

Inspiron 14 5445

Owner's Manual

Notes, cautions, and warnings

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

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

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

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Views of Inspiron 14 5445

Right



Figure 1. Right view

1. SD-card slot

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

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

2. Universal audio port

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

3. USB 3.2 Gen 1 (5 Gbps) port

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

4. Wedge-shaped lock slot

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

Left



Figure 2. Left view

1. Power-adaptor port (primary power)

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

2. Power and battery-status light

Indicates the power state and battery state of the computer.

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

Solid amber - Battery charge is low or critical.

Off - Battery is fully charged.

NOTE: On certain computers, the power and battery-status light is also used for diagnostics. For more information, see the *Troubleshooting* section in the *Owner's Manual* of your computer.

3. HDMI 1.4 port

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

4. USB 3.2 Gen 1 (5 Gbps) port

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

5. USB 3.2 Gen 2 (10 Gbps) Type-C port with DisplayPort Alt mode 1.4/Power Delivery

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

Supports Power Delivery that enables two-way power supply between devices. Provides up to 15 W power output that enables faster charging.

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

Top

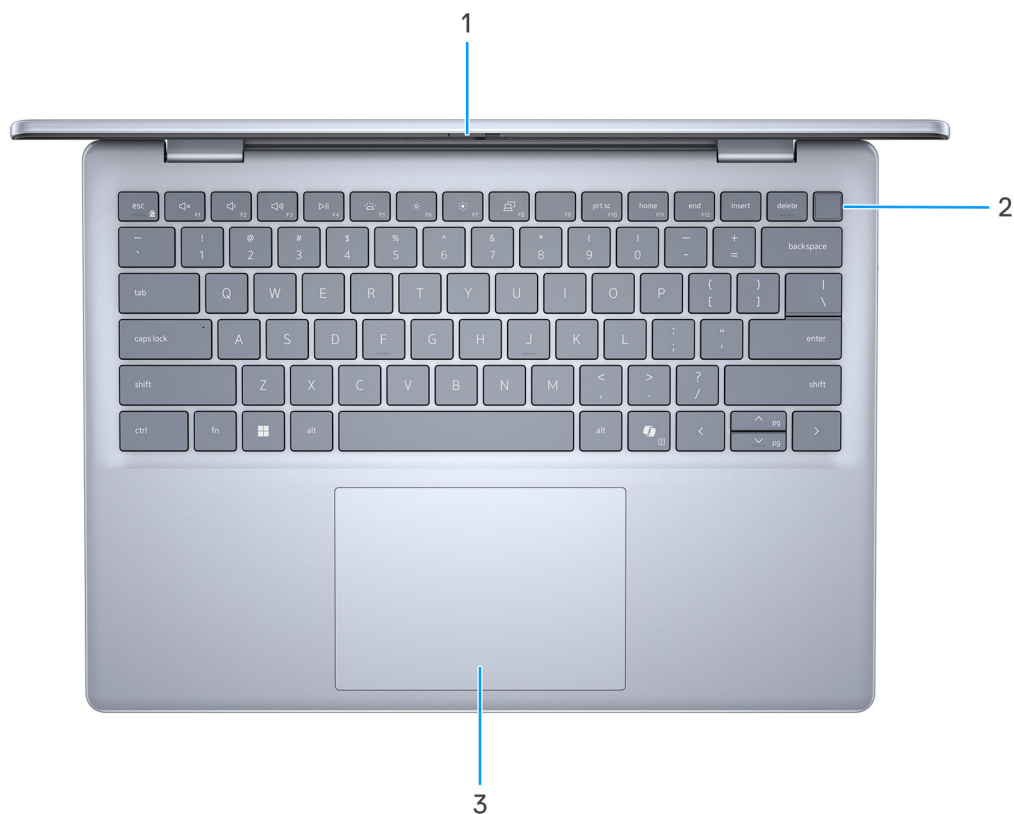


Figure 3. Top view

1. Privacy shutter (only for computers shipped with an aluminum chassis)

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

2. Power button with optional fingerprint reader

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

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

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

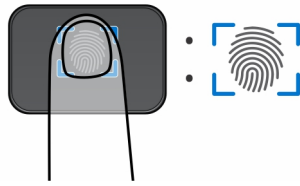


Figure 4. Active area of the fingerprint reader

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

NOTE: You can customize power-button behavior in Windows. For more information, see [Manuals at Dell Support Site](#).

3. Precision touchpad

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

Front



Figure 5. Front view

1. Left microphone

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

2. Privacy shutter (only for computers shipped with an aluminum chassis)

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

3. Camera

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

4. Camera-status light

Turns on when the camera is in use.

5. Right microphone

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

6. Display

Provides visual output.

Bottom

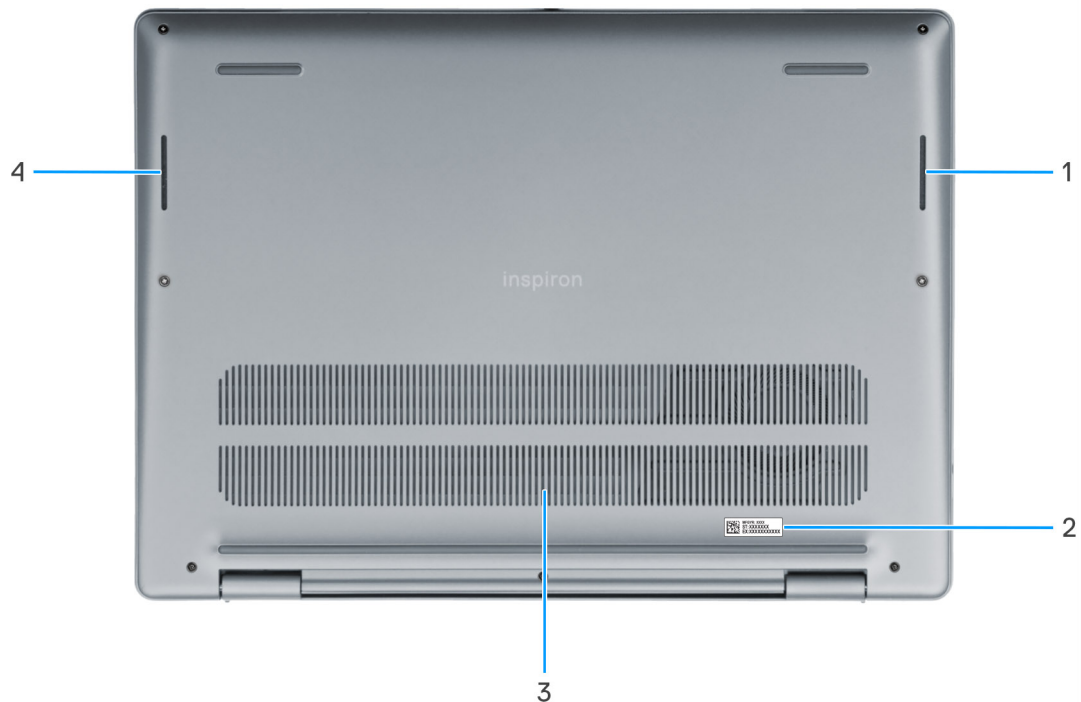


Figure 6. Bottom view

1. Right speaker

Provides audio output.

2. Service Tag label

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

3. Air vents

Air vents provide ventilation for your computer. Clogged air vents can cause overheating and can affect your computer's performance and potentially cause hardware issues. Keep the air vents clear of obstructions and clean them regularly to prevent the build-up of dust and dirt. For more information about cleaning air vents, search for articles in the Knowledge Base Resource at www.dell.com/support.

4. Left speaker

Provides audio output.

Service Tag

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



Figure 7. Service Tag

Set up your Inspiron 14 5445

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 8. Connect the power adapter and press the power button

NOTE: The battery may go into storage 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. For more information about battery storage mode, see the knowledge base article [000202232](#) at Dell Support Site.

2. Finish the Windows setup.

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

- Connect to a network for Windows updates.

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

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

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

Table 1. Locate Dell apps in Windows in S-mode








Resources	Description
	Dell Product Registration Register your computer with Dell.
	Dell Help & Support Access help and support for your computer.
	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 <i>SupportAssist for Home PCs User's Guide</i> at SupportAssist for Home PCs . <i>NOTE:</i> In SupportAssist, click the warranty expiry date to renew or upgrade your warranty.

Table 2. Locate Dell apps in Windows


Resources	Description
	MyDell (replaced with Dell Optimizer) MyDell (replaced with Dell Optimizer) is a software application that offers you a single streamlined engagement platform including account access, device information, and hardware settings. This software delivers intelligent features that automatically fine-tune your computer for the best possible audio, power, and performance. Get the most out of your Dell device with intelligent, personalized technology from MyDell (replaced with Dell Optimizer). Following are the key features of MyDell (replaced with Dell Optimizer): <ul style="list-style-type: none"> • Application • Audio • Power • Color and Display • Presence detection For more information about how to use MyDell (replaced with Dell Optimizer), see product guides at Dell Support Site .
	Dell Update Updates your computer with critical fixes and latest device drivers as they become available. For more information about using Dell Update, see the product guides and third-party license documents at Dell Support Site .
	Dell Digital Delivery Download software applications, which are purchased but not preinstalled on your computer. For more information about using Dell Digital Delivery, search in the Knowledge Base Resource at Dell Support Site .
	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 <i>SupportAssist for Home PCs User's Guide</i> at SupportAssist for Home PCs . <i>NOTE:</i> In SupportAssist, click the warranty expiry date to renew or upgrade your warranty.

Specifications of Inspiron 14 5445

Dimensions and weight

The following table lists the height, width, depth, and weight of your Inspiron 14 5445.

Table 3. Dimensions and weight

Description	Plastic chassis	Aluminum chassis
Height		
Front height	16.90 mm (0.67 in.)	15.86 mm (0.62 in.)
Rear height	18.07 mm (0.71 in.)	17.31 mm (0.68 in.)
Maximum height	19.90 mm (0.78 in.)	18.90 mm (0.74 in.)
Width	314 mm (12.36 in.)	314 mm (12.36 in.)
Depth	226.15 mm (8.90 in.)	226.15 mm (8.90 in.)
Weight  NOTE: The weight of your computer depends on the configuration ordered and manufacturing variability.	<ul style="list-style-type: none"> Minimum: 1.61 kg (3.55 lb) Maximum: 1.64 kg (3.615 lb) 	<ul style="list-style-type: none"> Minimum: 1.56 kg (3.44 lb) Maximum: 1.59 kg (3.51 lb)

Processor

The following table lists the details of the processors that are supported in your Inspiron 14 5445.

Table 4. Processor

Description	Option one	Option two	Option three
Processor type	AMD Ryzen 5 8540U	AMD Ryzen 7 8840U	AMD Ryzen 7 8840HS
Processor wattage	15 W	15 W	20 W
Processor core count	6	8	8
Processor thread count	12	16	16
Processor speed	Up to 4.90 GHz	Up to 5.10 GHz	Up to 5.10 GHz
Processor cache	22 MB	24 MB	24 MB
Integrated graphics	AMD Radeon Graphics	AMD Radeon Graphics	AMD Radeon Graphics

Chipset

The following table lists the details of the chipset that is supported by your Inspiron 14 5445.

Table 5. Chipset

Description	Values
Chipset	Integrated with the processor
Processor	AMD Ryzen 5 8540U/7 8840U/7 8840HS
DRAM bus width	128-bit
Flash EPROM	16 MB
PCIe bus	Up to Gen3

Operating system

Your Inspiron 14 5445 supports the following operating systems:

- Windows 11 Home
- Windows 11 Home (S Mode)
- Windows 11 Pro
- Windows 11 Pro National Education

Memory

The following table lists the memory specifications that are supported by your Inspiron 14 5445.

Table 6. Memory specifications

Description	Values
Memory slots	Two SODIMM slots
Memory type	DDR5
Memory speed	5600 MT/s
Maximum memory configuration	32 GB
Minimum memory configuration	8 GB
Memory size per slot	8 GB or 16 GB
Memory configurations supported	<ul style="list-style-type: none">• 8 GB: 1 x 8 GB, DDR5, 5600 MT/s, SODIMM, single-channel• 16 GB: 1 x 16 GB, DDR5, 5600 MT/s, SODIMM, single-channel• 16 GB: 2 x 8 GB, DDR5, 5600 MT/s, SODIMM, dual-channel• 24 GB: 1 x 16 GB + 1 x 8 GB, DDR5, 5600 MT/s, SODIMM, dual-channel• 32 GB: 2 x 16 GB, DDR5, 5600 MT/s, SODIMM, dual-channel

External ports and slots

The following table lists the external ports and slots on your Inspiron 14 5445.


Table 7. External ports and slots

Description	Values
USB ports	<ul style="list-style-type: none">Two USB 3.2 Gen 1 (5 Gbps) portsOne USB 3.2 Gen 2 (10 Gbps) Type-C port with DisplayPort Alt mode 1.4/Power Delivery
Audio port	One headset (headphone and microphone combo) port
Video port(s)	One HDMI 1.4 port
Media-card reader	One SD-card slot
Power-adaptor port	One power-adaptor port (4.50 mm standard plug)
Security-cable slot	One wedge-shaped lock slot

Internal slots

The following table lists the internal slots of your Inspiron 14 5445.

Table 8. Internal slots

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

Wireless module

The following table lists the Wireless Local Area Network (WLAN) module that is supported on your Inspiron 14 5445.

Table 9. Wireless module specifications

Description	Values
Model number	Realtek RTL8852BE
Transfer rate	Up to 1201 Mbps
Frequency bands supported	2.4 GHz/5 GHz
Wireless standards	<ul style="list-style-type: none">Wi-Fi 802.11 a/b/gWi-Fi 4 (Wi-Fi 802.11n)Wi-Fi 5 (Wi-Fi 802.11ac)Wi-Fi 6 (Wi-Fi 802.11ax)
Encryption	<ul style="list-style-type: none">64-bit/128-bit WEPAES-CCMP

Table 9. Wireless module specifications (continued)

Description	Values
	<ul style="list-style-type: none"> • TKIP
Bluetooth wireless card	Bluetooth 5.3

Audio

The following table lists the audio specifications of your Inspiron 14 5445.

Table 10. Audio specifications

Description	Values
Audio controller	Realtek ALC3254
Stereo conversion	Supported with Waves MaxxAudio Pro and Dolby Atmos Core
Internal audio interface	High Definition Audio (HDA) interface
External audio interface	<ul style="list-style-type: none"> • One headset (headphone and microphone combo) port • One HDMI 1.4 port
Number of speakers	Two
Internal-speaker amplifier	Supported (Audio codec integrated)
External volume controls	Keyboard shortcut controls
Speaker output:	
Average	2 W x 2 = 4 W
Peak	2.5 W x 2 = 5 W
Microphone	<ul style="list-style-type: none"> • Plastic chassis: Single integrated microphone/Digital-array microphones • Aluminum chassis: Digital-array microphones

Storage

This section lists the storage options on your Inspiron 14 5445.

Your Inspiron 14 5445 supports one M.2 2230 solid-state drive. The M.2 2230 solid-state drive is the primary storage drive of your computer.

Table 11. Storage specifications

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

Media-card reader

The following table provides the specification of media cards supported by your Inspiron 14 5445.

Table 12. Media-card reader specifications

Description	Values
Media-card slot type	One SD-card 3.0 slot
Media-cards supported	<ul style="list-style-type: none">Secure Digital (SD)Secure Digital High Capacity (SDHC)Secure Digital Extended Capacity (SDXC)
<div><div></div><div>NOTE: The maximum capacity that is supported by the media-card reader varies depending on the standard of the media card that is installed on your computer.</div></div>	

Keyboard

The following table lists the keyboard specifications of your Inspiron 14 5445.

Table 13. Keyboard specifications

Description	Values
Keyboard type	<ul style="list-style-type: none">AI hotkey backlit keyboardAI hotkey non-backlit keyboard
Keyboard layout	QWERTY
Number of keys	<ul style="list-style-type: none">United States and Canada: 79 keysUnited Kingdom: 80 keysJapan: 83 keys
Keyboard size	X = 19.05 mm key pitch Y = 18.05 mm key pitch
Keyboard shortcuts	<p>Some keys on your keyboard have two symbols on them. These keys can be used to type alternate characters or to perform secondary functions. To type the alternate character, press Shift and the desired key. To perform secondary functions, press Fn and the desired key.</p> <div><div></div><div>NOTE: You can define the primary behavior of the function keys (F1–F12) changing Function Key Behavior in the BIOS setup program.</div></div> <div><div></div><div>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.</div></div>

Keyboard shortcuts

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

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

The keys F1-F12 at the top row of the keyboard are function keys for multimedia control, as indicated by the icon at the bottom of the key. Press the function key to invoke the task represented by the icon. For example, pressing F1 mutes the audio (refer to 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**. Subsequently, multimedia control can be invoked by pressing **fn** and the respective function key. For example, mute audio by pressing **fn + F1**.




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

Table 14. List of keyboard shortcuts

Function key	Primary behavior
F1	Mute audio
F2	Decrease volume
F3	Increase volume
F4	Play/Pause
F5	Toggle keyboard backlight (optional).  NOTE: Non-backlight keyboards have the F5 function key without the backlight icon and do not support the toggle keyboard backlight function.  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	Move cursor to the beginning of the line
F12	Move cursor to the end of the line

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

Table 15. Secondary behavior

Function key	Secondary behavior
fn + Esc	Toggle fn-key lock
fn + S	Toggle scroll lock
fn + B	Pause/Break
fn + R	System request
fn + P	Privacy screen
fn + Space bar	Open the emoji menu
fn + T	Toggle ultra performance mode
fn + Left arrow	Move cursor to the beginning of the document
fn + Right arrow	Move cursor to the end of the document
fn + Up arrow	Move cursor to the top of the page

Table 15. Secondary behavior (continued)

Function key	Secondary behavior
fn + Down arrow	Move cursor to the bottom of the page
fn + Power button	Boot directly to e-Diags Diagnostics
fn + Copilot	Open the application menu

Camera

The following table lists the camera specifications of your Inspiron 14 5445.

Table 16. Camera specifications

Description		Plastic chassis	Aluminum chassis
Number of cameras		One	One
Camera type		HD RGB camera	FHD RGB camera
Camera location		Front camera	Front camera
Camera sensor type		CMOS sensor technology	CMOS sensor technology
Camera resolution			
	Still image	0.92 megapixel	2.07 megapixel
	Video	1280 x 720 (HD) at 30 fps	1920 x 1080 (FHD) at 30 fps
Diagonal viewing angle		75 degrees	82.20 degrees

Touchpad

The following table lists the touchpad specifications of your Inspiron 14 5445.


Table 17. Touchpad specifications

Description		Values
Touchpad resolution:		
	Horizontal	>= 300 dpi
	Vertical	>= 300 dpi
Touchpad dimensions:		
	Horizontal	115 mm (4.52 in.)
	Vertical	80 mm (3.14 in.)
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 Inspiron 14 5445.

Table 18. Power-adapter specifications

Description		Values
Type		65 W
Connector dimensions:		
	External diameter	4.50 mm (0.18 in.)
	Internal diameter	2.90 mm (0.11 in.)
Power-adapter dimensions:		
	Height	28 mm (1.10 in.)
	Width	108 mm (4.30 in.)
	Depth	47 mm (1.90 in.)
Power-adapter weight (maximum)		0.29 kg (0.64 lb)
Input voltage		100 VAC - 240 VAC
Input frequency		50 Hz - 60 Hz
Input current (maximum)		1.60 A/1.70 A
Output current (continuous)		3.34 A
Rated output voltage		19.50 VDC
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.		

Battery

The following table lists the battery specifications of your Inspiron 14 5445.

Table 19. Battery specifications

Description	Option one	Option two	Option three
Battery type	3-cell, 41 Wh, Lithium Ion Polymer, ExpressCharge Capable	4-cell, 54 Wh, Lithium Ion Polymer, ExpressCharge Capable	4-cell, 64 Wh, Lithium Ion Polymer, ExpressCharge Capable
Battery voltage	11.25 VDC	15 VDC	15 VDC
Battery weight (maximum)	0.17 kg (0.39 lb)	0.24 kg (0.53 lb)	0.24 kg (0.53 lb)

Table 19. Battery specifications (continued)

Description		Option one	Option two	Option three
Battery dimensions:				
	Height	206.40 mm (8.12 in.)	5.75 mm (0.22 in.)	5.75 mm (0.22 in.)
	Width	82 mm (3.22 in.)	271.90 mm (10.66 in.)	271.90 mm (10.66 in.)
	Depth	5.75 mm (0.22 in.)	82 mm (3.22 in.)	82 mm (3.22 in.)
Temperature range:				
	Operating	<p>When charging the battery:</p> <ul style="list-style-type: none"> Initiating charging: 0°C to 45°C (32°F to 113°F) Upper limit for charging (maximum): 50°C (122°F) <p>When discharging the battery:</p> <ul style="list-style-type: none"> Normal discharging: 0°C to 60°C (32°F to 140°F) Over temperature protection (maximum): 70°C (158°F) <p>i NOTE: The battery does not allow discharge past this temperature.</p>	0°C to 50°C (32°F to 122°F)	0°C to 50°C (32°F to 122°F)
	Storage	-20°C to 60°C (-4°F to 140°F)	-20°C to 60°C (-4°F to 140°F)	-20°C to 60°C (-4°F to 140°F)
Battery operating time		Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.
Battery charging time (approximate) i NOTE: 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 .		<p>Standard Charge/ Predominately AC User Charge Method:</p> <ul style="list-style-type: none"> 0°C - 15°C maximum allowable charge time from 0% to 100% RSOC is 4 hours. 16°C - 50°C maximum allowable charge time from 0% to 100% RSOC is 3 hours. <p>Express Charge Method:</p> <ul style="list-style-type: none"> 0°C - 15°C maximum allowable charge time from 0% to 100% RSOC is 4 hours. 16°C - 45°C normal express charge 46°C - 50°C maximum allowable charge time 	<p>Standard Charge/ Predominately AC User Charge Method:</p> <ul style="list-style-type: none"> 0°C - 15°C maximum allowable charge time from 0% to 100% RSOC is 4 hours. 16°C - 50°C maximum allowable charge time from 0% to 100% RSOC is 3 hours. <p>Express Charge Method:</p> <ul style="list-style-type: none"> 0°C - 15°C maximum allowable charge time from 0% to 100% RSOC is 4 hours. 16°C - 45°C normal express charge 46°C - 50°C maximum allowable charge time 	<p>Standard Charge/ Predominately AC User Charge Method:</p> <ul style="list-style-type: none"> 0°C - 15°C maximum allowable charge time from 0% to 100% RSOC is 4 hours. 16°C - 50°C maximum allowable charge time from 0% to 100% RSOC is 3 hours. <p>Express Charge Method:</p> <ul style="list-style-type: none"> 0°C - 15°C maximum allowable charge time from 0% to 100% RSOC is 4 hours. 16°C - 45°C normal express charge 46°C - 50°C maximum allowable charge time from

Table 19. Battery specifications (continued)

Description	Option one	Option two	Option three
	from 0% to 80% RSOC is 1 hour; charge time from 0% to 100% RSOC is 2 hours.	from 0% to 80% RSOC is 1 hour; charge time from 0% to 100% RSOC is 2 hours.	0% to 80% RSOC is 1 hour; charge time from 0% to 100% RSOC is 2 hours.
Coin-cell battery	Not supported	Not supported	Not supported
<p>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.</p> <p>CAUTION: Dell Technologies recommends that you charge the battery regularly for optimal power consumption. If your battery charge is depleted, connect the power adapter, turn on your computer, and then restart your computer to reduce the power consumption.</p>			

Display

The following table lists the display specifications of your Inspiron 14 5445.

Table 20. Display specifications

Description	Option one	Option two	Option three	Option four
Display type	14" Full High Definition Plus (FHD+), ComfortView	14" Full High Definition Plus (FHD+), ComfortView NOTE: Availability of this offering may vary by country or region.	14" 2.2K, ComfortView Plus	14" Quad High Definition Plus (QHD+), ComfortView Plus
Display-panel technology	In-Plane Switching (IPS) with Wide-viewing Angle (WVA)	In-Plane Switching (IPS) with Wide-viewing Angle (WVA)	In-Plane Switching (IPS) with Wide-viewing Angle (WVA)	In-Plane Switching (IPS) with Wide-viewing Angle (WVA)
Display-panel dimensions (active area):				
Height	301.59 mm (11.87 in.)	301.59 mm (11.87 in.)	301.59 mm (11.87 in.)	301.59 mm (11.87 in.)
Width	188.50 mm (7.42 in.)	188.50 mm (7.42 in.)	188.50 mm (7.42 in.)	188.50 mm (7.42 in.)
Diagonal	355.65 mm (14 in.)	355.65 mm (14 in.)	355.65 mm (14 in.)	355.65 mm (14 in.)
Display-panel native resolution	1920 x 1200	1920 x 1200	2240 x 1400	2560 x 1600
Luminance (typical)	250 nits	300 nits	300 nits	300 nits
Megapixels	2.3	2.3	3.1	4.1
Color gamut	45% NTSC	45% NTSC	100% sRGB	100% sRGB
Pixels Per Inch (PPI)	162	162	189	215.6
Contrast ratio (typical)	800:1	800:1	1200:1	1200:1

Table 20. Display specifications (continued)

Description	Option one	Option two	Option three	Option four
Response time (maximum)	35 ms	35 ms	35 ms	35 ms
Refresh rate	60 Hz	60 Hz	60 Hz	120 Hz
Horizontal view angle	<ul style="list-style-type: none"> Minimum: 80 +/- degrees Typical: 85 +/- degrees 	<ul style="list-style-type: none"> Minimum: 80 +/- degrees Typical: 85 +/- degrees 	<ul style="list-style-type: none"> Minimum: 80 +/- degrees Typical: 85 +/- degrees 	<ul style="list-style-type: none"> Minimum: 80 +/- degrees Typical: 85 +/- degrees
Vertical view angle	<ul style="list-style-type: none"> Minimum: 80 +/- degrees Typical: 85 +/- degrees 	<ul style="list-style-type: none"> Minimum: 80 +/- degrees Typical: 85 +/- degrees 	<ul style="list-style-type: none"> Minimum: 80 +/- degrees Typical: 85 +/- degrees 	<ul style="list-style-type: none"> Minimum: 80 +/- degrees Typical: 85 +/- degrees
Pixel pitch	0.157 x 0.157 mm	0.157 x 0.157 mm	0.1346 x 0.1346 mm	0.1178 x 0.1178 mm
Power consumption (maximum)	3.2 W	3.68 W	4.4 W	4.63 W
Anti-glare vs glossy finish	Anti-Glare	Anti-Glare	Anti-Glare	Anti-Glare
Touch options	Not supported	Not supported	Not supported	Not supported

Fingerprint reader (optional)

The following table lists the specifications of the optional fingerprint reader of your Inspiron 14 5445.


 **NOTE:** The fingerprint reader is on the power button.

Table 21. Fingerprint reader specifications

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

GPU—Integrated

The following table lists the specifications of the integrated Graphics Processing Unit (GPU) supported by your Inspiron 14 5445.

Table 22. GPU—Integrated

Controller	Memory size	Processor
AMD Radeon Graphics	Shared system memory	AMD Ryzen 5 8540U/7 8840U/7 8840HS

Multiple display support matrix

The following table lists the multiple display support matrix for your Inspiron 14 5445.

Table 23. Multiple display support matrix


Graphics Card	Direct Graphics Controller Direct Output Mode	Supported external displays with computer internal display on	Supported external displays with computer internal display off
AMD Radeon Graphics	Not supported	3	4

Operating and storage environment

This table lists the operating and storage specifications of your Inspiron 14 5445.

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

Table 24. Computer environment

Description	Operating	Storage
Temperature range	0°C to 35°C (32°F to 95°F)	-40°C to 65°C (-40°F to 149°F)
Relative humidity (maximum)	10% to 90% (non-condensing)	0% to 95% (non-condensing)
Vibration (maximum)*	0.66 GRMS	N/A
Shock (maximum)	110 G†	N/A
Altitude range	N/A	N/A
 CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.		

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

† Measured using a 2 ms half-sine pulse.

Dell support policy

For information about Dell support policy, search in the Knowledge Base Resource at [Dell Support Site](#).

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.

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


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

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

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 and 70 cm) from your eyes.
- Blink frequently to moisten your eyes, wet your eyes with water, or apply suitable eye drops.
- 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.
- Take an extended break for 20 minutes every two hours.

ComfortView Plus

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

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

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

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










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

- Position the display at a comfortable viewing distance between 20 and 28 inches (50 cm and 70 cm) from your eyes.
- Blink frequently to moisten your eyes, wet your eyes with water, or apply suitable eye drops.
- Take an extended break for 20 minutes every two hours.
- Look away from your display, and gaze at a distant object at 20 ft (609.60 cm) away for at least 20 seconds during each break.

Working inside your computer


Safety instructions

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



-  **WARNING:** Before working inside your computer, read the safety information that is shipped with your computer. For more safety best practices, see [Dell Regulatory Compliance Home Page](#).
-  **WARNING:** Disconnect your computer from all power sources before opening the computer cover or panels. After you finish working inside the computer, replace all covers, panels, and screws before connecting your computer to an electrical outlet.
-  **CAUTION:** To avoid damaging the computer, ensure that the work surface is flat, dry, and clean.
-  **CAUTION:** You should only perform troubleshooting and repairs as authorized or directed by the Dell technical support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. See the safety instructions that are shipped with the product or at [Dell Regulatory Compliance Home Page](#).
-  **CAUTION:** Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity which could harm internal components.
-  **CAUTION:** To avoid damaging the components and cards, handle them by their edges, and avoid touching the pins and the contacts.
-  **CAUTION:** When you disconnect a cable, pull it by its connector or its pull tab, not the cable itself. Some cables have connectors with locking tabs or thumbscrews that you must disengage before disconnecting the cable. When disconnecting cables, keep them evenly aligned to avoid bending the connector pins. When connecting cables, ensure that the connector on the cable is correctly oriented and aligned with the port.
-  **CAUTION:** Press and eject any installed card from the media-card reader.
-  **CAUTION:** Exercise caution when handling rechargeable Li-ion batteries in laptops. Swollen batteries should not be used and should be replaced and disposed properly.

Before working inside your computer

About this task

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

Steps

1. Save and close all open files and exit all open applications.
2. Shut down your computer. For Windows operating system, click **Start** >  **Power** > **Shut down**.
 **NOTE:** If you are using a different operating system, see the documentation of your operating system for shut-down instructions.
3. Turn off all the attached peripherals.
4. Disconnect your computer and all attached devices from their electrical outlets.

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

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

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

Safety precautions

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

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

- Turn off the computer and all attached peripherals.
- Disconnect the computer from AC power.
- Disconnect all network cables and peripherals from the computer.
- Use an ESD field service kit when working inside any notebook to avoid electrostatic discharge (ESD) damage.
- Place the removed component on an anti-static mat after removing it from the computer.
- Wear shoes with nonconductive rubber soles to reduce the chance of getting electrocuted.
- Unplugging, pressing, and holding the power button for 15 seconds should discharge residual power in the system board.

Standby power

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

Bonding

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

Electrostatic discharge—ESD protection

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

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

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

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

Perform the following steps to prevent ESD damage:


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

static wrist strap to discharge the static electricity from your body. For more information about the wrist strap and ESD wrist strap tester, see [Components of an ESD Field Service Kit](#).

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

ESD Field Service kit

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

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

Working Environment

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


ESD Packaging

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

Components of an ESD Field Service kit

The components of an ESD Field Service kit are:

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

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

Transporting sensitive components

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

After working inside your computer


About this task

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

Steps

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

BitLocker

 **CAUTION:** If BitLocker is not suspended before updating the BIOS, the Bitlocker key is not recognized the next time you reboot the computer. You will then be prompted to enter the recovery key to progress, and the system displays a prompt for the recovery key on each reboot. If the recovery key is not known, this can result in data loss or an operating system reinstall. For more information, see Knowledge Article: [updating the BIOS on Dell systems with BitLocker enabled](#).

The installation of the following components triggers BitLocker:


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


Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver #0
- Plastic scribe

Screw list

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

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

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

Table 25. Screw list



Component	Screw type	Quantity	Screw image
Base cover	M2x4	<ul style="list-style-type: none">• Plastic chassis: 6• Aluminum chassis: 5	


Table 25. Screw list (continued)

Component	Screw type	Quantity	Screw image
	Captive screw  NOTE: Screws are part of the base cover.	2	
Battery	M2x3	<ul style="list-style-type: none"> 3-cell battery: 3 4-cell battery: 5 	
Solid-state drive	M2x3	1	
	M2x1.8	1	
Wireless-card bracket	M2x3	1	
Fan	M2x4	2	
Heat sink	Captive screw  NOTE: Screws are part of the heat sink.	4	
Touchpad assembly (for computers shipped with plastic chassis)	M1.6x2.5	4	
	M2x1.8	2	
Touchpad assembly (for computers shipped with aluminum chassis)	M2x1.8	4	
	M2x2.5	1	
I/O board	M2x3	2	
Power button with optional fingerprint reader	M2x3	1	
Display assembly	M2.5x4	4	
Display hinges	M2.5x2.5	6	
USB Type-C bracket	M2x4	<ul style="list-style-type: none"> Plastic chassis: 3 Aluminum chassis: 2 	
System board	M2x1.8	2	

Major components of Inspiron 14 5445

The following image shows the major components of Inspiron 14 5445.


