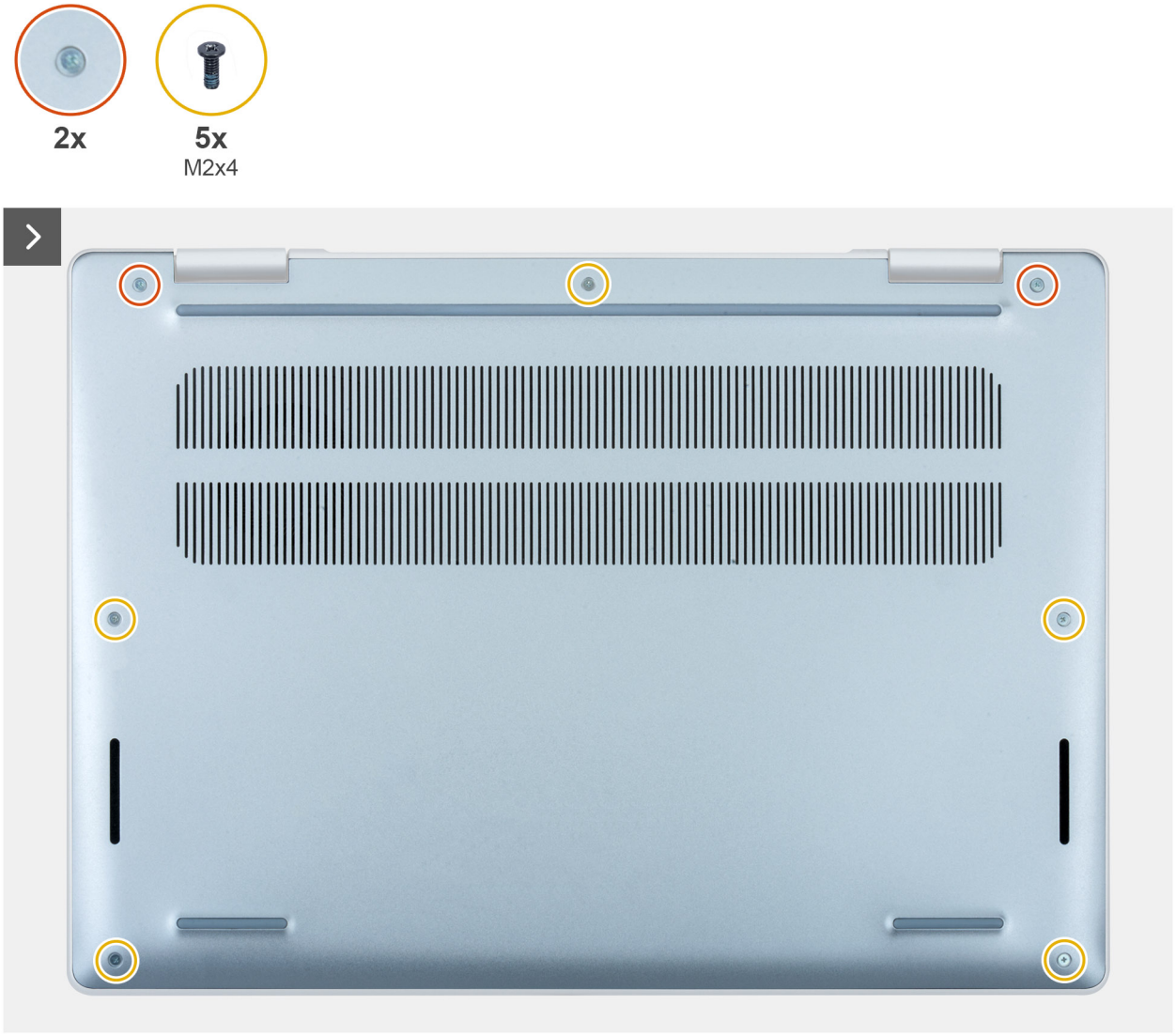


Figure 10. Removing the base cover

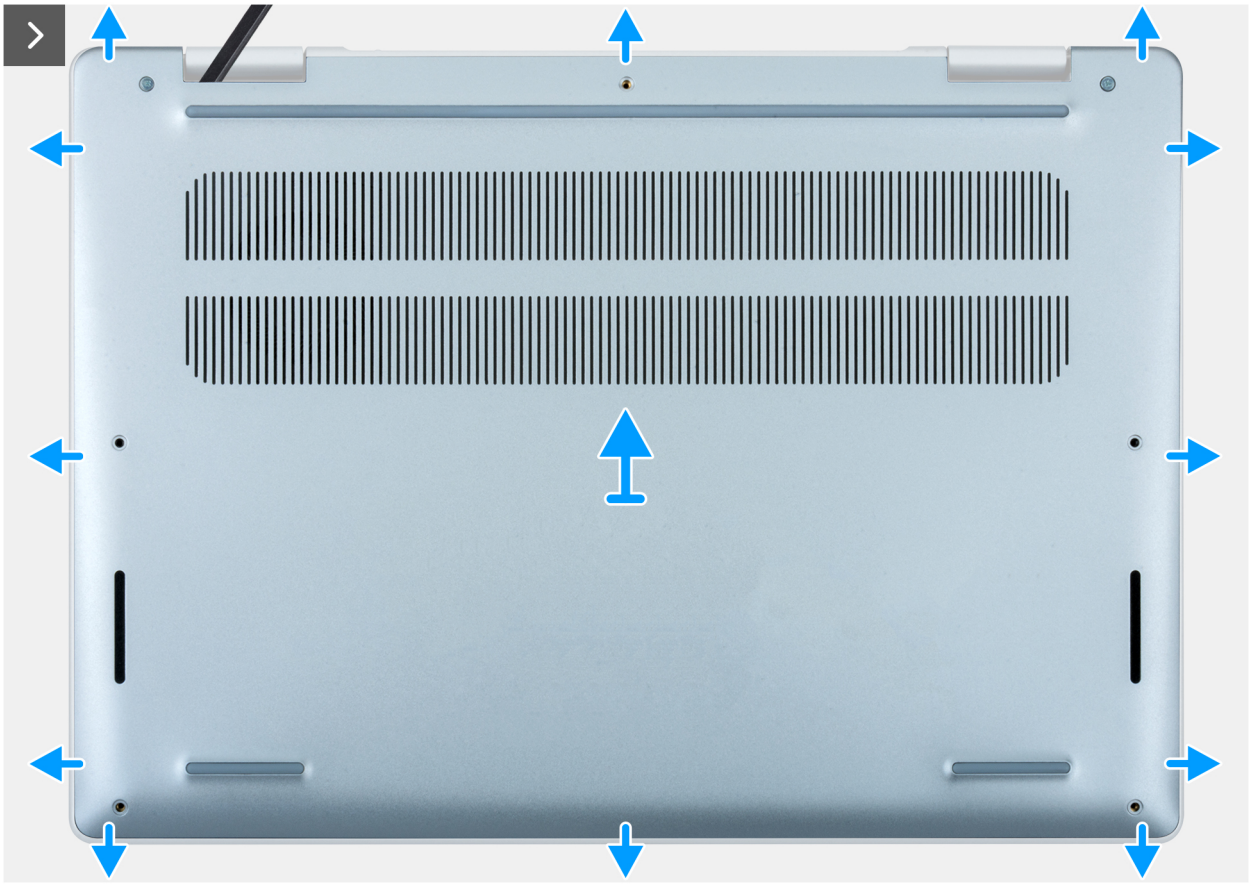


Figure 11. Removing the base cover

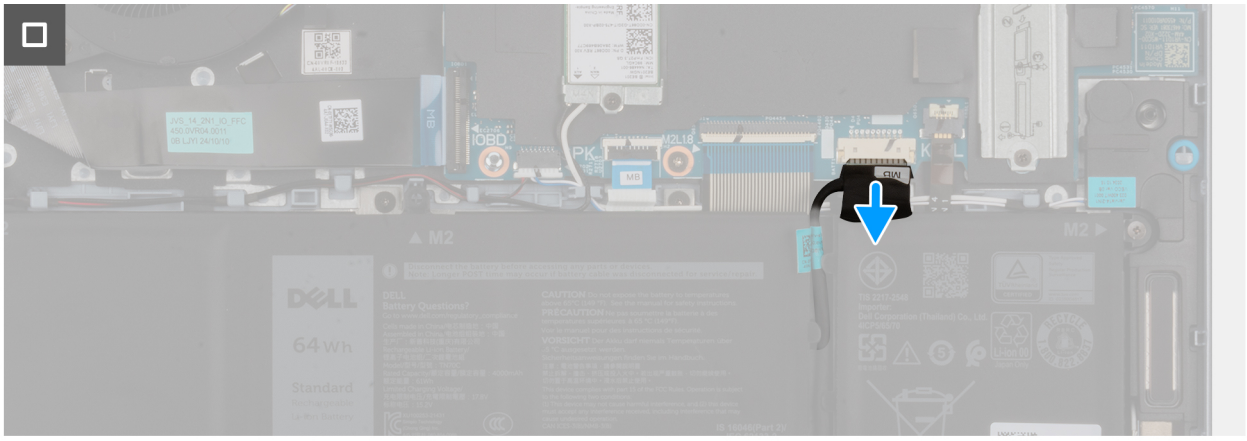


Figure 12. Disconnecting the battery cable

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 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.

   NOTE: Ensure that your computer is in Service Mode. If your computer is unable to enter Service Mode, disconnect the battery cable from the system board. To disconnect the battery cable, follow steps 5 and 6.

5. Disconnect the battery cable from the battery cable connector (BATT) on the system board.
6. Press and hold the power button for five seconds to ground the computer and drain the flea power.

Installing the base cover

Prerequisites

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

About this task

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

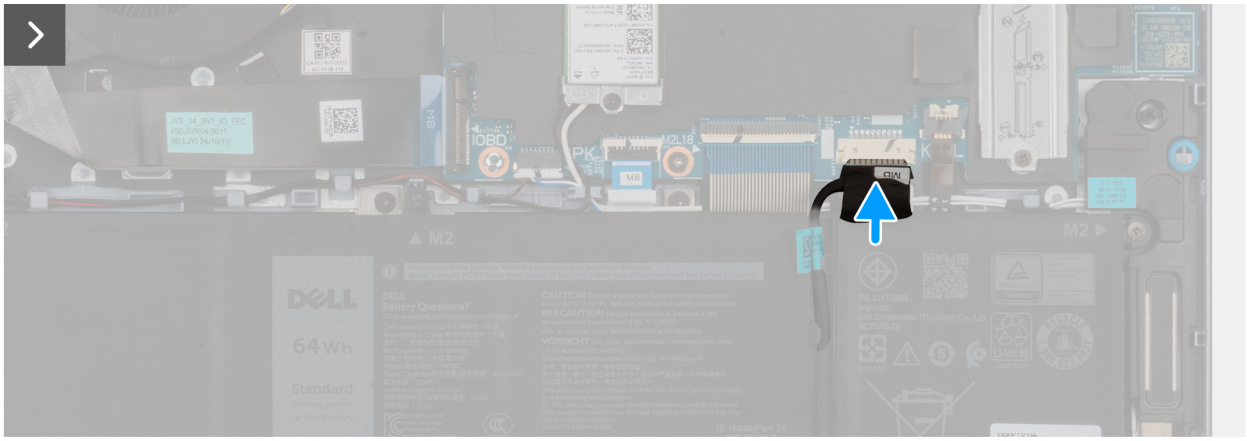


Figure 13. Connecting the battery cable

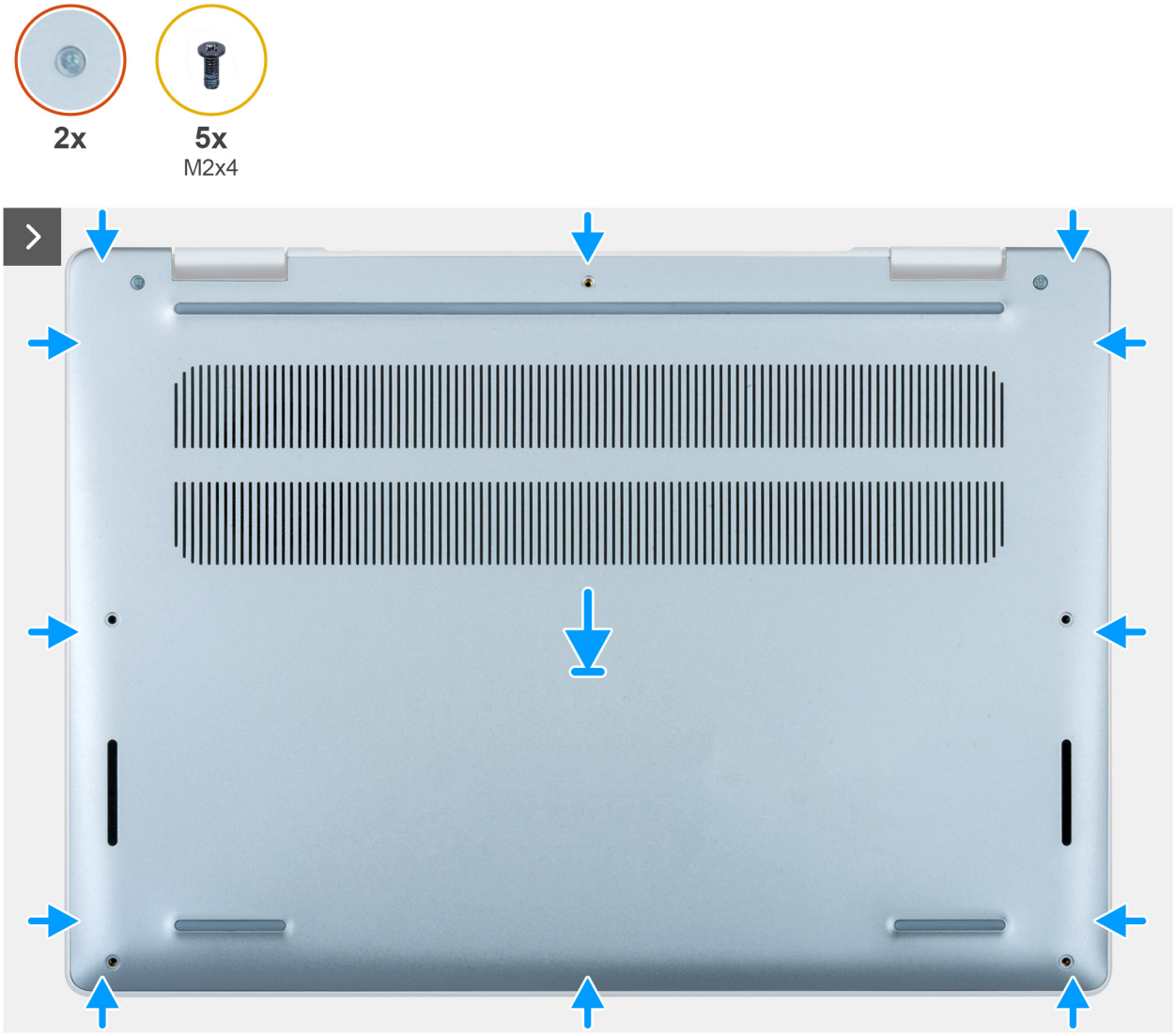


Figure 14. Installing the base cover



Figure 15. Installing the base cover

NOTE: If you have disconnected the battery cable, ensure to connect the battery cable. To connect the battery cable, follow step 1 in the procedure.

Steps

1. Connect the battery cable to the battery cable connector (BATT) on the system board.
2. Place the base cover on the palm-rest and keyboard assembly.
3. Press the sides of the base cover to snap it into place.
4. Tighten the two captive screws that secure the base cover to the palm-rest and keyboard assembly.
5. 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.

Battery

Rechargeable Li-ion battery precautions

WARNING:

- **Exercise caution when handling rechargeable Li-ion batteries.**
- **Discharge the battery completely before removing it. Disconnect the AC power adapter from the computer and operate the computer solely on battery power—the battery is fully discharged when the computer no longer turns on when the power button is pressed.**
- **Do not crush, drop, mutilate, or penetrate the battery with foreign objects.**

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

Removing the battery

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

Prerequisites

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

About this task

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



Figure 16. Removing the battery

Steps

1. Peel the tape that secures the battery cable to the system board.
2. Disconnect the battery cable from the connector (BATT) 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 indicates the location of the battery and provides a visual representation of the installation procedure.

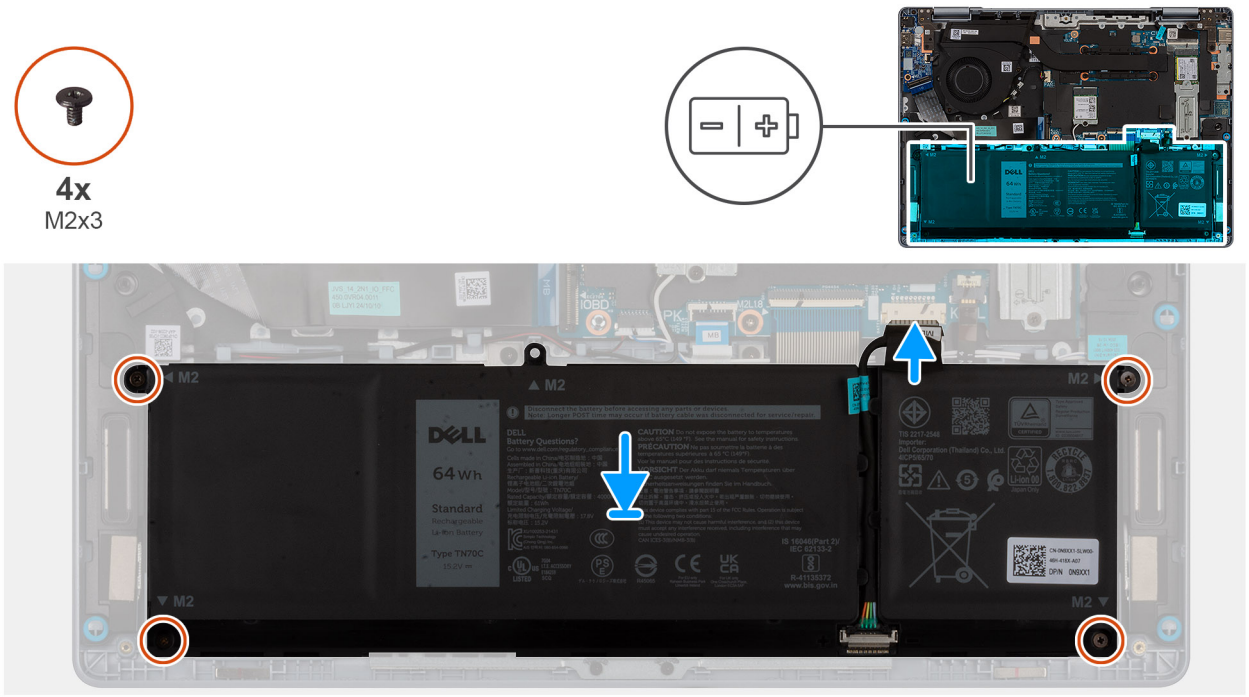


Figure 17. Installing the battery

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 the connector (BATT) 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 7** in Before working inside your computer.

2. Remove the base cover.
3. Remove the battery.

About this task

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



Figure 18. Removing the battery cable

Steps

1. Slide down the clamp that secures the battery cable to the battery.
2. Disconnect the battery cable from the battery.
3. Remove the battery cable from the routing guides.
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 19. Installing the battery cable

Steps

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

Next steps

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

Solid State Drive (SSD)

Removing the M.2 2230 solid state drive

Prerequisites

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

   NOTE: Ensure that your computer is in Service Mode. For more information, see **step 7** in Before working inside your computer.