- 12. Fan
- 13. Solid-state drive
- 14. Wireless card
- 15. Power-adaptor port

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

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 (for computers shipped with a plastic chassis)

Prerequisites

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

About this task

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

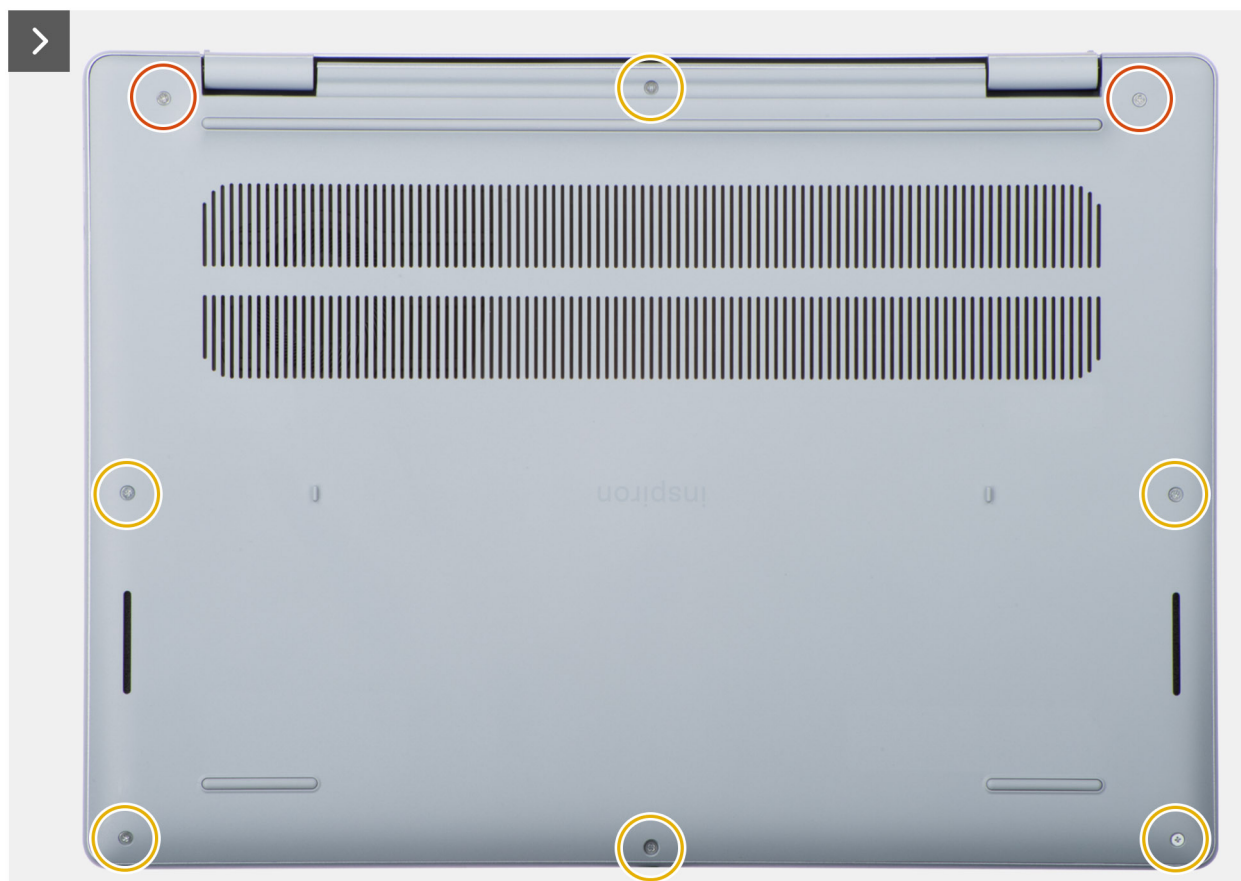
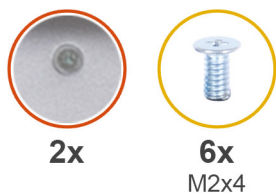


Figure 10. Removing the base cover

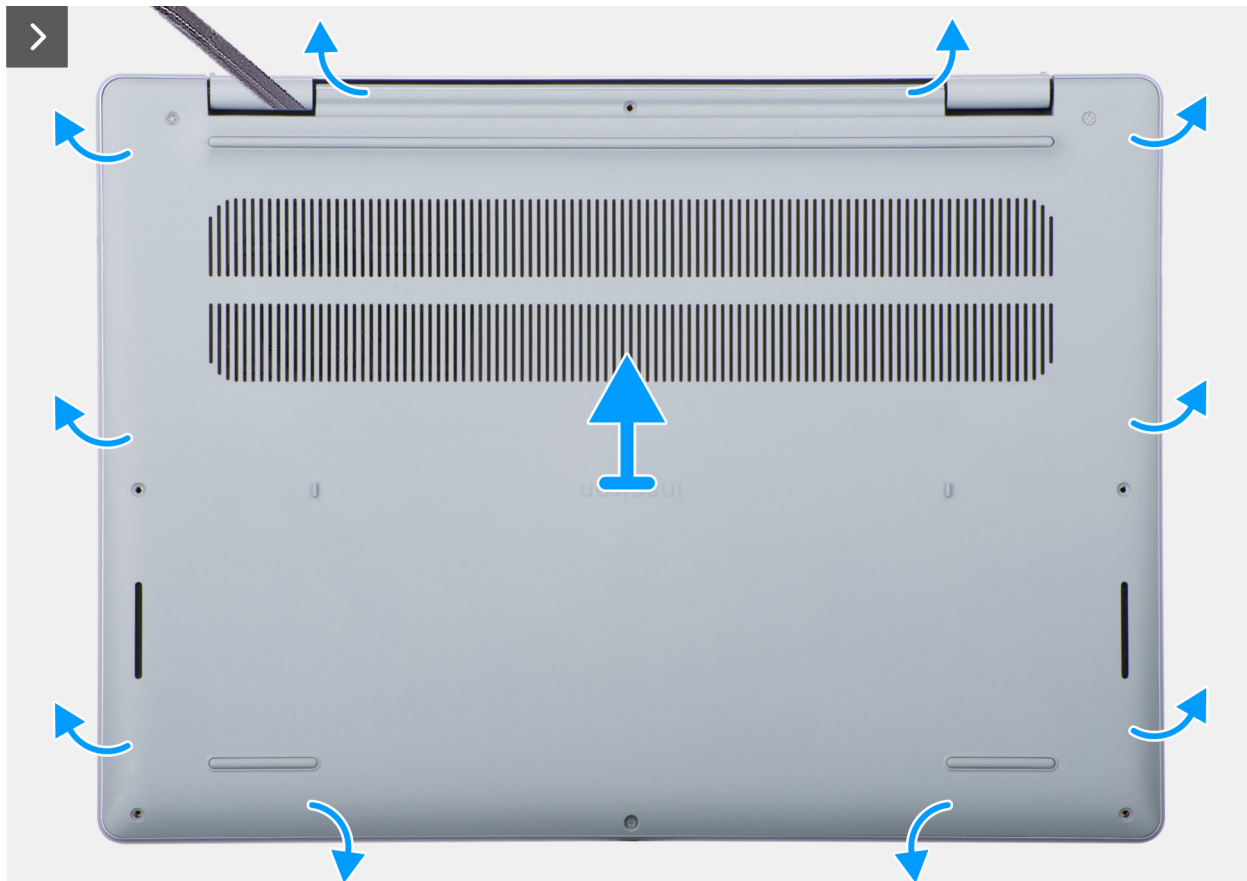


Figure 11. Removing the base cover

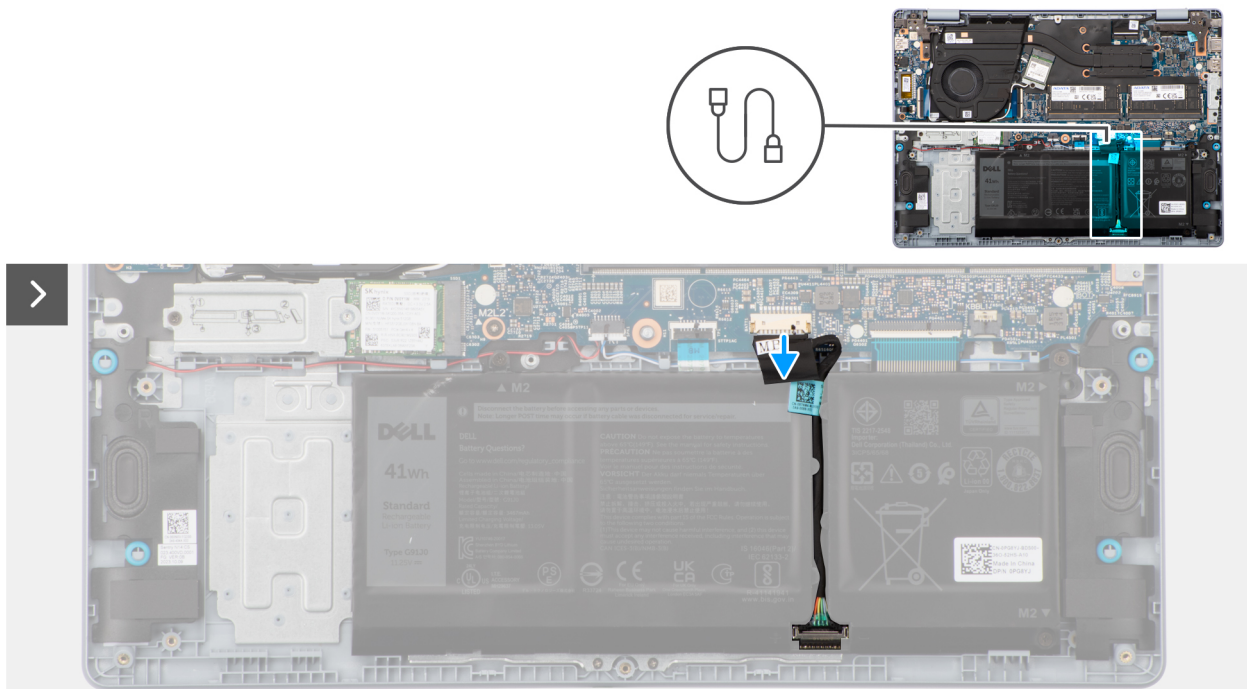


Figure 12. Disconnecting the battery cable



Figure 13. Pressing the power button to drain flea power

Steps

1. Remove the six screws (M2x4) and loosen the two captive screws that secure the base cover to the palm-rest and keyboard assembly.
2. Using a plastic scribe, pry open the base cover starting from the recesses, which are located in the U-shaped indents at the top edge of the base cover, near the hinges.
CAUTION: Do not slide the scribe along the edges of the base cover as it may damage the latches inside the base cover. Instead, insert the scribe at regular intervals and pry open the base cover.
3. Pry open the top of the base cover followed by the left, right, and bottom to release the base cover.
4. Lift the base cover off the palm-rest and keyboard assembly.
5. Disconnect the battery cable from the connector (BATT1) on the system board.
6. Press and hold the power button for 15 to 20 seconds to ground the computer and drain the flea power.

Installing the base cover (for computers shipped with a plastic chassis)

Prerequisites

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

About this task

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



Figure 14. Connecting the battery cable

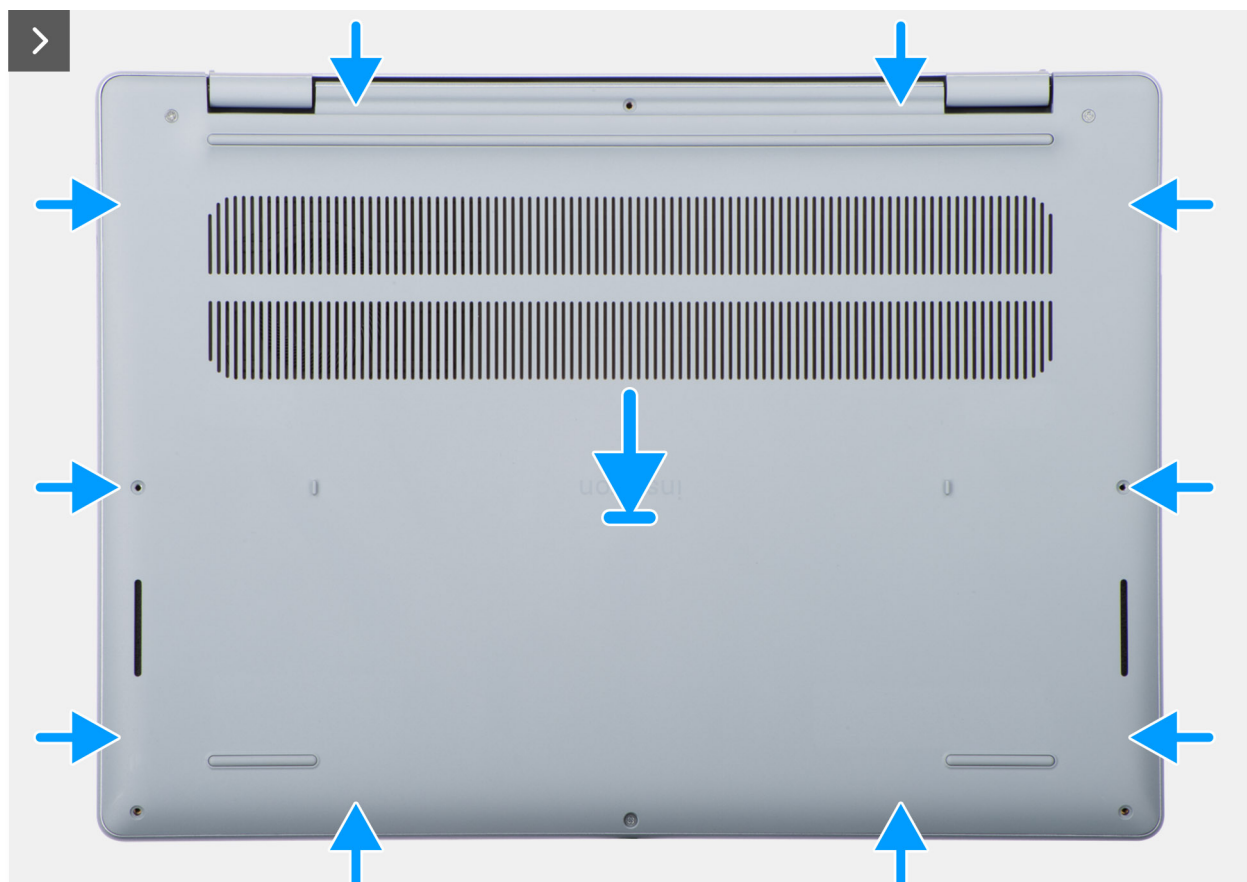


Figure 15. Installing the base cover

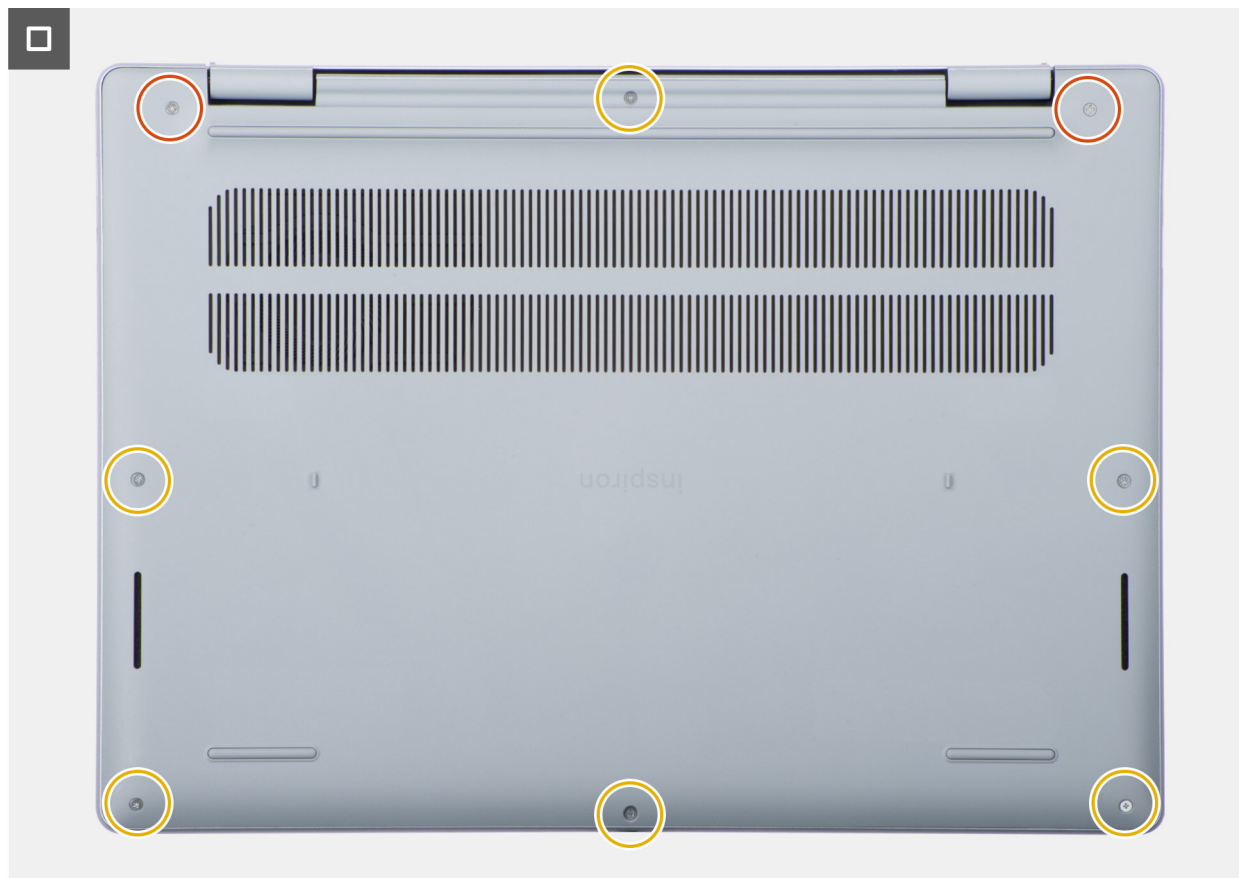


Figure 16. Installing the base cover

Steps

1. Connect the battery cable to the connector (BATT1) on the system board.
2. Place the base cover on top of the palm-rest and keyboard assembly.
3. Align the screw holes on the base cover with the screw holes on the palm-rest and keyboard assembly, and snap the base cover latches into place.
4. Replace the six screws (M2x4) and tighten the two captive screws to secure the base cover to the palm-rest and keyboard assembly.

Next steps

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

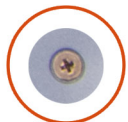
Removing the base cover (for computers shipped with an aluminum chassis)

Prerequisites

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

About this task

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



2x



5x
M2x4



Figure 17. Removing the base cover

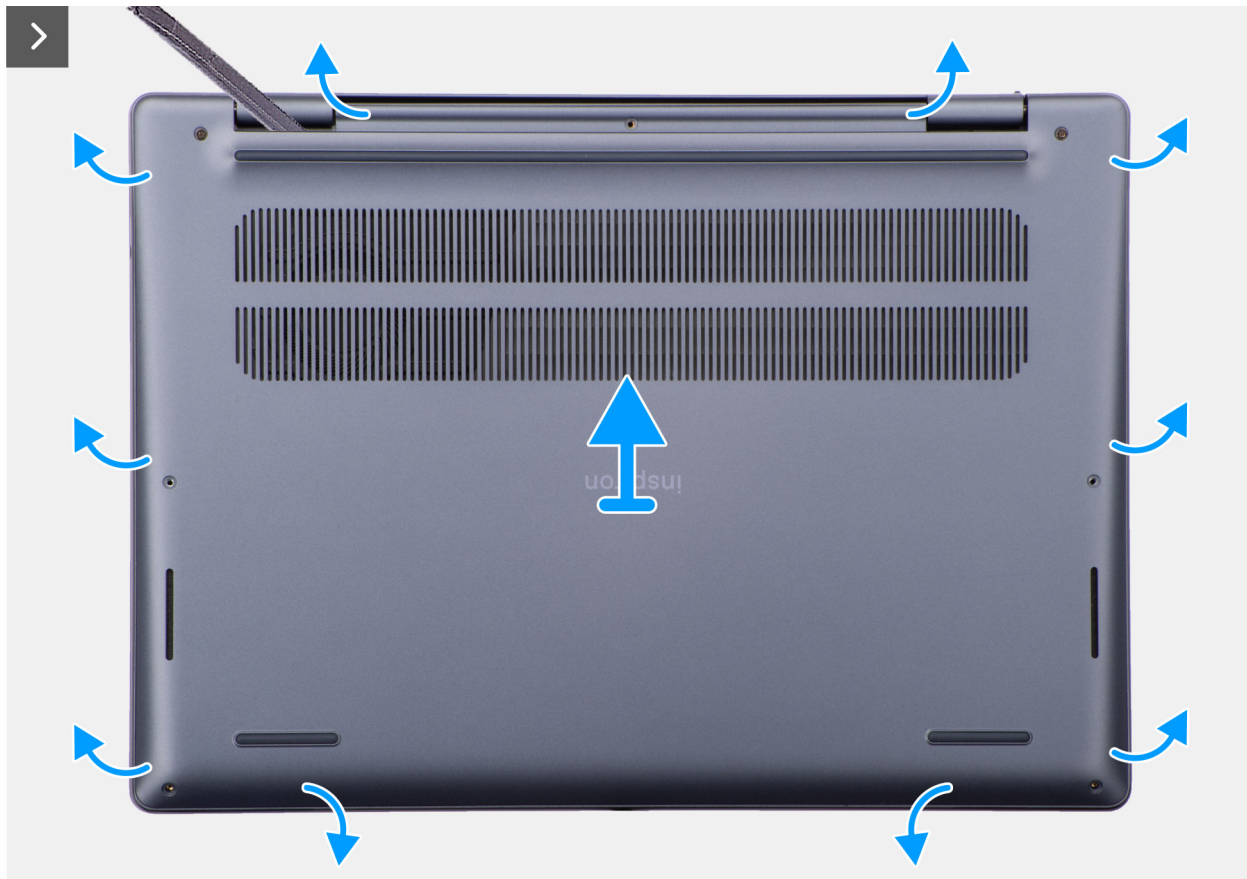


Figure 18. Removing the base cover



Figure 19. Disconnecting the battery cable

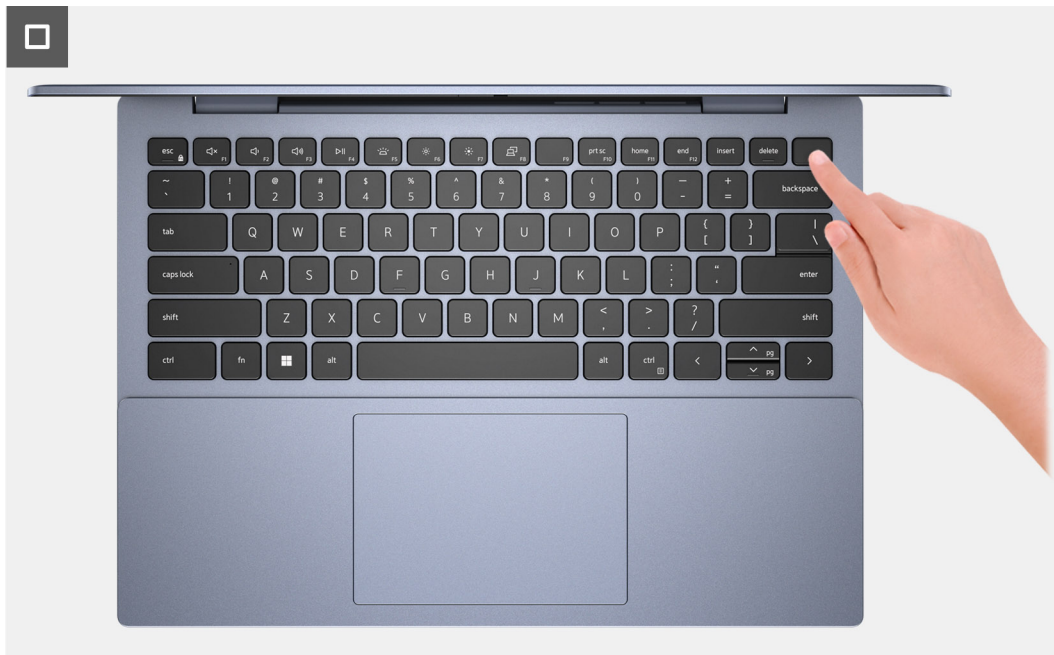


Figure 20. Pressing the power button to drain flea power

Steps

1. Remove the five screws (M2x4) and loosen the two captive screws that secure the base cover to the palm-rest and keyboard assembly.
2. Using a plastic scribe, pry open the base cover starting from the recesses, which are located in the U-shaped indents at the top edge of the base cover, near the hinges.
CAUTION: Do not slide the scribe along the edges of the base cover as it may damage the latches inside the base cover. Instead, insert the scribe at regular intervals and pry open the base cover.
3. Pry open the top of the base cover followed by the left, right, and bottom to release the base cover.
4. Lift the base cover off the palm-rest and keyboard assembly.
5. Disconnect the battery cable from the connector (BATT1) on the system board.
6. Press and hold the power button for 15 to 20 seconds to ground the computer and drain the flea power.

Installing the base cover (for computers shipped with an aluminum chassis)

Prerequisites

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

About this task

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



Figure 21. Connecting the battery cable

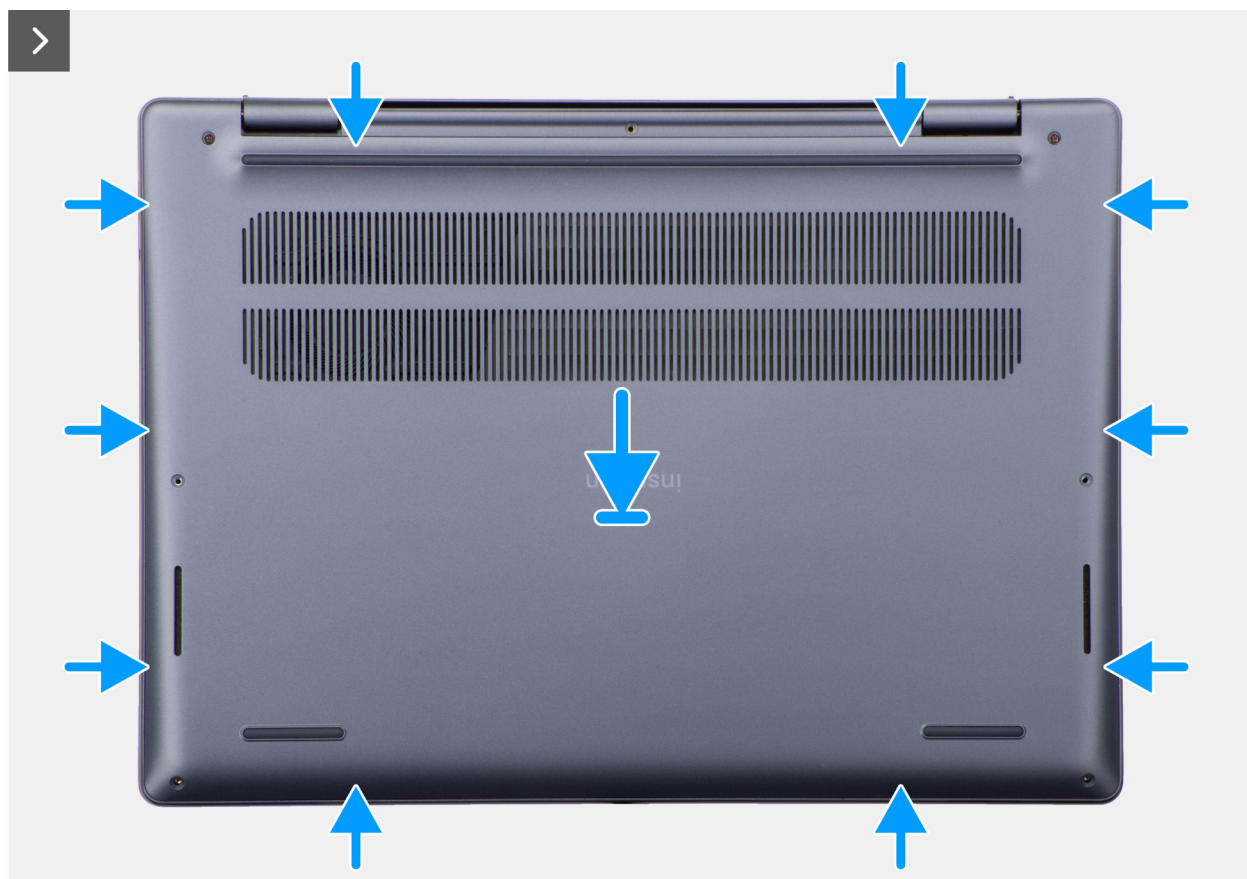


Figure 22. Installing the base cover



Figure 23. Installing the base cover

Steps

1. Connect the battery cable to the connector (BATT1) on the system board.
2. Place the base cover on top of the palm-rest and keyboard assembly.
3. Align the screw holes on the base cover with the screw holes on the palm-rest and keyboard assembly, and snap the base cover latches into place.
4. Replace the five screws (M2x4) and tighten the two captive screws to secure the base cover to the palm-rest and keyboard assembly.

Next steps

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

Memory module

Removing the memory module

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.

About this task

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

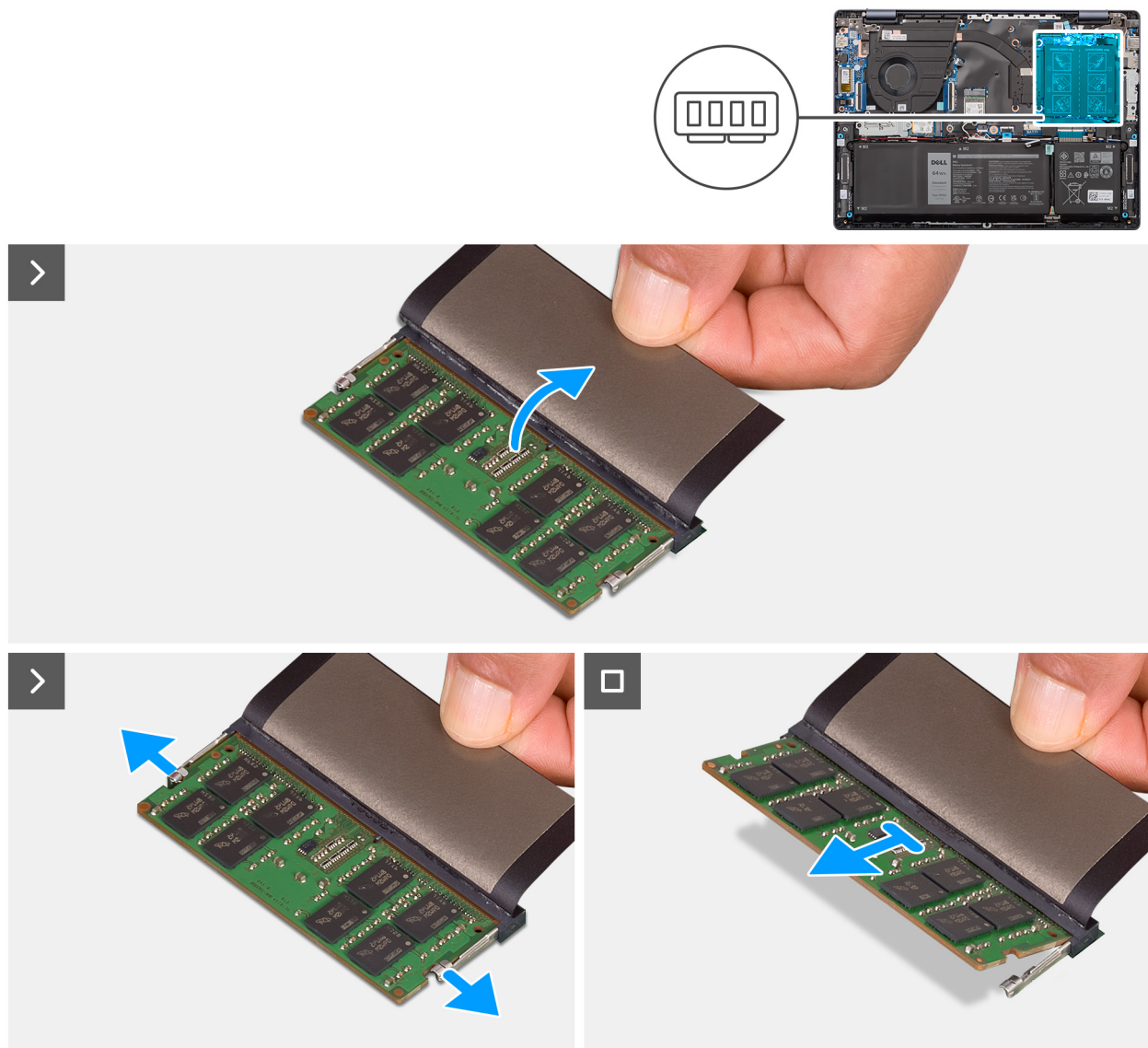


Figure 24. Removing the memory module

Steps

1. Lift the Mylar sheet to access the memory module.

NOTE: This step applies only to computers shipped with an aluminum chassis.

2. Gently pull the memory-module retention clips away from the memory module until the memory module pops-up.
3. Hold the memory module and remove it from the memory-module slot (DIMM1 or DIMM2, whichever is applicable) on the system board.

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

4. Repeat steps 1 to 3 for the second memory module, if installed.

Installing the memory module

Prerequisites

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

About this task

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

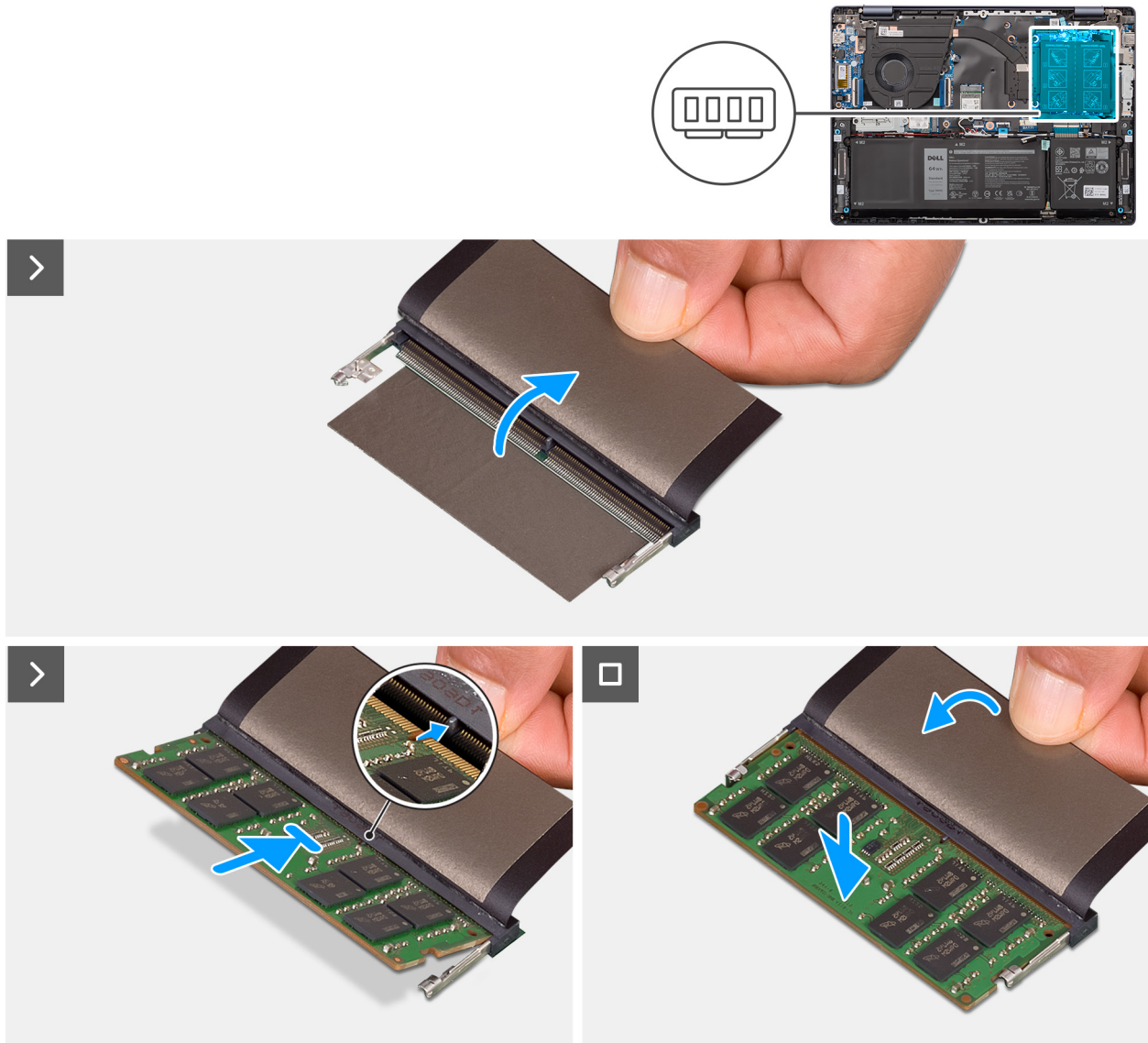


Figure 25. Installing the memory module

Steps

1. Lift the Mylar sheet to access the memory-module connector.
2. Align the notch on the memory module with the tab on the memory-module slot (DIMM1 or DIMM2, whichever is applicable) on the system board.
3. Slide the memory module firmly into the memory-module slot at an angle.
4. Press down on the memory module until the securing clips firmly click into place.

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

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

- Repeat steps 1 to 4 to install the second memory module, if applicable.

Next steps

- Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
- Follow the procedure in [After working inside your computer](#).

Solid State Drive (SSD)

Removing the solid-state drive

Prerequisites

- Follow the procedure in [Before working inside your computer](#).
- Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.

About this task

NOTE: If you are replacing the solid-state drive with a new solid-state drive, use the existing mounting bracket to install the latter.

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

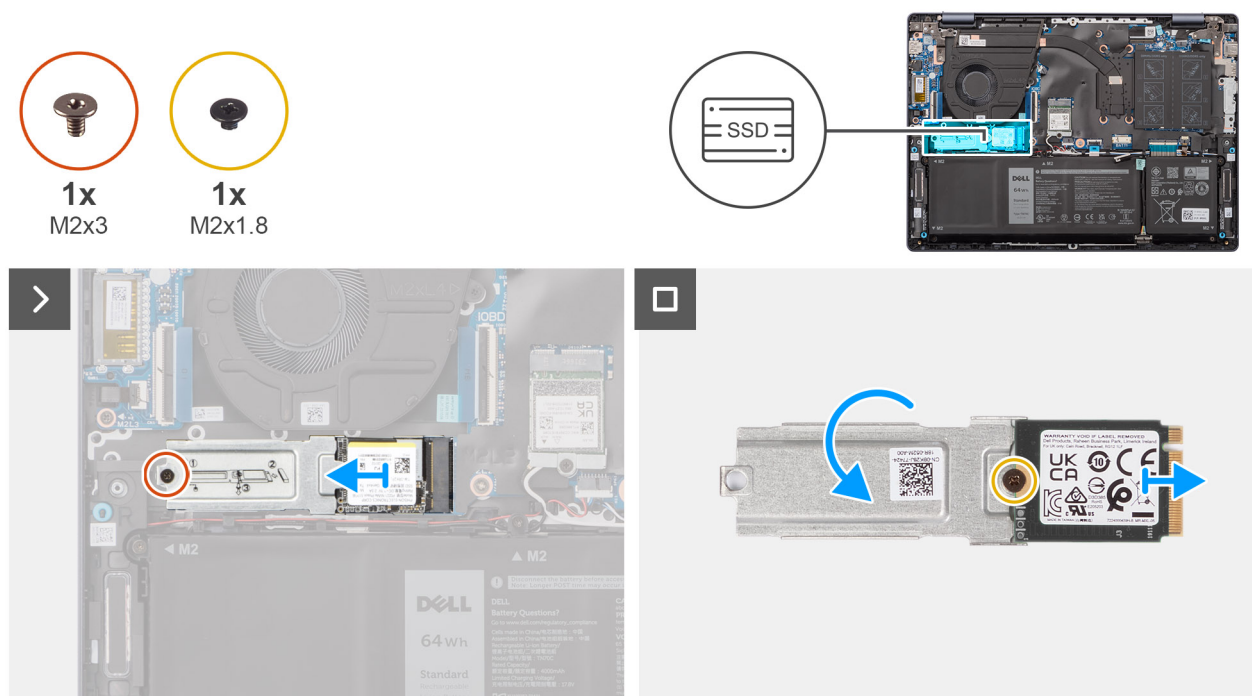


Figure 26. Removing the solid-state drive

Steps

- Remove the screw (M2x3) that secures the solid-state drive bracket to the palm-rest and keyboard assembly.
- Slide and remove the solid-state drive bracket, along with the solid-state drive, from the M.2 card slot (SSD1) on the system board.
- Turn over the solid-state drive bracket.
- Remove the screw (M2x1.8) that secures the solid-state drive to the solid-state drive bracket.
- Lift the solid-state drive off the solid-state drive bracket.

Installing the solid-state drive

Prerequisites

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

About this task

NOTE: If you are replacing the solid-state drive with a new solid-state drive, use the existing mounting bracket to install the latter.

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

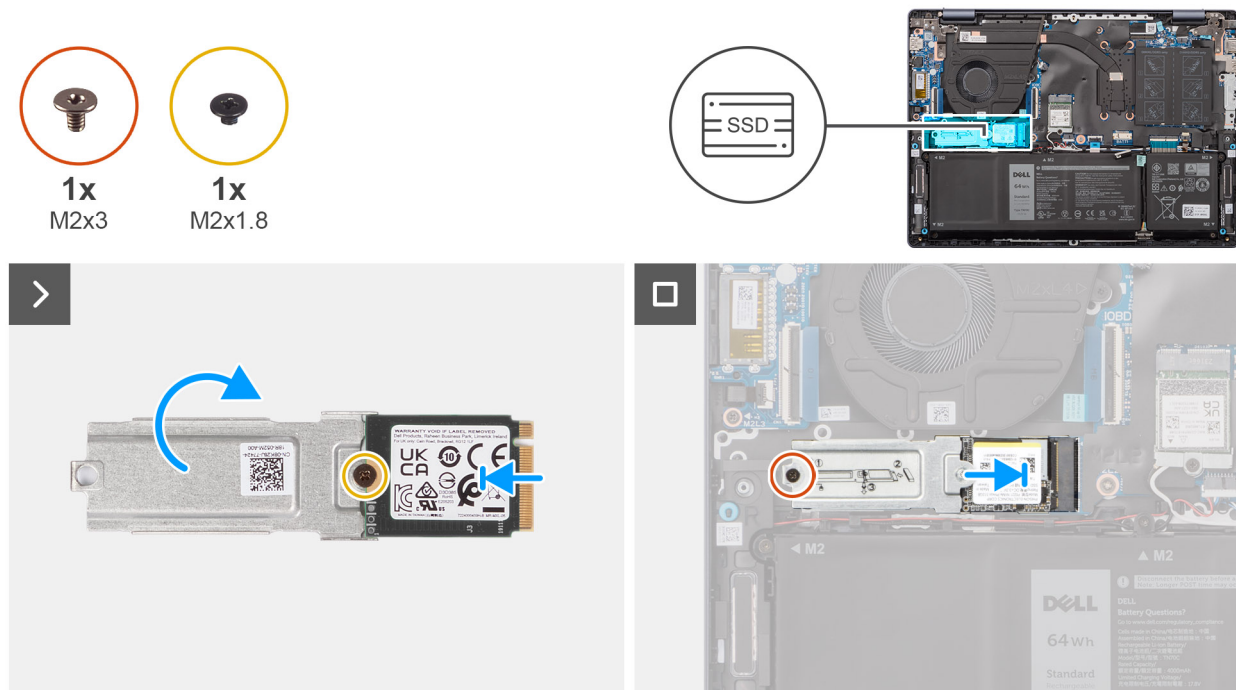


Figure 27. Installing the solid-state drive

Steps

1. Align the round notch on the solid-state drive with the screw hole on the solid-state drive bracket.
2. Replace the screw (M2x1.8) to secure the solid-state drive to the solid-state drive bracket.
3. Turn over the solid-state drive bracket.
4. Align the notch on the solid-state drive with the tab on the M.2 card slot (SSD1) on the system board.
5. At an angle, slide and place the solid-state drive bracket, along with the solid-state drive, in the M.2 card slot on the system board.
6. Replace the screw (M2x3) to secure the solid-state drive bracket to the palm-rest and keyboard assembly.

Next steps

1. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
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](#).
2. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.

About this task

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

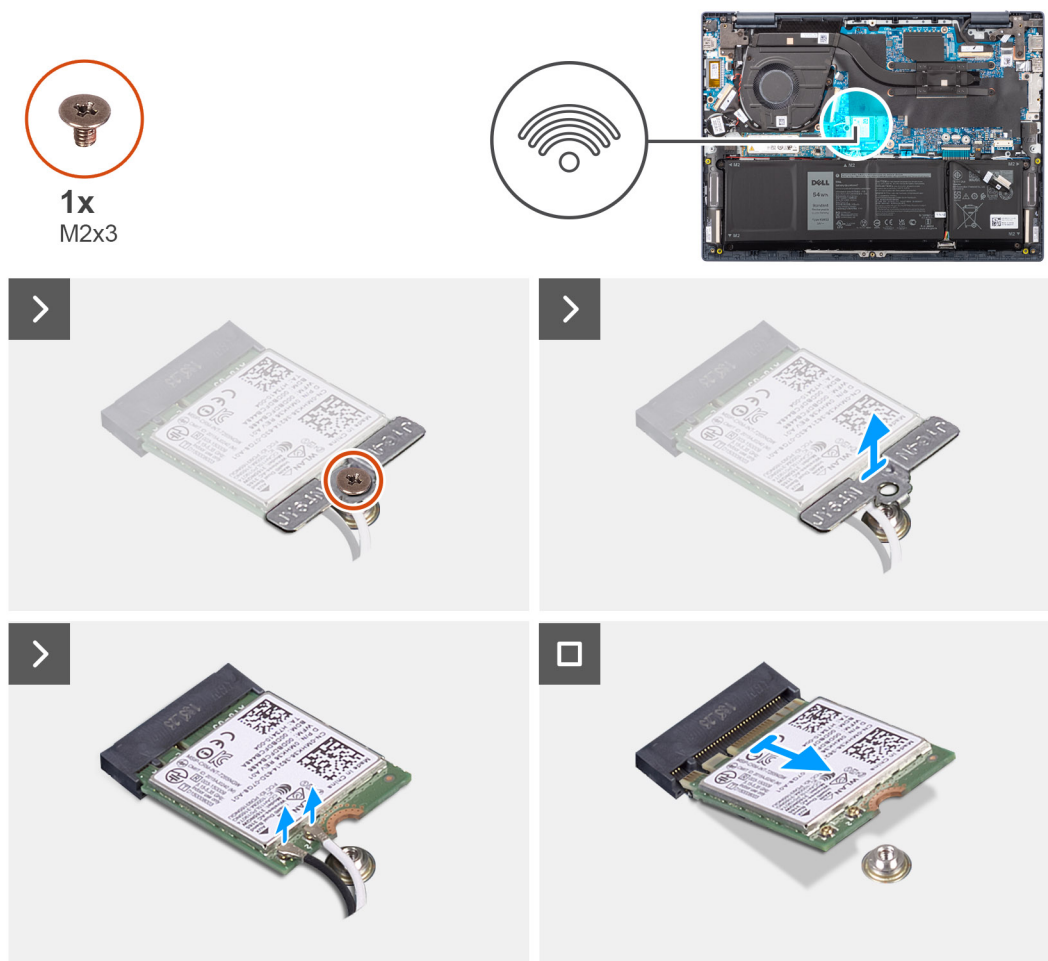


Figure 28. Removing the wireless card

Steps

1. Remove the screw (M2x3) that secures the wireless-card bracket to the wireless card and system board.
2. Lift the wireless-card bracket off the wireless card.
3. Disconnect the wireless-antenna cables from the connectors on the wireless card.
4. Slide and remove the wireless card from the wireless-card slot (WLAN1) on the system board.

Installing the wireless card

Prerequisites

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

About this task

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

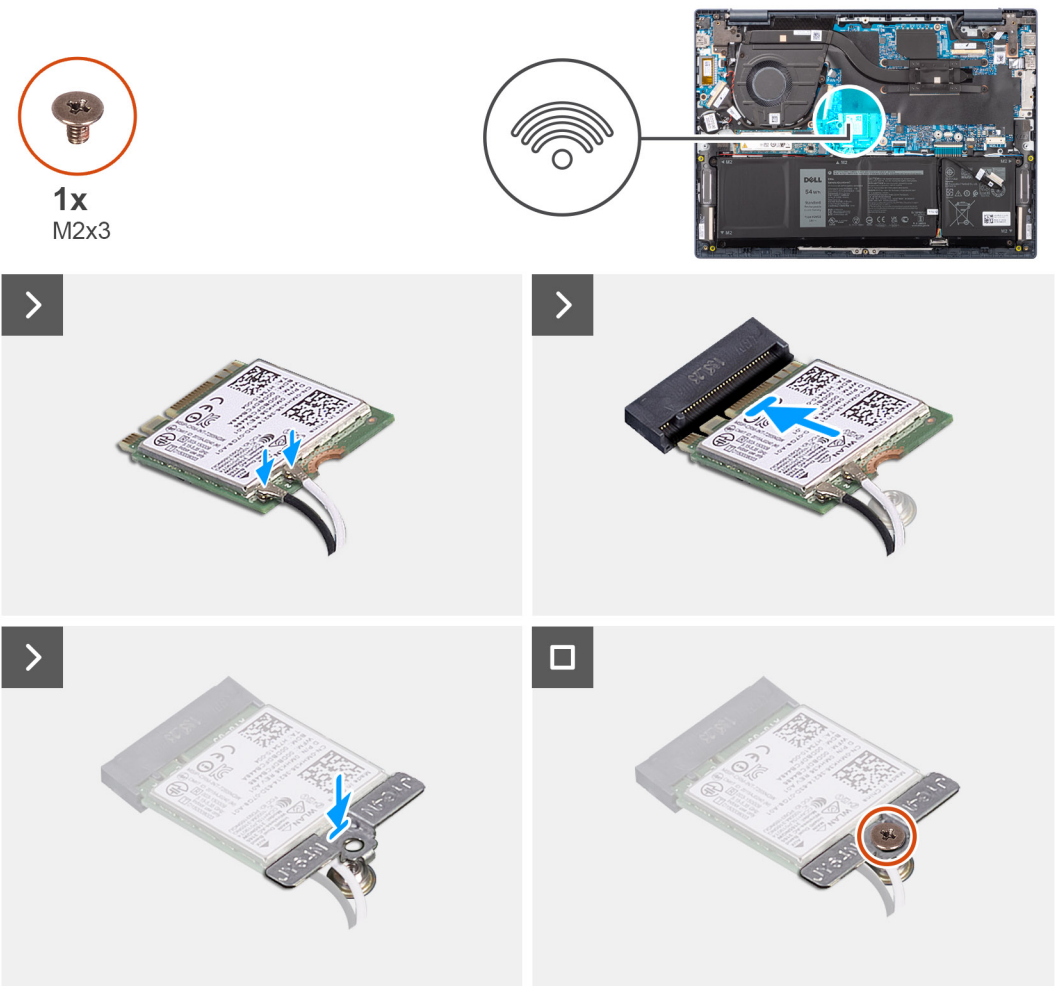


Figure 29. Installing the wireless card

Steps

1. Align the notch on the wireless card with the tab on the wireless-card slot (WLAN1) on the system board.
2. Slide the wireless card at an angle into the wireless-card slot on the system board.
3. Connect the wireless-antenna cables to the connectors on 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 hole on the system board.

6. Replace the screw (M2x3) to secure the wireless card and the wireless-card bracket to the system board.

Next steps

1. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
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](#).
2. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.

About this task

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

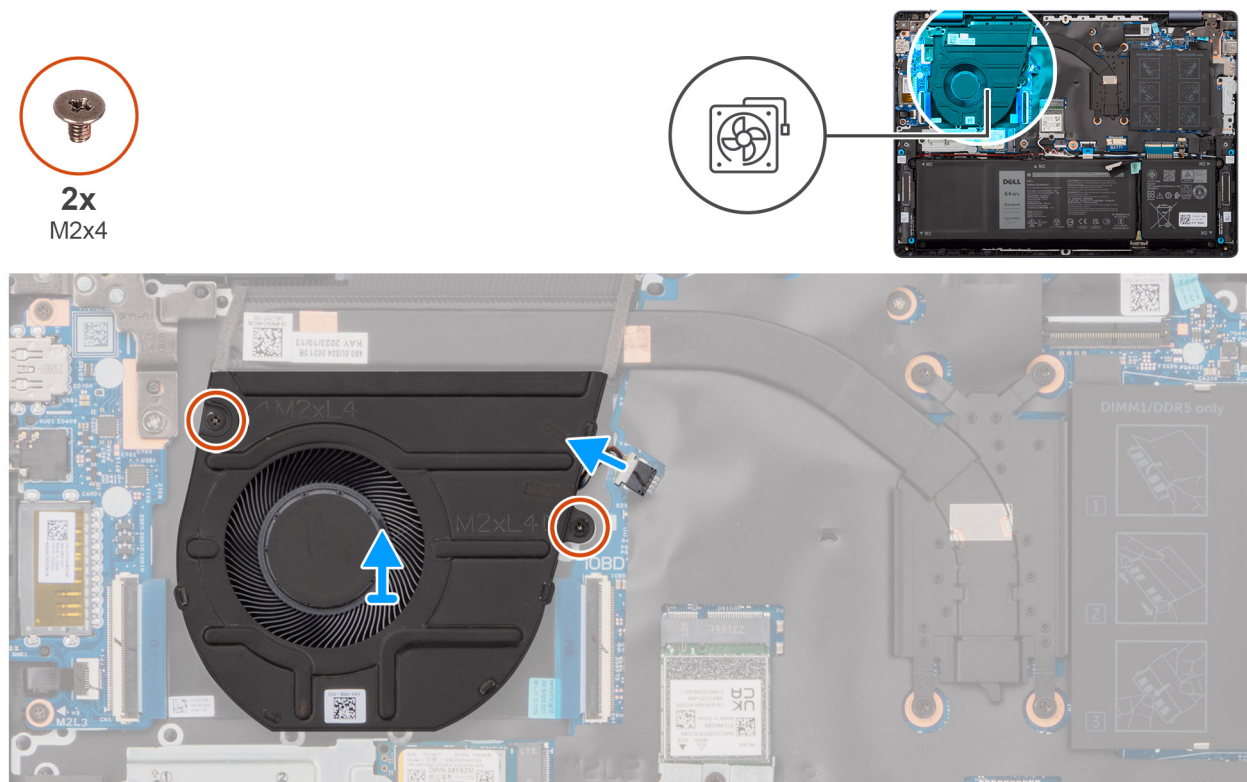


Figure 30. Removing the fan

Steps

1. Disconnect the fan cable from the connector (FAN1) on the system board.
2. Remove the two screws (M2x4) 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 procedure.

About this task

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

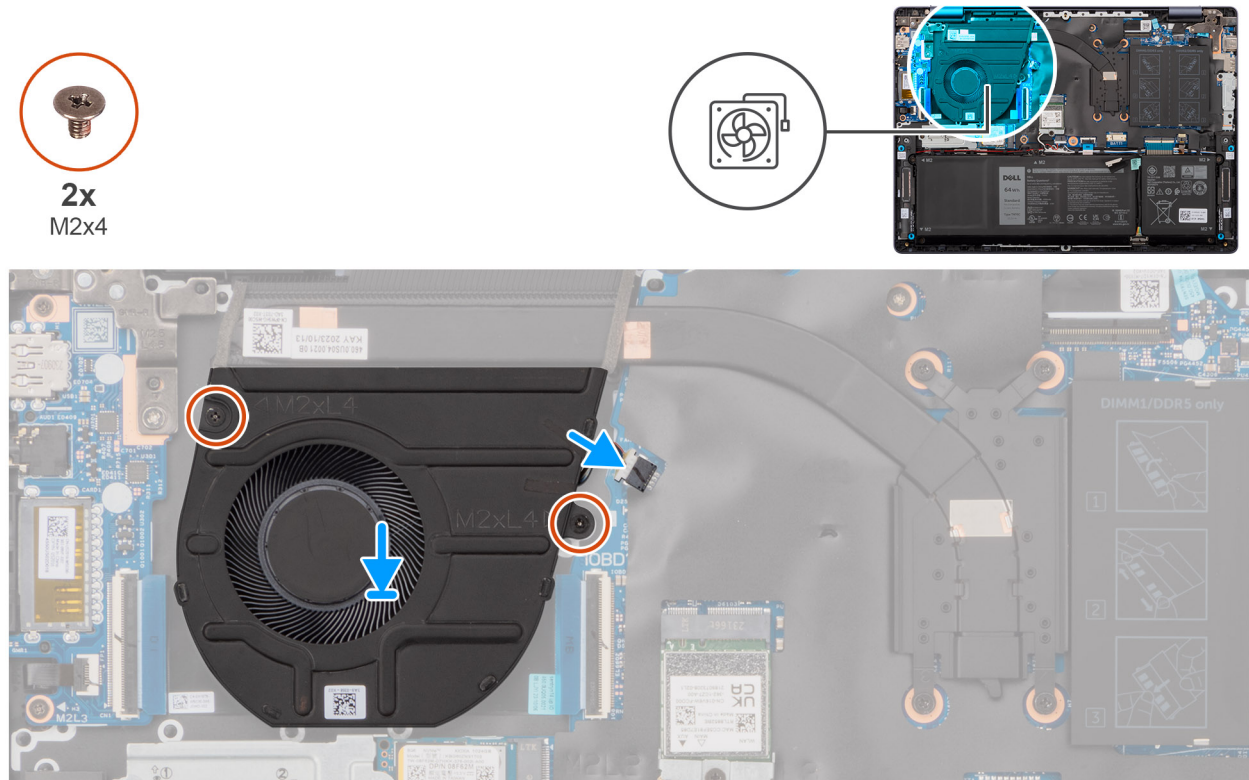


Figure 31. Installing the fan

Steps





1. Place the fan on the palm-rest and keyboard assembly.
2. Align the screw holes on the fan with the screw holes on the palm-rest and keyboard assembly.
3. Replace the two screws (M2x4) to secure the fan to the palm-rest and keyboard assembly.
4. Connect the fan cable to the connector (FAN1) on the system board.


Next steps

1. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
2. Follow the procedure in [After working inside your computer](#).

Removing and installing Field Replaceable Units (FRUs)


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

-  **CAUTION:** The information in this removing and installing FRU's section is intended for authorized service technicians only.
-  **CAUTION:** To avoid any potential damage to the component or loss of data, ensure that an authorized service technician replaces the Field Replaceable Units (FRUs).
-  **CAUTION:** Dell Technologies recommends that this set of repairs, if needed, to be conducted by trained technical repair specialists.
-  **CAUTION:** As a reminder, your warranty does not cover damages that may occur during FRU repairs that are not authorized by Dell Technologies.

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

Battery

Rechargeable Li-ion battery precautions

-  **CAUTION:**
 - Exercise caution when handling rechargeable Li-ion batteries.
 - Discharge the battery completely before removing it. Disconnect the AC power adapter from the computer and operate the computer solely on battery power—the battery is fully discharged when the computer no longer turns on when the power button is pressed.
 - Do not crush, drop, mutilate, or penetrate the battery with foreign objects.
 - Do not expose the battery to high temperatures, or disassemble battery packs and cells.
 - Do not apply pressure to the surface of the battery.
 - Do not bend the battery.
 - Do not use tools of any kind to pry on or against the battery.
 - To prevent accidental puncture or damage to the battery and other components, ensure that no screws are lost or misplaced during the servicing of this product.
 - If the battery gets stuck inside your computer as a result of swelling, do not try to release it as puncturing, bending, or crushing a rechargeable Li-ion battery can be dangerous. In such an instance, contact Dell technical support for assistance. See [Contact Support at Dell Support Site](#).
 - Always purchase genuine batteries from [Dell Site](#) or authorized Dell partners and resellers.
 - Swollen batteries should not be used and should be replaced and disposed properly. For guidelines on how to handle and replace swollen rechargeable Li-ion batteries, see [Handling swollen rechargeable Li-ion batteries](#).

Removing the 3-cell battery

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.

About this task

The following image indicates the location of the 3-cell battery and provides a visual representation of the removal procedure.

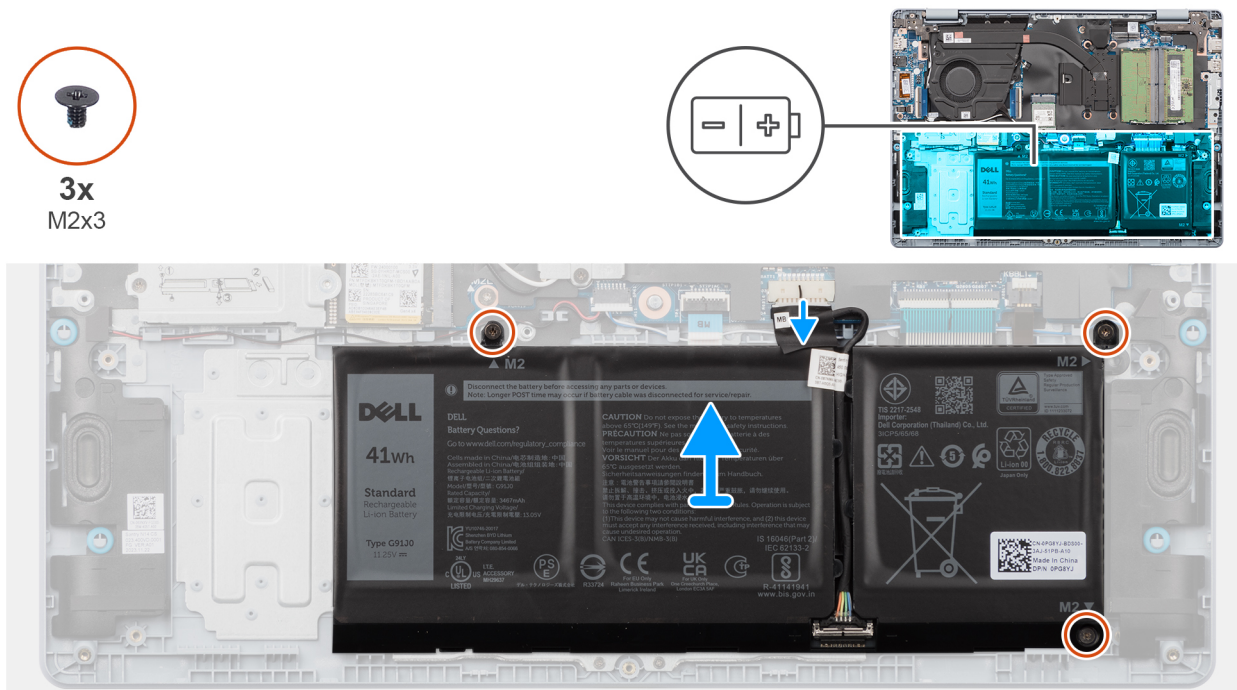


Figure 32. Removing the 3-cell battery

Steps

1. Remove the three screws (M2x3) that secure the 3-cell battery to the palm-rest and keyboard assembly.
2. Lift the 3-cell battery, along with the battery cable, off the palm-rest and keyboard assembly.

Installing the 3-cell battery

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

Prerequisites

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

About this task

The following image indicates the location of the 3-cell battery and provides a visual representation of the installation procedure.

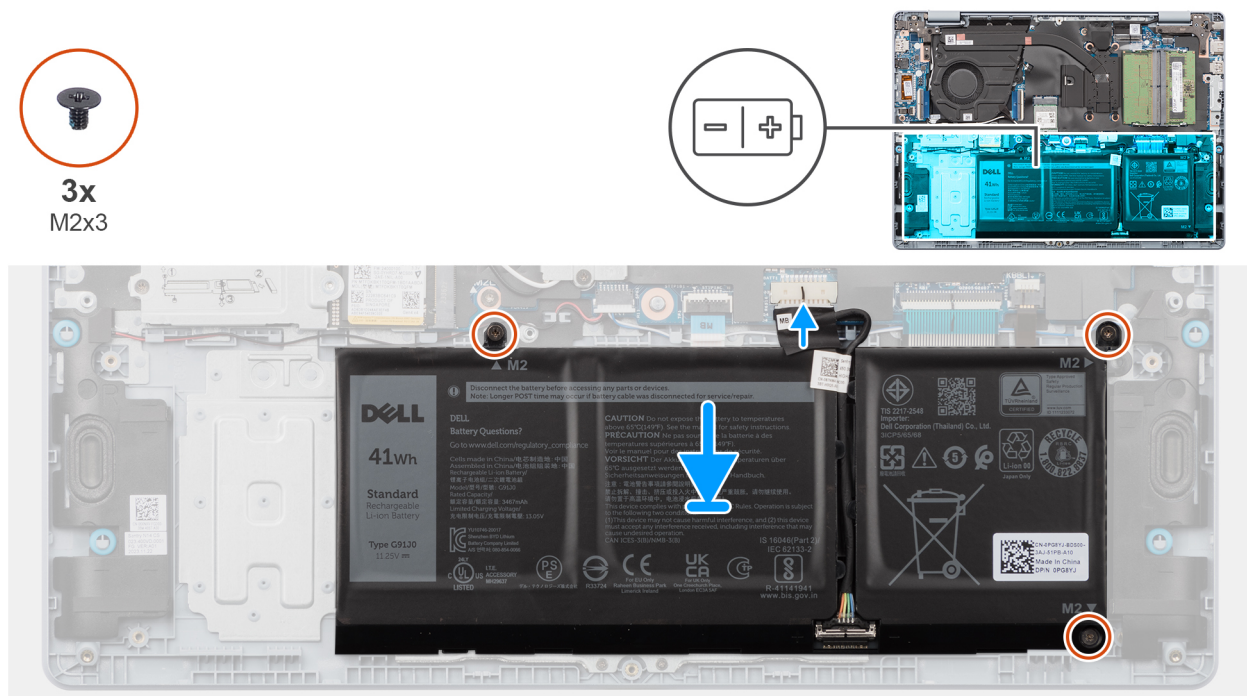


Figure 33. Installing the 3-cell battery

Steps

1. Place the 3-cell battery, along with the battery cable, in the slot on the palm-rest and keyboard assembly.
2. Align the screw holes on the 3-cell battery with the screw holes on the palm-rest and keyboard assembly.
3. Replace the three screws (M2x3) to secure the 3-cell battery to the palm-rest and keyboard assembly.

Next steps

1. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
2. Follow the procedure in [After working inside your computer](#).

Removing the 4-cell battery

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.

About this task

The following image indicates the location of the 4-cell battery and provides a visual representation of the removal procedure.

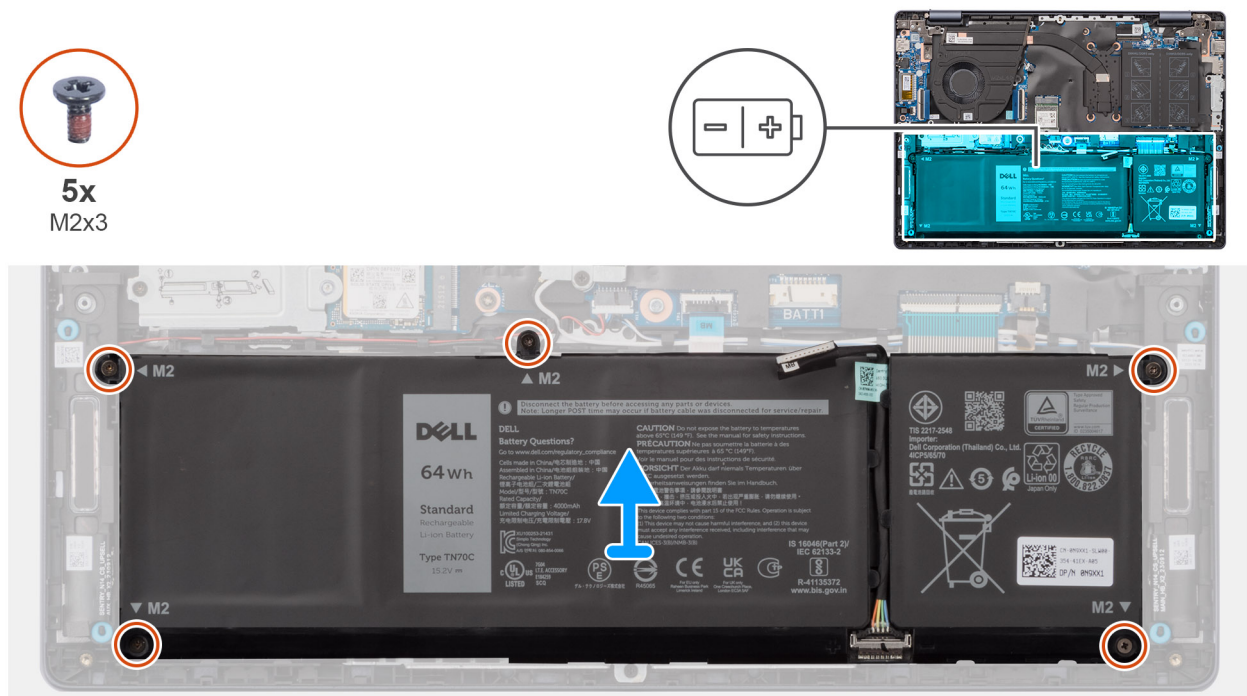


Figure 34. Removing the 4-cell battery

Steps

1. Remove the five screws (M2x3) that secure the 4-cell battery to the palm-rest and keyboard assembly.
2. Lift the 4-cell battery, along with the battery cable, off the palm-rest and keyboard assembly.

Installing the 4-cell battery

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

Prerequisites

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

About this task

The following image indicates the location of the 4-cell battery and provides a visual representation of the installation procedure.

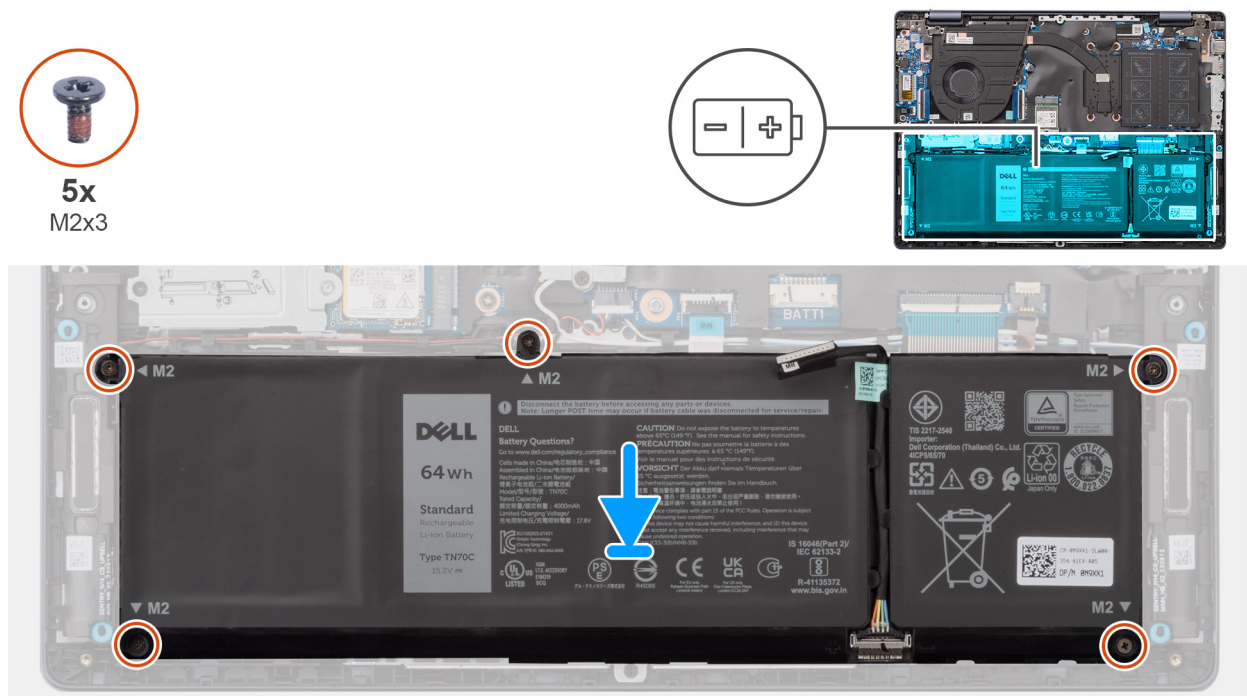


Figure 35. Installing the 4-cell battery

Steps

1. Place the 4-cell battery, along with the battery cable, in the slot on the palm-rest and keyboard assembly.
2. Align the screw holes on the 4-cell battery with the screw holes on the palm-rest and keyboard assembly.
3. Replace the five screws (M2x3) to secure the 4-cell battery to the palm-rest and keyboard assembly.