2. Remove the base cover.

About this task

NOTE: A M.2 solid state drive bracket for the M.2 2230 solid state drive is required. Do not install the M.2 2230 solid state drive without its M.2 solid state drive bracket.

The following image indicates the location of the M.2 2230 solid state drive and provides a visual representation of the removal procedure.

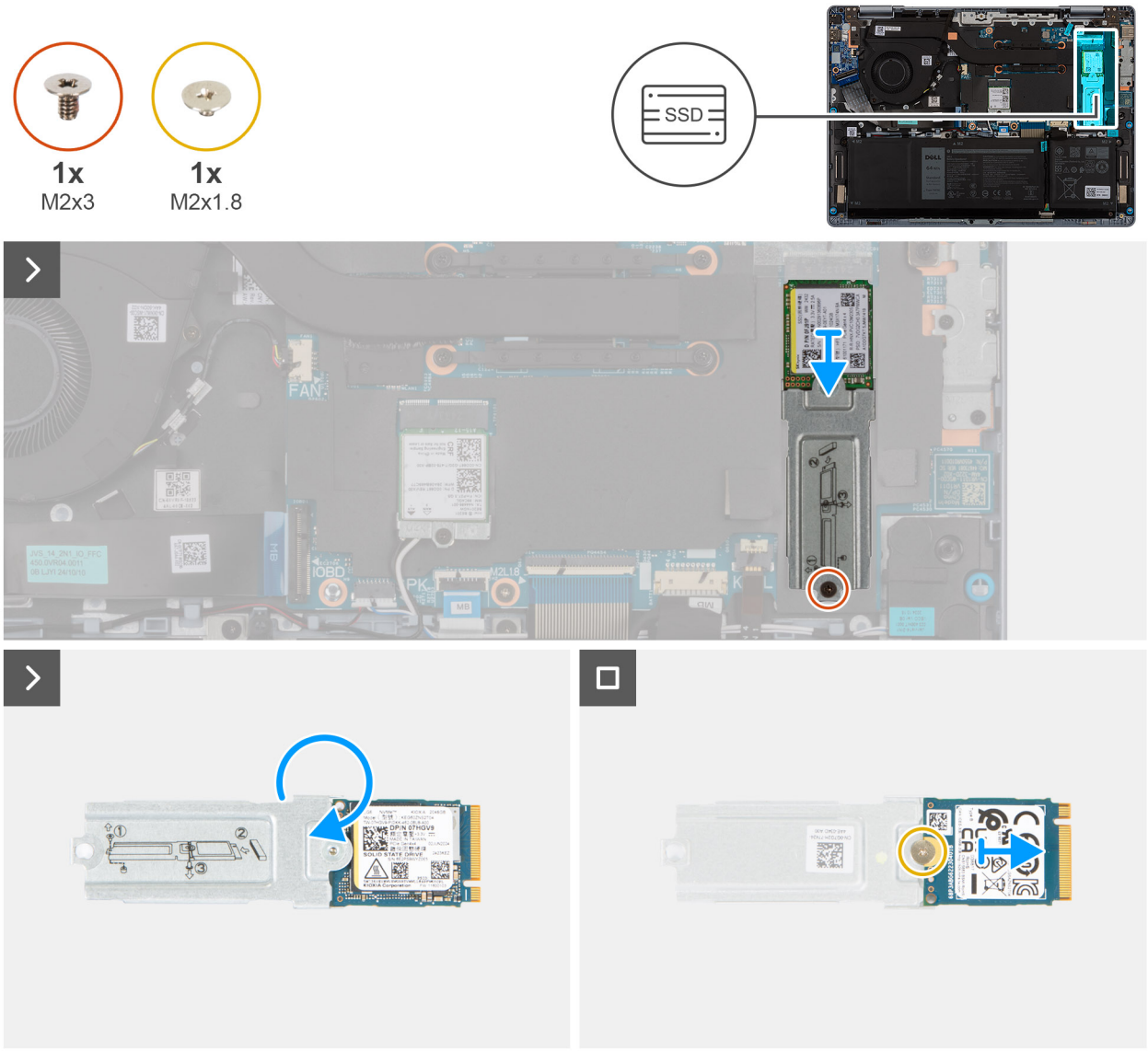


Figure 20. Removing the M.2 2230 solid state drive

Steps

1. Remove the screw (M2x3) that secures the M.2 2230 solid state drive bracket 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 solid state drive bracket.
5. Remove the M.2 2230 solid state drive from the M.2 2230 solid state drive bracket.

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: A M.2 solid state drive bracket for the M.2 2230 solid state drive is required. Do not install the M.2 2230 solid state drive without its M.2 solid state drive bracket.

The following image indicates the location of the M.2 2230 solid state drive and provides a visual representation of the installation procedure.

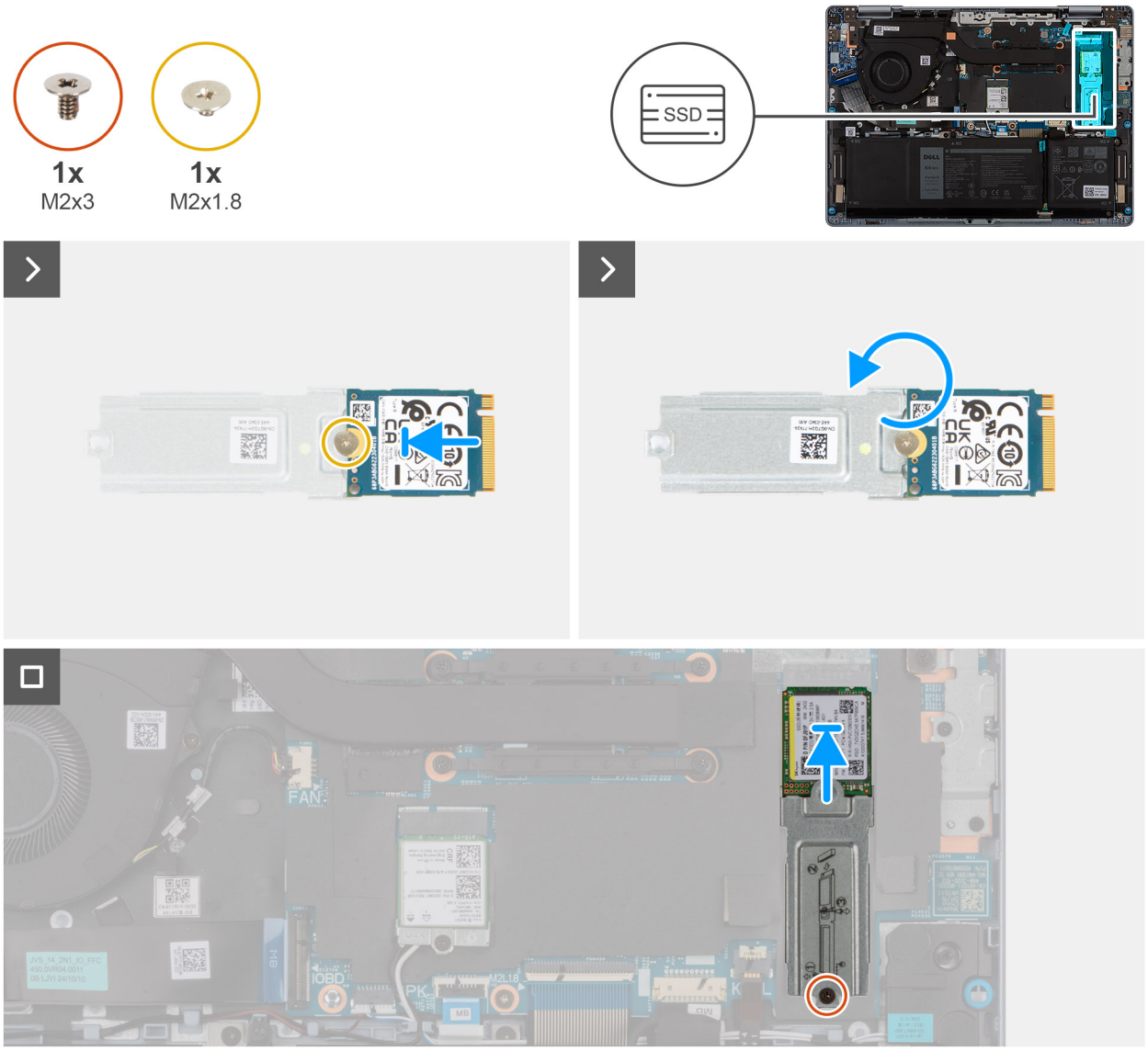


Figure 21. Installing the M.2 2230 solid state drive

Steps

1. Place the M.2 2230 solid state drive on the M.2 2230 solid state drive bracket.
2. Align the screw hole on the M.2 2230 solid state drive with the screw hole on the M.2 2230 solid state drive bracket.
3. Replace the screw (M2x1.8) that secures the M.2 2230 solid state drive to the M.2 2230 solid state drive bracket.
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 solid state drive bracket 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 7** in Before working inside your computer.

2. Remove the base cover.

About this task

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

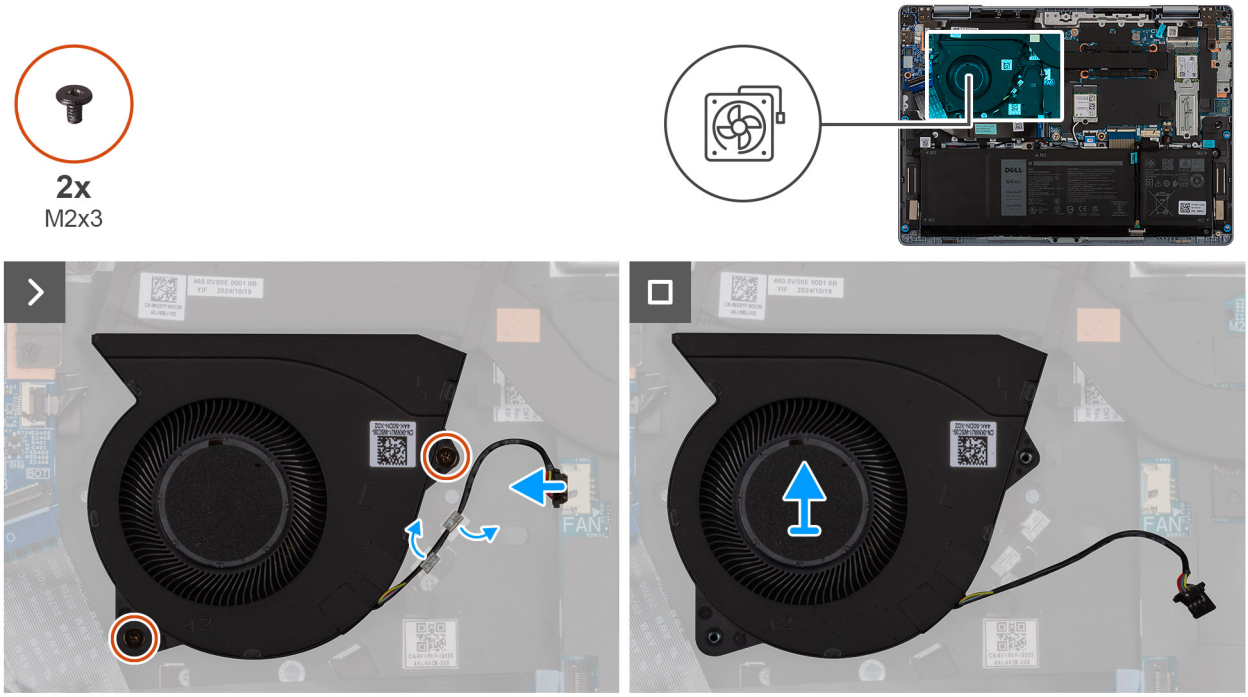


Figure 22. Removing the fan

Steps

1. Disconnect the fan cable from the connector (FAN) 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 indicates the location of the fan and provides a visual representation of the installation procedure.

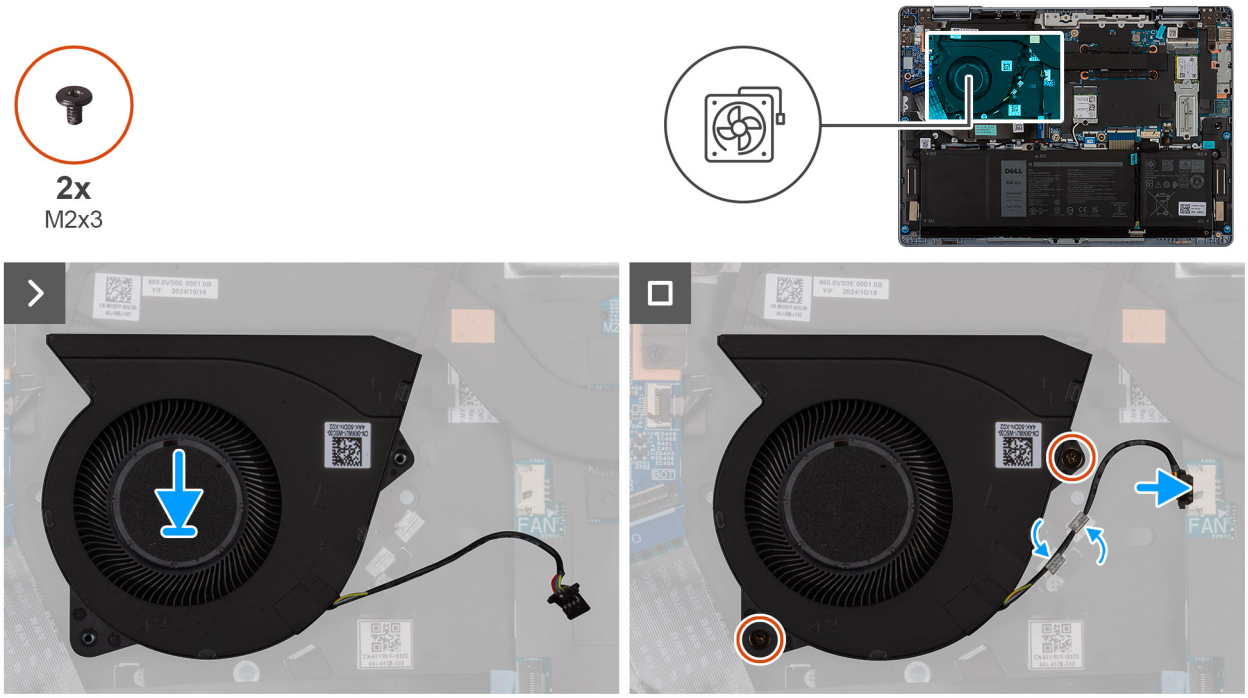


Figure 23. Installing the fan

Steps

1. Place the fan on the palm-rest and keyboard assembly.
2. Align the screw holes of the fan with the screw holes on the palm-rest and keyboard assembly.
3. Replace the two screws (M2x3) that secure the fan to the palm-rest and keyboard assembly.
4. Connect the fan cable to the connector (FAN) 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 7** in Before working inside your computer.

2. Remove the base cover.

About this task

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

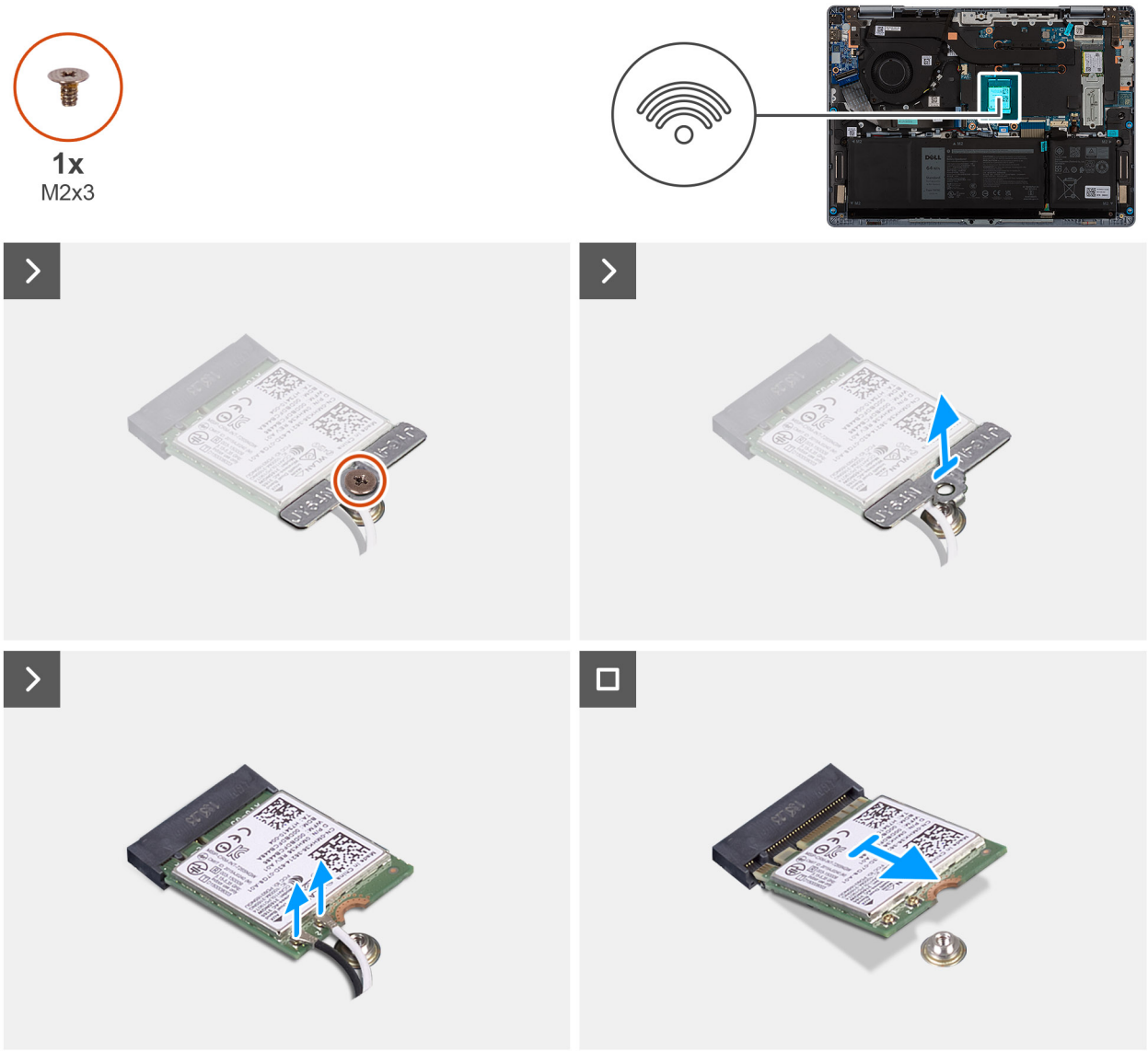


Figure 24. Removing the wireless card

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 wireless-card slot (WLAN) 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 indicates the location of the wireless card and provides a visual representation of the installation procedure.