Next steps

1. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
2. Follow the procedure in [After working inside your computer](#).

Disconnecting the battery cable

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
4. Remove the [3-cell battery](#) or the [4-cell battery](#), whichever is applicable.

About this task

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



Figure 36. Disconnecting the battery cable

Steps

1. Remove the battery cable from the routing guides on the battery.
2. Lift the latch away from the connector. Disconnect the battery cable by pulling it upwards and away from the connector.

CAUTION: Do not pull the battery cable to disconnect it from the battery, it may damage the battery or the battery cable.

Connecting the battery cable

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

Prerequisites

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

About this task

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

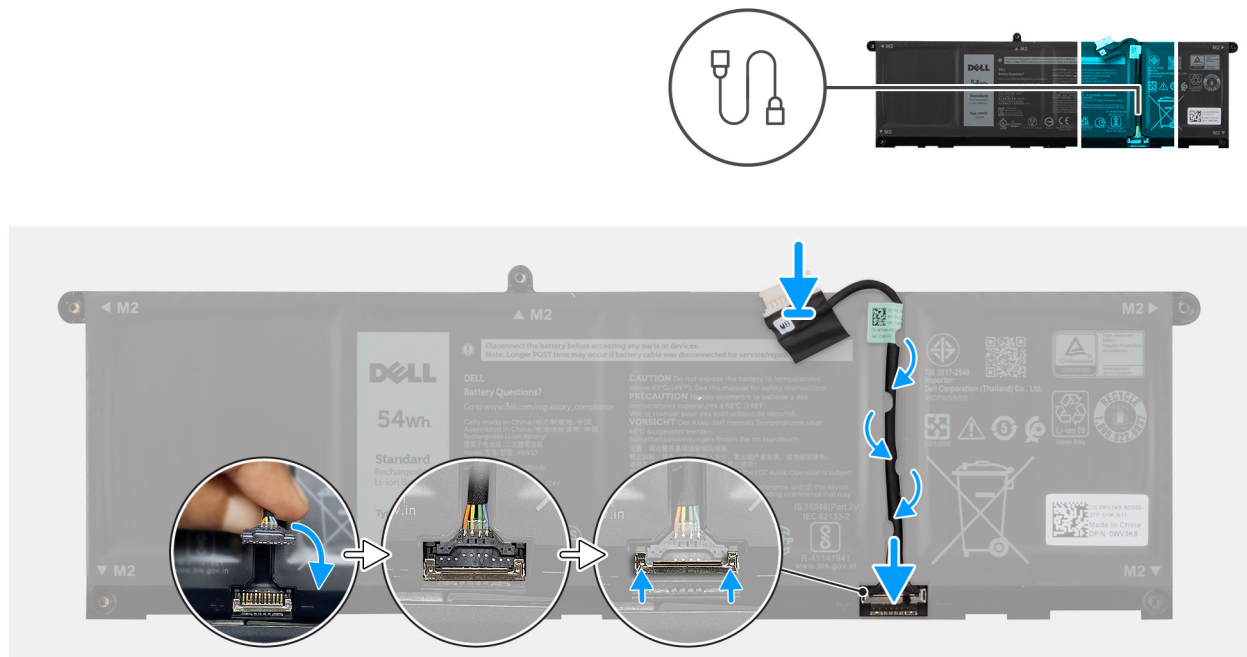


Figure 37. Connecting the battery cable

Steps

1. Connect the battery cable to the connector on the battery and slide the latch closed to lock the cable in place.
2. Route the battery cable through the routing guides on the battery.

Next steps

1. Install the [3-cell battery](#) or the [4-cell battery](#), whichever is applicable.
2. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
3. Follow the procedure in [After working inside your computer](#).

Heat sink

Removing the heat sink

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.

About this task

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

CAUTION: For optimal 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.



4x

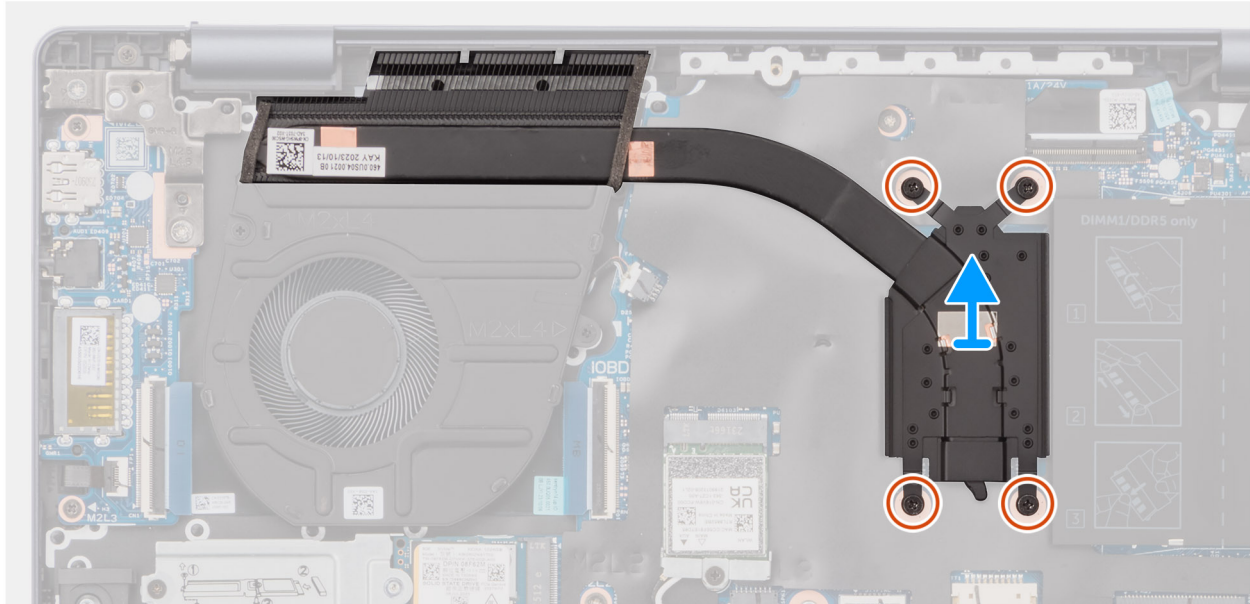
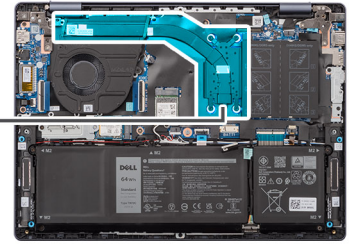


Figure 38. Removing the heat sink (for computers shipped with AMD Ryzen 5 8540U or AMD Ryzen 7 8840U processor)



4x

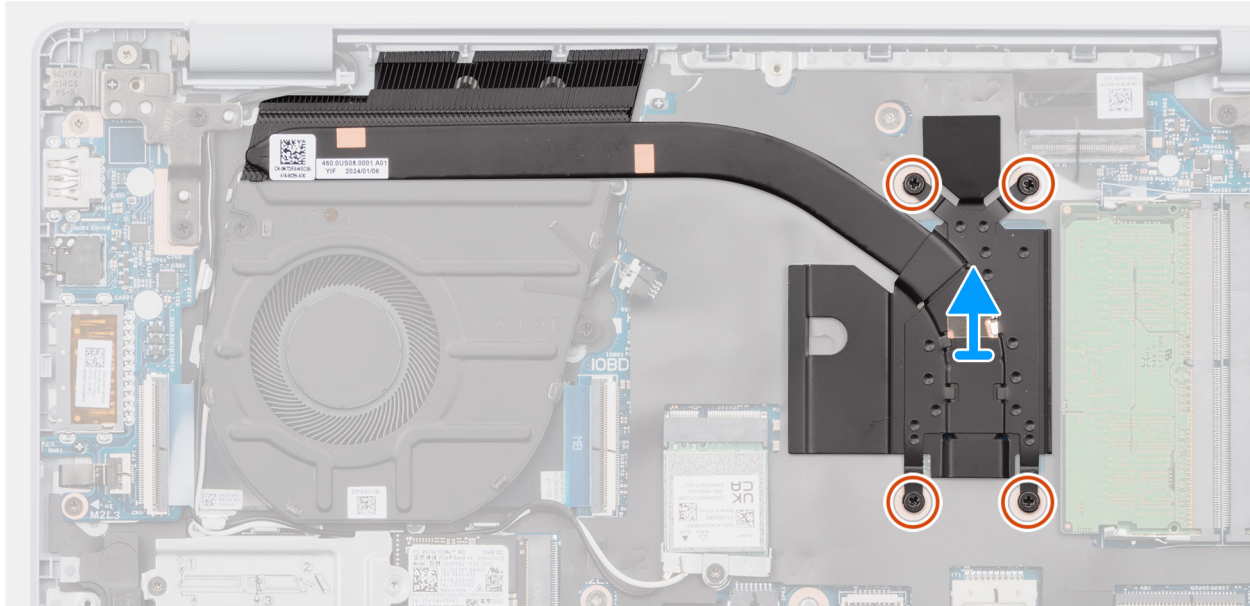
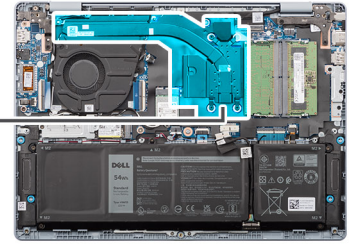
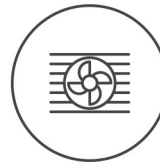


Figure 39. Removing the heat sink (for computers shipped with AMD Ryzen 7 8840HS processor)

Steps

1. In reverse sequential order (4 > 3 > 2 > 1), loosen the four captive screws that secure the heat sink to the system board. The screw numbers are etched on the heat sink.
2. Lift and remove the heat sink from the system board.

Installing the heat sink

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

Prerequisites

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

About this task

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

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



4x

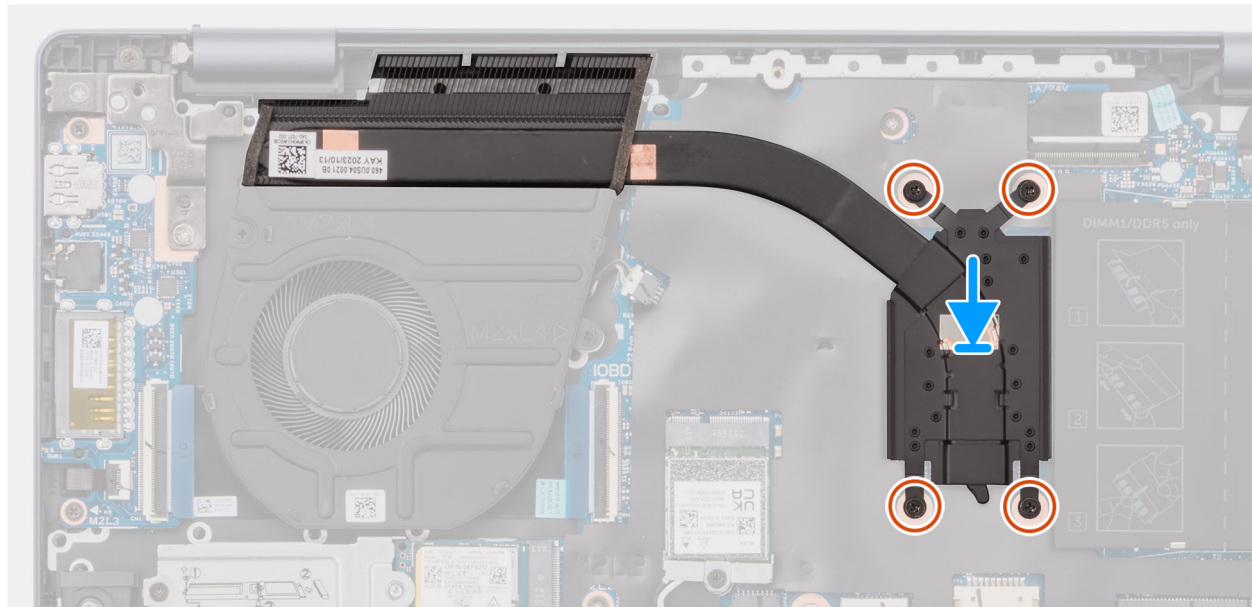
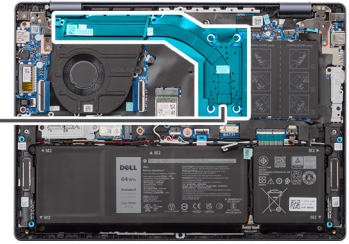
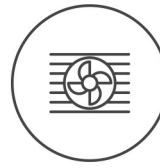


Figure 40. Installing the heat sink (for computers shipped with AMD Ryzen 5 8540U or AMD Ryzen 7 8840U processor)



4x

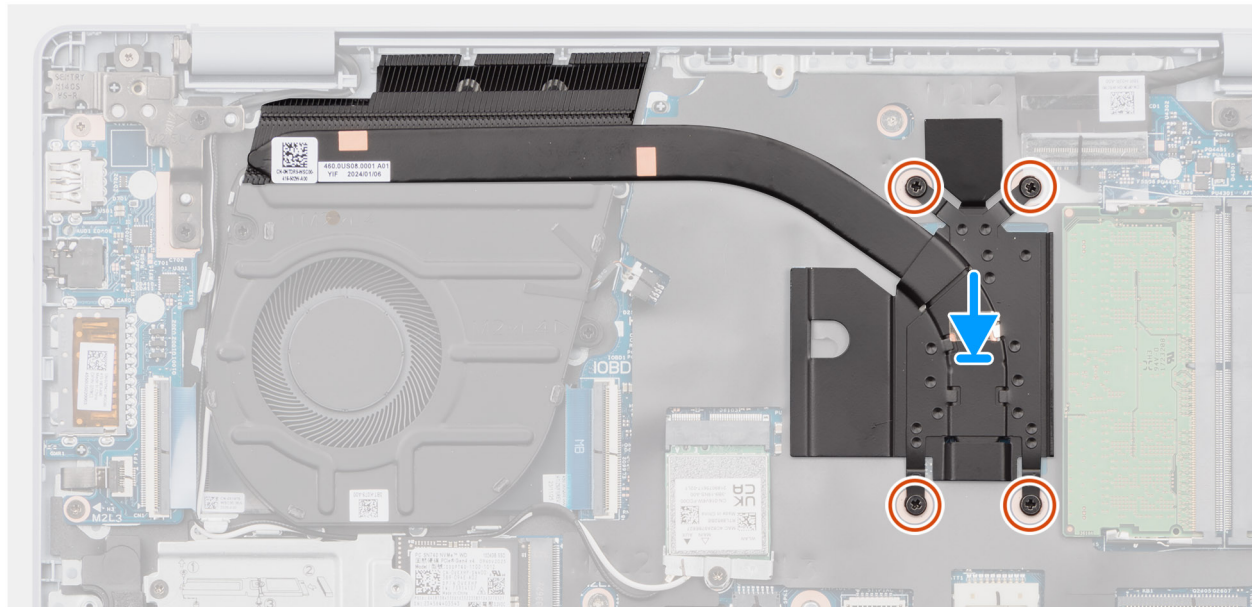
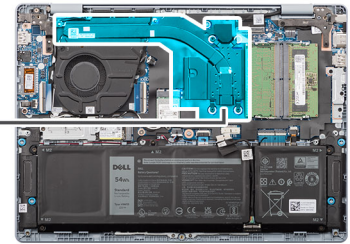


Figure 41. Installing the heat sink (for computers shipped with AMD Ryzen 7 8840HS processor)

Steps

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

Next steps

1. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
2. Follow the procedure in [After working inside your computer](#).

Speakers

Removing the speakers

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
3. Remove the [wireless card](#).

NOTE: This step applies only to computers shipped with an aluminum chassis.

4. Remove the [3-cell battery](#) or the [4-cell battery](#), whichever is applicable.

About this task

NOTE: For computers shipped with an aluminum chassis, the wireless-card antennas are attached to the speakers as an assembly and cannot be separated for individual replacement. Services will replace the speakers and the wireless antennas as an assembly part.

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

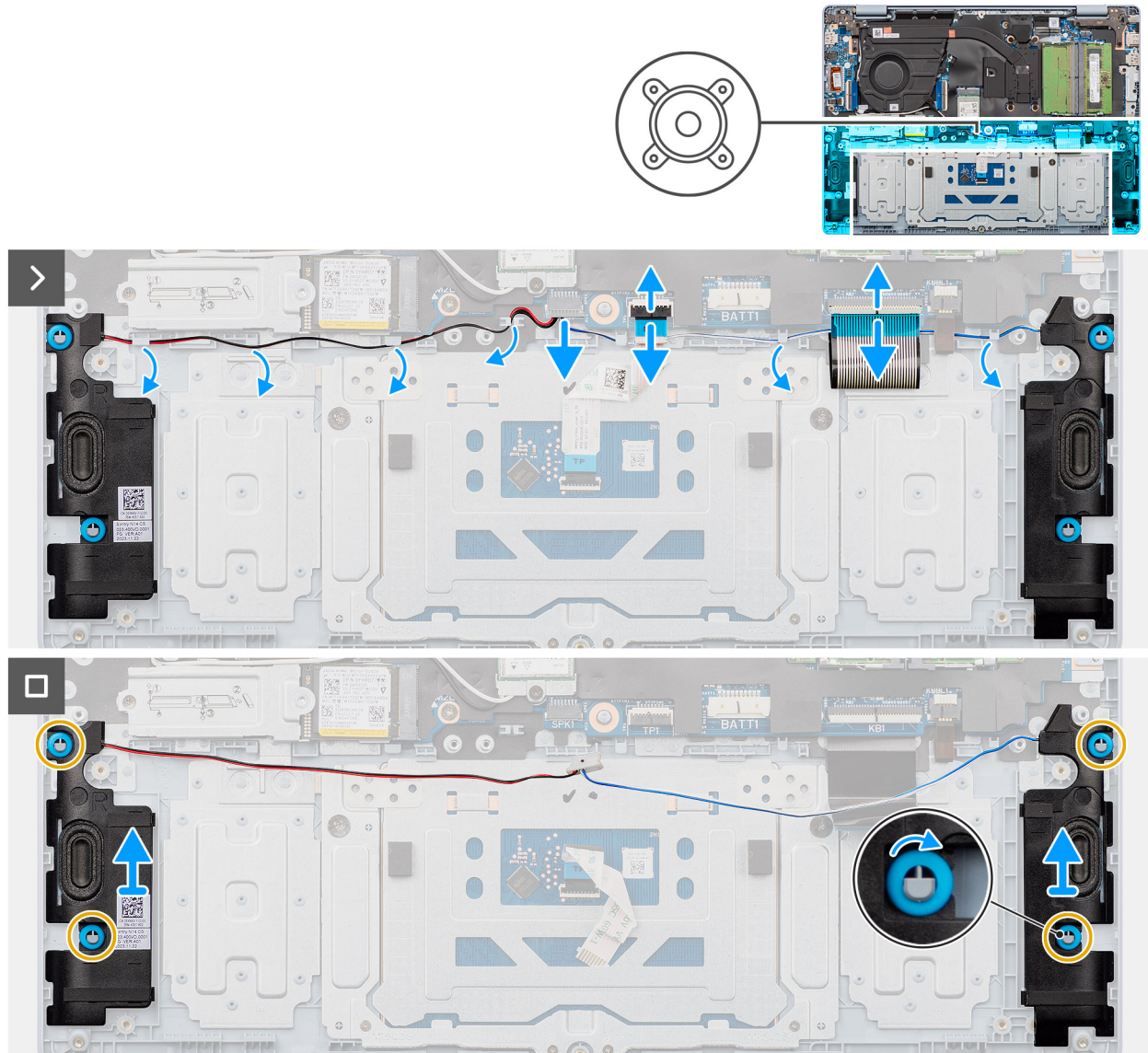


Figure 42. Removing the speakers (for computers shipped with a 3-cell battery)

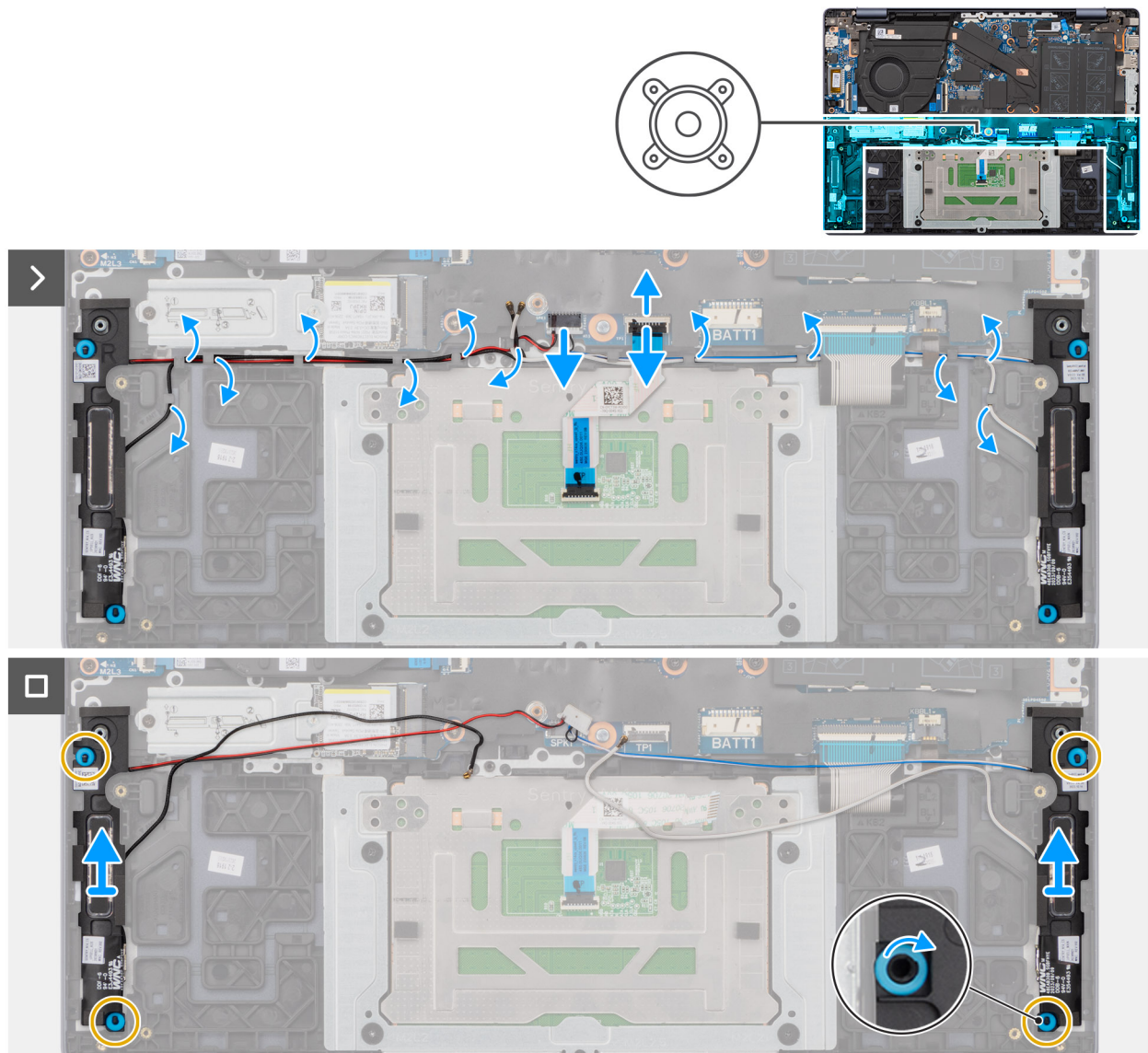


Figure 43. Removing the speakers (for computers shipped with a 4-cell battery)

Steps

1. Lift the latch and disconnect the touchpad cable from the connector (TP1) on the system board.
2. Lift the latch and disconnect the keyboard cable from the connector (KB1) on the system board.
i **NOTE:** This step applies only to computers shipped with a 3-cell battery.
3. Disconnect the speaker cable from the connector (SPK1) on the system board.
4. Remove the wireless-antenna cables from the routing guides on the palm-rest and keyboard assembly.
i **NOTE:** This step applies only to computers shipped with an aluminum chassis.
5. Remove the speaker cables from the routing guides on the palm-rest and keyboard assembly.
6. Lift the speakers, along with the cables, off the palm-rest and keyboard assembly.

Installing the speakers

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

Prerequisites

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

About this task

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

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

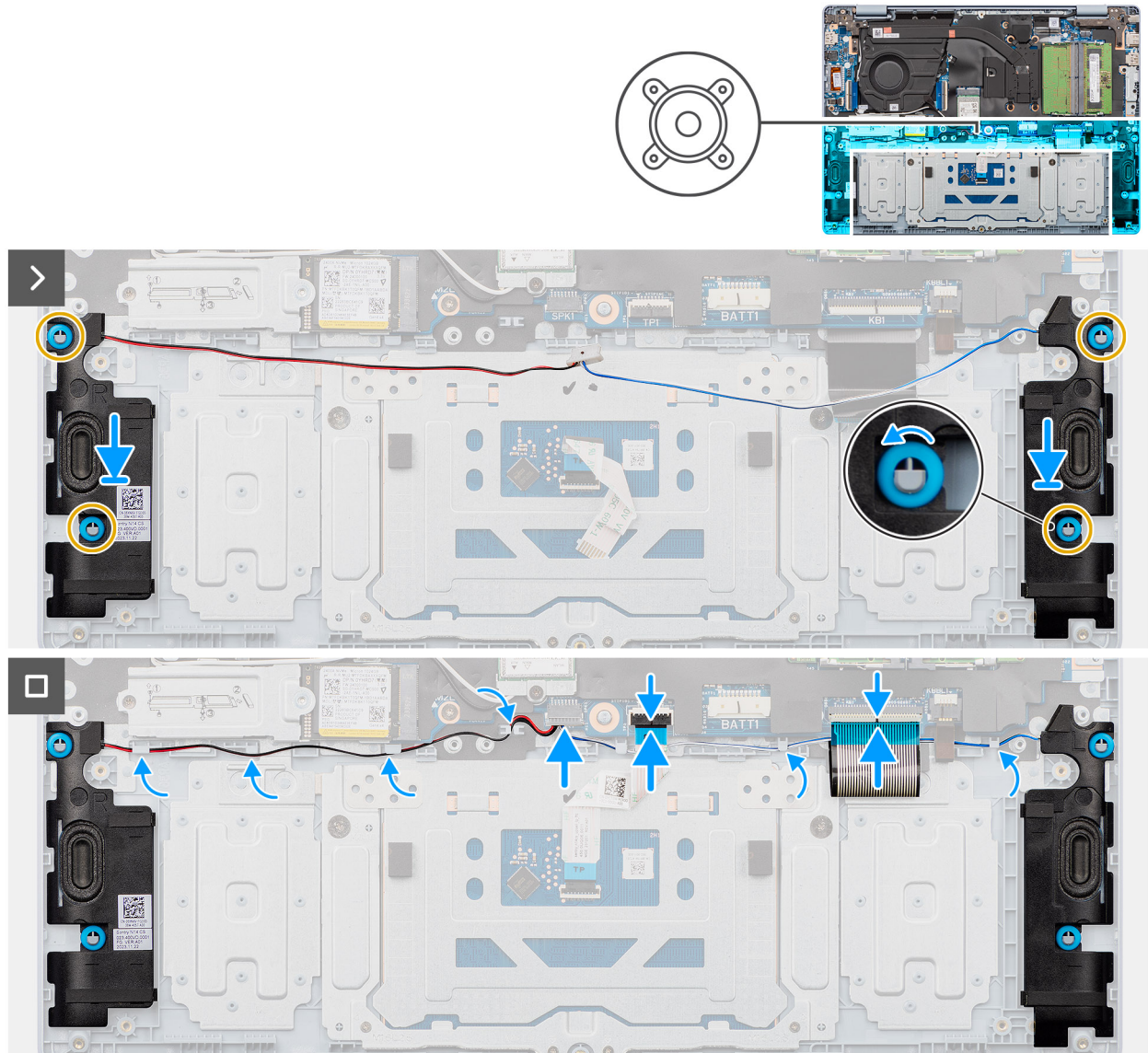


Figure 44. Installing the speakers (for computers shipped with a 3-cell battery)

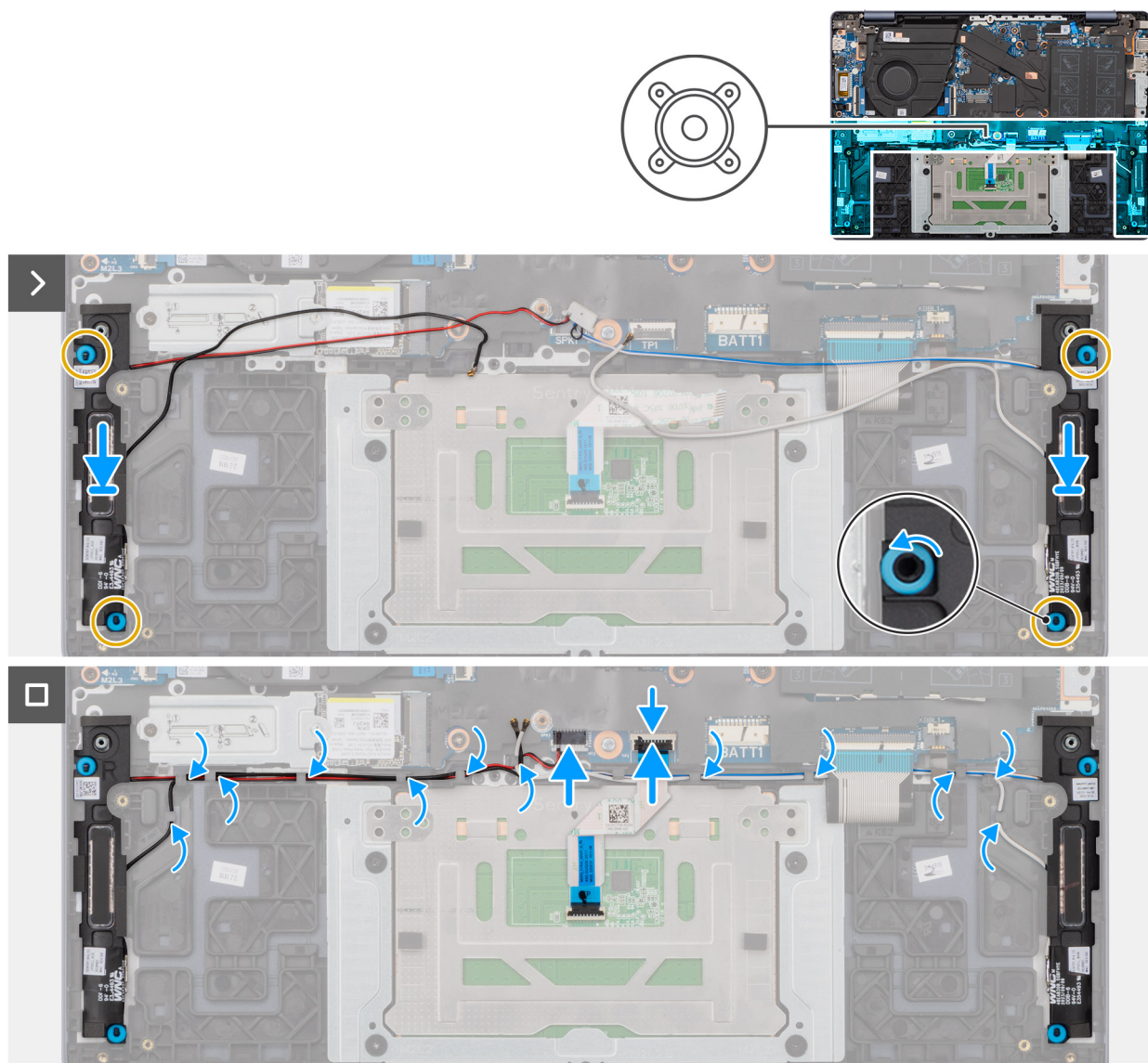



Figure 45. Installing the speakers (for computers shipped with a 4-cell battery)

Steps

1. Thread the rubber grommets through the alignment posts to place the left and right speakers on the palm-rest and keyboard assembly.
NOTE: Ensure that the rubber grommets on the speakers are threaded through the alignment posts and the four rubber grommets are seated into the slot and installed on the speakers properly.
2. Route the speaker cable through the routing guides on the palm-rest and keyboard assembly.
3. Route the wireless-antenna cables through the routing guides on the palm-rest and keyboard assembly.
NOTE: This step applies only to computers shipped with an aluminum chassis.
4. Connect the speaker cable to the connector (SPK1) on the system board.
5. Connect the touchpad cable to the connector (TP1) on the system board and close the latch.

Next steps

1. Install the [3-cell battery](#) or the [4-cell battery](#), whichever is applicable.
2. Install the [wireless card](#).

 **NOTE:** This step applies only to computers shipped with an aluminum chassis.

3. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
4. Follow the procedure in [After working inside your computer](#).

Touchpad

Removing the touchpad

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
3. Remove the [3-cell battery](#) or the [4-cell battery](#), whichever is applicable.

About this task

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

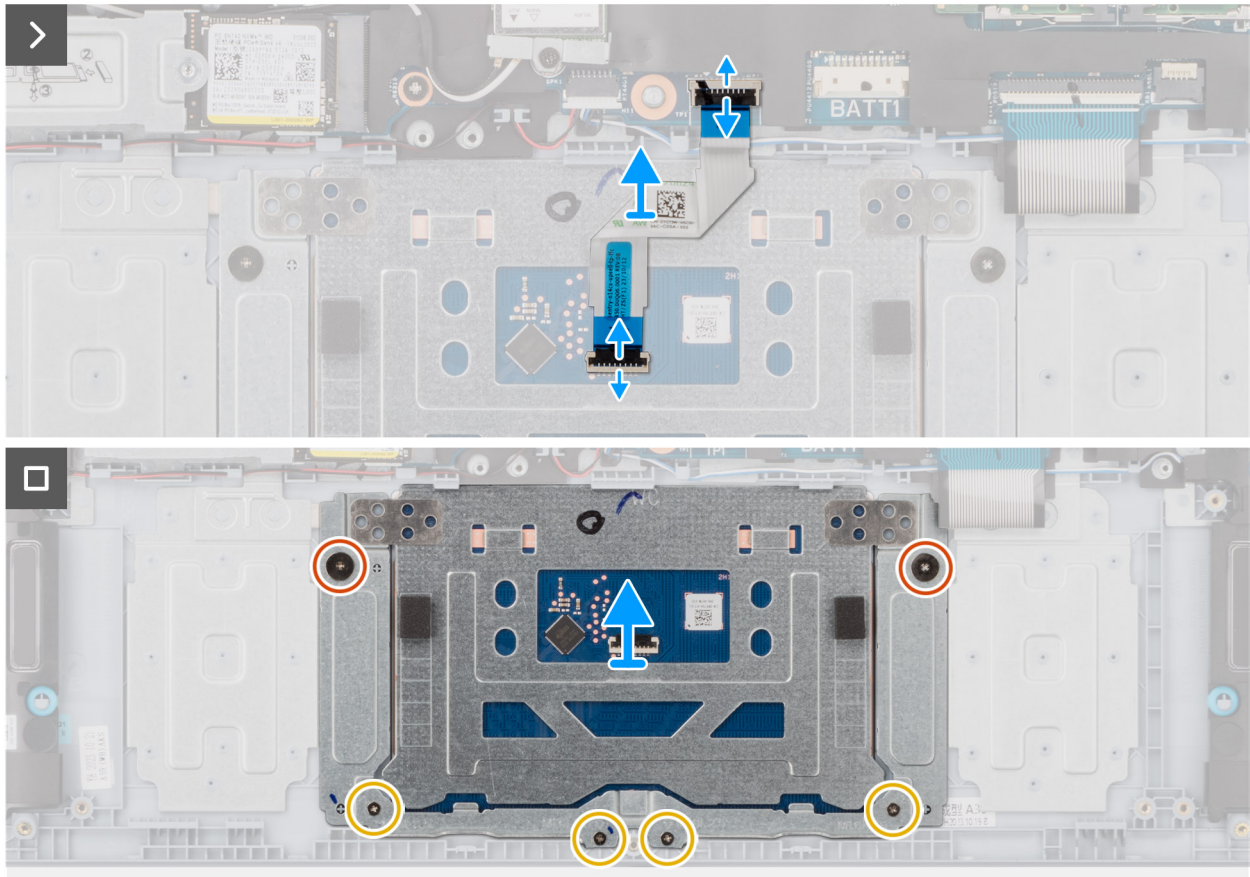
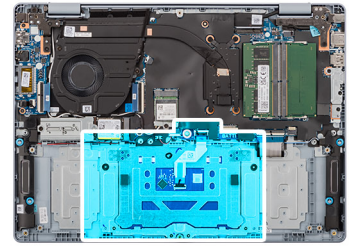
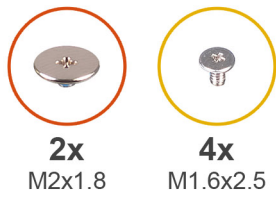


Figure 46. Removing the touchpad (for computers shipped with a plastic chassis)

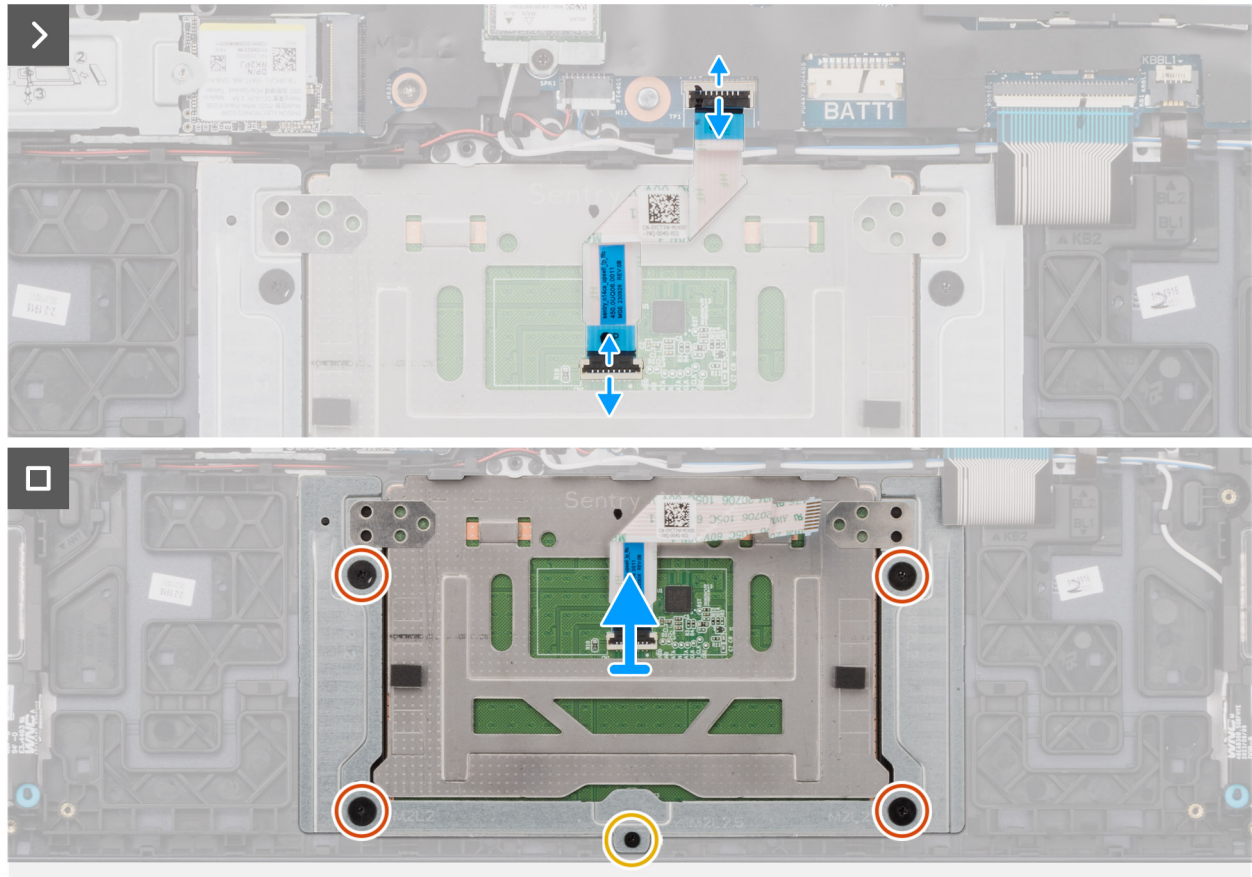
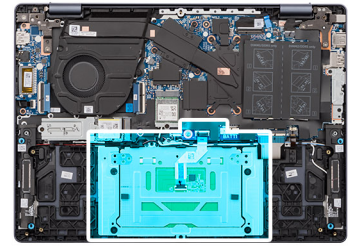


Figure 47. Removing the touchpad (for computers shipped with an aluminum chassis)

Steps

1. Open the latch and disconnect the touchpad cable from the connector (TP1) on the system board.
2. Open the latch and disconnect the touchpad cable from the connector on the touchpad.
3. For computers shipped with a plastic chassis, remove the four screws (M1.6x2.5) and the two screws (M2x1.8) that secure the touchpad to the palm-rest and keyboard assembly.
4. For computers shipped with an aluminum chassis, remove the four screws (M2x1.8) and the screw (M2x2.5) that secures the touchpad to the palm-rest and keyboard assembly.
5. Lift the touchpad off the palm-rest and keyboard assembly.

Installing the touchpad

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

Prerequisites

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

About this task

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

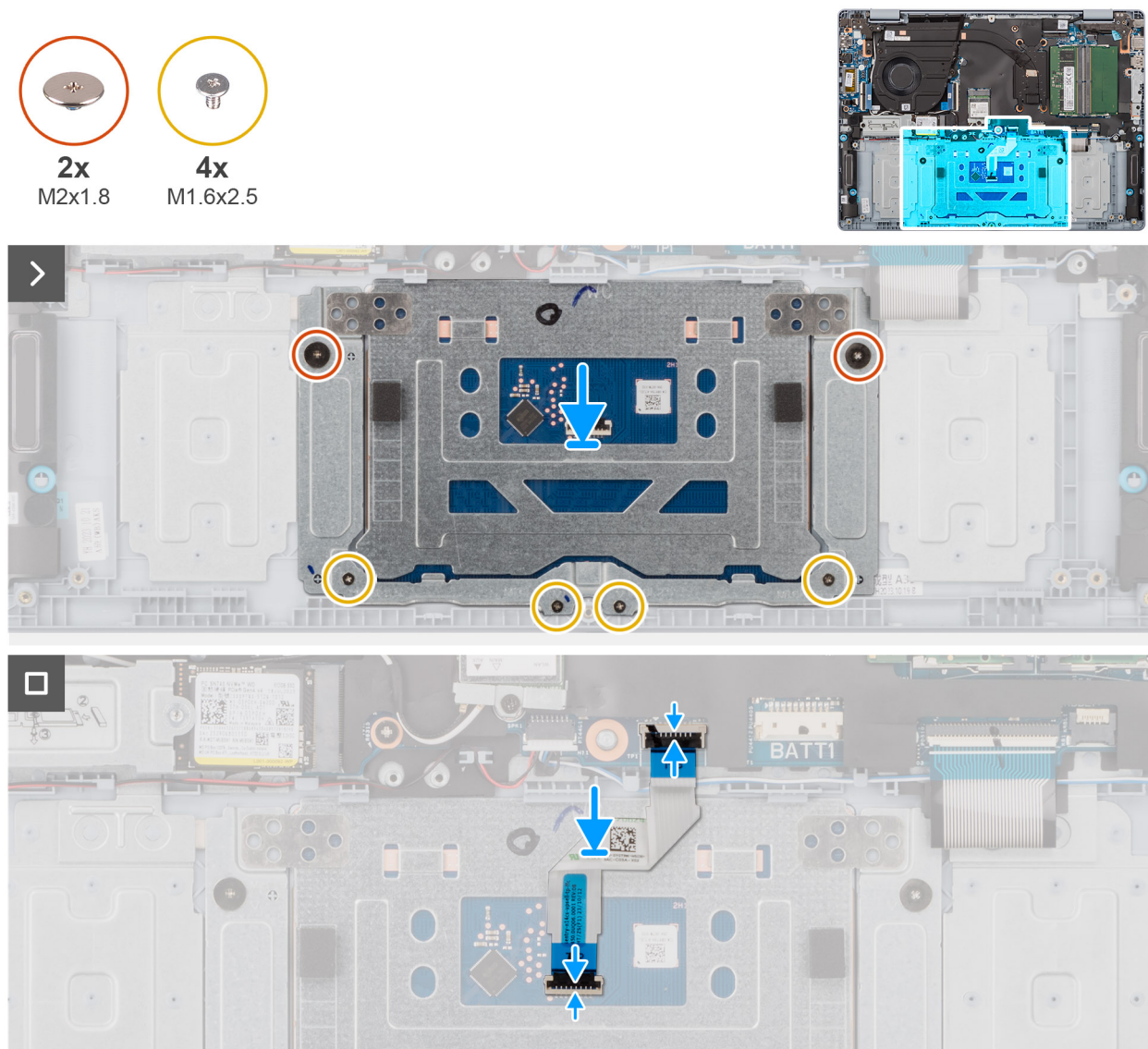


Figure 48. Installing the touchpad (for computers shipped with a plastic chassis)

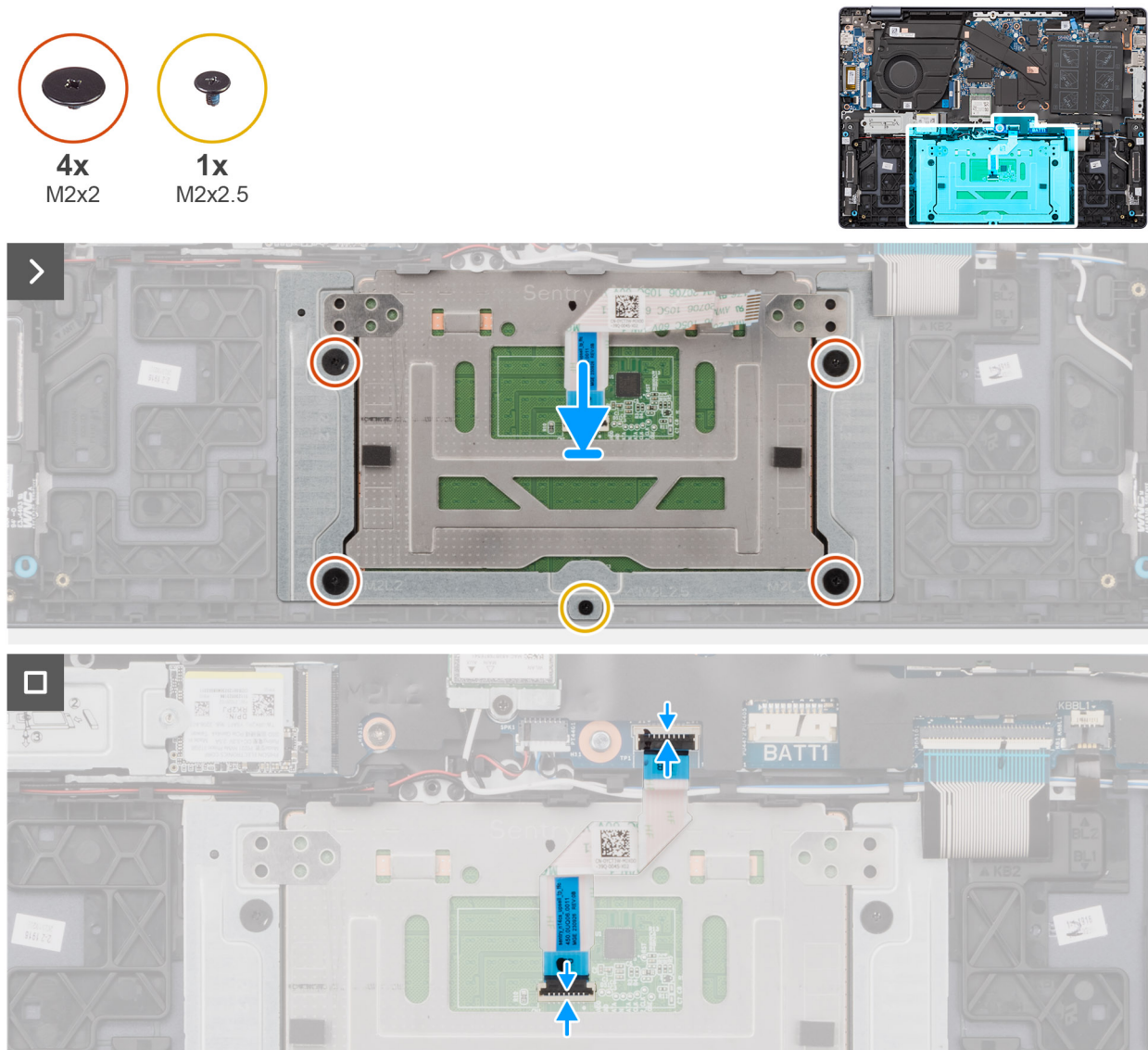


Figure 49. Installing the touchpad (for computers shipped with an aluminum chassis)

Steps

1. Align and place the touchpad in the slot on the palm-rest and keyboard assembly.
2. Align the screw holes on the touchpad with the screw holes on the palm-rest and keyboard assembly.
3. For computers shipped with a plastic chassis, replace the four screws (M1.6x2.5) and the two screws (M2x1.8) to secure the touchpad to the palm-rest and keyboard assembly.
4. For computers shipped with an aluminum chassis, replace the four screws (M2x1.8) and the screw (M2x2.5) to secure the touchpad to the palm-rest and keyboard assembly.
5. Connect the touchpad cable to the connector on the touchpad and close the latch.
6. Connect the touchpad cable to the connector (TP1) on the system board and close the latch.

Next steps

1. Install the [3-cell battery](#) or the [4-cell battery](#), whichever is applicable.
2. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
3. Follow the procedure in [After working inside your computer](#).

Power-adapter port

Removing the power-adapter port

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.

About this task

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

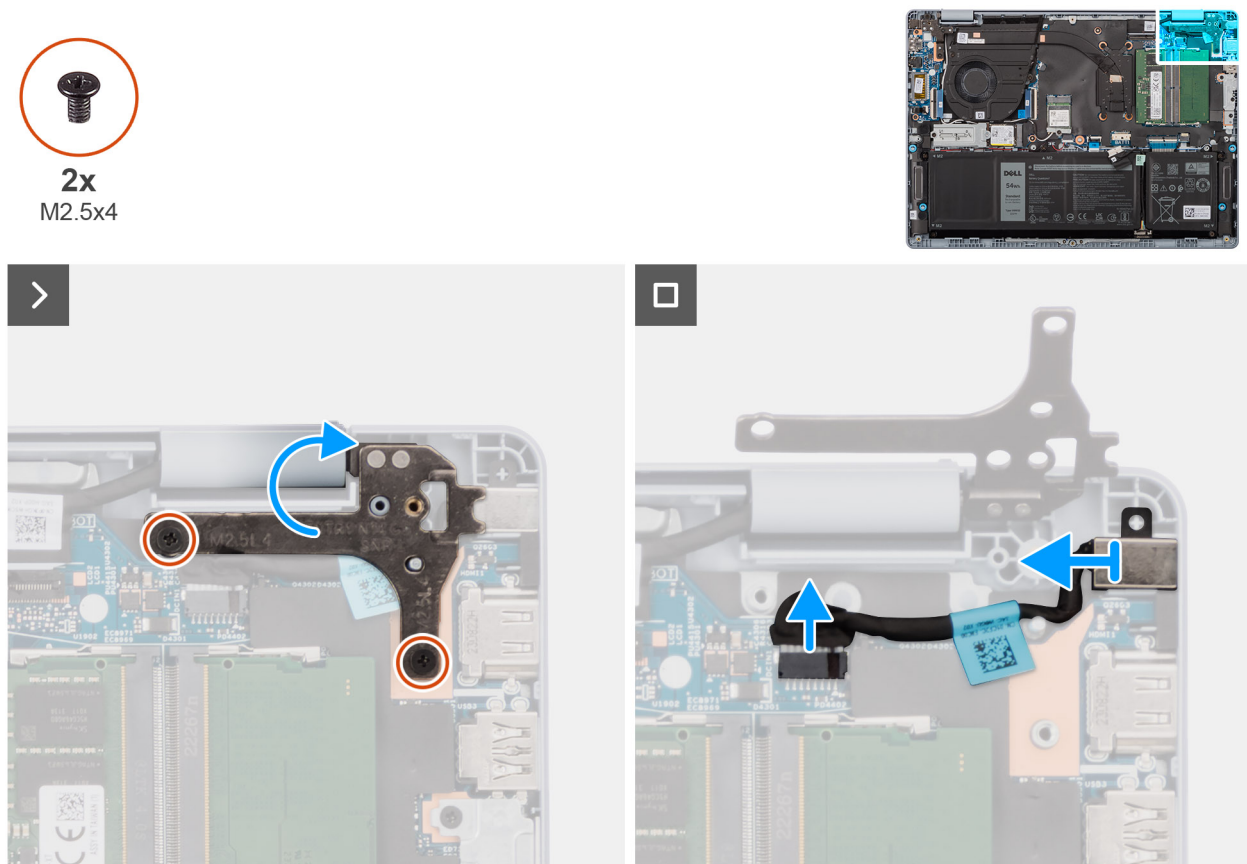


Figure 50. Removing the power-adapter port (for computers shipped with a plastic chassis)



2x
M2.5x4

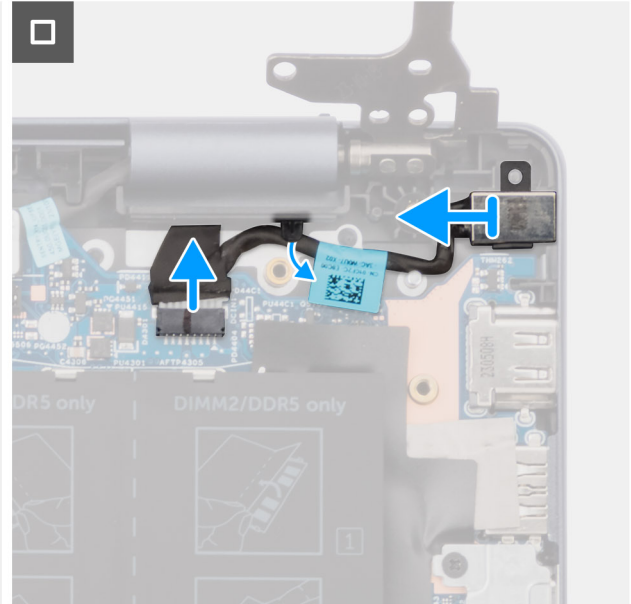
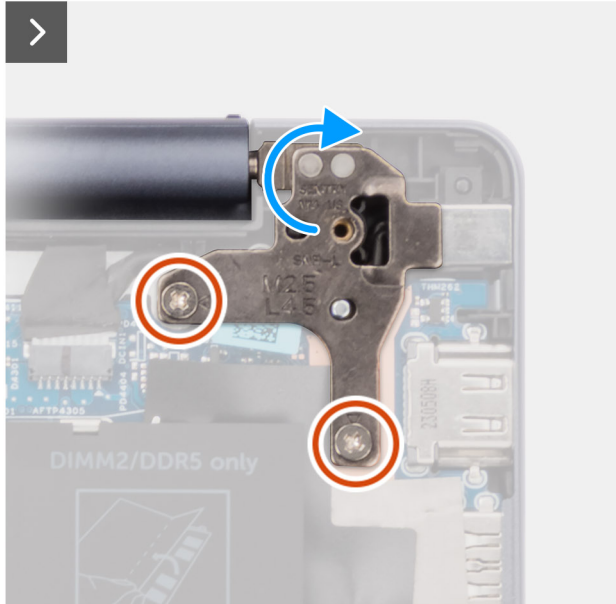


Figure 51. Removing the power-adapter port (for computers shipped with an aluminum chassis)

Steps

1. Remove the two screws (M2.5x4) that secure the right display hinge to the system board and the palm-rest and keyboard assembly.
2. Using a plastic scribe, lift the right display hinge to an angle of 90 degrees from the palm-rest and keyboard assembly to access the power-adapter port.
3. Disconnect the power-adapter port cable from the connector (DCIN1) on the system board.
4. Remove the power-adapter port cable from the routing guide on the palm-rest and keyboard assembly.
5. Lift the power-adapter port off the palm-rest and keyboard assembly.

Installing the power-adapter port

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

Prerequisites

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

About this task

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



2x
M2.5x4

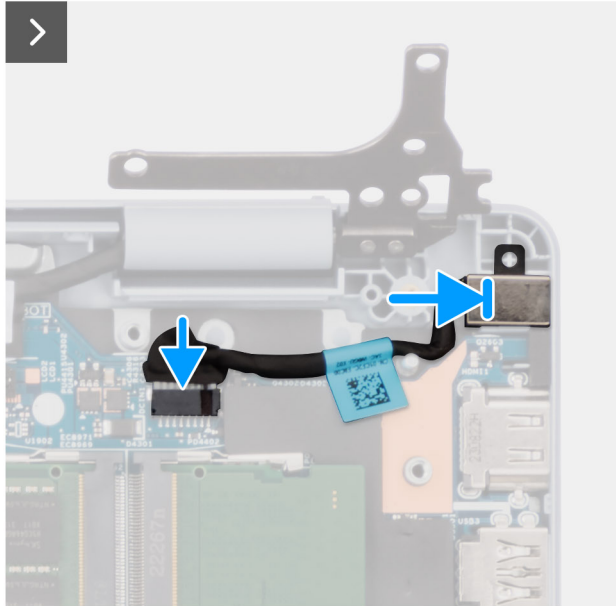
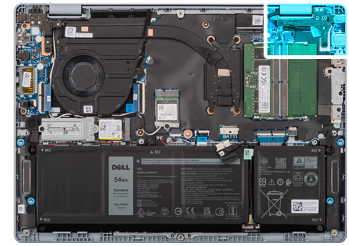


Figure 52. Installing the power-adaptor port (for computers shipped with a plastic chassis)



2x
M2.5x4

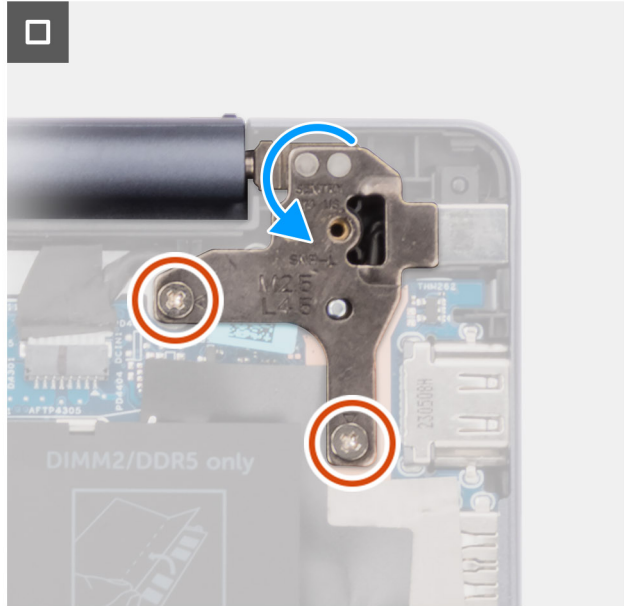
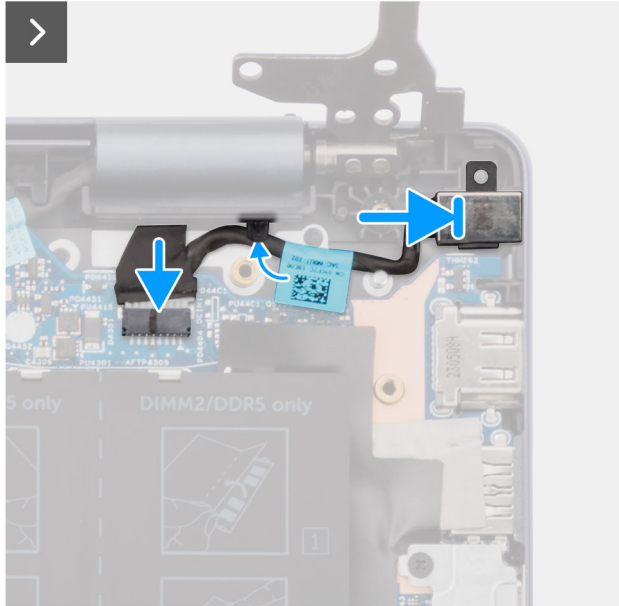


Figure 53. Installing the power-adaptor port (for computers shipped with an aluminum chassis)

Steps

1. Align and place the power-adaptor port in the slot on the palm-rest and keyboard assembly.
2. Route the power-adaptor port cable through the routing guide on the palm-rest and keyboard assembly.
3. Connect the power-adaptor port cable to the connector (DCIN1) on the system board.
4. Close the right display hinge to align the screw holes on the right display hinge with the screw holes on the system board and the palm-rest and keyboard assembly.
5. Replace the two screws (M2.5x4) to secure the right display hinge to the system board and the palm-rest and keyboard assembly.

Next steps

1. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
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 removal section is intended for authorized service technicians only.

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
3. Remove the [fan](#).

About this task

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

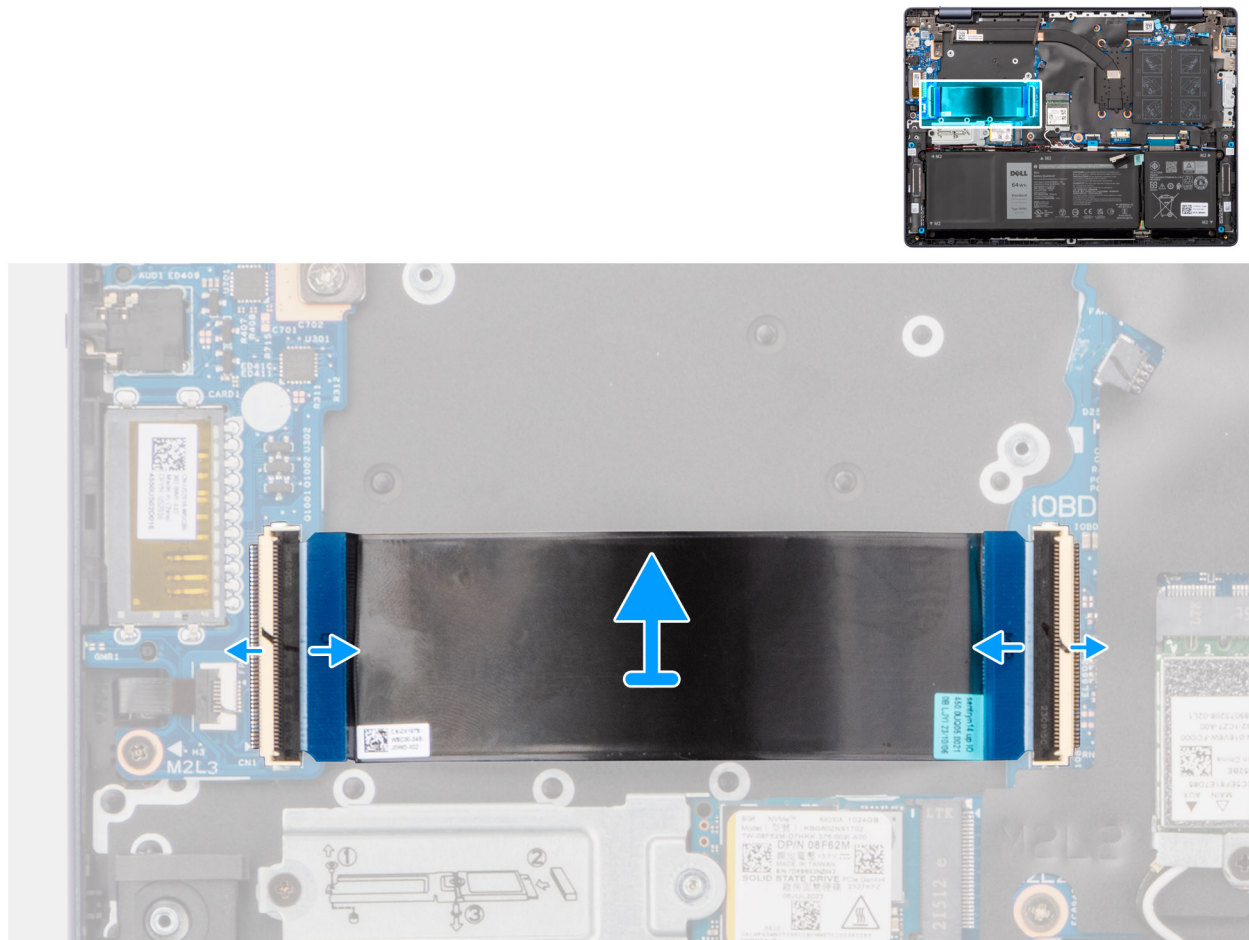


Figure 54. Removing the I/O-board cable

Steps

1. Open the latch and disconnect the I/O-board cable from the connector (IOBD1) on the system board.
2. Open the latch and disconnect the I/O-board cable from the connector on the I/O board.
3. Remove the I/O-board cable from the palm-rest and keyboard assembly.

NOTE: For computers shipped with a plastic chassis, carefully slide the I/O-board cable underneath the wireless-antenna cables to remove the I/O-board cable.

Installing the I/O-board cable

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

Prerequisites

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

About this task

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

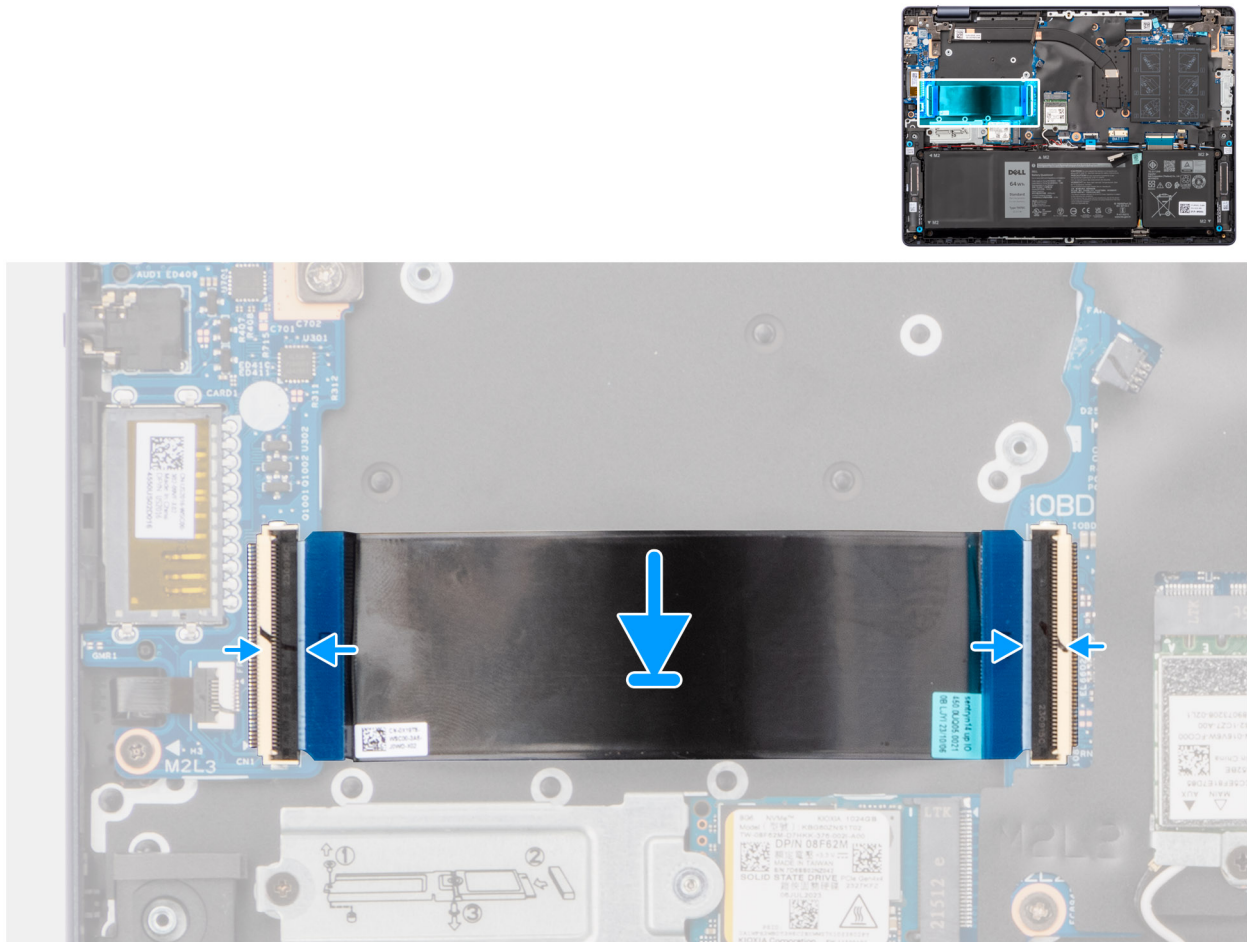


Figure 55. Installing the I/O-board cable

Steps

1. Place the I/O-board cable on the palm-rest and keyboard assembly.
NOTE: For computers shipped with a plastic chassis, carefully slide the I/O-board cable underneath the wireless-antenna cables to place the I/O-board cable on the palm-rest and keyboard assembly.
2. Connect the I/O-board cable to the connector on the I/O board and close the latch.
3. Connect the I/O-board cable to the connector (IOBD1) on the system board and close the latch.

Next steps

1. Install the [fan](#).
2. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
3. Follow the procedure in [After working inside your computer](#).

I/O board

Removing the I/O board

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

Prerequisites

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

2. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
3. Remove the [fan](#).