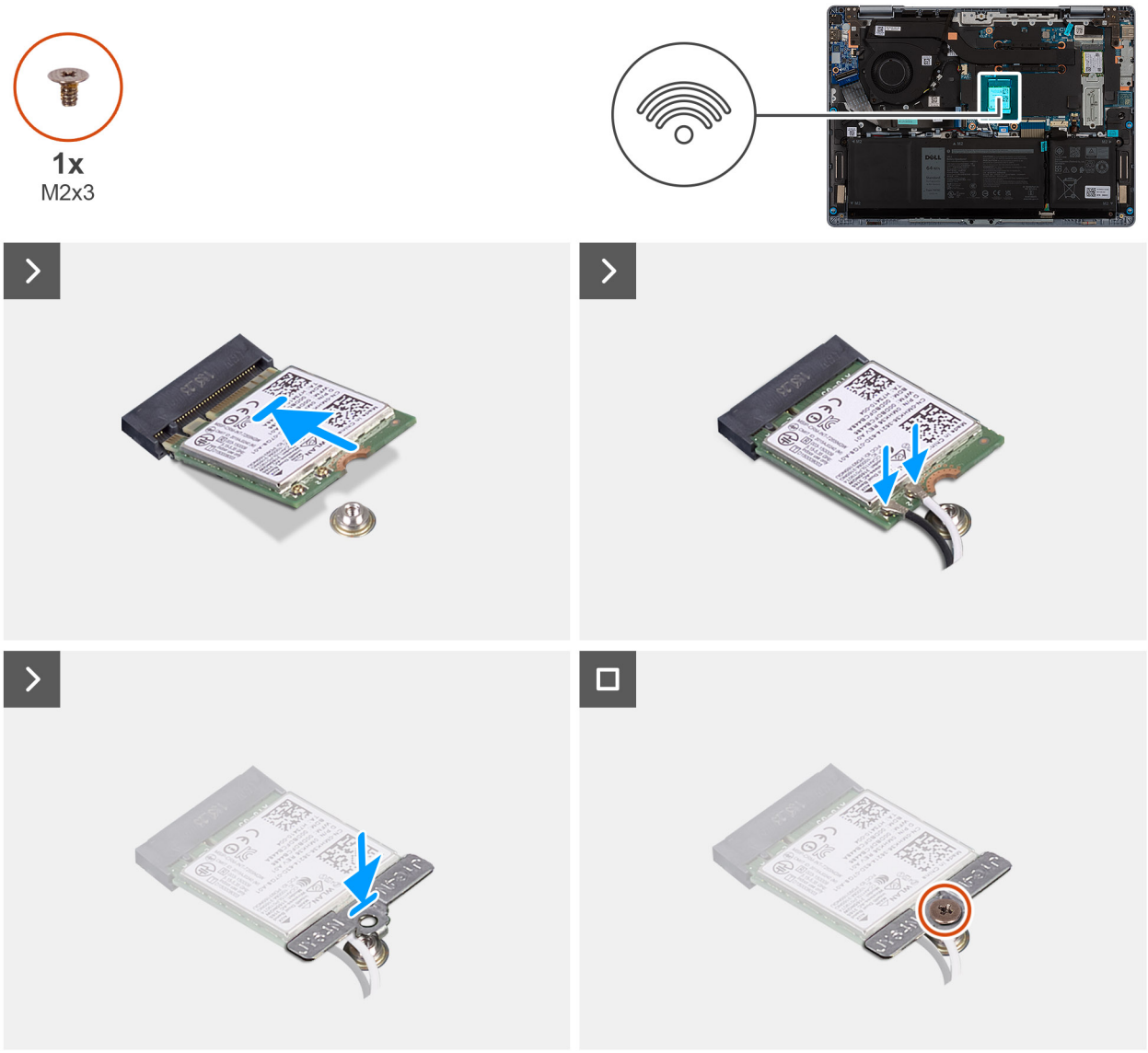


Figure 25. Installing the wireless card

Steps

1. Align the notch on the wireless card with the tab on the M.2 wireless-card slot (WLAN) on the system board.
2. Slide the wireless card into the wireless-card slot (WLAN) on the system board.
3. Connect the antenna cables to the wireless card.

Table 26. Antenna-cable color scheme

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

4. Place the wireless-card bracket on the wireless card.
5. Align the screw hole on the wireless-card bracket with 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.

6

Removing and installing Field Replaceable Units (FRUs)

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

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

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

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

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

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

Display assembly

Removing the display assembly

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 7** in Before working inside your computer.

2. Remove the base cover.

About this task

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

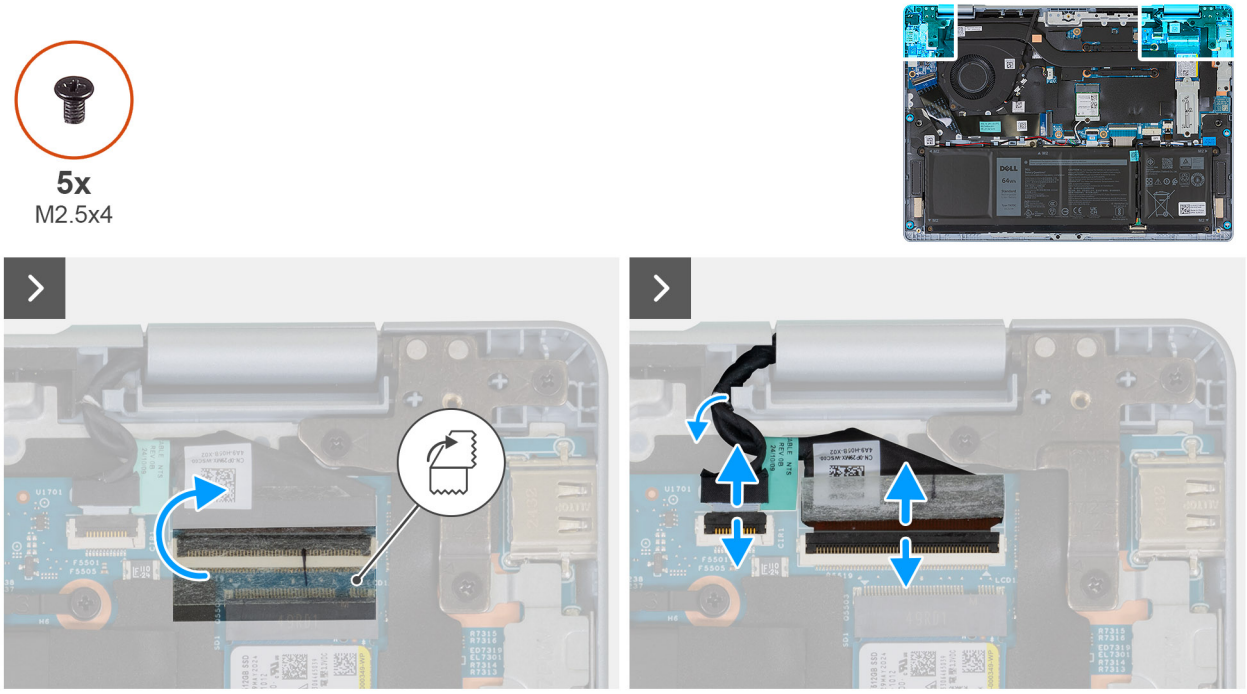


Figure 26. Removing the display assembly 1



Figure 27. Removing the display assembly 2

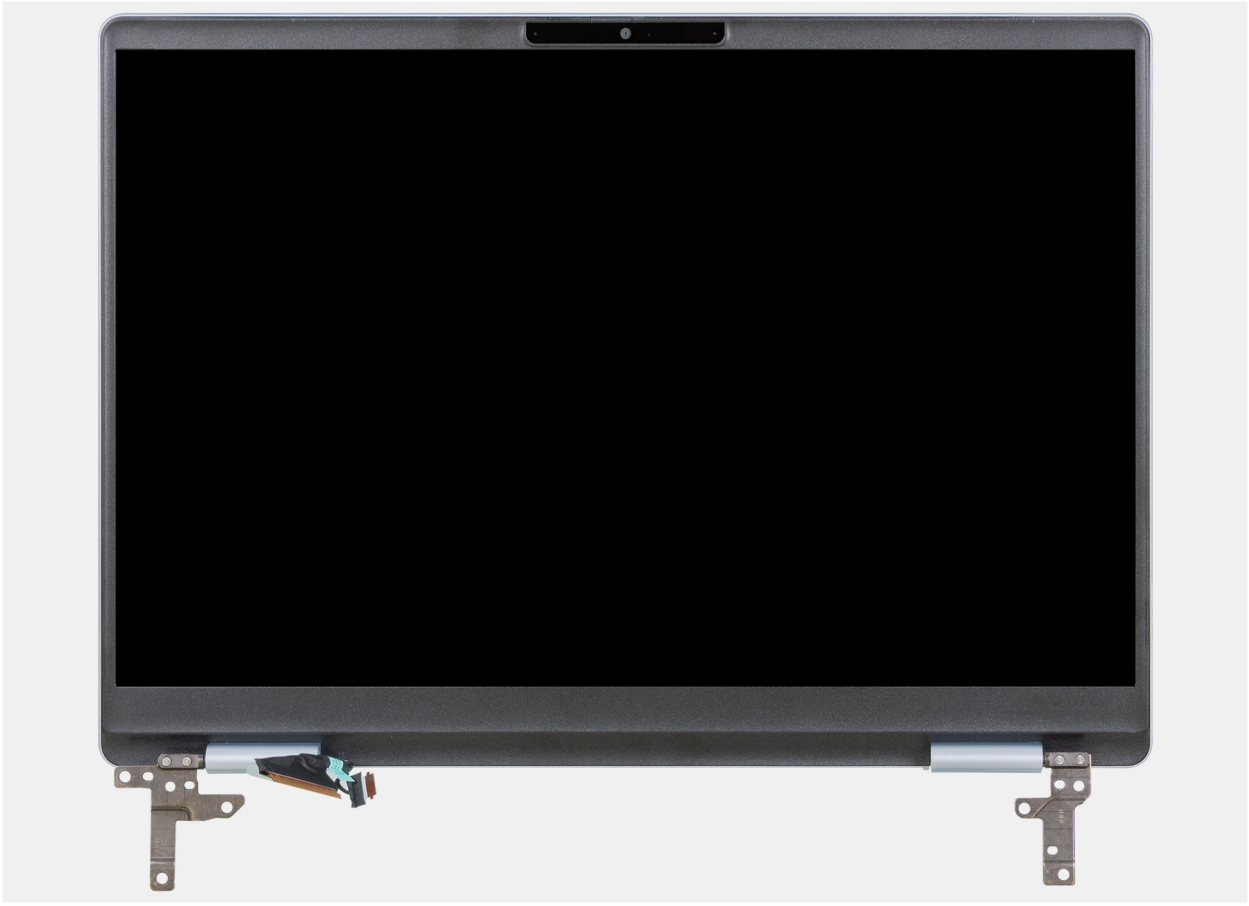


Figure 28. Display assembly

Steps

1. Peel the tape that secures the display-assembly cable to the latch on the system board.
2. Lift the latch and disconnect the infrared camera cable from the connector (CIR) on the system board.
3. Lift the latch and disconnect the display-assembly cable from the connector (LCD) on the system board.
4. Remove the two screws (M2.5x5) that secure the left display-assembly hinge to the system board.
5. Pry open the left display-assembly hinge to a 90-degree angle.
6. Remove the three screws (M2.5x5) that secure the right display-assembly hinge to the system board.
7. Pry open the right display-assembly hinge to a 90-degree angle.
8. 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 images indicate the location of the display assembly and provide a visual representation of the installation procedure.

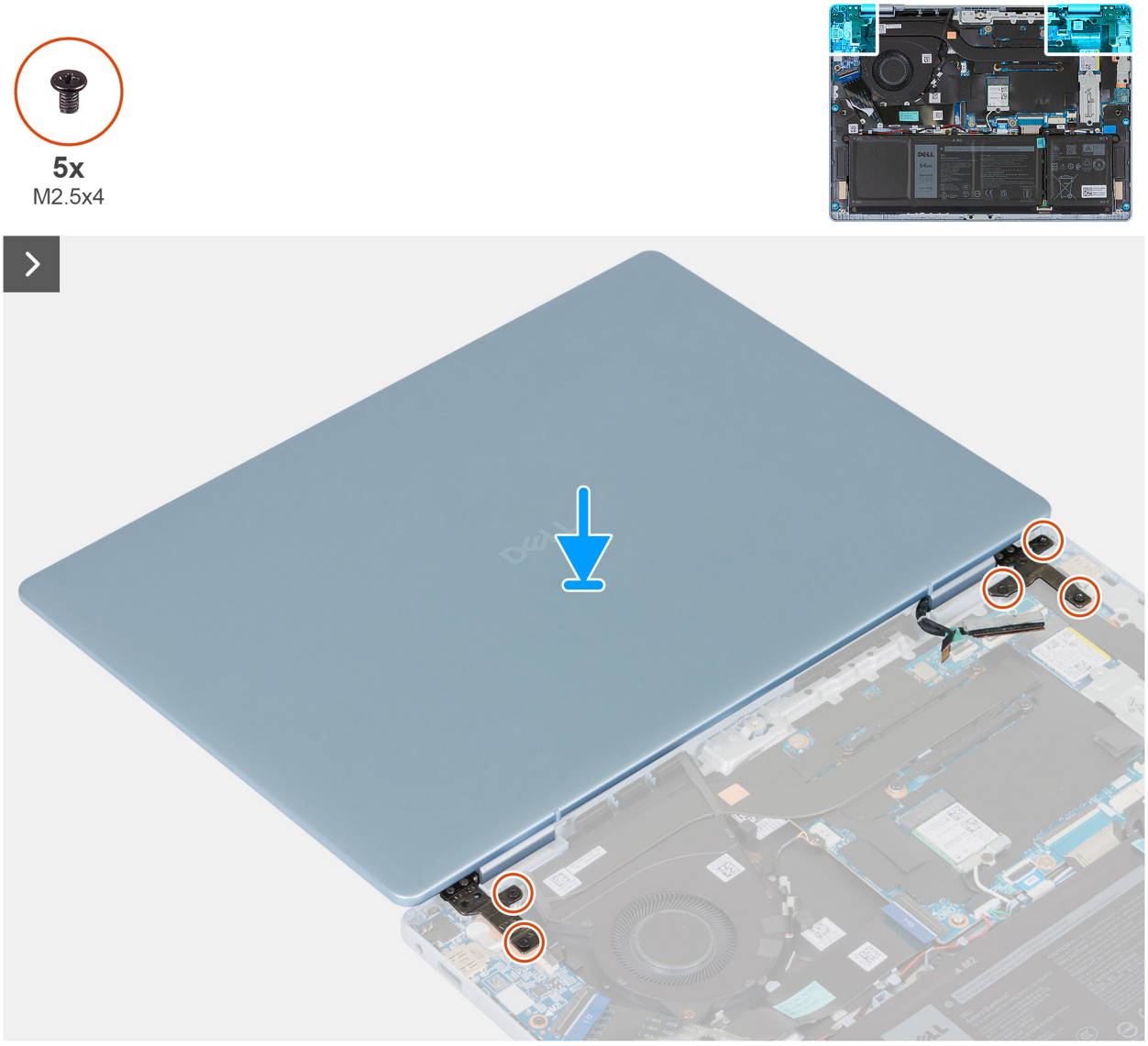


Figure 29. Installing the display assembly 1

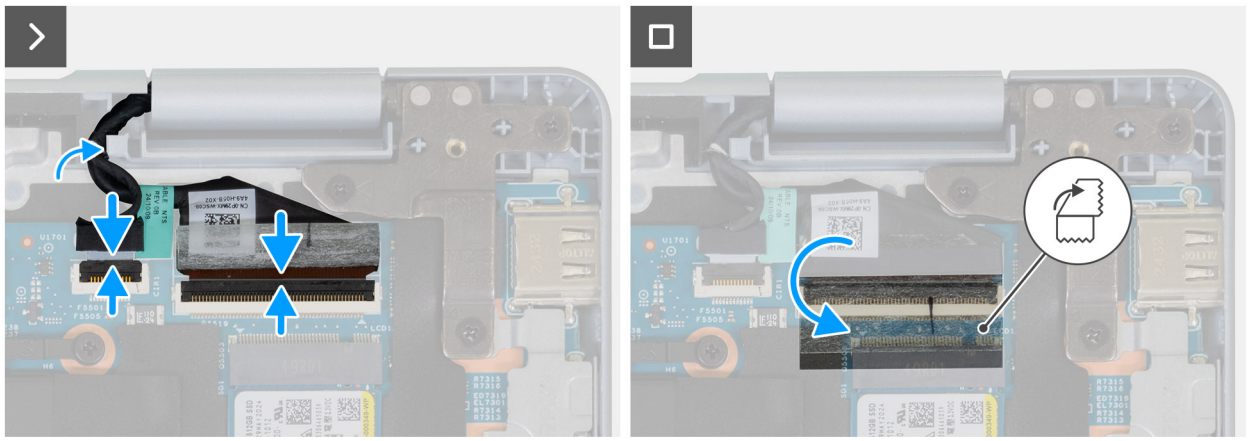


Figure 30. Installing the display assembly 2

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 three screws (M2.5x5) that secure the right display-assembly hinge to the palm-rest and keyboard assembly.
7. Connect the infrared camera cable to the connector (CIR) on the system board and close the latch.
8. Connect the display-assembly cable to the connector (LCD) on the system board and close the latch.
9. Adhere the tape that secures the display-assembly cable to the latch on the system board.

Next steps

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

I/O-board cable

Removing the I/O-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 7** in Before working inside your computer.

2. Remove the base cover.

About this task

The following image indicates the location of the I/O-board cable and provides a visual representation of the removal procedure.

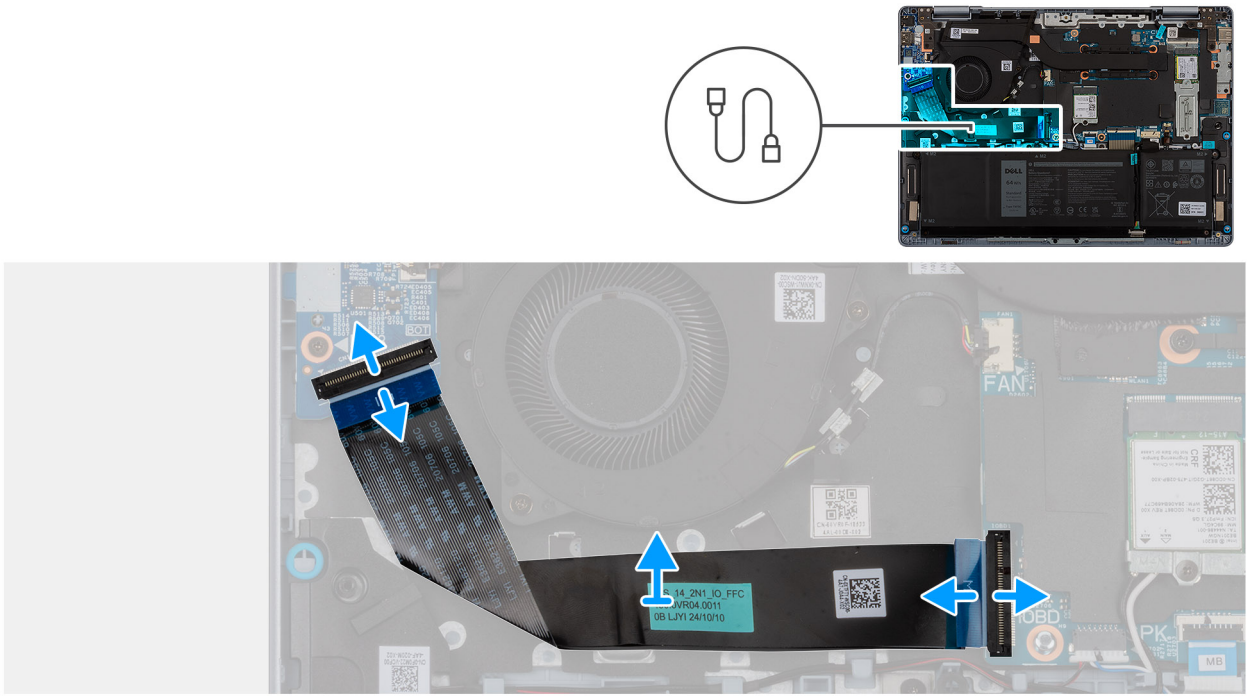


Figure 31. Removing the I/O-board cable

Steps

1. Lift the latch and disconnect the I/O-board cable from its connector (IOBD) 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 cable off the palm-rest and keyboard assembly.