About this task

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

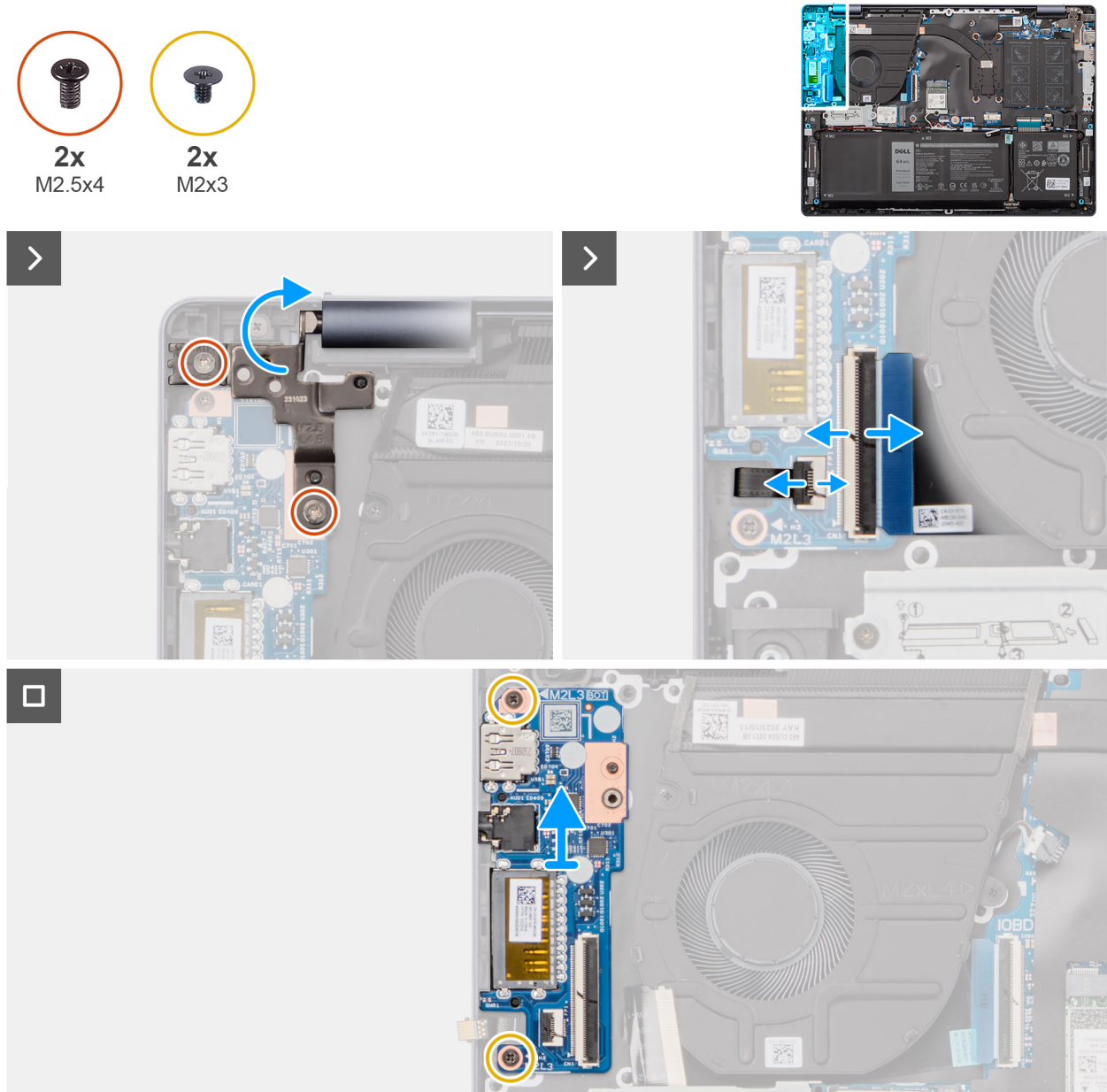


Figure 56. Removing the I/O board

Steps

1. Remove the two screws (M2.5x4) that secure the left display hinge to the I/O board and the palm-rest and keyboard assembly.
2. Using a plastic scribe, lift the left display hinge to an angle of 90 degrees from the palm-rest and keyboard assembly to access the I/O board.
3. Open the latch and disconnect the I/O-board cable from the connector on the I/O board.
4. Open the latch and disconnect the fingerprint-reader cable from the connector on the I/O board.

NOTE: This step applies only to computers shipped with a power button with fingerprint reader installed.

5. Remove the two screws (M2x3) that secure the I/O board to the palm-rest and keyboard assembly.
6. Carefully slide and remove the I/O board at an angle, from the palm-rest and keyboard assembly, to clear the ports from the port slots.

Installing the I/O board

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

Prerequisites

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

About this task

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

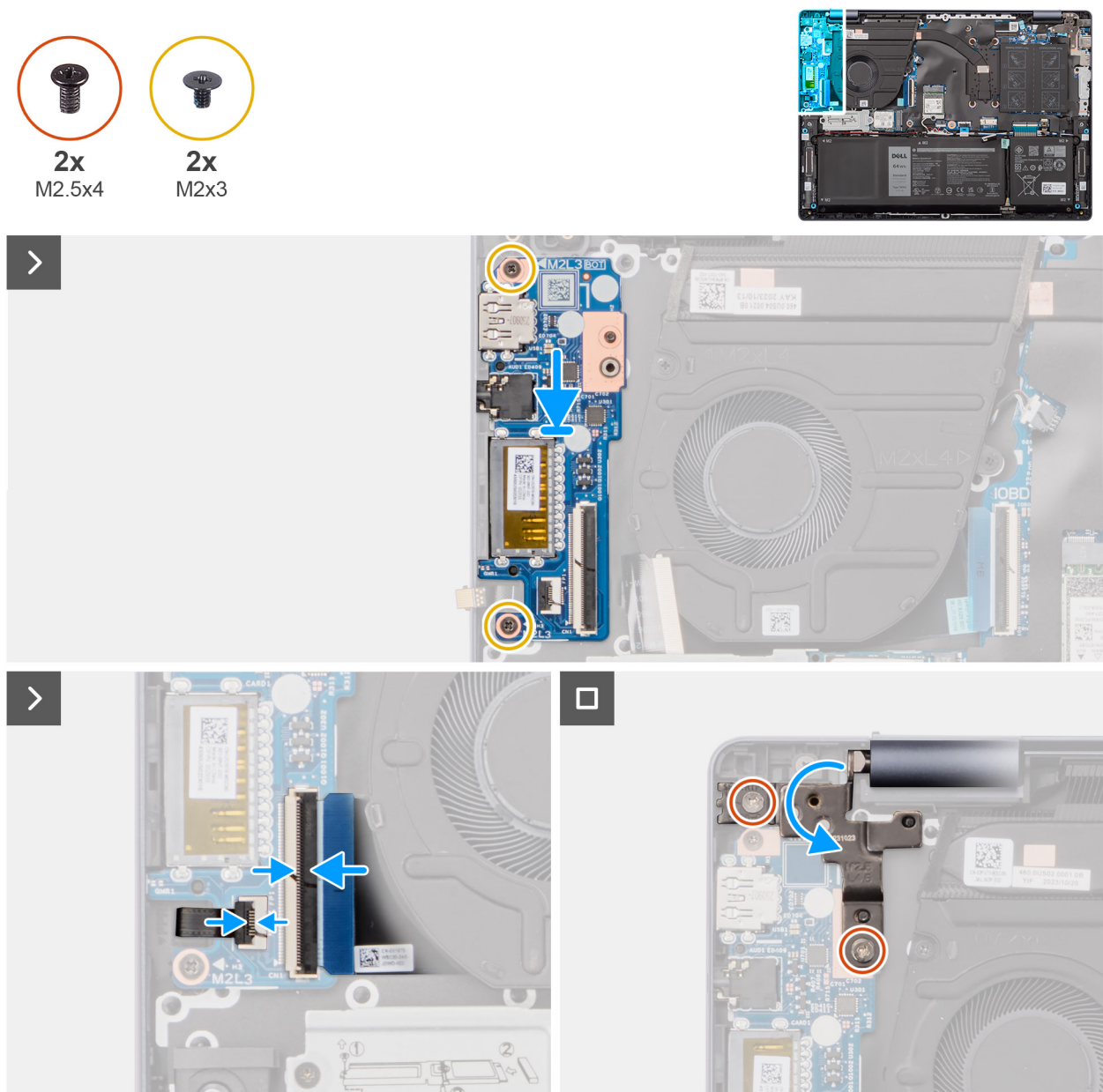



Figure 57. Installing the I/O board

Steps

1. Align the ports on the I/O board with the port slots and place the I/O board on the palm-rest and keyboard assembly.
2. Align the screw holes on the I/O board with the screw holes on the palm-rest and keyboard assembly.
3. Replace the two screws (M2x3) to secure the I/O board to the palm-rest and keyboard assembly.
4. Connect the fingerprint-reader cable to the connector on the I/O board and close the latch.
 **NOTE:** This step applies only to computers shipped with a power button with fingerprint reader installed.
5. Connect the I/O-board cable to the connector on the I/O board and close the latch.
6. Close the left display hinge to align the screw holes on the left display hinge with the screw holes on the I/O board and the palm-rest and keyboard assembly.
7. Replace the two screws (M2.5x4) to secure the left display hinge to the I/O board and the palm-rest and keyboard assembly.

Next steps

1. Install the [fan](#).
2. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
3. Follow the procedure in [After working inside your computer](#).

Power button

Removing the power button

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
3. Remove the [fan](#).
4. 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.

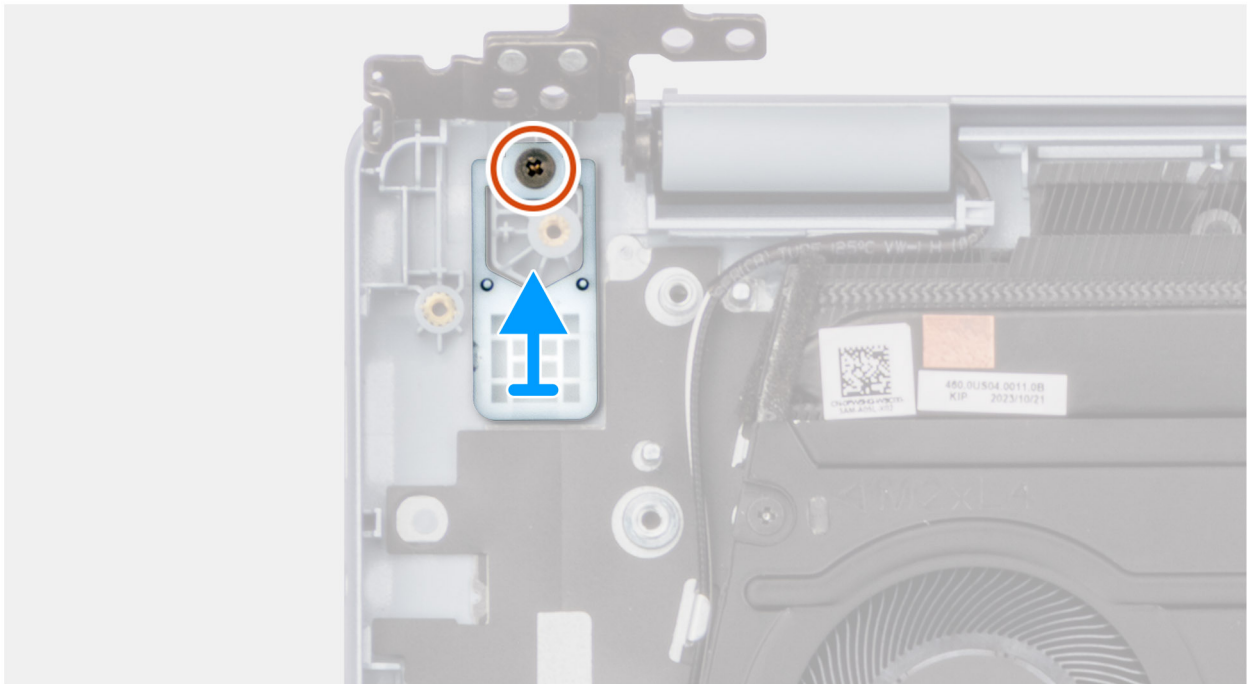
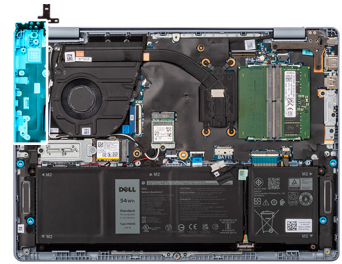


Figure 58. Removing the power button

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 slot on the palm-rest and keyboard assembly.

Installing the power button

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

Prerequisites

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

About this task

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

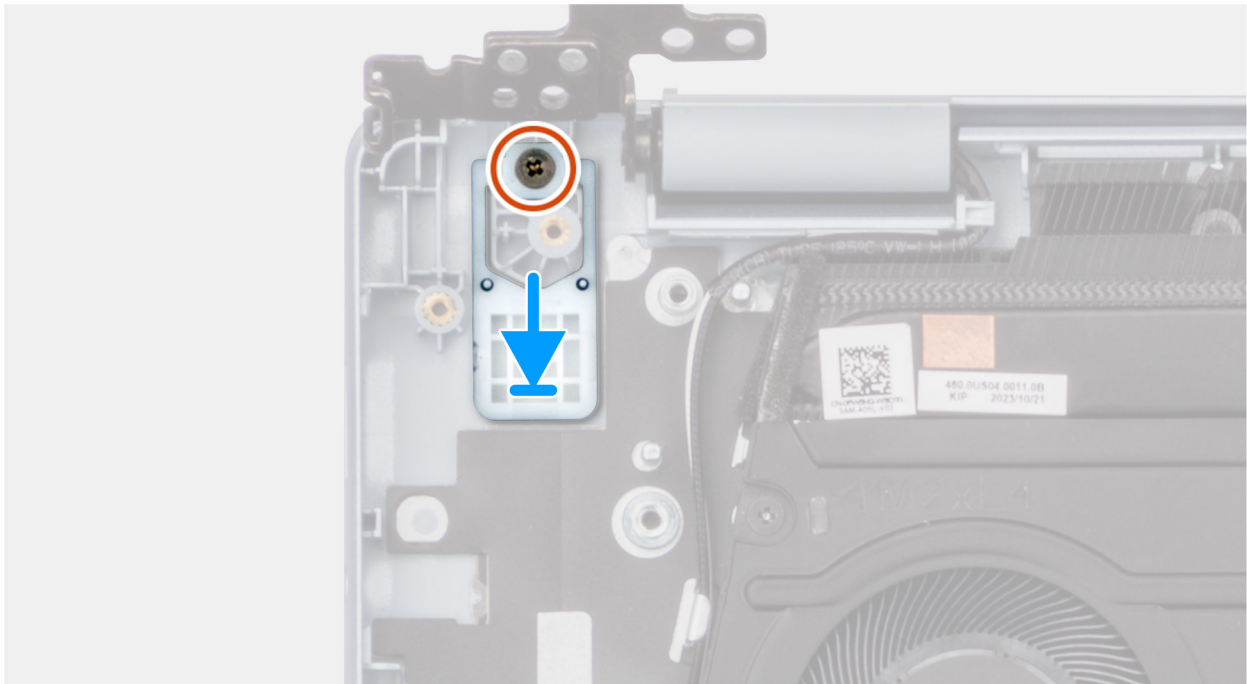
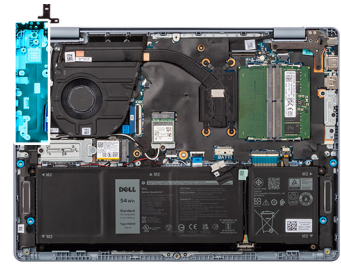


Figure 59. Installing the power button

Steps

1. Place the power button in the 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) to secure the power button to the palm-rest and keyboard assembly.

Next steps

1. Install the [I/O board](#).
2. Install the [fan](#).
3. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
4. Follow the procedure in [After working inside your computer](#).

Power button with optional fingerprint reader

Removing the power button with optional fingerprint reader

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
3. Remove the [fan](#).

4. Remove the I/O board.

About this task

NOTE: For computers shipped with a fingerprint reader, the power button includes a fingerprint reader module.

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

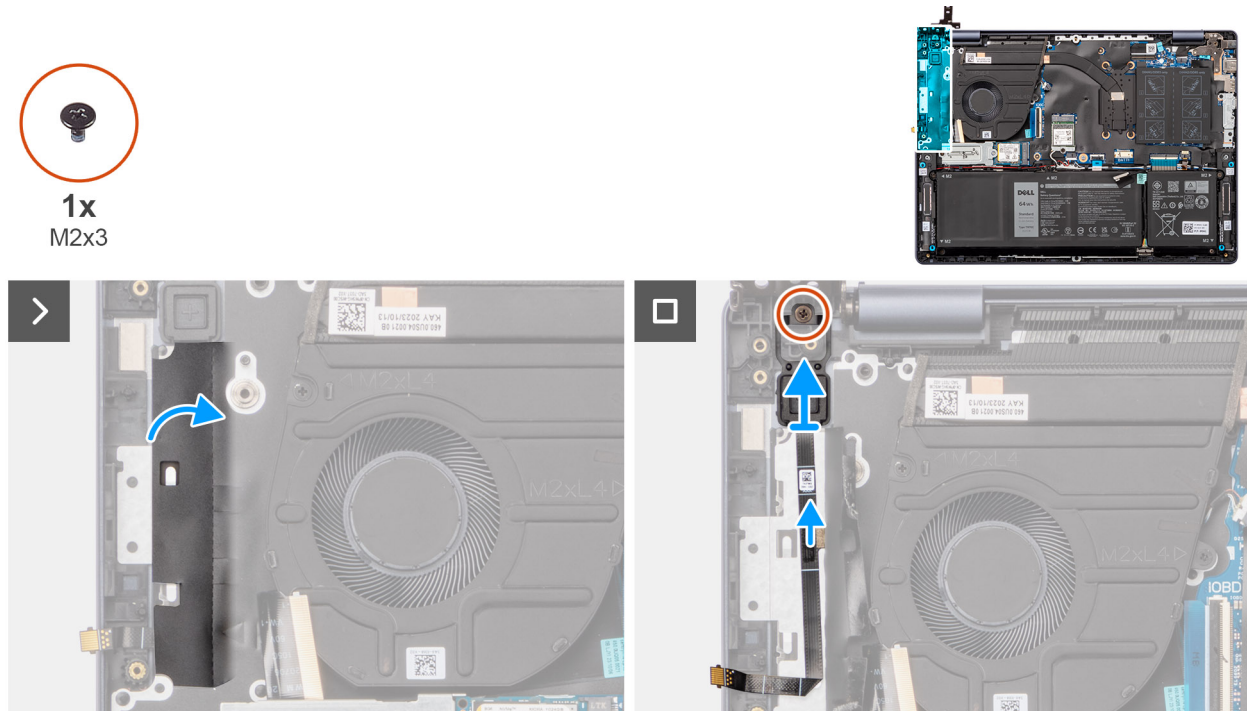


Figure 60. Removing the power button with optional fingerprint reader

Steps

1. Turn over the Mylar sheet to access the fingerprint-reader cable.
2. Carefully peel off the tape that secures the fingerprint-reader cable to the palm-rest and keyboard assembly.
3. Remove the screw (M2x3) that secures the power button with optional fingerprint reader to the palm-rest and keyboard assembly.
4. Lift the power button with optional fingerprint reader off the slot on the palm-rest and keyboard assembly.

Installing the power button with optional fingerprint reader

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

Prerequisites

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

About this task

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



1x
M2x3

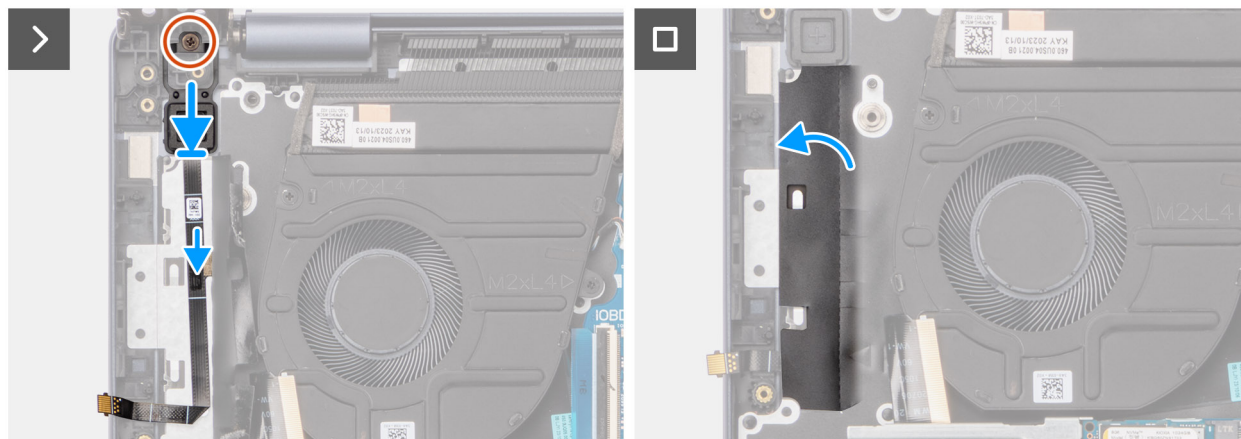
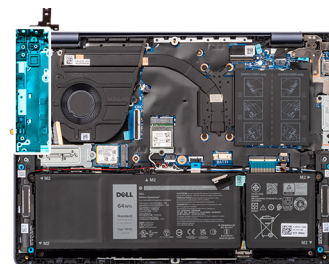


Figure 61. Installing the power button with optional fingerprint reader

Steps

1. Place the power button with optional fingerprint reader in the slot on the palm-rest and keyboard assembly.
2. Align the screw hole on the power button with optional fingerprint reader to the screw hole on the palm-rest and keyboard assembly.
3. Replace the screw (M2x3) to secure the power button with optional fingerprint reader to the palm-rest and keyboard assembly.
4. Adhere the tape to secure the fingerprint-reader cable to the palm-rest and keyboard assembly.
5. Turn over the Mylar sheet to secure the fingerprint-reader cable.

Next steps

1. Install the [I/O board](#).
2. Install the [fan](#).
3. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
4. Follow the procedure in [After working inside your computer](#).

Display assembly

Removing the display assembly

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
3. Remove the [solid-state drive](#).
4. Remove the [wireless card](#).

NOTE: This step applies only to computers shipped with a plastic chassis.

About this task

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

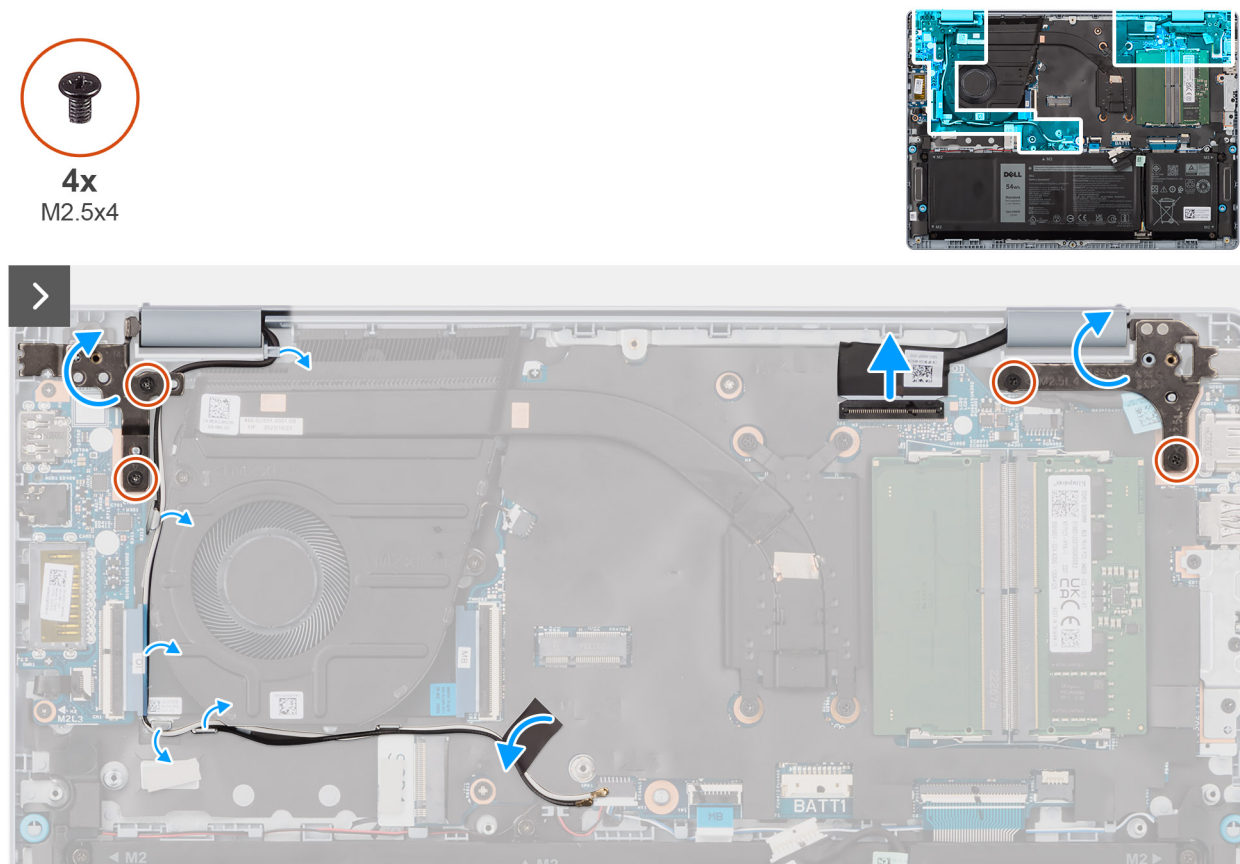


Figure 62. Removing the display assembly

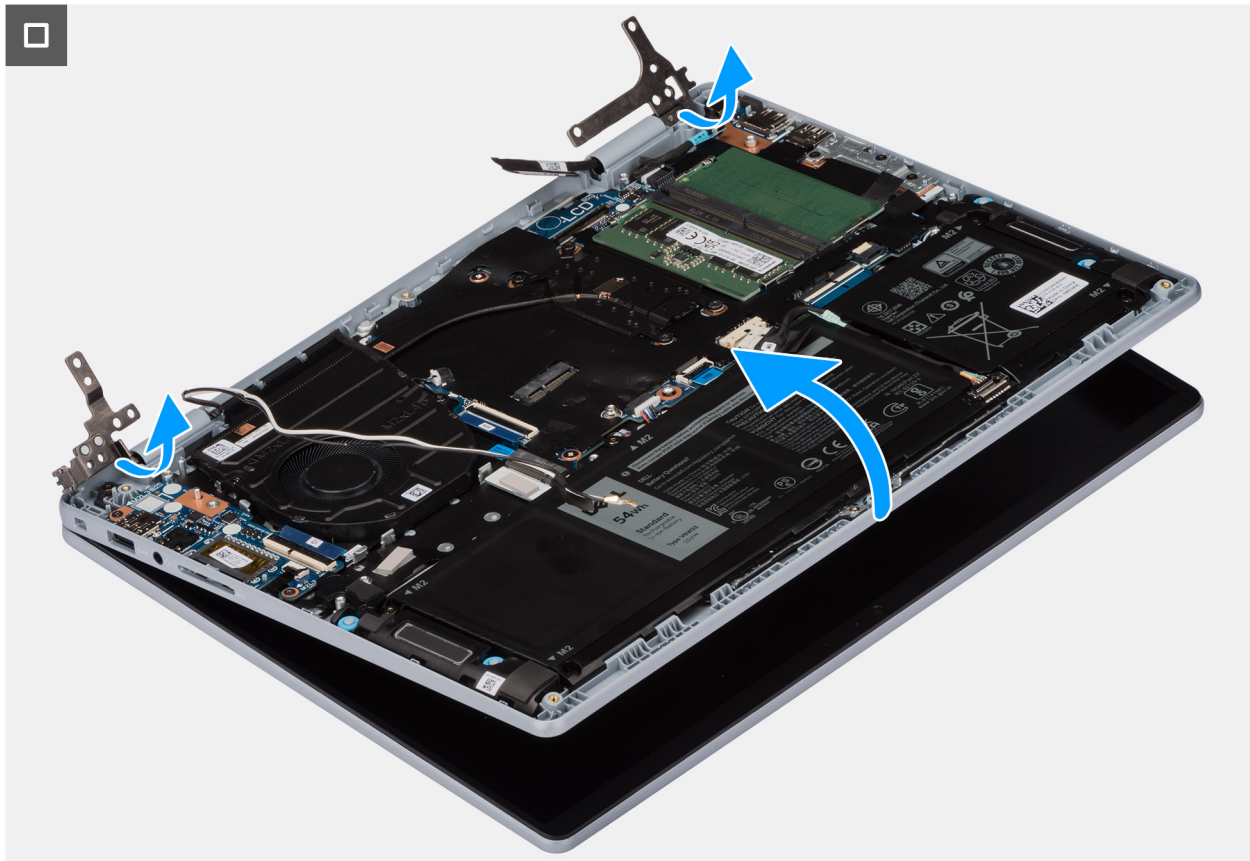


Figure 63. Removing the display assembly



Figure 64. Display assembly (for computers shipped with a plastic chassis)



Figure 65. Display assembly (for computers shipped with an aluminum chassis)

Steps

1. Open the latch and disconnect the display cable from the connector (LCD) on the system board.
2. Remove the two screws (M2.5x4) that secure the right display hinge to the I/O daughter-board and palm-rest and keyboard assembly.
3. Using a plastic scribe, lift the right hinge to an angle of 90 degrees from the palm-rest and keyboard assembly.
4. Remove the two screws (M2.5x4) that secure the left display hinge to the system board and palm-rest and keyboard assembly.
5. Using a plastic scribe, lift the left hinge to an angle of 90 degrees from the palm-rest and keyboard assembly.
6. Peel back the tape that secures the wireless-antenna cables to the system board.

i **NOTE:** This step applies only to computers shipped with a plastic chassis.

7. Remove the wireless-antenna cables from the routing guides on palm-rest and keyboard assembly.

i **NOTE:** This step applies only to computers shipped with a plastic chassis.

8. Gently lift the palm-rest and keyboard assembly at an angle and remove the palm-rest and keyboard assembly from the display assembly.

⚠ CAUTION: To avoid damaging the display, do not slide the palm-rest and keyboard assembly over the display assembly.

i **NOTE:** For computers shipped with an aluminum chassis, the display assembly is a Hinge-Up Design (HUD) and cannot be further disassembled once it has been removed from the computer. If any of the components within the display assembly is faulty, replace the entire display assembly.

Installing the display assembly

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

Prerequisites

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

About this task

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



4x
M2.5x4

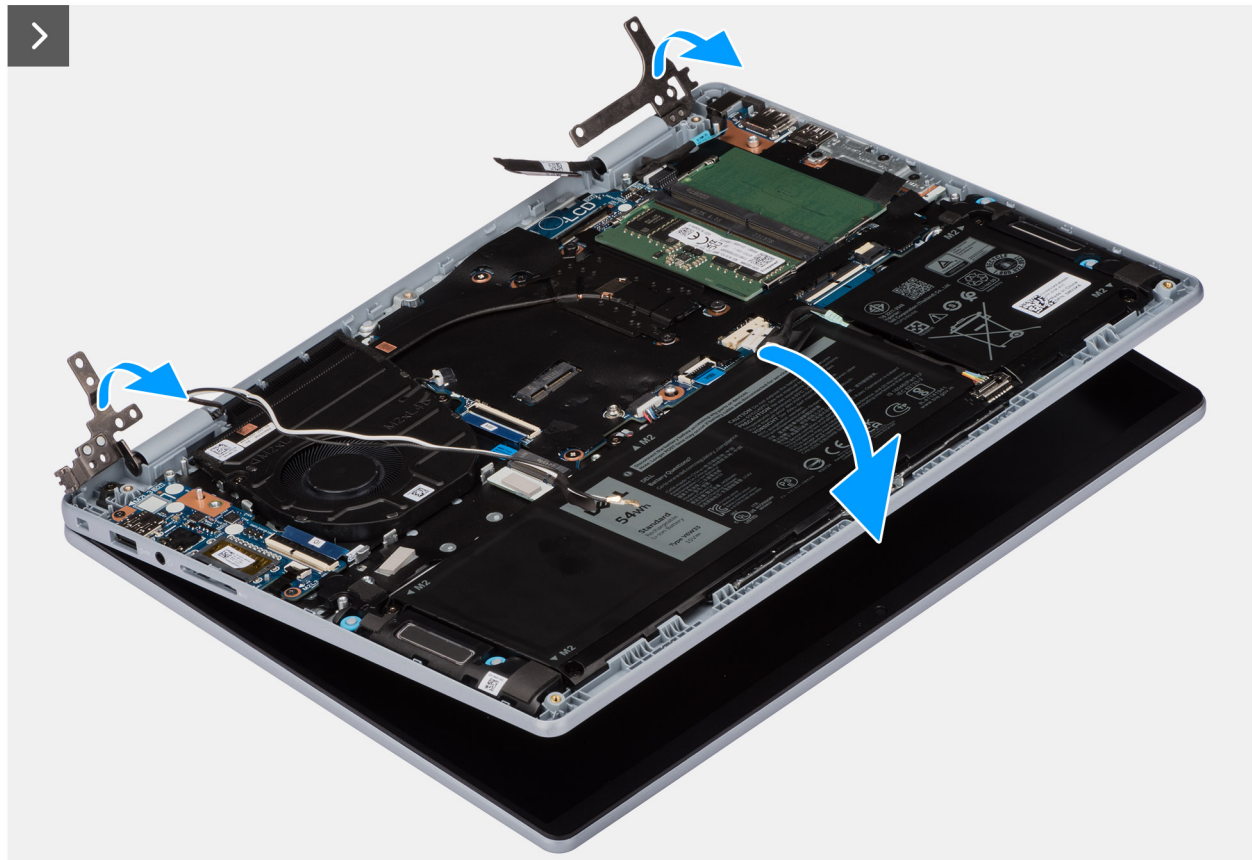
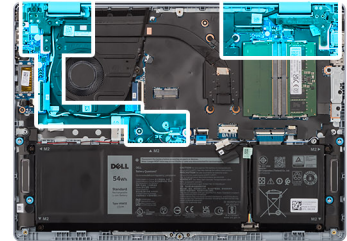


Figure 66. Installing the display assembly

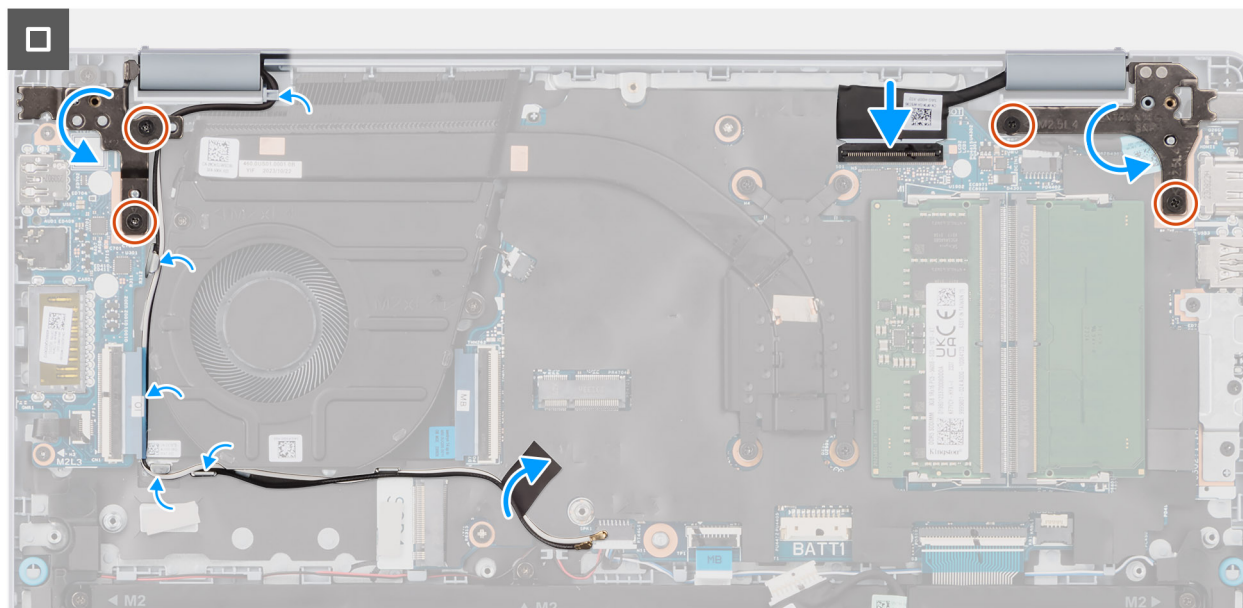


Figure 67. Installing the display assembly

Steps

1. Place the display assembly on a clean and flat surface with the display panel facing up.
2. Hold the palm-rest and keyboard assembly at an angle and slide the palm-rest and keyboard assembly under the display hinges.
CAUTION: To avoid damaging the display, do not slide the palm-rest and keyboard assembly over the display assembly.
3. Route the wireless-antenna cables through the routing guides on the palm-rest and keyboard assembly.
NOTE: This step applies only to computers shipped with a plastic chassis.
4. Adhere the tape to secure the wireless-antenna cables to the system board.
NOTE: This step applies only to computers shipped with a plastic chassis.
5. Gently close the left display hinge and align the screw holes on the left display hinge with the screw holes on the I/O daughter-board and the palm-rest and keyboard assembly.
6. Replace the two screws (M2.5x4) to secure the left display hinge to the I/O daughter-board and the palm-rest and keyboard assembly.
7. Gently close the right display hinge and align the screw holes on the right display hinge with the screw holes on the system board and the palm-rest and keyboard assembly.
8. Replace the two screws (M2.5x4) to secure the right display hinge to the system board and the palm-rest and keyboard assembly.
9. Connect the display cable to the connector (LCD) on the system board and close the latch.

Next steps

1. Install the [wireless card](#).
NOTE: This step applies only to computers shipped with a plastic chassis.
2. Install the [solid-state drive](#).
3. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
4. Follow the procedure in [After working inside your computer](#).

Display bezel

Removing the display bezel (only for computers shipped with a plastic chassis)

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover \(plastic chassis\)](#).
3. Remove the [solid-state drive](#).
4. Remove the [wireless card](#).
5. Remove the [display assembly](#).

About this task

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



Figure 68. Removing the display bezel

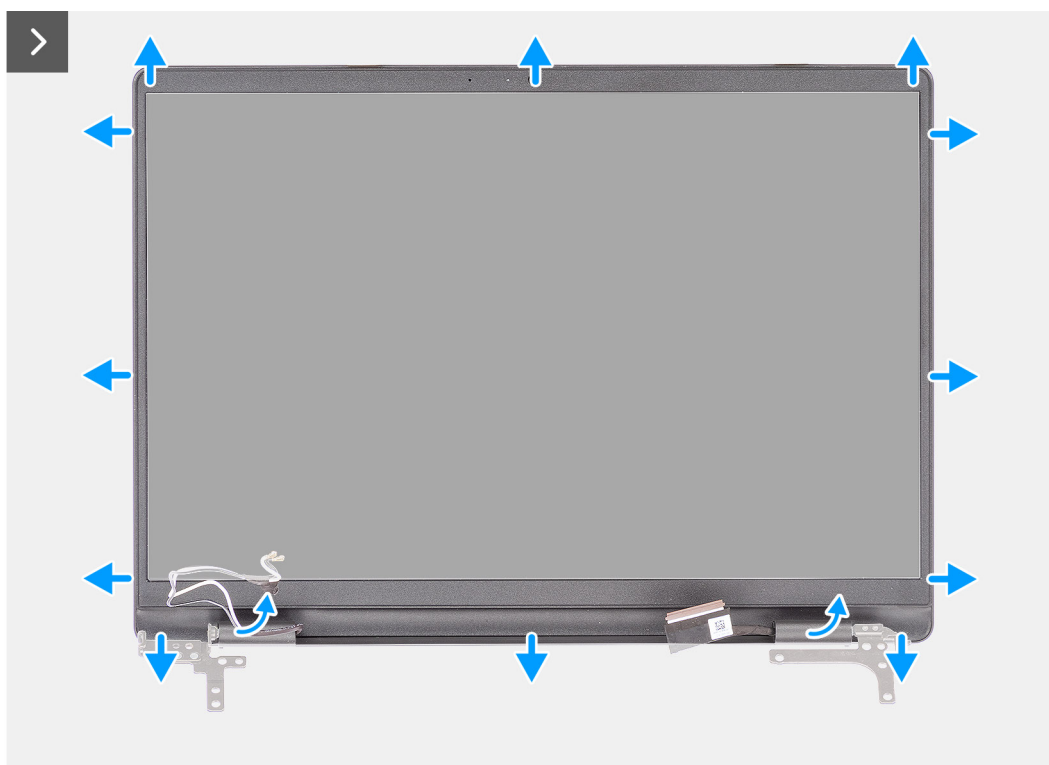


Figure 69. Removing the display bezel




Figure 70. Removing the display bezel

NOTE: The display-hinge caps are a part of the display bezel.

Steps

1. Place the display assembly on a clean, flat surface and gently open the display hinges to at least 90 degrees.

2. Using a plastic scribe, pry open the left display-hinge cap from its right side and pry open the right display-hinge cap from its left side.
3. Carefully pry open the outer edge at the base of the display bezel.
4. Gently pry open the outside edge of the left, right, and top sides of the display bezel.
5. Using your fingers, gently work your way around the display bezel and lift the display bezel off the display assembly.

 **CAUTION:** Do not use a plastic scribe or any other objects to pry up the display bezel in the manner shown below, as the pressure applied on the display panel by the scribe may damage the display panel.

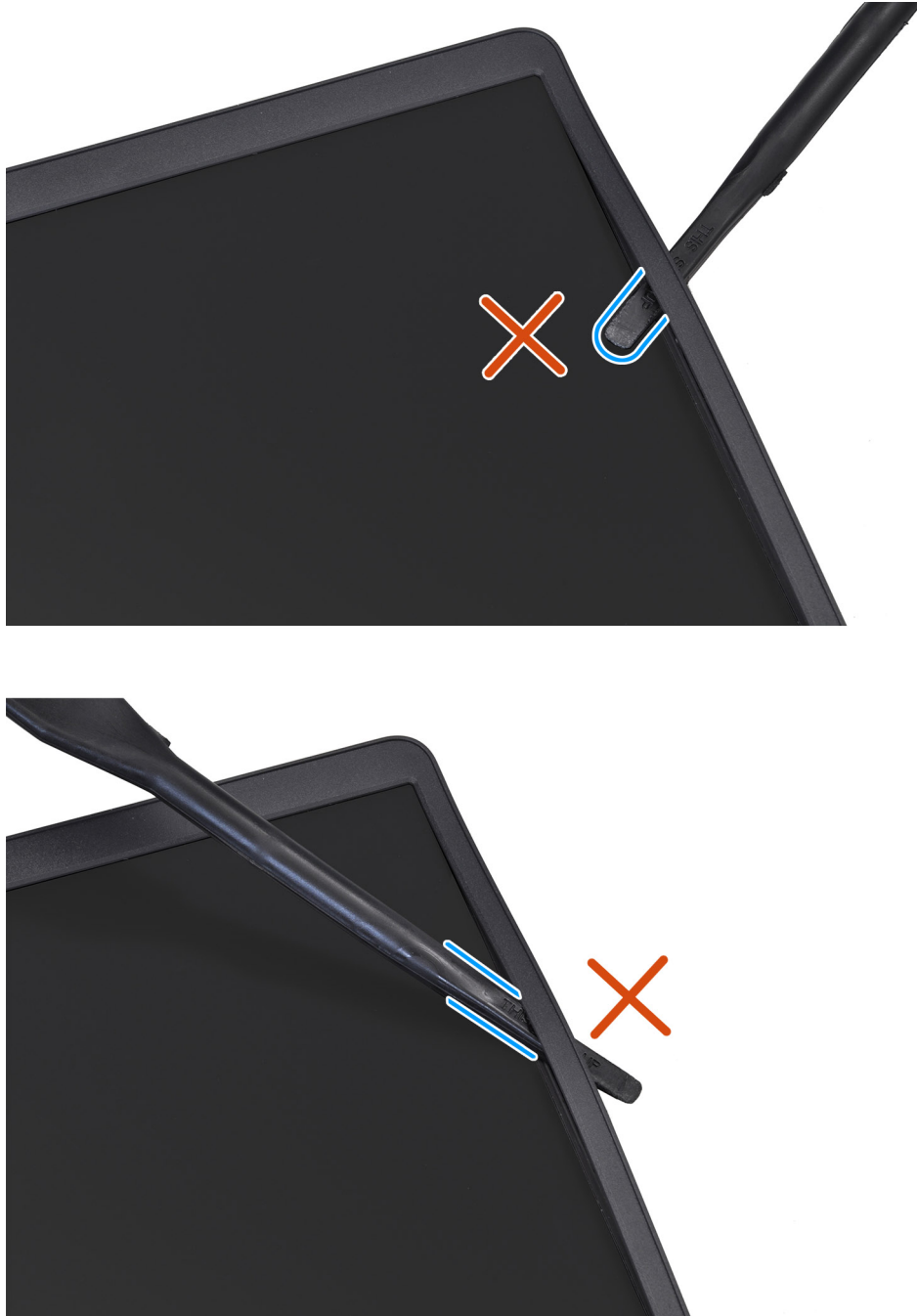


Figure 71. Removing the display bezel

Installing the display bezel (only for computers shipped with a plastic chassis)

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

Prerequisites

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

About this task

The following image indicates the location of the display bezel and provides a visual representation of the installation procedure.



Figure 72. Installing the display bezel

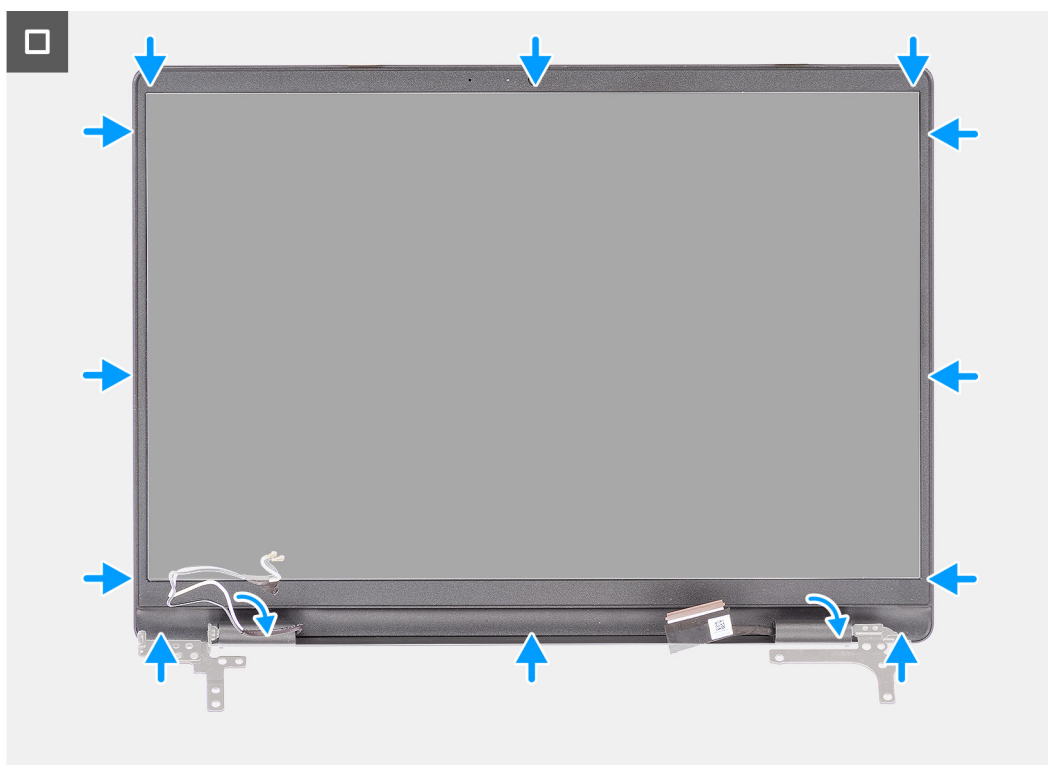


Figure 73. Installing the display bezel

NOTE: The display-hinge caps are a part of the display bezel.

Steps

1. Place the display assembly on a clean and flat surface.
2. Align and place the display bezel on the display assembly.
3. Press the display-hinge caps down on the display hinges, until they click in place.
4. Starting from the bottom corner, press the display bezel and work around the entire bezel until it snaps onto the display assembly.

Next steps

1. Install the [display assembly](#).
2. Install the [wireless card](#).
3. Install the [solid-state drive](#).
4. Install the [base cover \(plastic chassis\)](#).
5. Follow the procedure in [After working inside your computer](#).

Display panel

Removing the display panel (only for computers shipped with a plastic chassis)

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

Prerequisites

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

2. Remove the [base cover \(plastic chassis\)](#).
3. Remove the [solid-state drive](#).
4. Remove the [wireless card](#).
5. Remove the [display assembly](#).
6. Remove the [display bezel](#).

About this task

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

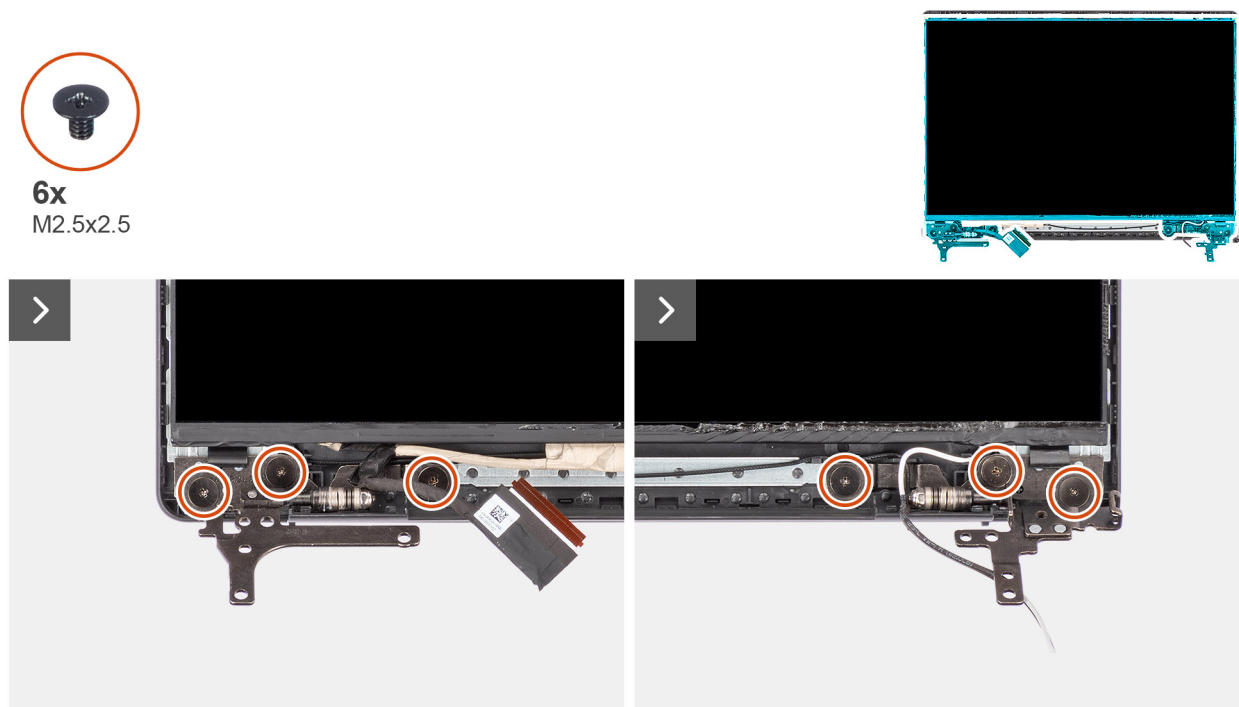


Figure 74. Removing the display panel

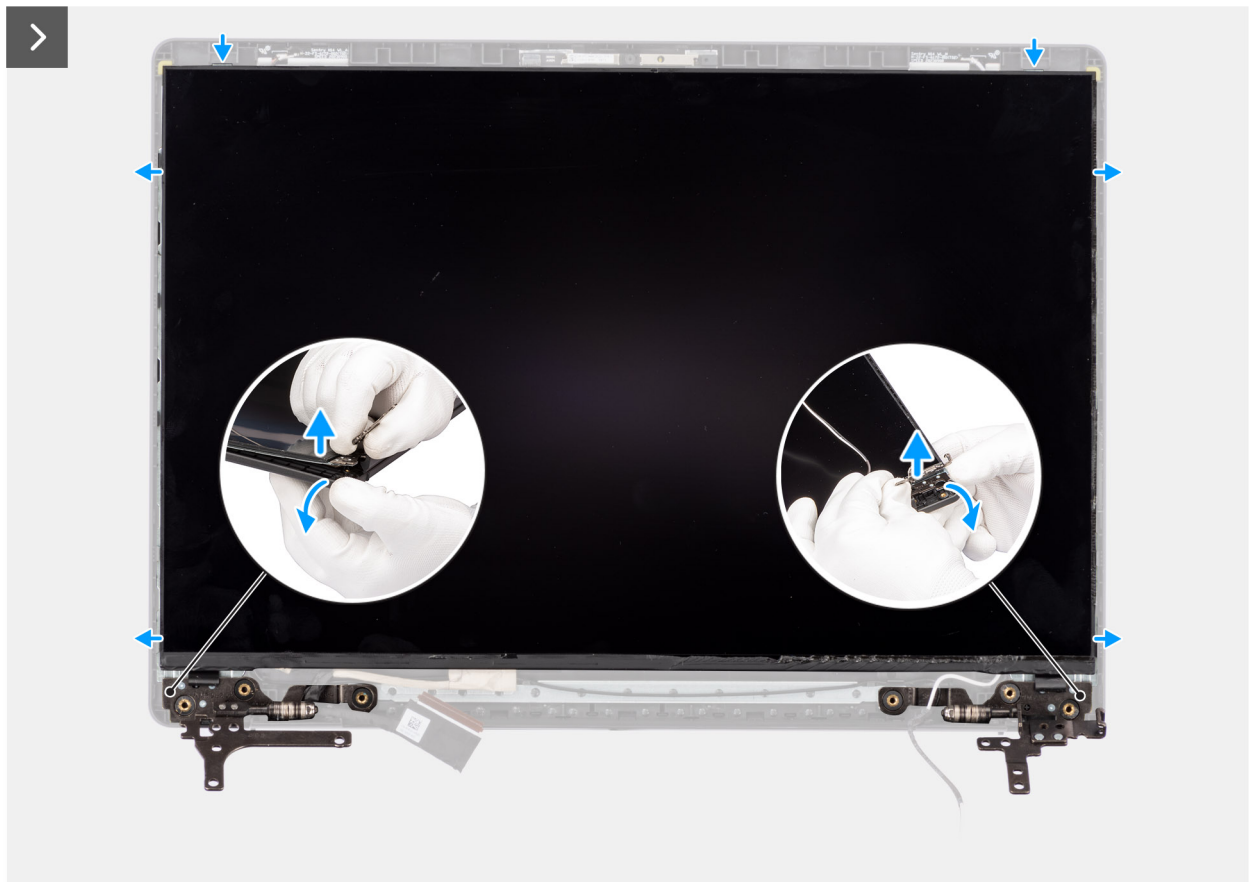


Figure 75. Removing the display panel



Figure 76. Removing the display panel

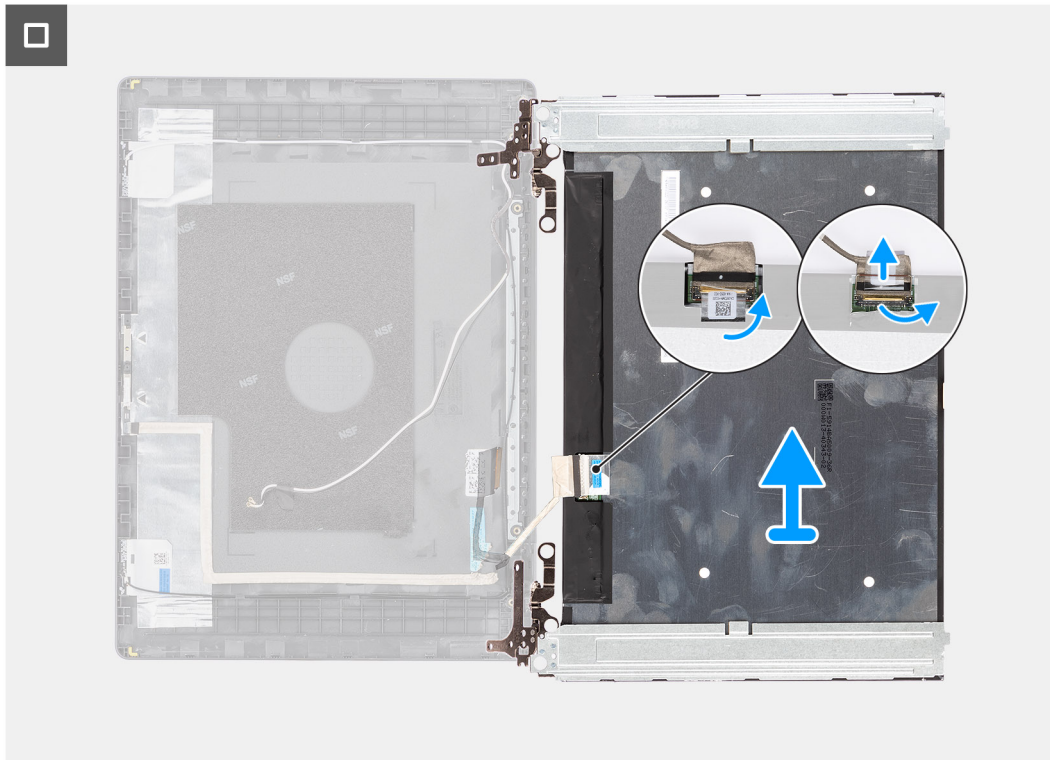


Figure 77. Removing the display panel

NOTE: The display panel is assembled with the display brackets and display hinges as a single service part.

Steps

1. Remove the six screws (M2.5x2.5) that secure the display hinges to the display back-cover and antenna assembly.
2. Using a plastic scribe, pry the display hinges from the corners to release them from the display back-cover and antenna assembly.
3. Holding the right display hinge, gently bend the bottom corner of the display back-cover and antenna assembly to release the right display hinge.
4. Repeat step 3 to release the left display hinge from the display back-cover and antenna assembly.
5. Holding the display hinges, slide the display panel down to release it from the securing tabs on the top of the display back-cover and antenna assembly.
6. Gently flip the display panel assembly forward and place the display panel assembly, facing down, on a flat surface.

CAUTION: Ensure that the panel has a clean and smooth surface to rest on, to prevent damage.

7. Peel back the tape that secures the display cable to the connector on the rear of the display panel.
8. Lift the latch and disconnect the display cable from the connector on the display panel and remove the display panel.

CAUTION: The display panel is assembled with the display brackets and display hinges as a single service part. Do not pull the two pieces of elastic tape and separate the brackets from the panel.



Figure 78. Removing the display panel

Installing the display panel (only for computers shipped with a plastic chassis)

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

Prerequisites

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

About this task

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



6x
M2.5x2.5

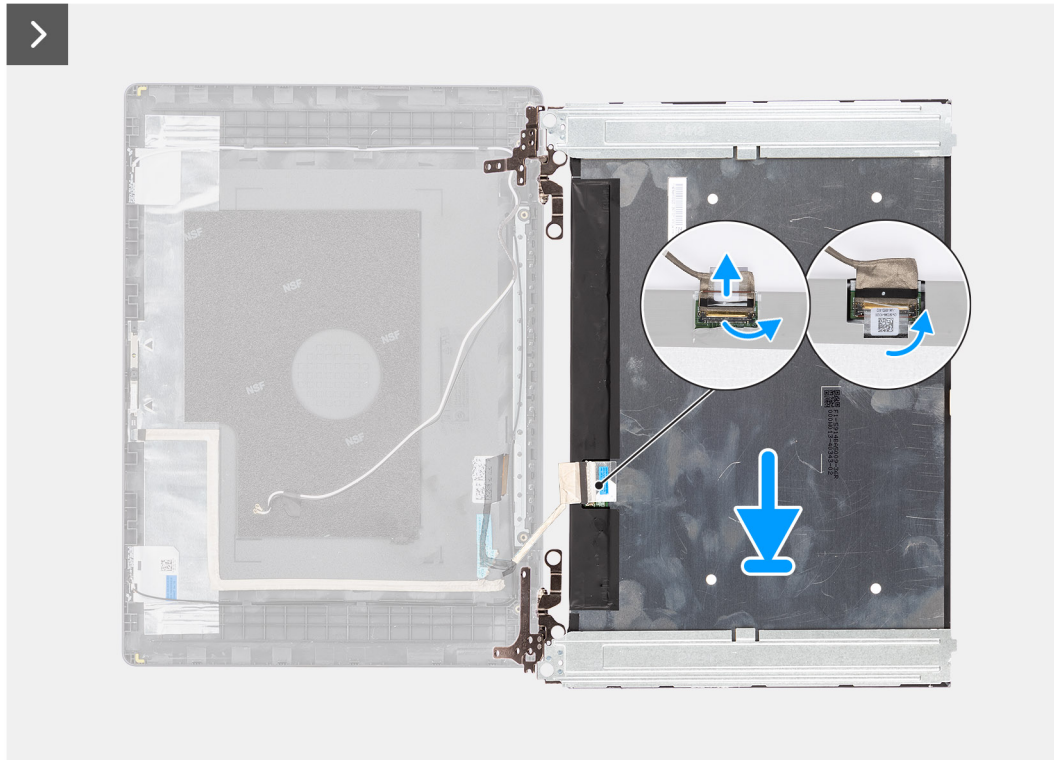
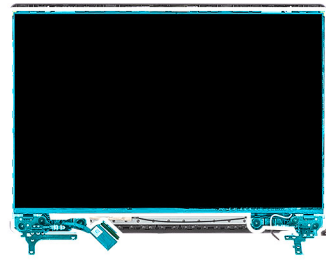


Figure 79. Installing the display panel



Figure 80. Installing the display panel

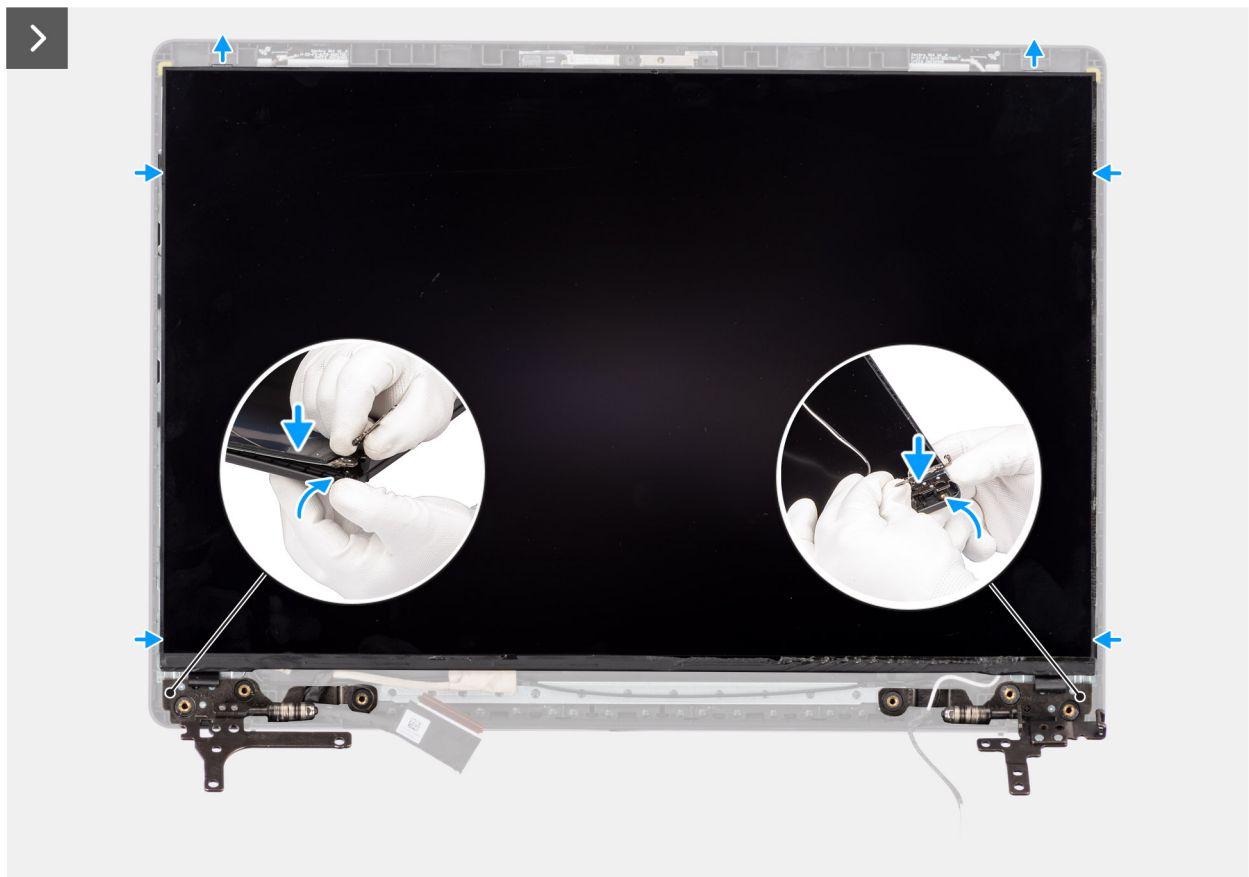


Figure 81. Installing the display panel



Figure 82. Installing the display panel

NOTE: The display panel is assembled with the display brackets and display hinges as a single service part.

Steps

1. Place the display panel and display back-cover on a clean and flat surface.

CAUTION: Ensure that the display panel is facing down and has a clean and smooth surface to rest on, to prevent damage.

2. Connect the display cable to the connector on the display panel and close the latch.
3. Adhere the tape to secure the display cable to the connector on the display panel.
4. Gently turn the display panel over and place the display panel on the display back-cover.
5. Holding the display hinges, lift the display panel and slide the metal-bracket extensions into the slots at the top edge of the display back-cover and antenna assembly.
6. Gently bend the bottom corner of the display back-cover and antenna assembly and push down on the right display hinges until it is secured in place on the display back-cover and antenna assembly.
7. Repeat step 6 to secure left display hinge in place on the display back-cover and antenna assembly.
8. Replace the six screws (M2.5x2.5) to secure the display hinges to the display back-cover and antenna assembly.

Next steps

1. Install the [display bezel](#).
2. Install the [display assembly](#).
3. Install the [wireless card](#).
4. Install the [solid-state drive](#).
5. Install the [base cover \(plastic chassis\)](#).
6. Follow the procedure in [After working inside your computer](#).

Display cable

Removing the display cable (only for computers shipped with a plastic chassis)

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover \(plastic chassis\)](#).

3. Remove the [solid-state drive](#).
4. Remove the [wireless card](#).
5. Remove the [display assembly](#).
6. Remove the [display bezel](#).
7. Remove the [display panel](#).

About this task

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

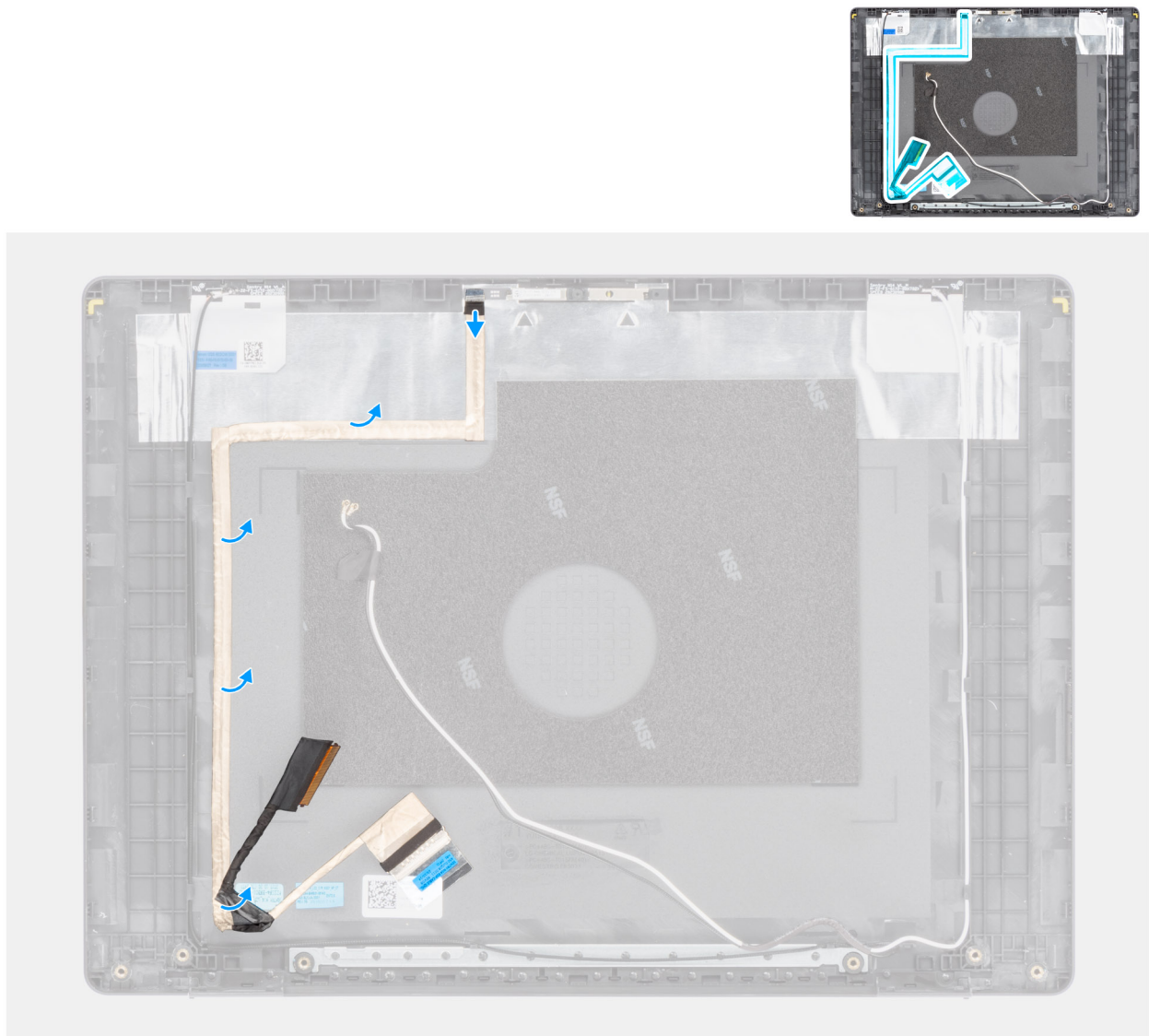


Figure 83. Removing the display cable

Steps

1. Disconnect the display eDP cable from the connector on the camera module.
2. Carefully peel back and remove the display eDP cable from the display back-cover and antenna assembly.