Installing the I/O-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

The following image indicates the location of the I/O-board cable and provides a visual representation of the installation procedure.

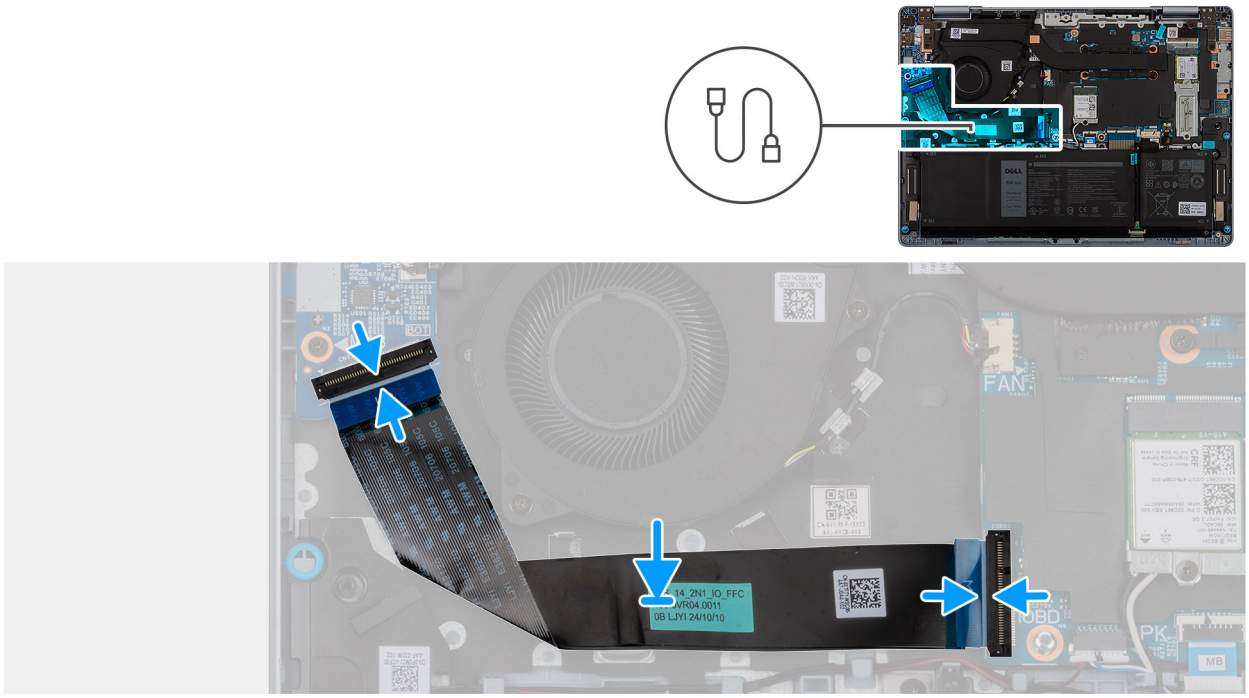


Figure 32. Installing the I/O-board cable

Steps

1. Place the I/O-board cable on the palm-rest and keyboard assembly.
2. Connect the I/O-board cable to its connector (IOBD) 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.
4. Adhere the I/O-board cable to the palm-rest and keyboard assembly.

Next steps

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

I/O 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 7** in Before working inside your computer.

2. Remove the base cover.

About this task

The following image indicates the location of the I/O board and provides a visual representation of the removal procedure.

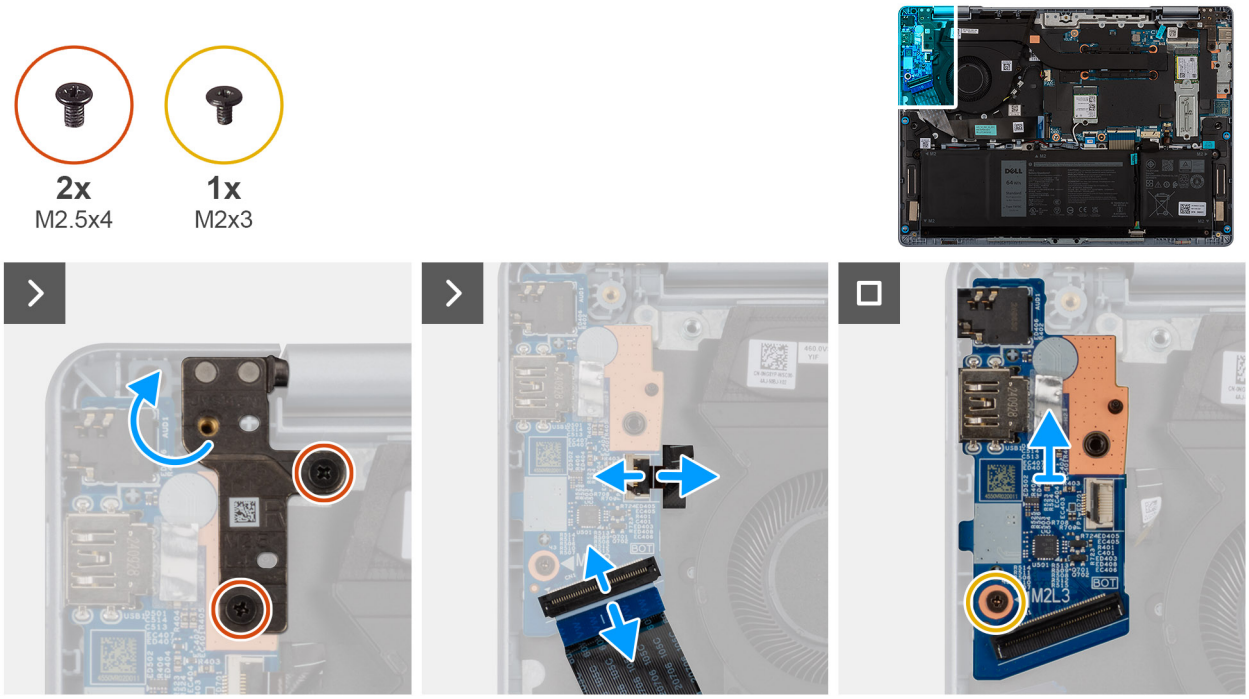


Figure 33. Removing the I/O board

Steps

1. Remove the two screws (M2.5x4) that secure the display-assembly hinge to the palm-rest and keyboard assembly.
2. Pry open the display-assembly hinge to a 90-degree angle.
3. Lift the latch and disconnect the fingerprint-reader cable from the connector on the I/O board.

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

4. Lift the latch and disconnect the I/O-board cable from the connector on the I/O board.
5. Remove the screw (M2x3) that secures the I/O board to the palm-rest and keyboard assembly.
6. 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 indicates the location of the I/O board and provides a visual representation of the installation procedure.

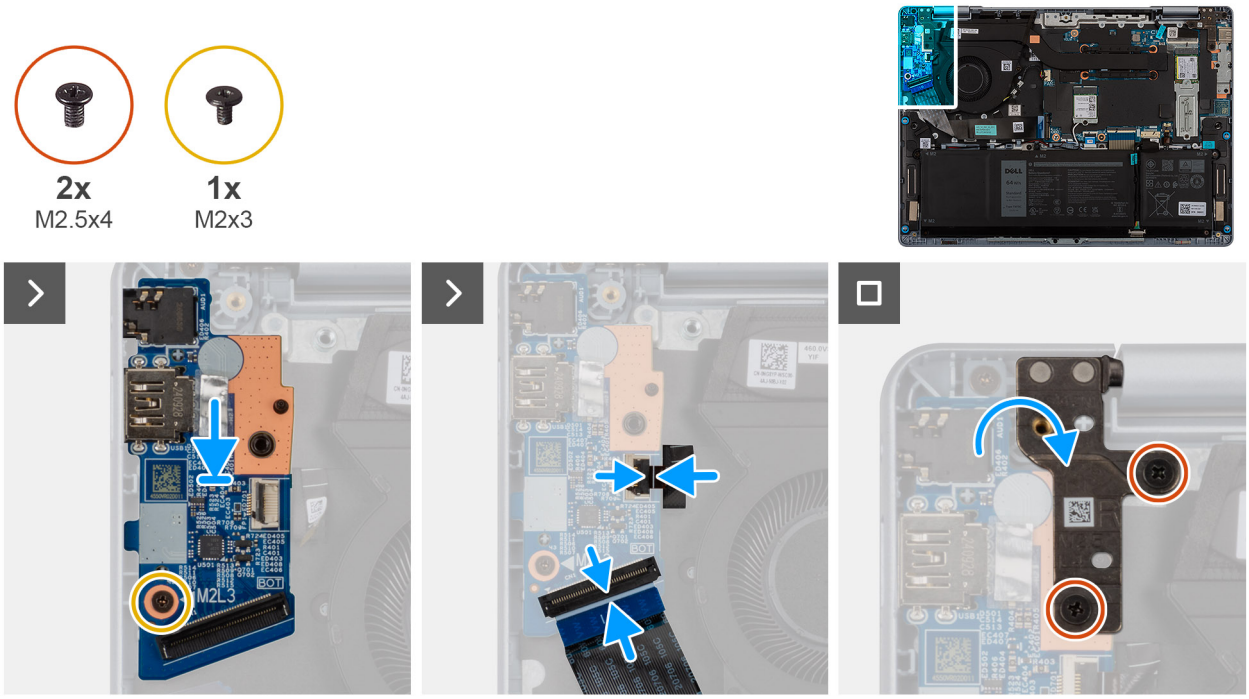


Figure 34. Installing the I/O board

Steps

1. Place the I/O board on 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 with 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 fingerprint-reader cable to its connector on the I/O board and close the latch.

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

6. Connect the I/O-board cable to its connector on the I/O board and close the latch.
7. Close the display-assembly hinge and align the screw holes on the display hinge with the screw holes on the palm-rest and keyboard assembly.
8. Replace the two screws (M2.5x4) that secure the 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.

Speaker assembly

Removing the speaker assembly

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

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the 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 assembly as a single serviceable component.

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

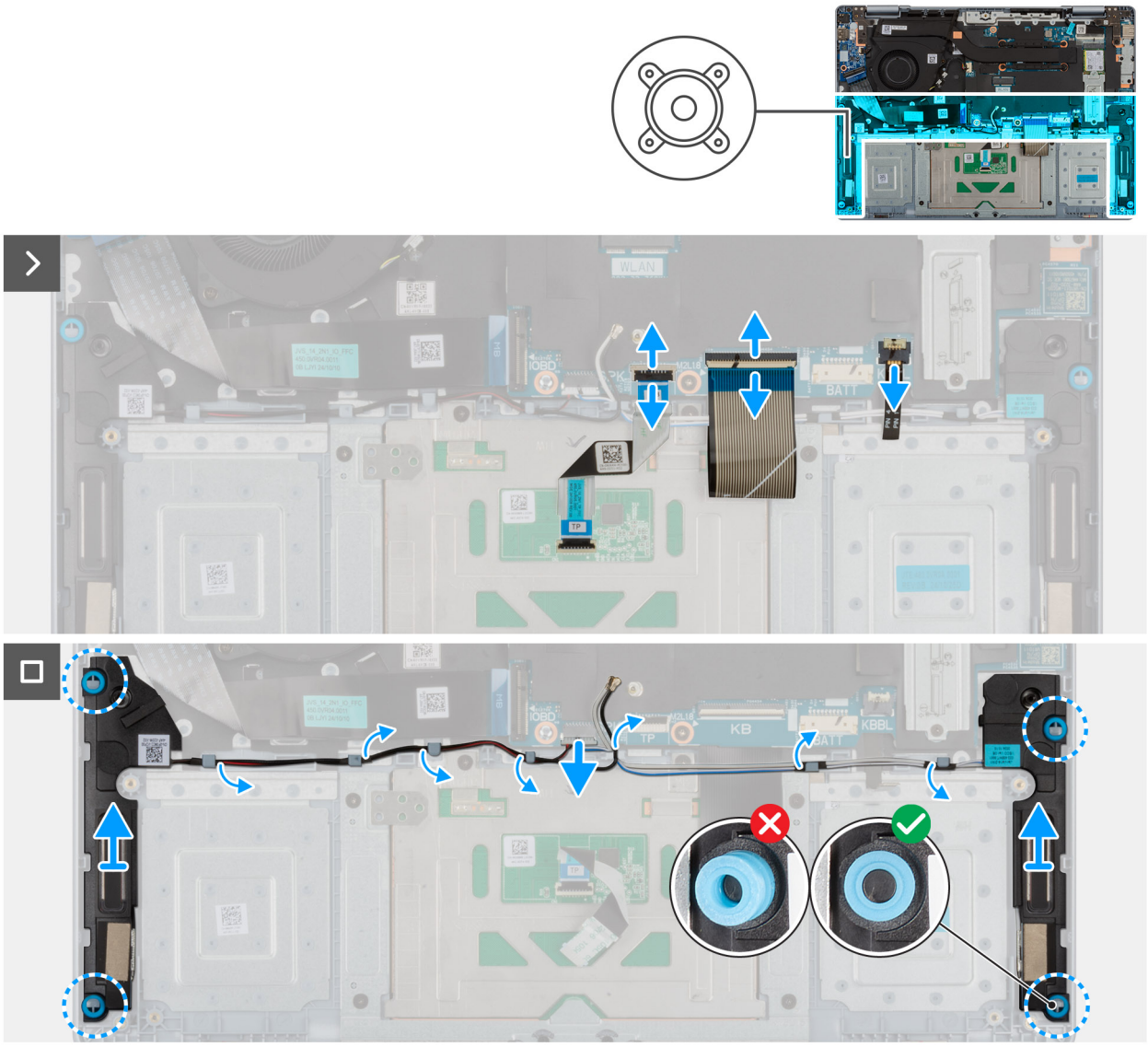


Figure 35. Removing the speaker assembly

Steps

1. Disconnect the speaker cable from the connector (SPK) on the system board.
2. Lift the latch and disconnect the keyboard cable from the connector (KB) on the system board.
3. Lift the latch and disconnect the keyboard-backlight cable from the connector (KBBL) on the system board.
4. Move the keyboard cable off the speaker and antenna cables.
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 assembly off the palm-rest and keyboard assembly.

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

Installing the speaker 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 assembly as a single serviceable component.

The following image indicates the location of the speaker assembly and provides a visual representation of the installation procedure.

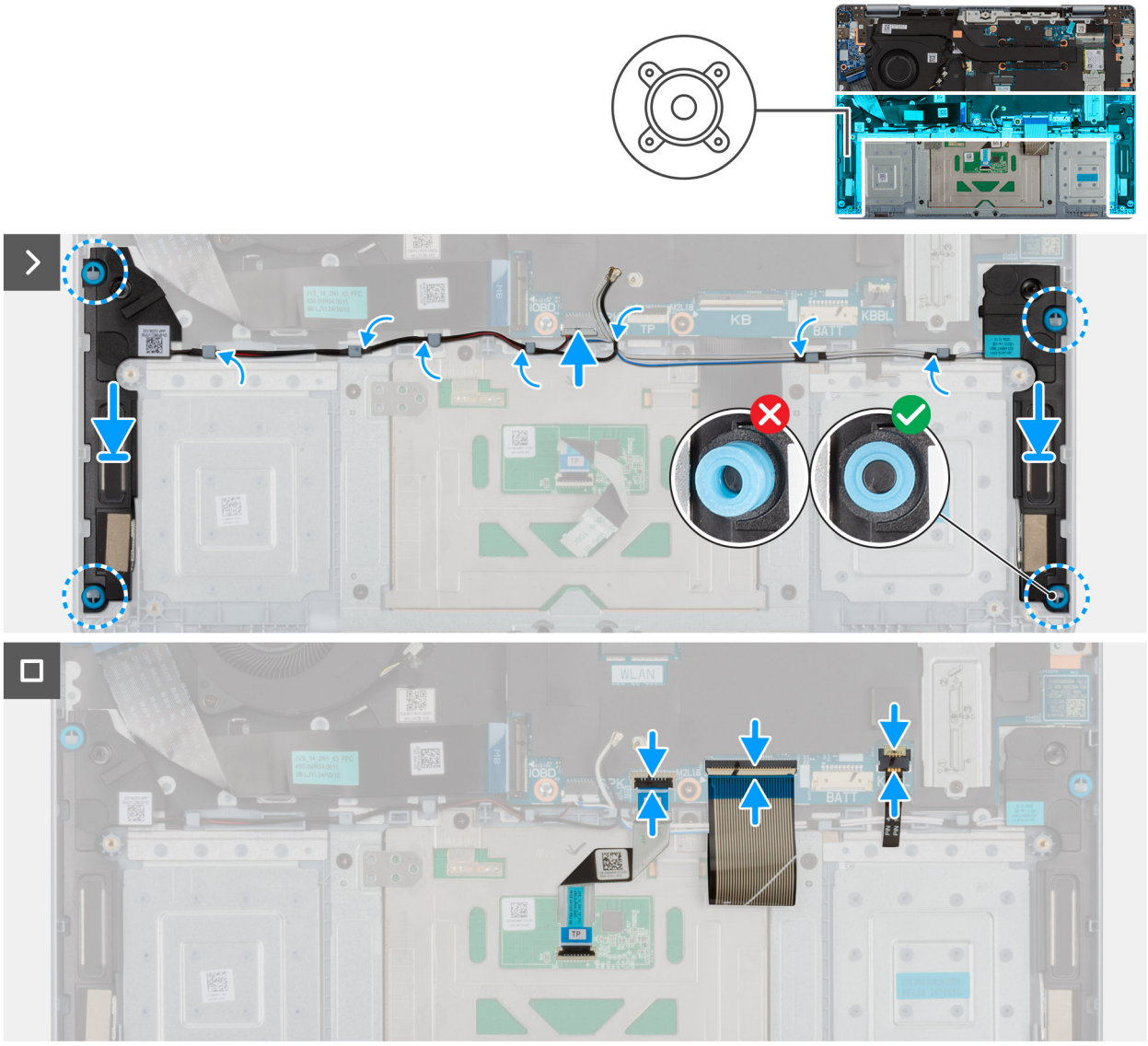


Figure 36. Installing the speaker assembly

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 assembly cables through the routing guides on the palm-rest and keyboard assembly.
3. Connect the speaker cable to the connector (SPK) on the system board.
4. Connect the keyboard cable to the connector (KB) on the system board and close the latch.
   Note: The keyboard cable should be placed over the speaker cables during the connection procedure.
5. Connect the keyboard-backlight cable to the connector (KBBL) on the system board and close the latch.
   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 7** 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 indicates the location of the heat sink and provides a visual representation of the removal procedure.

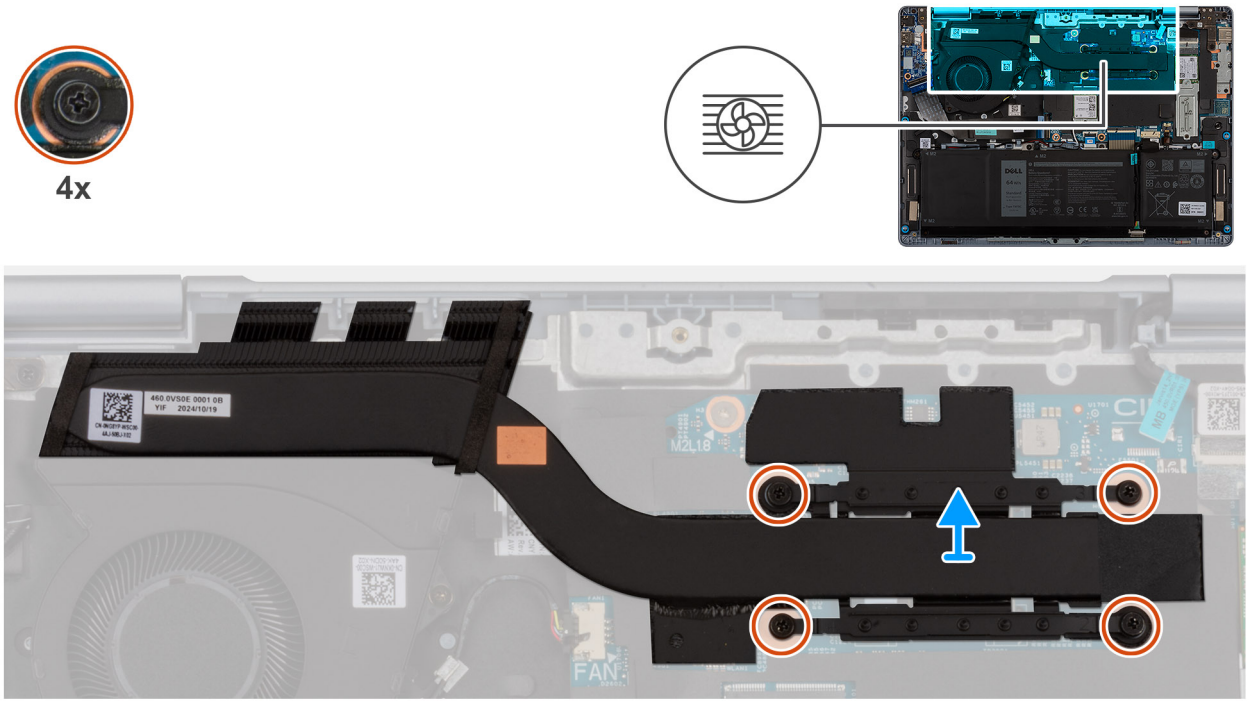


Figure 37. Removing the heat sink

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 for thermal conductivity.

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

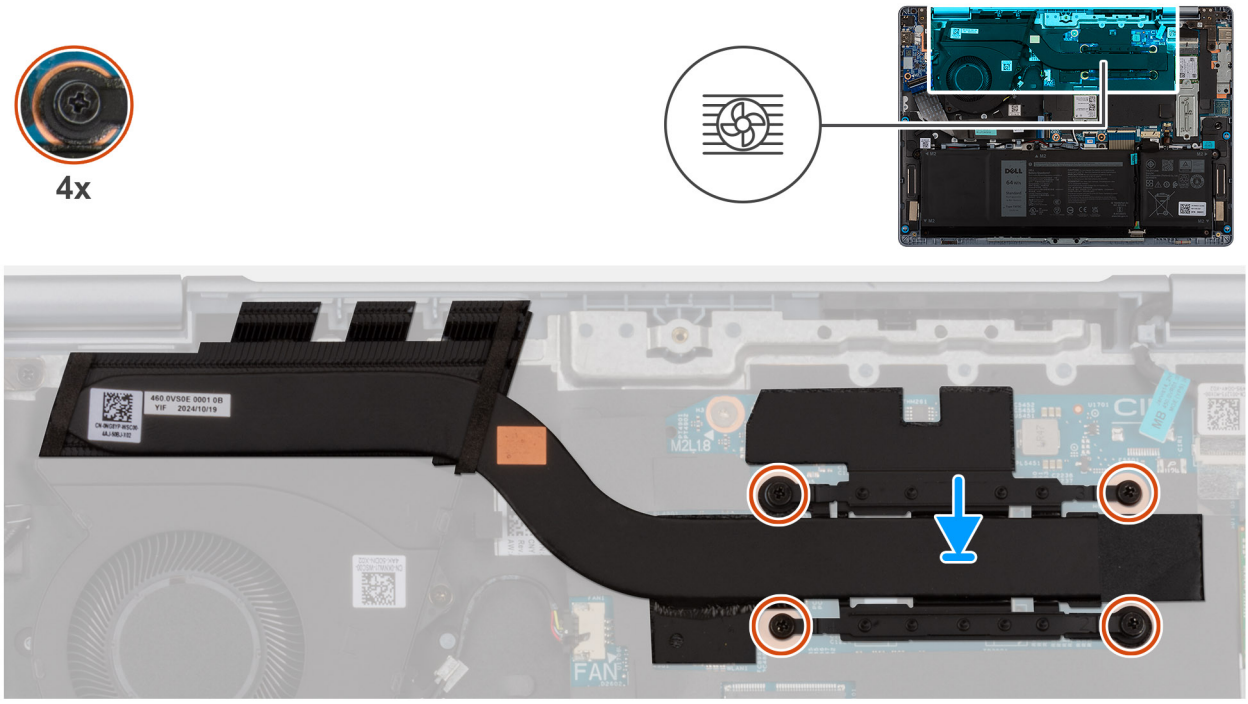


Figure 38. Installing the heat sink

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.

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 7** in Before working inside your computer.

2. Remove the base cover.
3. Remove the battery.
4. Remove the M.2 2230 solid state drive.
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 slot on your system board.

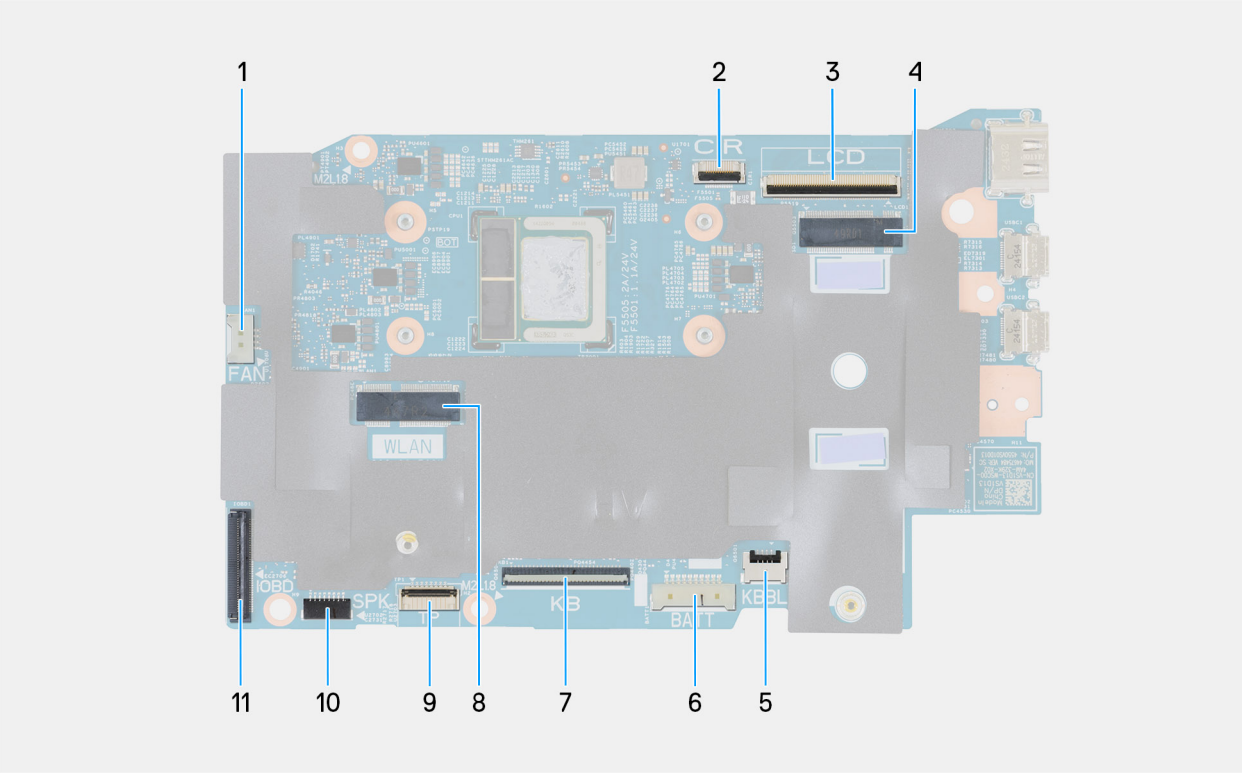


Figure 39. System board callouts

1. Fan cable connector (FAN)
2. Infrared camera cable connector (CIR)
3. Display-assembly cable connector (LCD)
4. M.2 solid state drive slot
5. Keyboard-backlight cable connector (KBBL)
6. Battery cable connector (BATT)
7. Keyboard cable connector (KB)
8. M.2 wireless-card slot (WLAN)
9. Touchpad cable connector (TP)
10. Speaker cables connector (SPK)
11. I/O board-cable connector (IOBD)

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

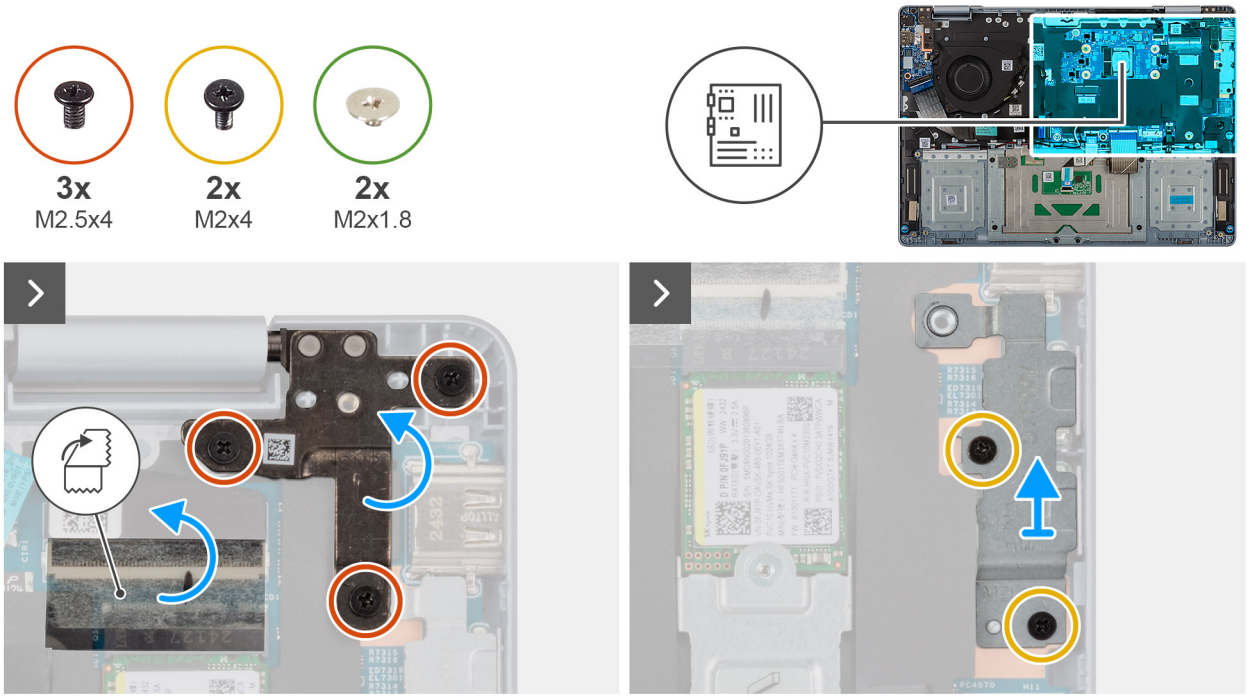


Figure 40. Removing the system board

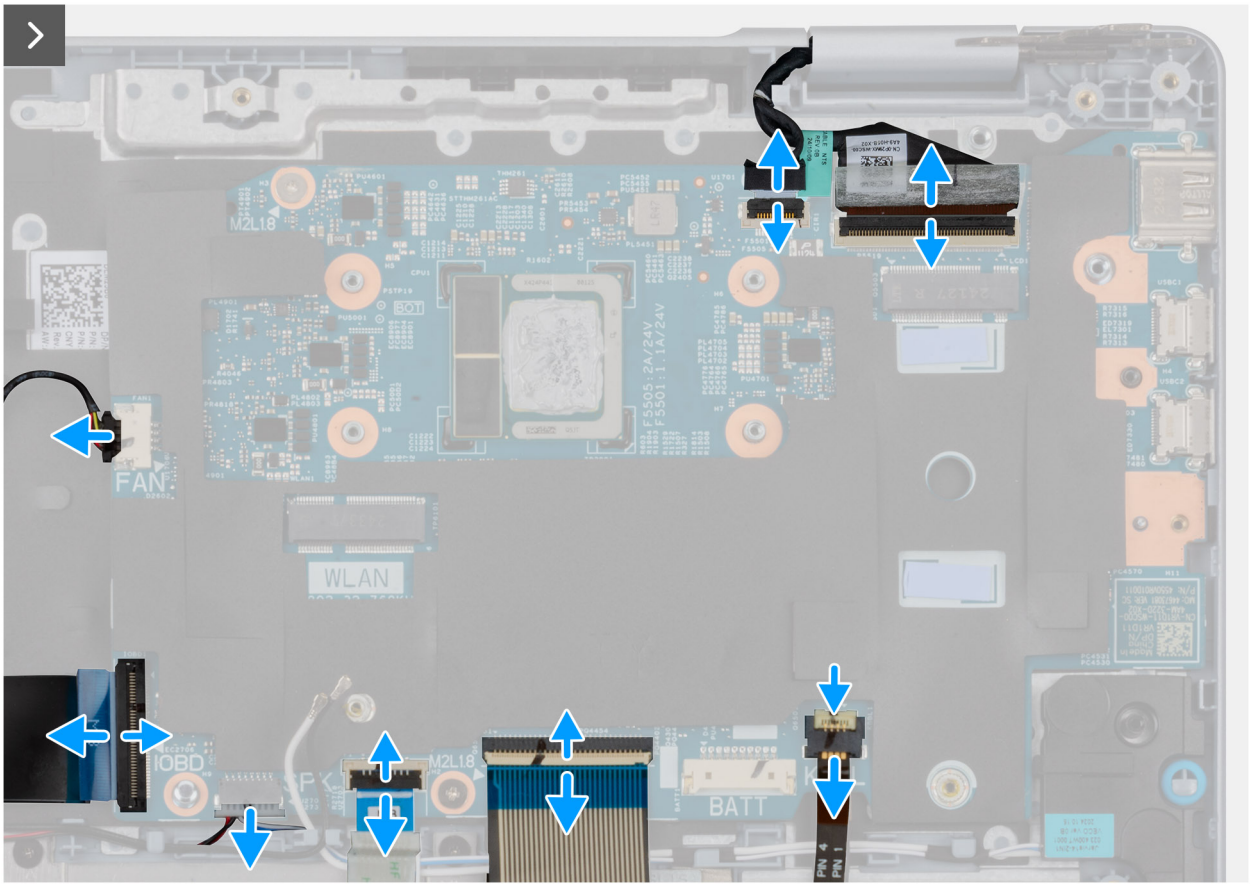


Figure 41. Removing the system board

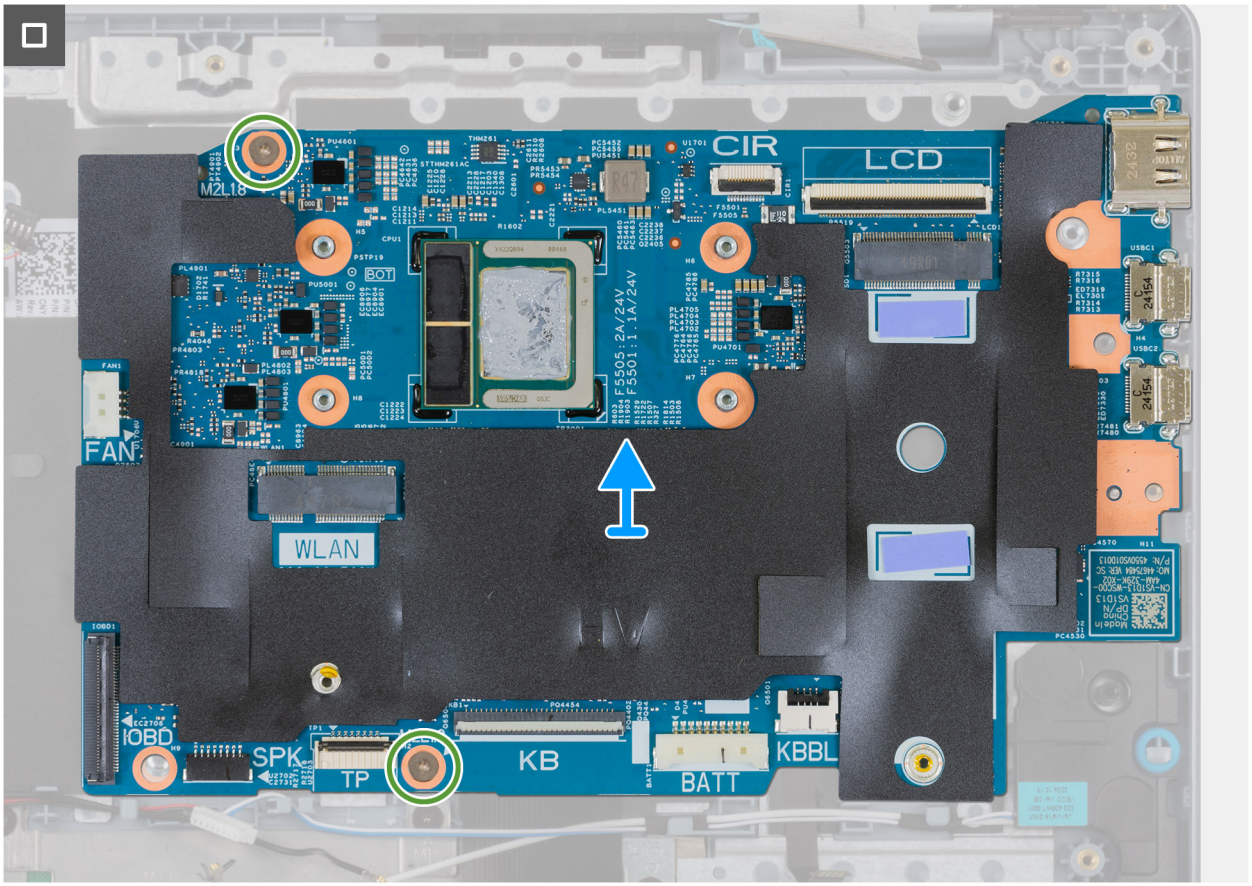


Figure 42. Removing the system board

NOTE: The image shows the system board with the heat sink removed.

Steps

1. Peel the tape that secures the display-assembly cable to the latch on the system board.
2. Remove the three screws (M2.5x4) that secure the display-assembly hinge to the system board.
3. Pry open the display-assembly hinge to a 90-degree angle.
4. Remove the two screws (M2x4) that secure the Type-C bracket to the system board.
5. Lift the Type-C port bracket off the system board.
6. Lift the latch and disconnect the infrared camera cable from the connector (CIR) on the system board.
7. Lift the latch and disconnect the display-assembly cable from the connector (LCD) on the system board.
8. Lift the latch and disconnect the keyboard-backlight cable from the connector (KBBL) on the system board.
9. Lift the latch and disconnect the keyboard cable from the connector (KB) on the system board.
10. Lift the latch and disconnect the touchpad cable from the connector (TP) on the system board.
11. Disconnect the speaker cable from the connector (SPK) on the system board.
12. Lift the latch and disconnect the I/O-board cable from the connector (IOBD) on the system board.
13. Disconnect the fan cable from the connector (FAN) on the system board.
14. Remove the two screws (M2x1.8) that secure the system board to the palm-rest and keyboard assembly.
15. Lift the system board off the palm-rest and keyboard assembly.

    NOTE: When removing the system board, carefully lift it at an angle to clear the positioning pin. Doing so minimizes the risk of damaging the system board.

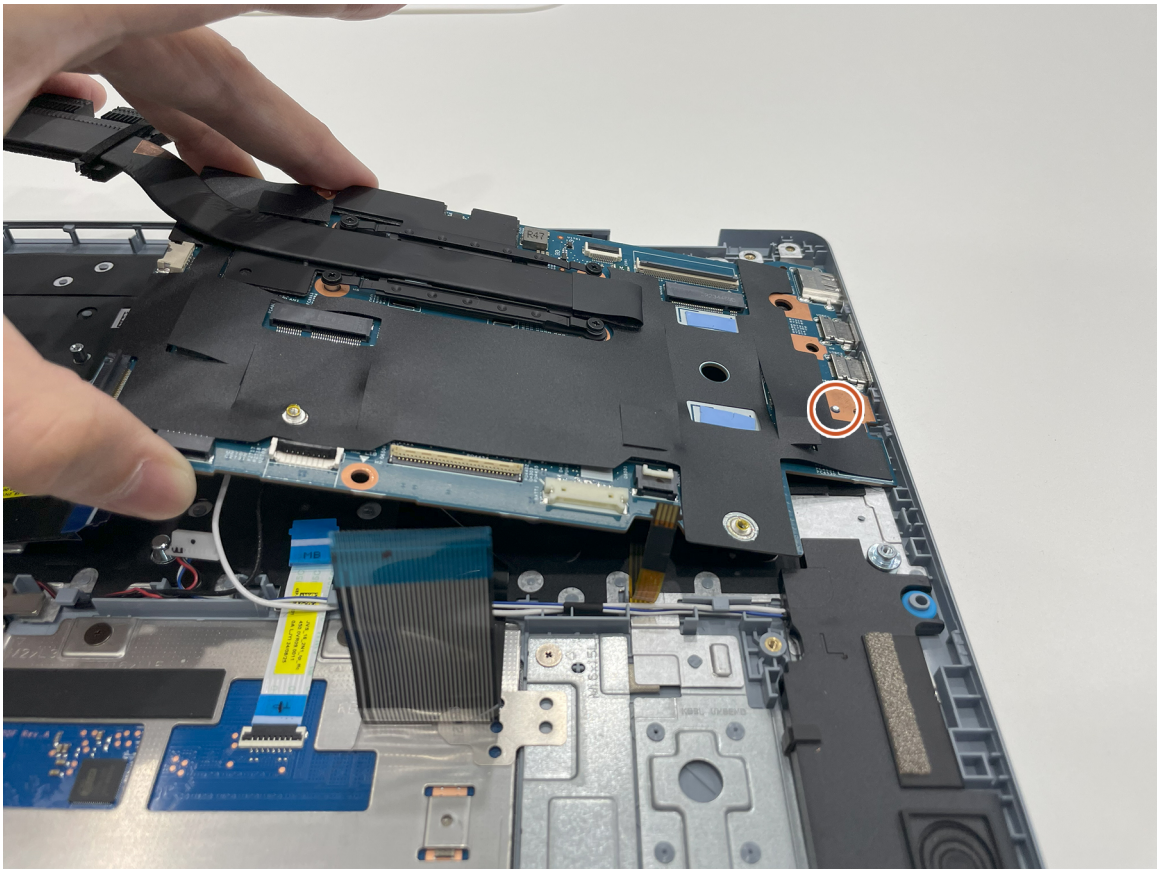


Figure 43. Removing the system board without damaging it

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 slot on your system board.

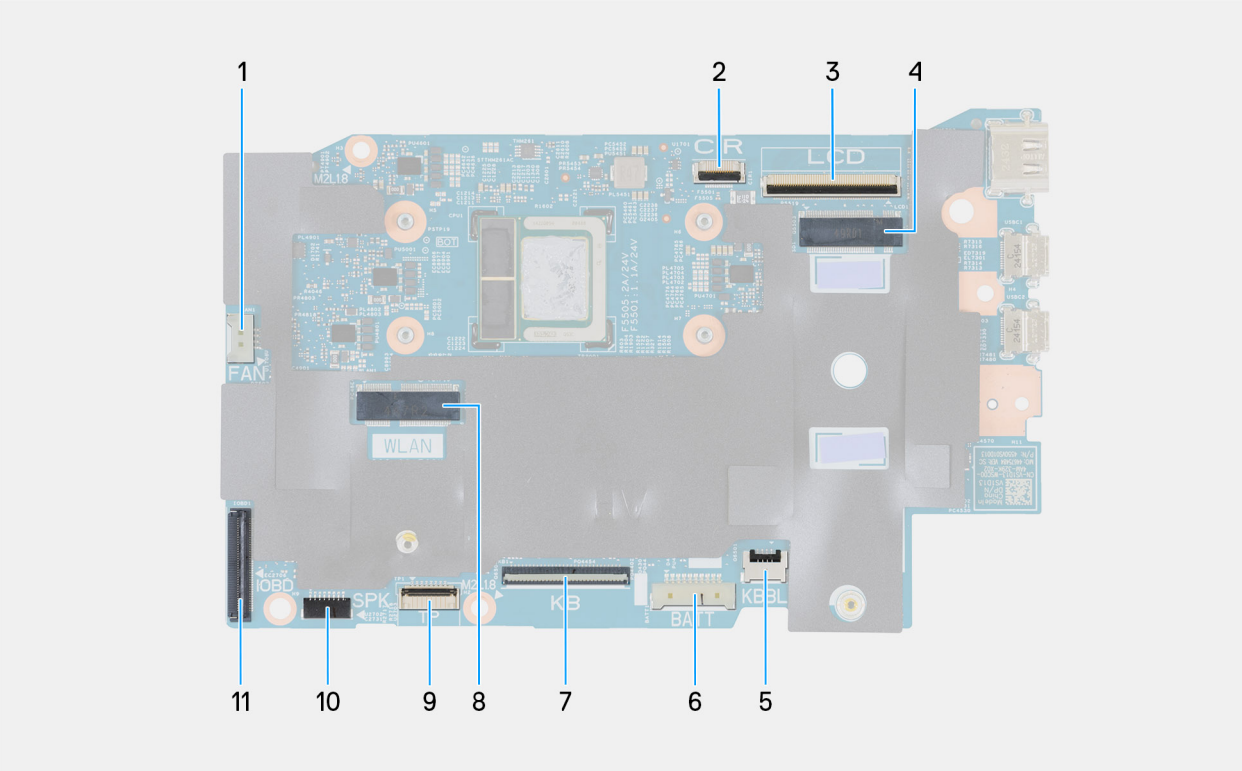


Figure 44. System board callouts

1. Fan cable connector (FAN)
2. Infrared camera cable connector (CIR)
3. Display-assembly cable connector (LCD)
4. M.2 solid state drive slot
5. Keyboard-backlight cable connector (KBBL)
6. Battery cable connector (BATT)
7. Keyboard cable connector (KB)
8. M.2 wireless-card slot (WLAN)
9. Touchpad cable connector (TP)
10. Speaker cables connector (SPK)
11. I/O board-cable connector (IOBD)

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

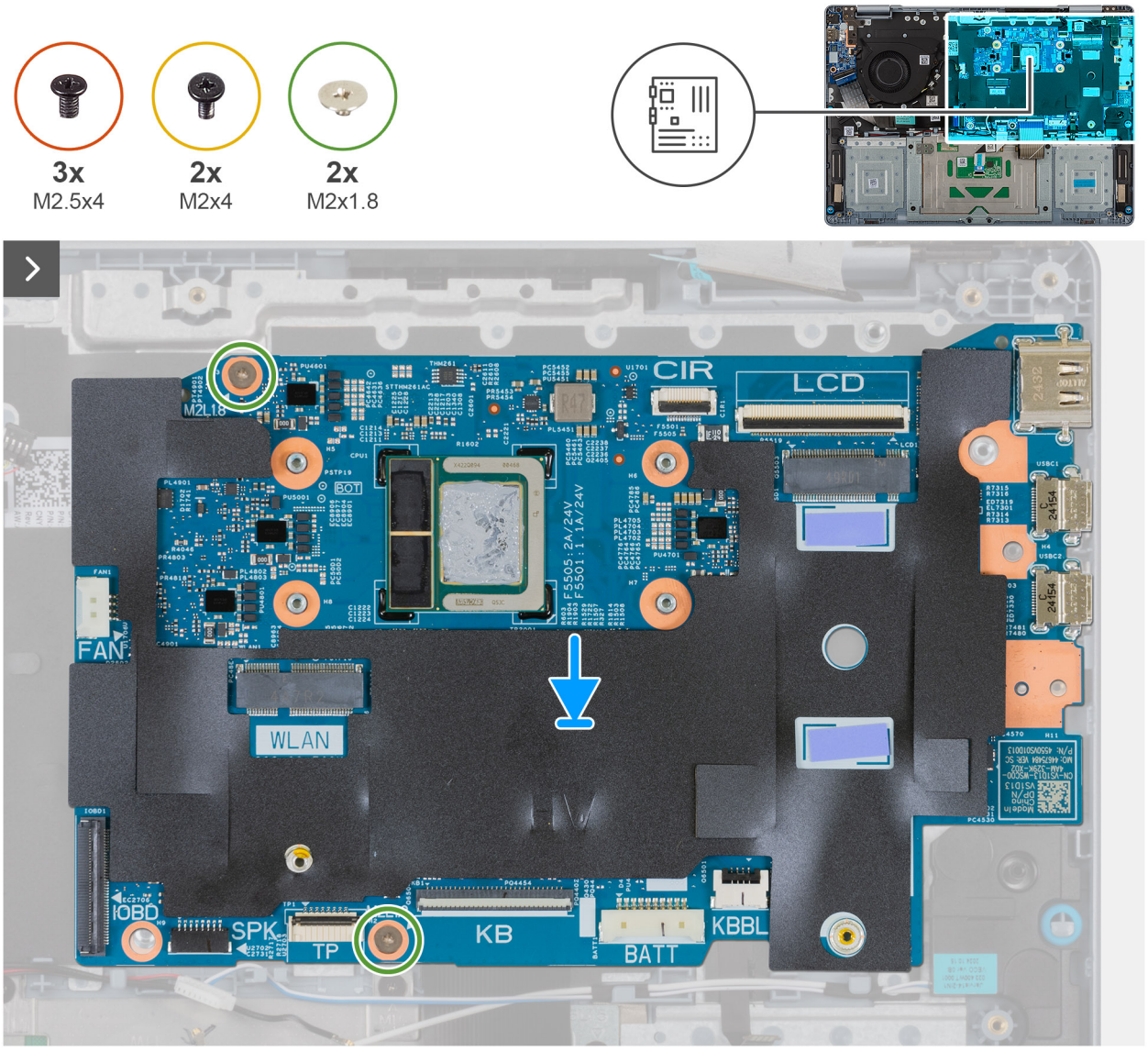


Figure 45. Installing the system board

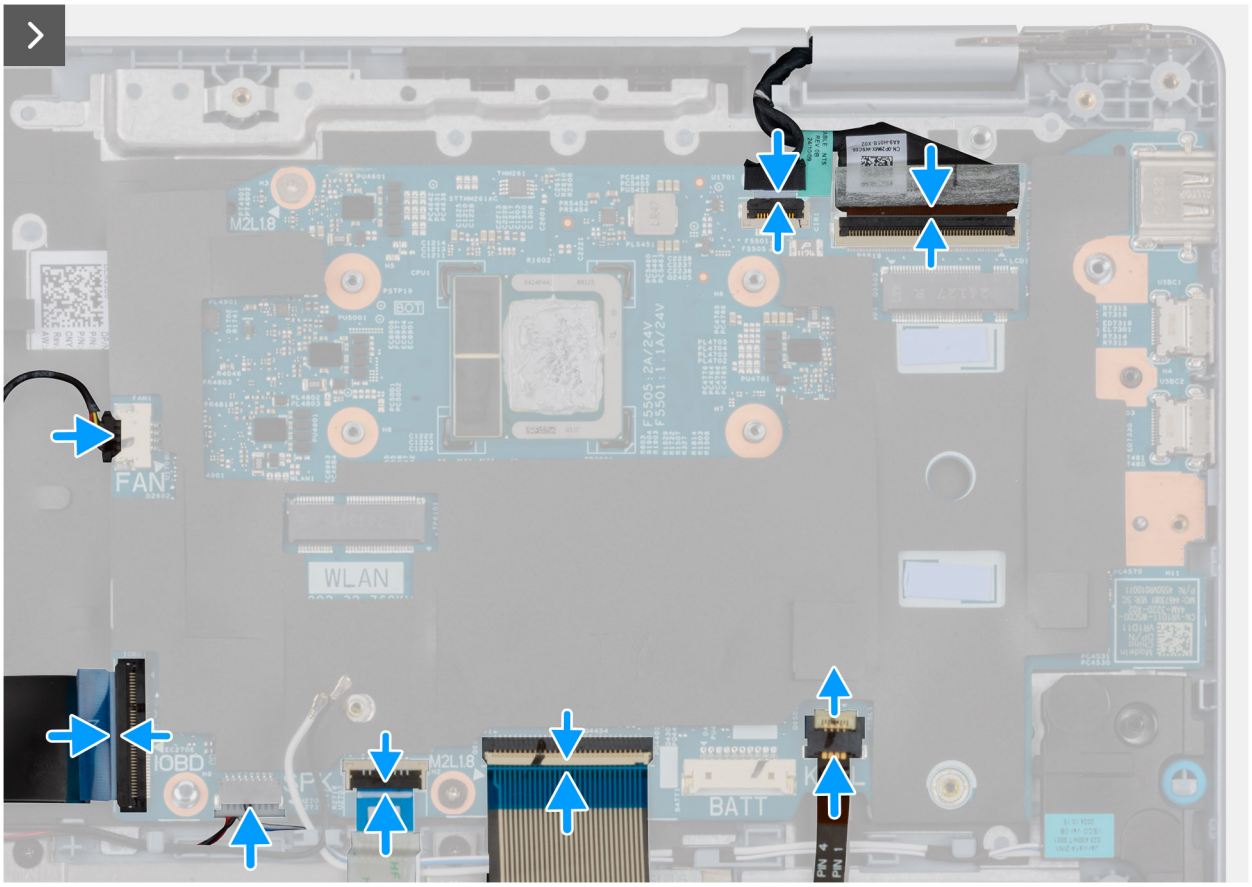


Figure 46. Installing the system board

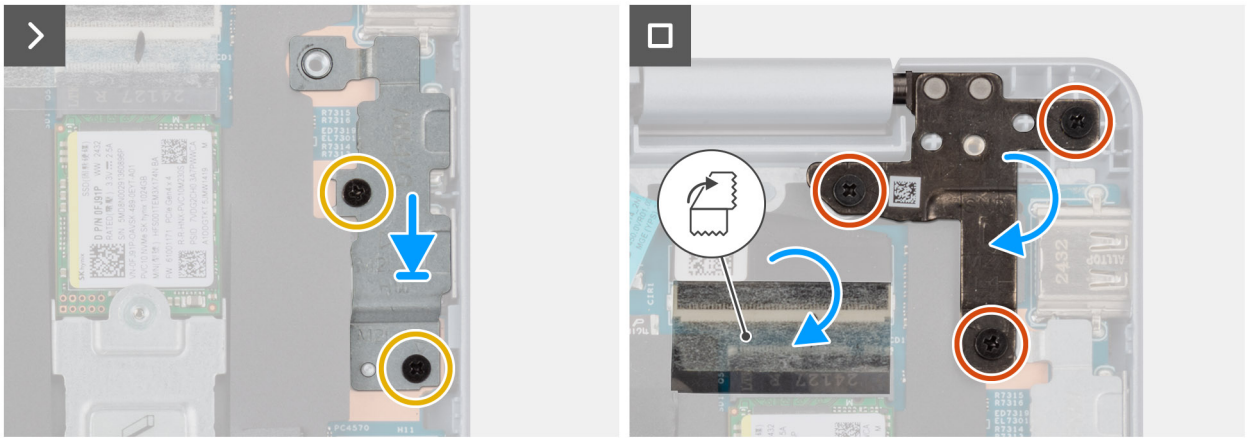


Figure 47. Installing the system board

Steps

1. Position the system board at an angle to the palm-rest and keyboard assembly.

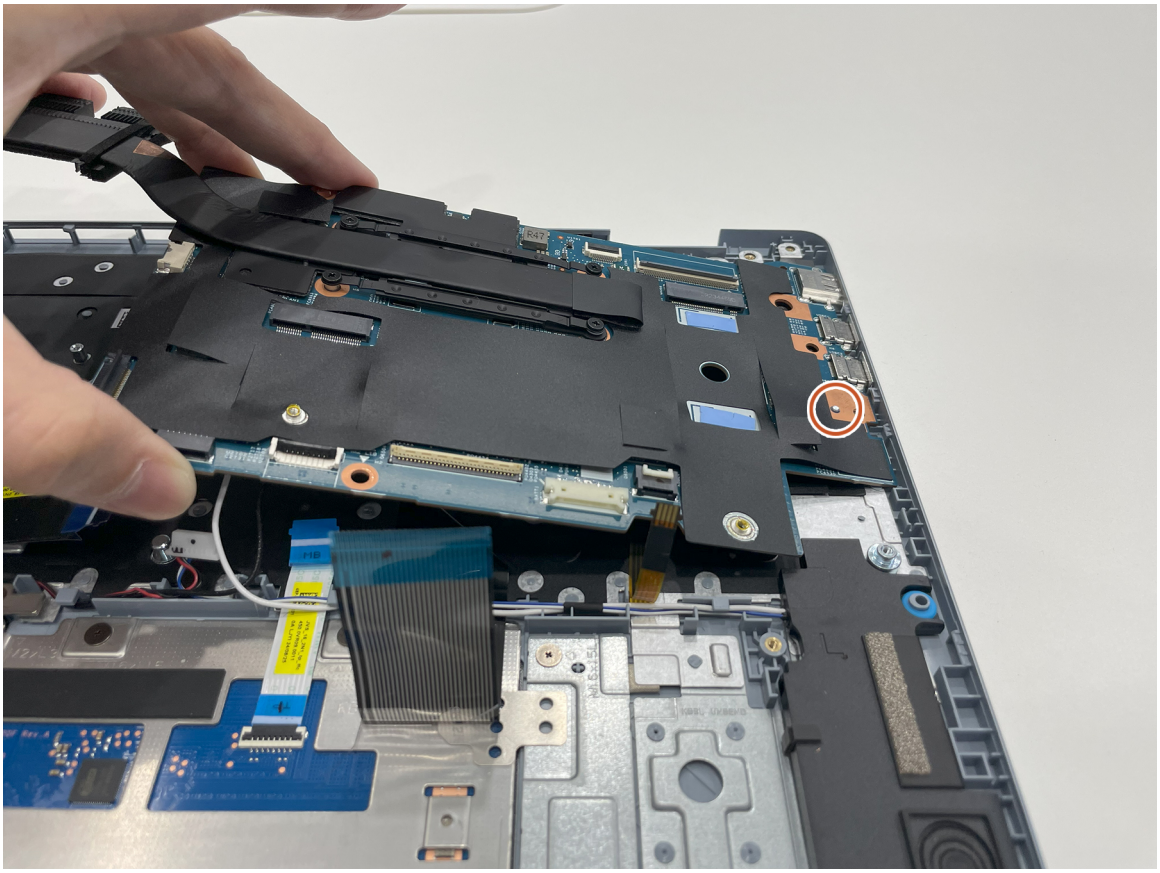


Figure 48. Installing the system board without damaging it

2. Align the positioning pin on the system board with the hole 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. Connect the infrared camera cable to the connector (CIR) on the system board and close the latch.
6. Connect the display cable to the connector (LCD) on the system board and close the latch.
7. Connect the keyboard-backlight cable to the connector (KBBL) on the system board and close the latch.
8. Connect the keyboard cable to the connector (KB) on the system board and close the latch.
9. Connect the touchpad cable to the connector (TP) on the system board and close the latch.
10. Connect the speaker cable to the connector (SPK) on the system board.
11. Connect the I/O-board cable to the connector (IOBD) on the system board and close the latch.
12. Connect the fan cable to the connector (FAN) on the system board.
13. 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.
14. 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.

15. Replace the tape that secures the display cable to the connector (LCD) on the system board.
16. Close the display-assembly hinge and align the screw holes on the display hinge with the screw holes on the palm-rest and keyboard assembly.
17. Replace the three screws (M2.5x4) that secure the display-assembly hinge to the system board.

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.
5. Install the battery.
6. Install the base cover.
7. 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 7** in Before working inside your computer.

2. Remove the base cover.
3. Remove the I/O board.

About this task

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

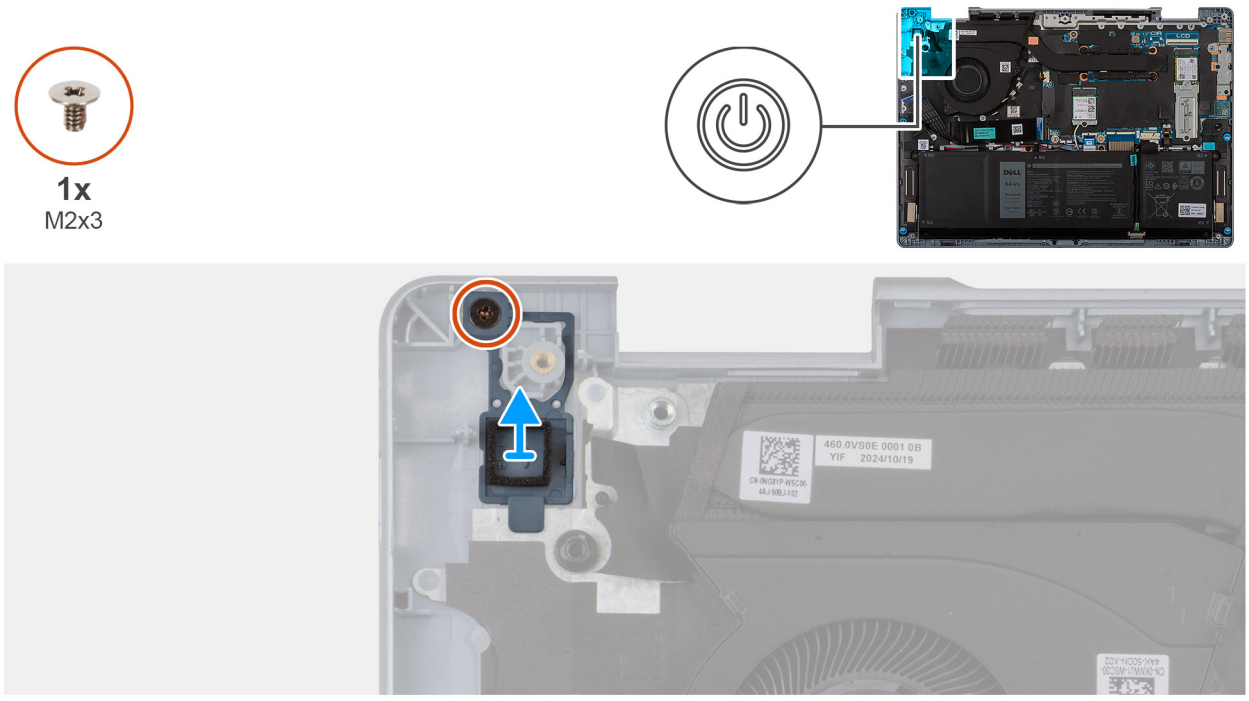


Figure 49. Removing the power button

Steps

1. Remove the screw (M2x3) that secures the power button to the palm-rest and keyboard assembly.
2. 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 thermal conductivity.

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

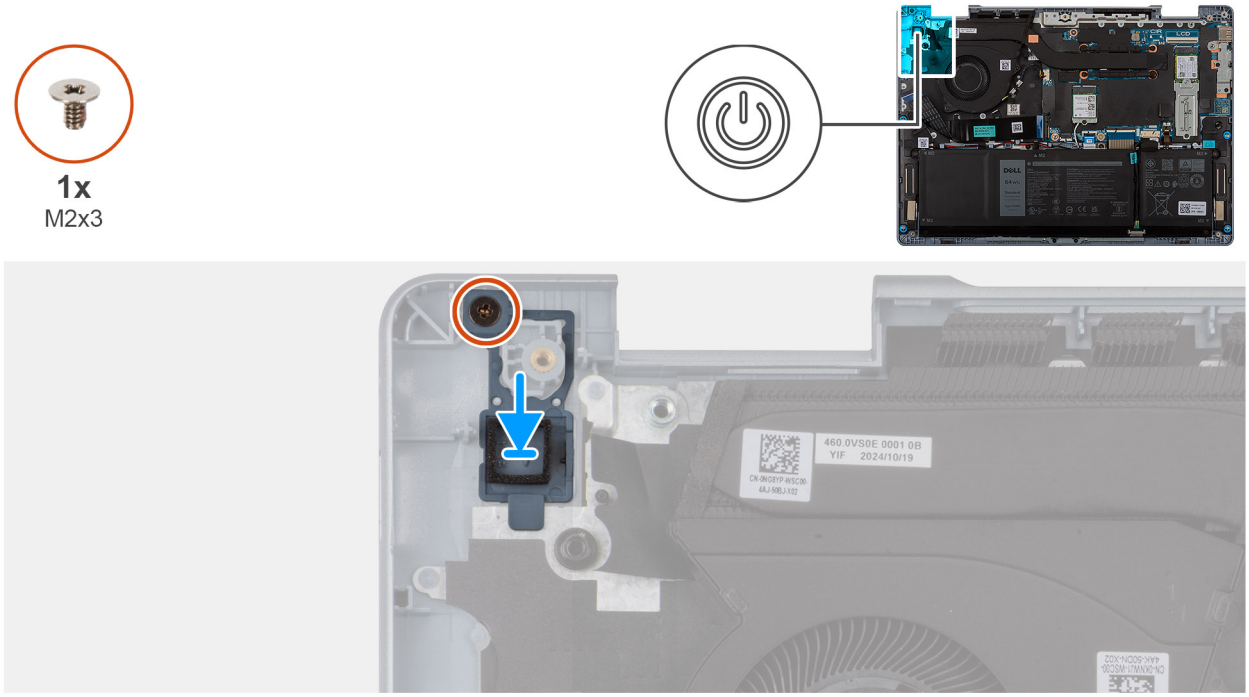


Figure 50. Installing the power button

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 with 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.

Next steps

1. Install the I/O board.
2. Install the base cover.
3. Follow the procedure in After working inside your computer.

Power button with optional fingerprint reader

Removing the power button with fingerprint reader

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 7** in Before working inside your computer.

2. Remove the base cover.
3. Remove the I/O board.
4. .

About this task

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

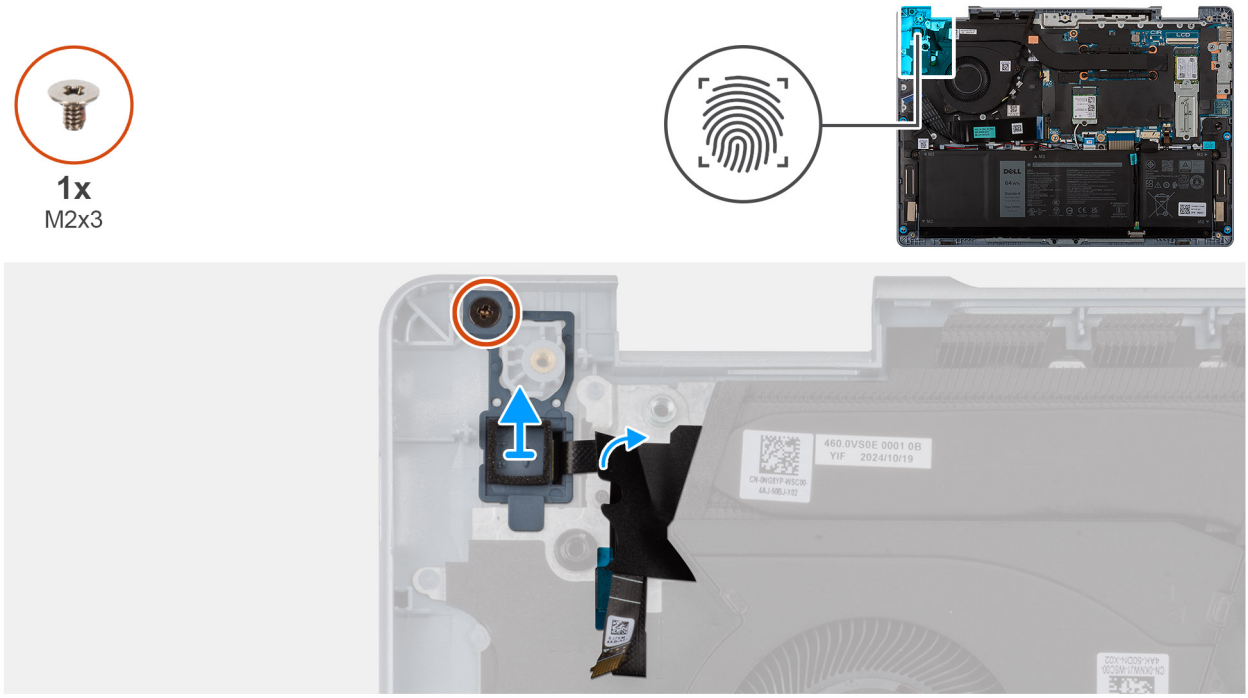


Figure 51. Removing the power button with fingerprint reader

Steps

1. Remove the screw (M2x3) that secures the power button with fingerprint reader 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 fingerprint reader.

3. Lift the power button with fingerprint reader off the palm-rest and keyboard assembly.

Installing the power button with fingerprint reader

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

Prerequisites

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

The following image indicates the location of the power button with fingerprint reader and provides a visual representation of the installation procedure.

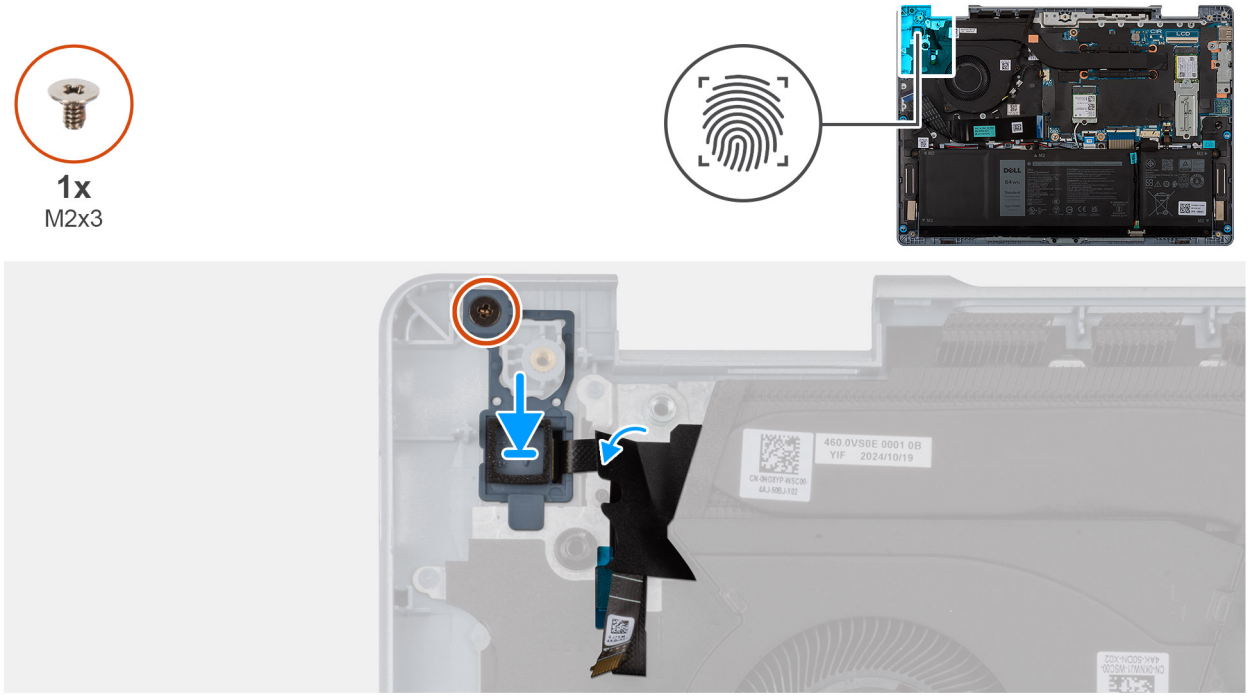


Figure 52. Installing the power button with fingerprint reader

Steps

1. Place the power button with fingerprint reader 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 with fingerprint reader to the palm-rest and keyboard assembly.
4. Replace the tape that secures the fingerprint-reader cable to the palm-rest and keyboard assembly.

Next steps

1. Install the I/O board.
2. Install the base cover.
3. 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 7** 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 no SD card is installed in the SD card slot on your computer.

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

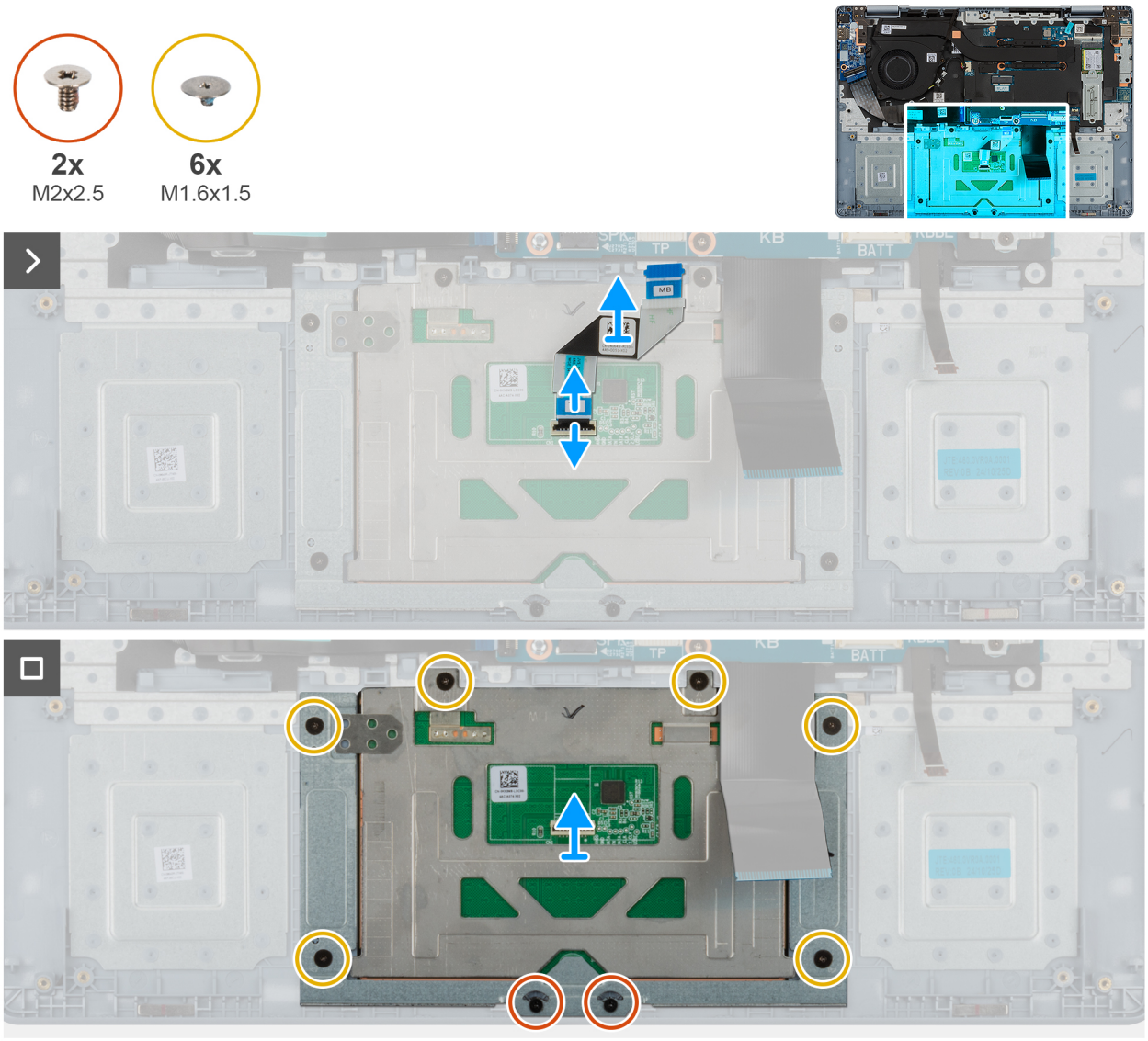


Figure 53. Removing the touchpad

Steps

1. Pry open the touchpad cable connector latch and disconnect the touchpad cable from the touchpad cable connector (TP) 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 two screws (M2x3) and the six screws (M1.6x1.5) 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 indicates the location of the touchpad and provides a visual representation of the installation procedure.

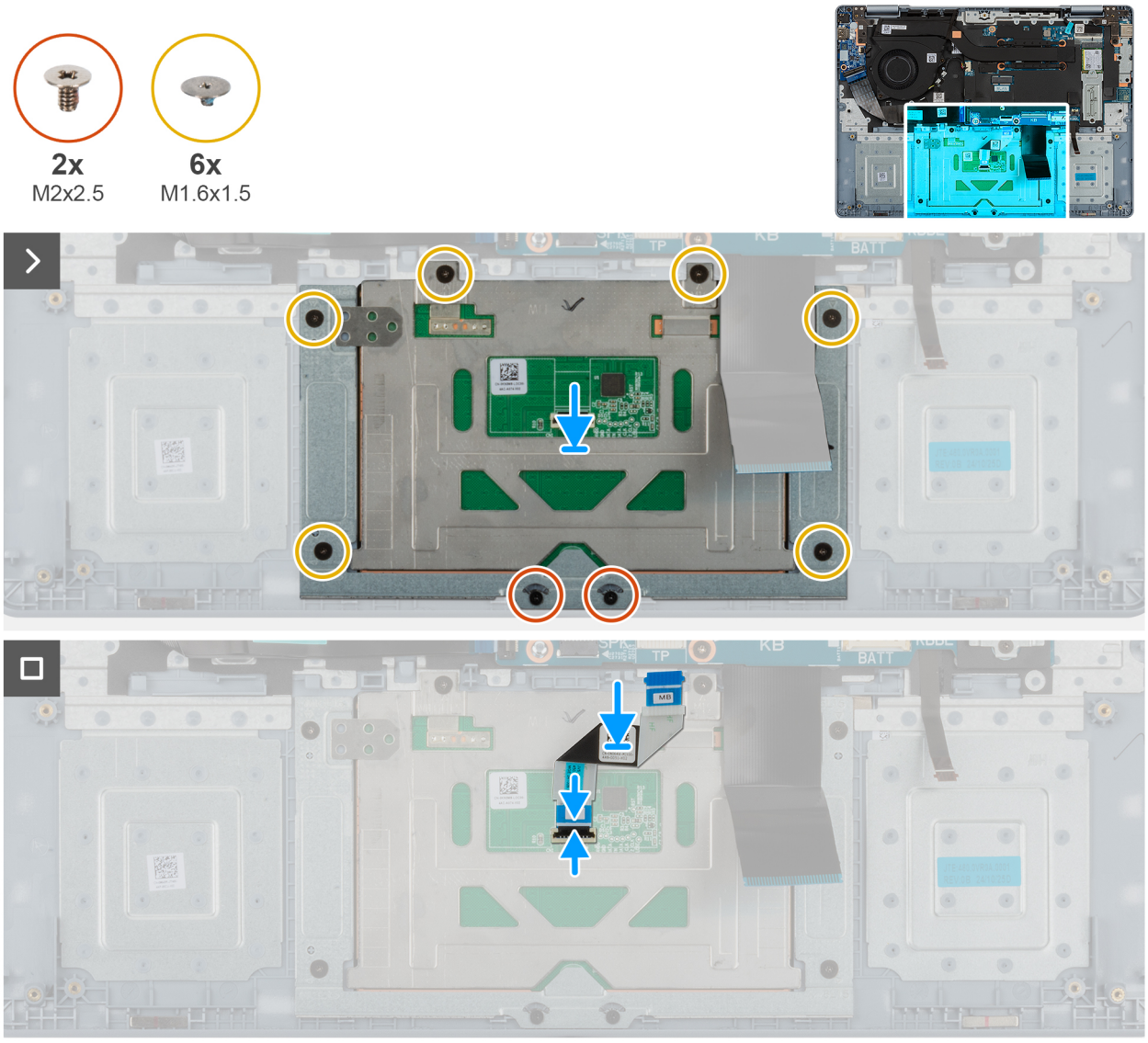


Figure 54. Installing the touchpad

Steps

1. Place the touchpad into its slot on the palm-rest and keyboard assembly.
2. Place the touchpad bracket on the touchpad.
3. Align the screw holes on the touchpad bracket with the screw holes on the palm-rest and keyboard assembly.
4. Replace the two screws (M2x3) and the six screws (M1.6x1.5) 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 (TP) 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.

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 7** in Before working inside your computer.

2. Remove the base cover.
3. Remove the battery.
4. Remove the battery cable.
5. Remove the M.2 2230 solid state drive.
6. Remove the display assembly.
7. Remove the fan.
8. Remove the heat sink.
9. Remove the wireless card.
10. Remove the speaker assembly.
11. Remove the system board.

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

12. Remove the I/O board.
13. Remove the power button or the power button with optional fingerprint reader, whichever is applicable.
14. Remove the touchpad.

About this task

The following image shows the palm-rest and keyboard assembly after all other components have been removed.

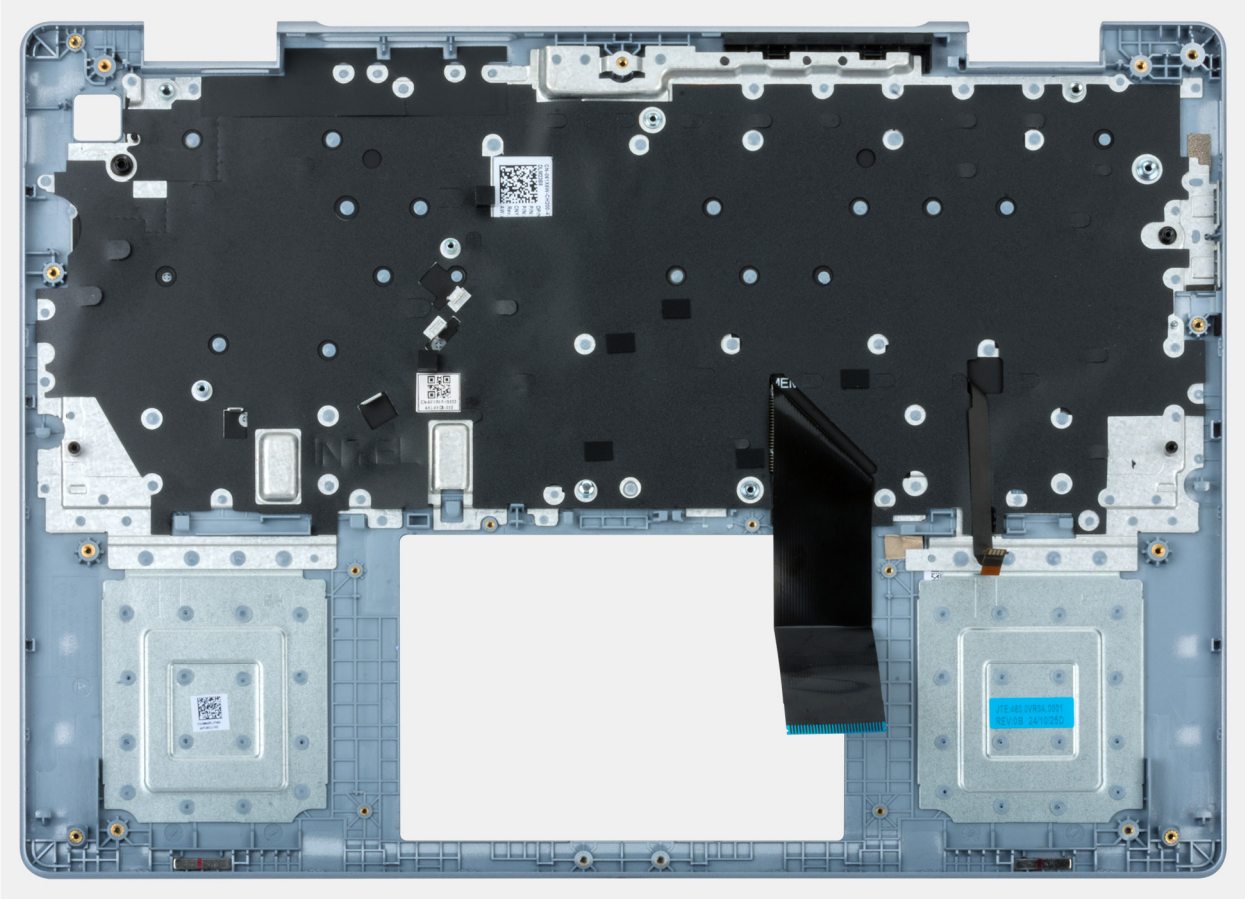


Figure 55. Palm-rest and keyboard assembly

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 shows the palm-rest and keyboard assembly.

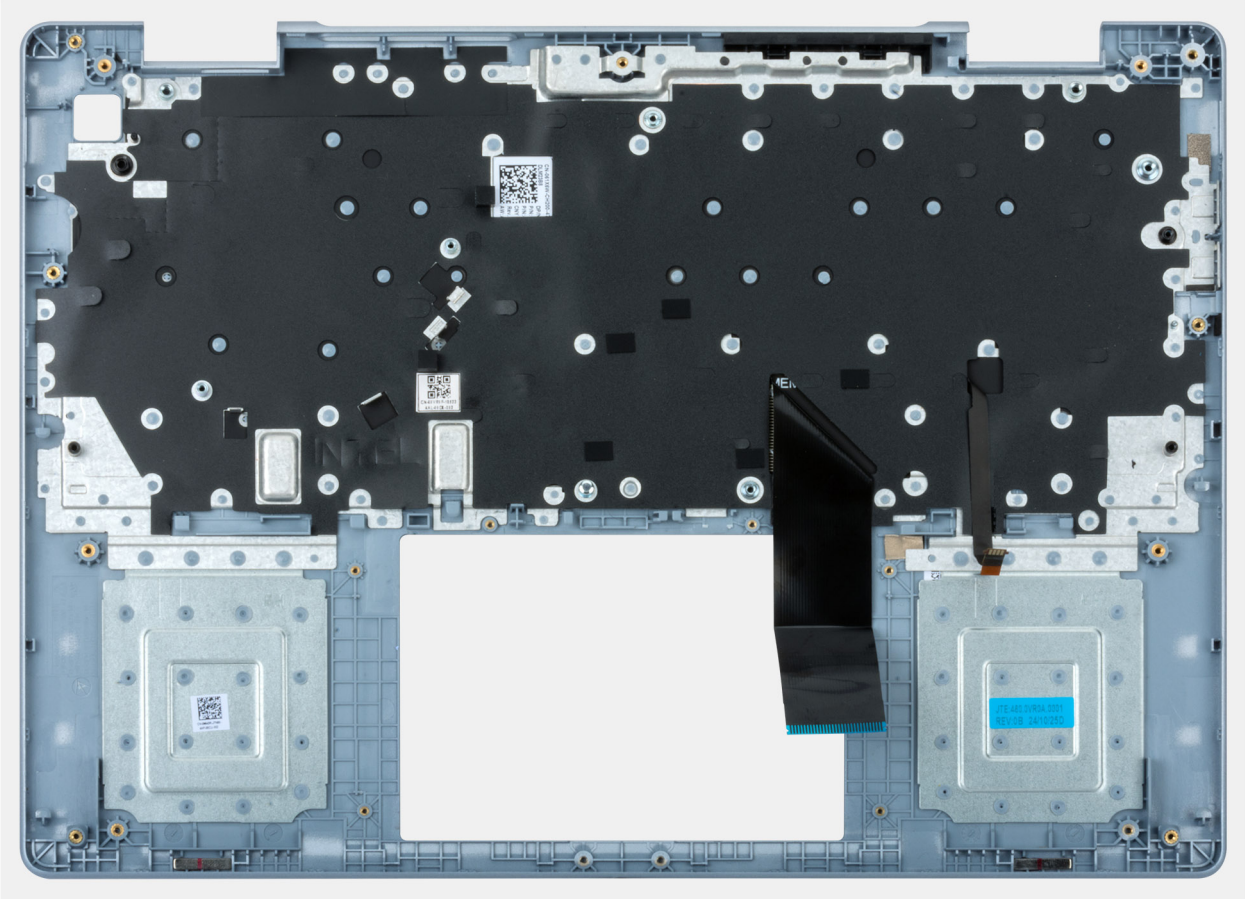


Figure 56. Palm-rest and keyboard assembly

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.

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 or the power button with optional fingerprint reader, whichever is applicable.
3. Install the I/O board.
4. Install the system board.

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

5. Install the speaker assembly.
6. Install the wireless card.
7. Install the fan.
8. Install the heat sink.
9. Install the display assembly.
10. 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 for thermal conductivity.

11. Install the M.2 2230 solid-state drive.
12. Install the battery cable.
13. Install the battery.
14. Install the base cover.
15. Follow the procedure in After working inside your computer.

7

Software

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

Operating system

Your Dell 14 Plus DB14250 supports the following operating systems:

- Windows 11 Pro
- Windows 11 Pro National Education
- Windows 11 Home

Drivers and downloads

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

8

BIOS Setup

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

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

Use BIOS Setup for the following purposes:

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

Entering BIOS Setup program

Turn on or restart your computer and press F2 immediately.

Navigation keys

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

Table 27. Navigation keys

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

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 28. System setup options—Overview menu

Overview	Description
Dell 14 Plus DB14250	
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.
BATTERY	Displays the battery health information.
Primary	Displays the primary battery.
Battery Level	Displays the battery level.
Battery State	Displays the battery state.
Health	Displays the battery health.
AC Adapter	Displays whether an AC adapter is connected. If connected, the AC adapter type.
PROCESSOR	
Processor Type	Displays the processor type.
Maximum Clock Speed	Displays the maximum processor clock speed.
Processor L2 Cache	Displays the processor L2 Cache size.
Processor L3 Cache	Displays the processor L3 Cache size.
Intel vPro Technology®	Displays whether Intel vPro Technology®.
MEMORY	
Memory Installed	Displays the total computer memory installed.
Memory Speed	Displays the memory speed.
DEVICES	
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.

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

Overview	Description
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 29. System setup options—Boot Configuration menu

Boot Configuration	Description
Boot Sequence	
Boot Sequence	Specifies the order that the BIOS searches the list of devices to find an operating system to boot.
Secure Boot	
Enable Secure Boot	Enables secure boot using only validated boot software. Default: **OFF**
Enable Microsoft UEFI CA	Enables UEFI CA to be included in the BIOS UEFI Secure Boot DB. Default: **ON**
Secure Boot Mode	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. By default, **Deployed Mode** is selected.

Table 30. System setup options—Integrated Devices menu

Integrated Devices	Description
Date/Time	
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.
Camera	
Enable Camera	Enables or disables the camera. By default, **Enable Camera** is selected.
Audio	Enables or disables all integrated audio controller. Default: **ON**
Enable Microphone	Enables or disables the microphone. By default, **Enable Microphone** is selected.
Enable Internal Speaker	Enables or disables the internal speaker. By default, **Enable Internal Speaker** is selected.
USB/Thunderbolt Configuration	
Enable USB Boot Support	Enables or disables booting from USB mass storage devices such as external hard drive, optical drive, and USB drive. By default, **Enable USB Boot Support** is selected.

Table 30. System setup options—Integrated Devices menu (continued)

Integrated Devices	Description
Miscellaneous Devices	Enable or disable the fingerprint reader device. By default, **Enable Fingerprint Reader Device** is selected.

Table 31. System setup options—Storage menu

Storage	Description
Storage Interface	
Port Enablement	Selects the onboard drives to enable.
Drive Information	Displays the information of various onboard drives.
M.2 PCIe SSD	
Type	Displays the M.2 PCIe SSD type information of the system.
Device	Displays the M.2 PCIe SSD device information of the system.

Table 32. System setup options—Power menu

Power	Description
Lid Switch	
Enable Lid Switch	Enables or disables the lid switch. Default: **ON**

Table 33. System setup options—Security menu

Security	Description
Absolute®	Absolute Software provides various cyber security solutions, some requiring software preloaded on Dell computers and integrated into the BIOS. To use these features, you must enable the Absolute BIOS setting and contact Absolute for configuration and activation. By default, the **Enable Absolute** option is enabled. For additional security, Dell Technologies recommends keeping the **Absolute** option enabled. **NOTE:** When the Absolute features are activated, the Absolute integration cannot be disabled from the BIOS setup screen.

Table 34. System setup options—Passwords menu

Passwords	Description
Admin Password	Enables the user to set, change, or delete the administrator (admin) password. The admin password enables several security features
System Password	Enables the user to set, change, or delete the system password.
M.2 PCIe SSD-0	Enables the user to set, change, or delete the password for the internal storage.

Table 35. System setup options—Update,Recovery menu

Update,Recovery	Description
SupportAssist OS Recovery	Enables or disables the boot flow for SupportAssist OS Recovery tool, in the event of certain system error. Default: **ON**

Table 35. System setup options—Update,Recovery menu (continued)

Update,Recovery	Description
BIOSConnect	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**
Dell Auto OS Recovery Threshold	Controls the automatic boot flow for SupportAssist System Resolution Console and for Dell operating system Recovery tool. Default: **2**.

Table 36. System setup options—System Management menu

System Management	Description
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Creates a system Asset Tag that can be used by an IT administrator to uniquely identify a particular system. Once set in the BIOS, the Asset Tag cannot be changed.
First Power On Date	Sets the ownership date.. Default: **OFF**.

Table 37. System setup options—Keyboard menu

Keyboard	Description
Numlock Enable	Enables or disables the Numlock function when the system boots. Default: **ON**
Keyboard Illumination	Allows for selection of keyboard illumination settings. Default: **Bright**
Keyboard Backlight Timeout on AC	Allows for selection of keyboard backlight timeout value, when an AC adapter is plugged into the computer. Default: **1 minute**
Keyboard Backlight Timeout on Battery	Allows for selection of keyboard backlight timeout value, when the computer is running on battery power. Default: **1 minute**

Table 38. System setup options—Pre-boot Behavior menu

Pre-boot Behavior	Description
Adapter warnings	
Enable Adapter warnings	Enables or disables the computer to display adapter warning messages when adapters with too little power capacity are detected. Default: **ON**
Warnings and Errors	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.** **NOTE:** Errors deemed critical to the operation of the computer hardware will always halt the computer.
USB-C Warnings	
Enable Dock Warning Messages	Enables or disables dock warning messages.

Table 38. System setup options—Pre-boot Behavior menu (continued)

Pre-boot Behavior	Description
	Default: **ON**

Table 39. System setup options—System Logs menu

System Logs	Description
BIOS Event Log	
Clear Bios Event Log	Select keep or clear BIOS events. Default: **Keep Log**
Thermal Event Log	
Clear Thermal Event Log	Select keep or clear Thermal events. Default: **Keep Log**
Power Event Log	
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 computers BIOS, copy the BIOS XXXX.exe file onto a USB drive formatted with the FAT32 file system. Then, restart your computer and boot from the USB drive using the One-Time Boot Menu.

About this task

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 40. System and setup password

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

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

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

Assigning a System Setup password

Prerequisites

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

Steps

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

Deleting or changing an existing system password or setup password

Prerequisites

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

Steps

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

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

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

Clearing CMOS settings

About this task

CAUTION: Clearing CMOS settings 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. Install 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.

9

Troubleshooting

Handling swollen rechargeable Li-ion batteries

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

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

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

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

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

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

Dell SupportAssist Pre-boot System Performance Check diagnostics

About this task

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

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

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

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

For more information, see the knowledge base article 000181163.

Running the SupportAssist Pre-Boot System Performance Check

Steps

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

Built-in self-test (BIST)

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

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

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

How to run M-BIST

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

1. Press and hold both the **M** key and the power button to initiate M-BIST.
2. The battery 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 41. LED error codes

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

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

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

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

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

How to invoke the L-BIST

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

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

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

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

How to invoke the LCD-BIST

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

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

System-diagnostic lights

This section lists the system-diagnostic lights of your Dell 14 Plus DB14250.

Table 42. 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

Table 42. System-diagnostic lights (continued)

Blinking pattern		Problem description
Amber	**White**	
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**.

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

Real-Time Clock (RTC Reset)

The Real-Time Clock (RTC) reset function enables you or the service technician to recover Dell computers from No POST/No Power/No Boot situations.

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

Backup media and recovery options

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

Network power cycle

About this task

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

Steps

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

Drain flea power (perform hard reset)

About this task

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

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

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

Perform the following steps to drain the flea power:

Steps

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

   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.

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Getting help and contacting Dell

Self-help resources

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

Table 43. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	Dell Site
Dell Optimizer	Dell Optimizer is an AI-based software application that allows you to customize your computer settings for power and battery, and more. For computers with Dell Optimizer, you can: • Tune the performance, power consumption, cooling, and fan noise with selectable thermal modes. • Download and redeem the apps that are purchased with your computer. For more information about configuring and using these features, search for the *Dell Optimizer* at Dell Support Site. View PDF
SupportAssist	SupportAssist proactively and predictively identifies hardware and software issues on your computer and automates the engagement process with Dell Technical support. It addresses performance and stabilization issues, prevents security threats, monitors, and detects hardware failures. For more information, see SupportAssist for Home PCs User's Guide at SupportAssist for Home PCs.
Tips	
Contact Support	In Windows search, type `Contact Support`, and press Enter.
Online help for operating system	Windows Support Site
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals, and documents.	Your Dell computer is uniquely identified using a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, enter the Service Tag or Express Service Code at Dell Support Site. For more information about how to find the Service Tag for your computer, see Locate the Service Tag on your computer.
Dell knowledge base articles	1. Go to Dell Support Site. 2. On the menu bar at the top of the Support page, select **Support** > **Support Library**. 3. In the Search field on the Support Library page, type the keyword, topic, or model number, and then click or tap the search icon to view the related articles.

Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see Contact Support at Dell Support Site.

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

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

11

Revision history

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

Table 44. Revision history

Revision	Date	Description
A00	2025-02	Original publish date.
A01	2025-03	Fixed accessibility issues.
A02	2025-06	• Updated BIOS Setup. • Updated display specifications. • Updated battery specifications. • Updated power adapter specifications.