Installing the display cable (only for computers shipped with a plastic chassis)

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

Prerequisites

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

About this task

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

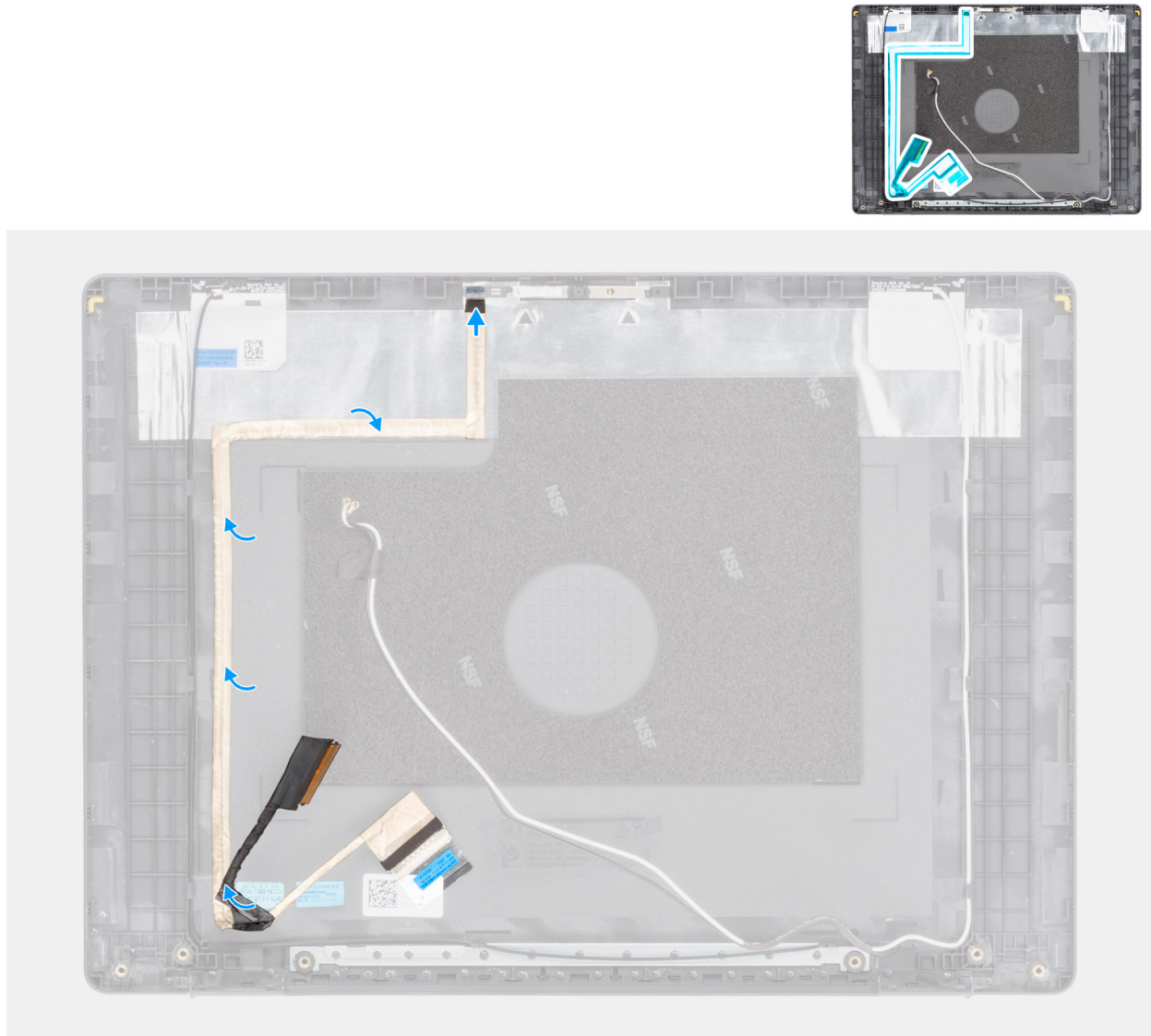


Figure 84. Installing the display cable

Steps

1. Adhere the display eDP cable to the display back-cover and antenna assembly.
2. Connect the display eDP cable to the connector on the camera module.

Next steps

1. Install the [display panel](#).
2. Install the [display bezel](#).
3. Install the [display assembly](#).
4. Install the [wireless card](#).
5. Install the [solid-state drive](#).
6. Install the [base cover \(plastic chassis\)](#).
7. Follow the procedure in [After working inside your computer](#).

Camera

Removing the camera (only for computers shipped with a plastic chassis)

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover \(plastic chassis\)](#).
3. Remove the [solid-state drive](#).
4. Remove the [wireless card](#).
5. Remove the [display assembly](#).
6. Remove the [display bezel](#).
7. Remove the [display panel](#).

About this task

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

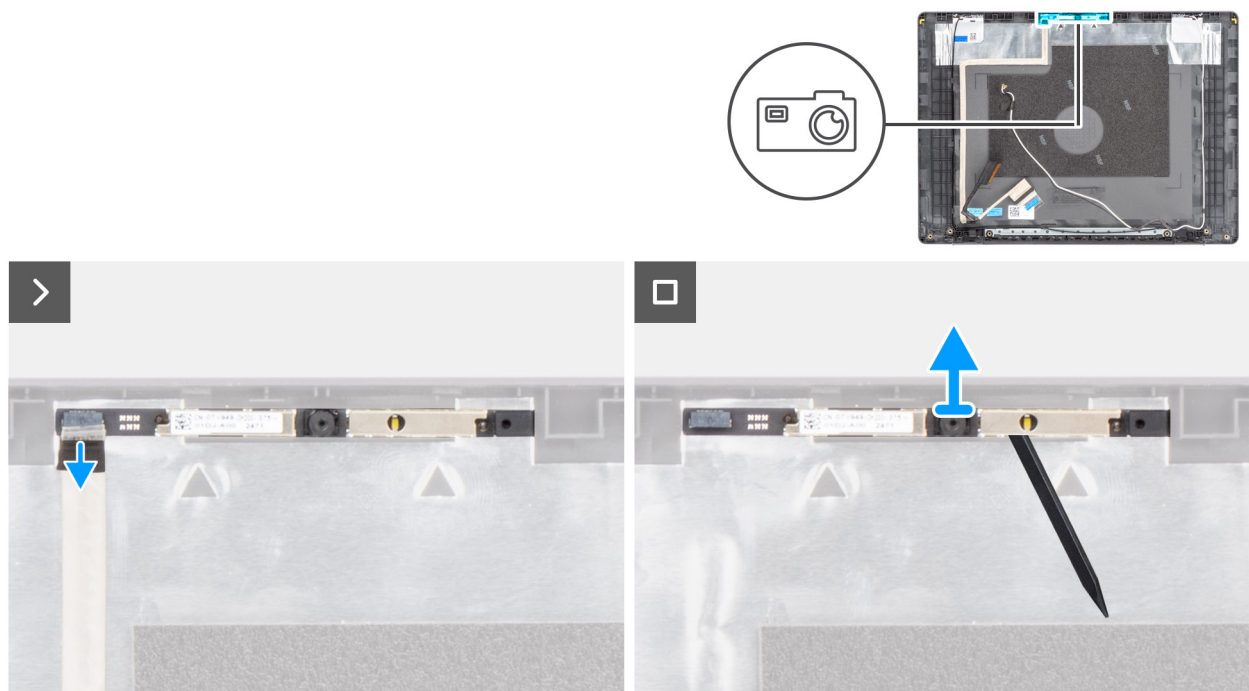


Figure 85. Removing the camera

Steps

1. Disconnect the display eDP cable from the connector on the camera module.
2. Using a plastic scribe, gently pry the camera off the display back-cover and antenna assembly.
3. Remove the camera module from the display assembly.

Installing the camera (only for computers shipped with a plastic chassis)

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

Prerequisites

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

About this task

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

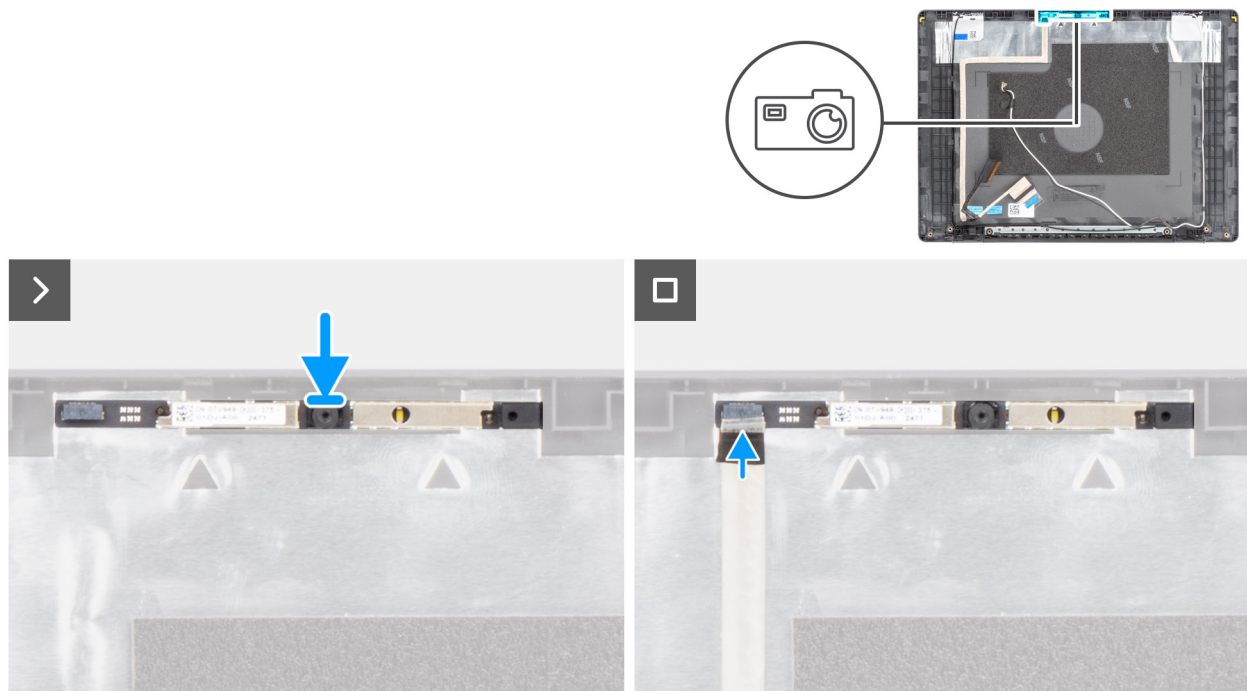


Figure 86. Installing the camera

Steps

1. Using the alignment post, adhere the camera module on the display back-cover and antenna assembly.
2. Connect the display eDP cable to the connector on the camera module.

Next steps

1. Install the [display panel](#).
2. Install the [display bezel](#).
3. Install the [display assembly](#).
4. Install the [wireless card](#).
5. Install the [solid-state drive](#).
6. Install the [base cover \(plastic chassis\)](#).
7. Follow the procedure in [After working inside your computer](#).

Display back-cover and antenna assembly


Removing the display back-cover and antenna assembly (only for computers shipped with a plastic chassis)

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#) (plastic chassis).
3. Remove the [solid-state drive](#).
4. Remove the [wireless card](#).
5. Remove the [display assembly](#).
6. Remove the [display bezel](#).
7. Remove the [display panel](#).
8. Remove the [display cable](#).
9. Remove the [camera](#).

About this task

 **NOTE:** The display back-cover and antenna assembly cannot be further disassembled once all the **Prerequisites** are completed. If the wireless antennas are malfunctioning and are required to be replaced, replace the entire display back-cover and antenna assembly.

The image below shows the display back-cover and antenna assembly after the **Prerequisites** have been performed.



Figure 87. Display back-cover and antenna assembly

Steps

After performing the **Prerequisites**, you are left with the display back-cover and antenna assembly.

Installing the display back-cover and antenna assembly (only for computers shipped with a plastic chassis)

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

Prerequisites

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

About this task

The following image indicates the location of the display back-cover and antenna assembly and provides a visual representation of the installation procedure.

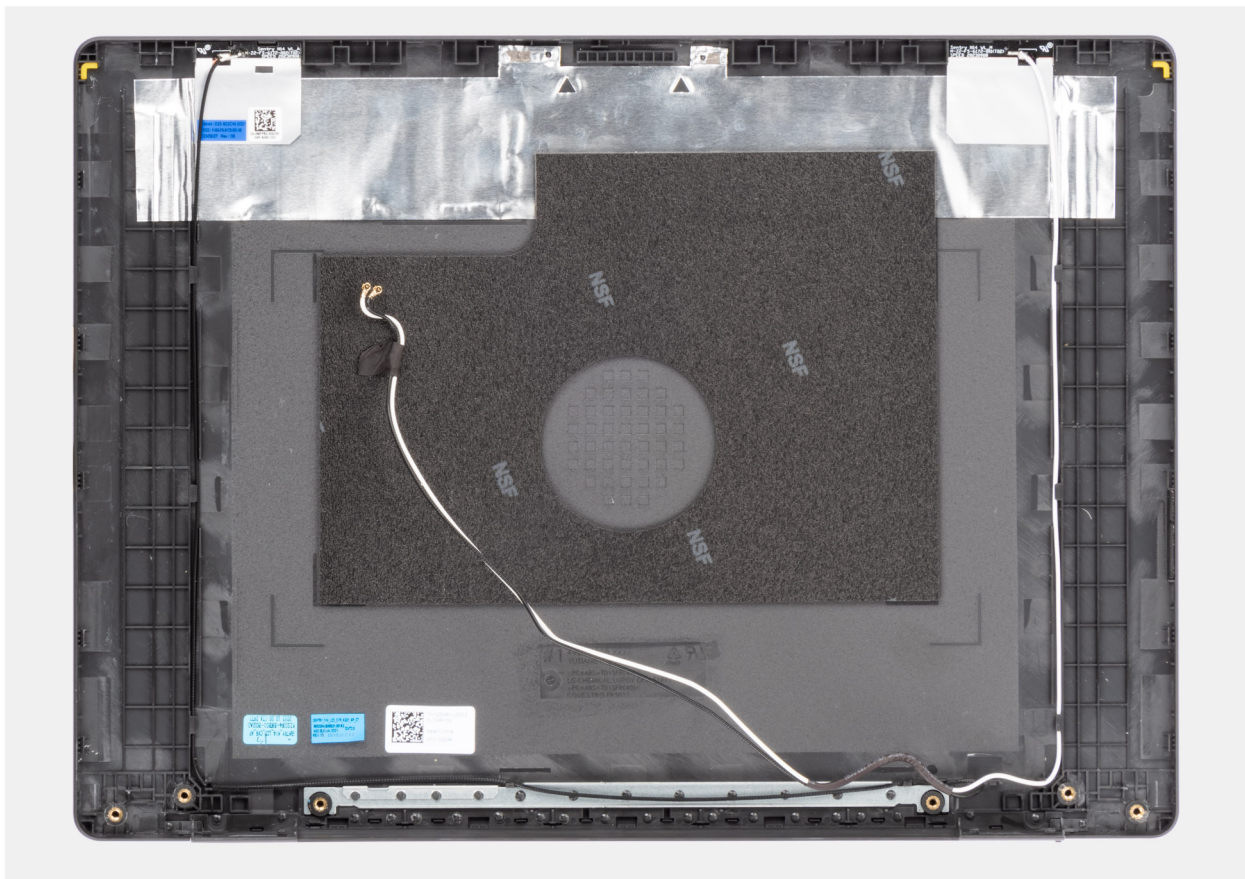


Figure 88. Display back-cover and antenna assembly

Steps

Place the display back-cover and antenna assembly on a flat surface and perform the **Next steps** to install the display back-cover and antenna assembly.

Next steps

1. Install the [camera](#).
2. Install the [display cable](#).
3. Install the [display panel](#).
4. Install the [display bezel](#).

5. Install the [display assembly](#).
6. Install the [wireless card](#).
7. Install the [solid-state drive](#).
8. Install the [base cover \(plastic chassis\)](#).
9. Follow the procedure in [After working inside your computer](#).


System board

Removing the system board

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
3. Remove the [memory module](#).
4. Remove the [solid-state drive](#).
5. Remove the [wireless card](#).
6. Remove the [fan](#).
7. Remove the [3-cell battery](#) or the [4-cell battery](#), whichever is applicable.
8. Remove the [heat sink](#).

 **NOTE:** The system board can be removed and installed along with the heat sink, when replacing the palm-rest and keyboard assembly. This simplifies the removal and installation procedure and prevents damage to the thermal bond between the system board and heat sink.

About this task

The following image indicates the connectors on your system board.

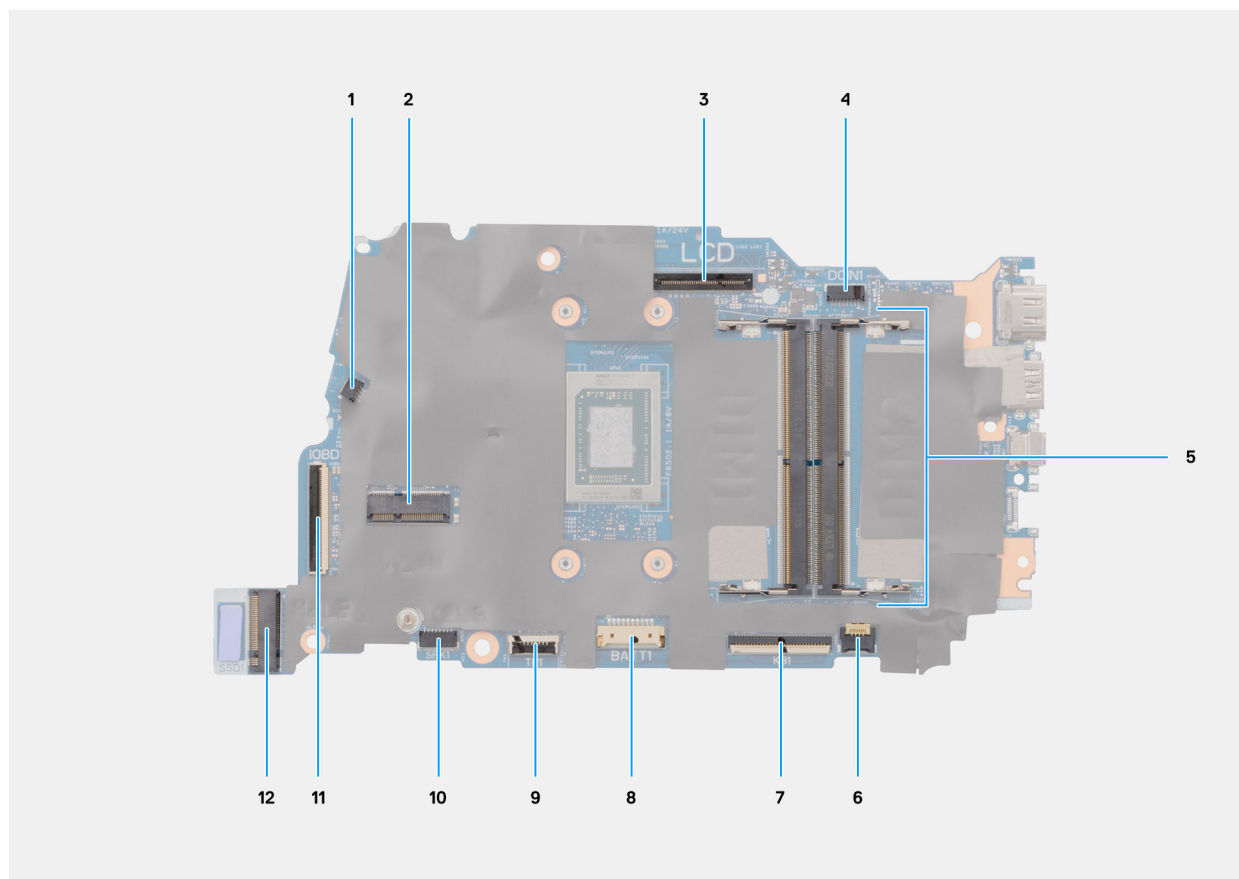


Figure 89. System board connectors

1. Fan cable connector (FAN1)
2. Wireless card connector (WLAN1)
3. eDP cable connector (LCD)
4. Power-adaptor port connector (DCIN1)
5. Memory module connector (DIMM1 and DIMM2)
6. Keyboard-backlight cable connector (KBBL1)
7. Keyboard cable connector (KB1)
8. Battery connector (BATT1)
9. Touchpad cable connector (TP1)
10. Speaker cable connector (SPK1)
11. I/O-board cable connector (IOBD1)
12. Solid-state drive connector (SSD1)

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

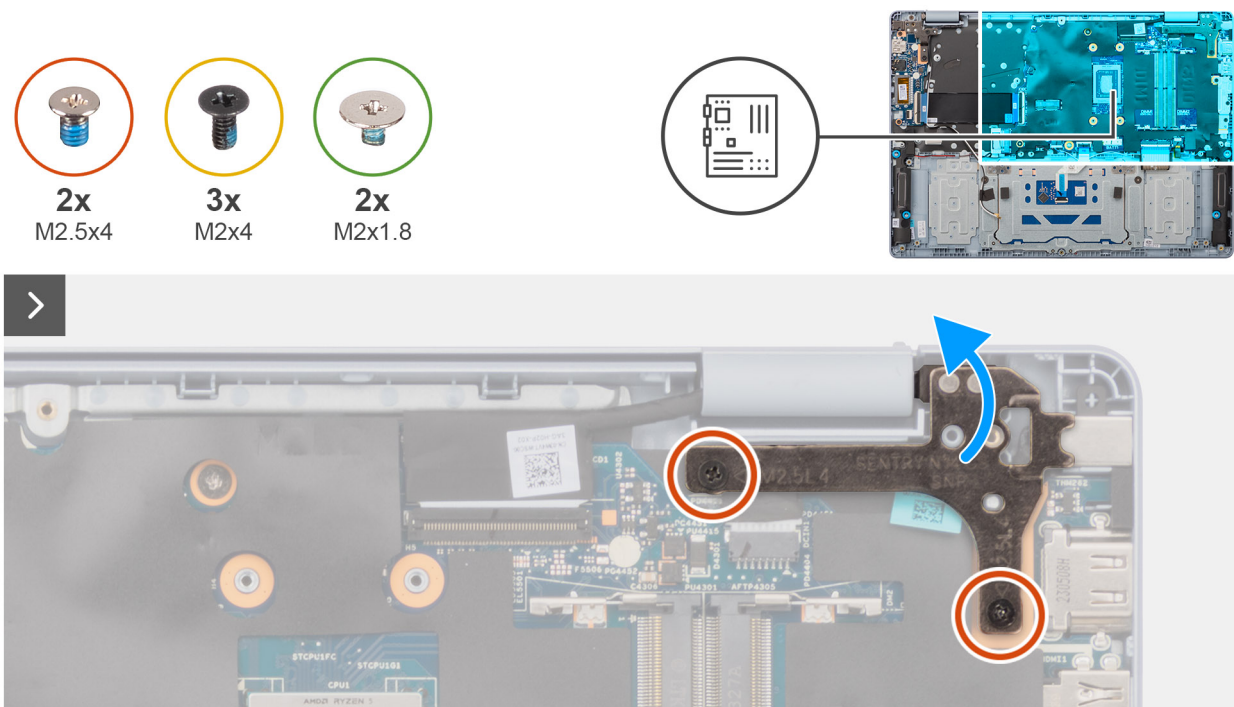


Figure 90. Removing the system board

Steps

1. Remove the two screws (M2.5x4) that secure the right display hinge to the system board and the palm-rest and keyboard assembly.
2. Using a plastic scribe, lift the right display hinge to an angle of 90 degrees from the palm-rest and keyboard assembly.
3. Disconnect the following cables from the system board:
 - a. I/O-board cable (IOBD1)
 - b. eDP cable (LCD)
 - c. Power-adaptor port cable (DCIN1)
 - d. Keyboard-backlight cable (KBBL1)

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

- e. Keyboard cable (KB1)
- f. Touchpad cable (TP1)
- g. Speaker cable (SPK1)

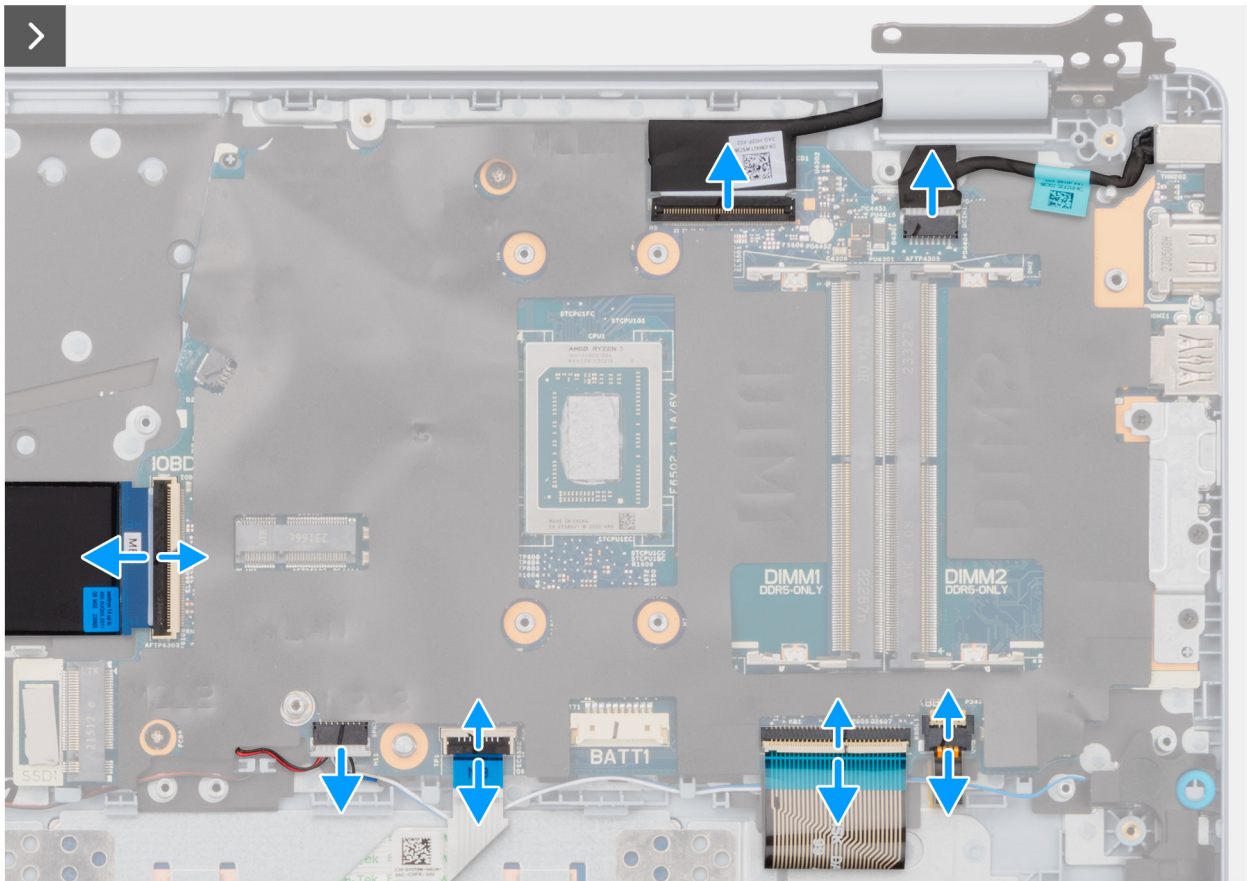


Figure 91. Removing the system board

4. For computers shipped with a plastic chassis, remove the three screws (M2x4) that secure the USB Type-C port bracket to the system board.

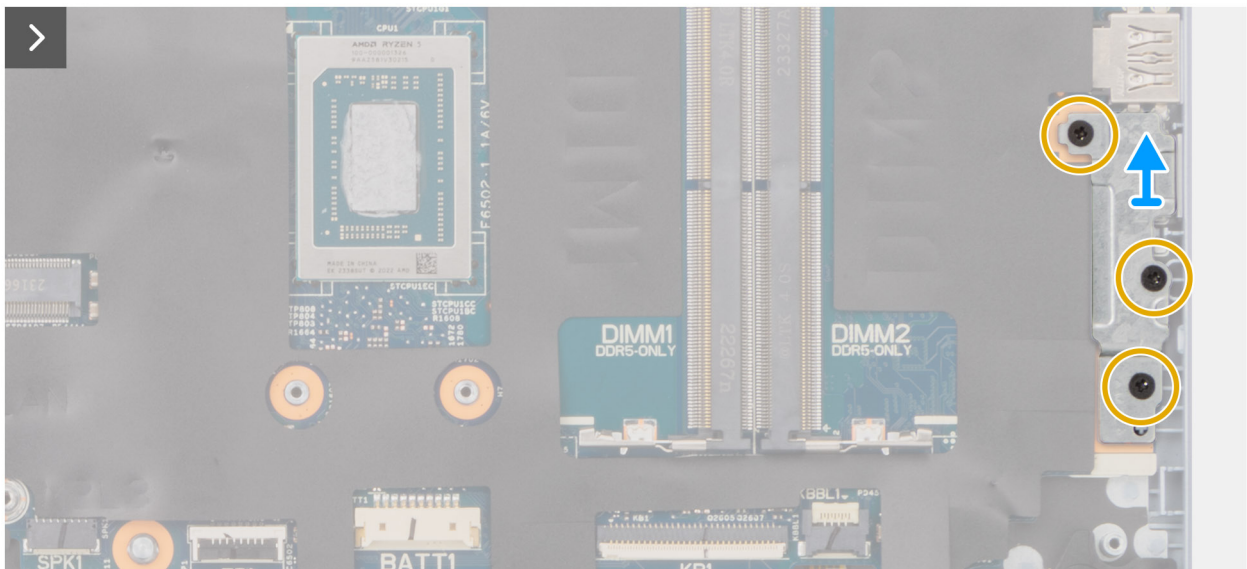


Figure 92. Removing the system board (for computers shipped with a plastic chassis)

5. For computers shipped with an aluminum chassis, remove the two screws (M2x4) that secure the USB Type-C port bracket to the system board.

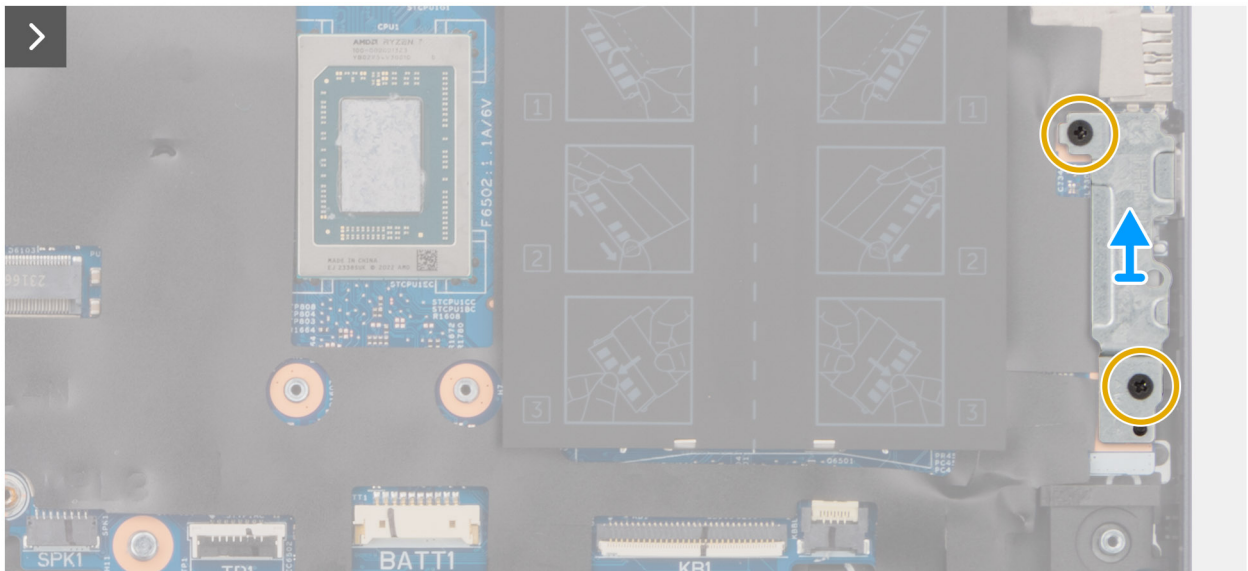


Figure 93. Removing the system board (for computers shipped with an aluminum chassis)

6. Lift and remove the USB Type-C port bracket from the system board.
7. Remove the two screws (M2x1.8) that secure the system board to the palm-rest and keyboard assembly.

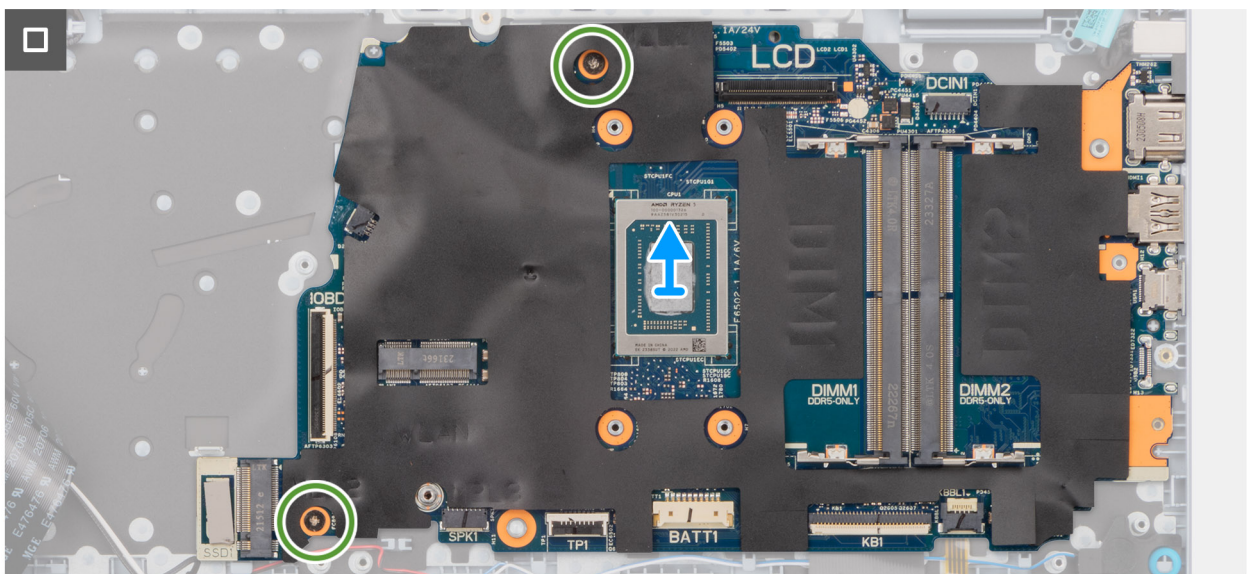


Figure 94. Removing the system board

8. Carefully lift and remove the system board at angle, from the palm-rest and keyboard assembly, to clear the ports from the port slots.

Installing the system board

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

Prerequisites

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

About this task

The following image indicates the connectors on your system board.

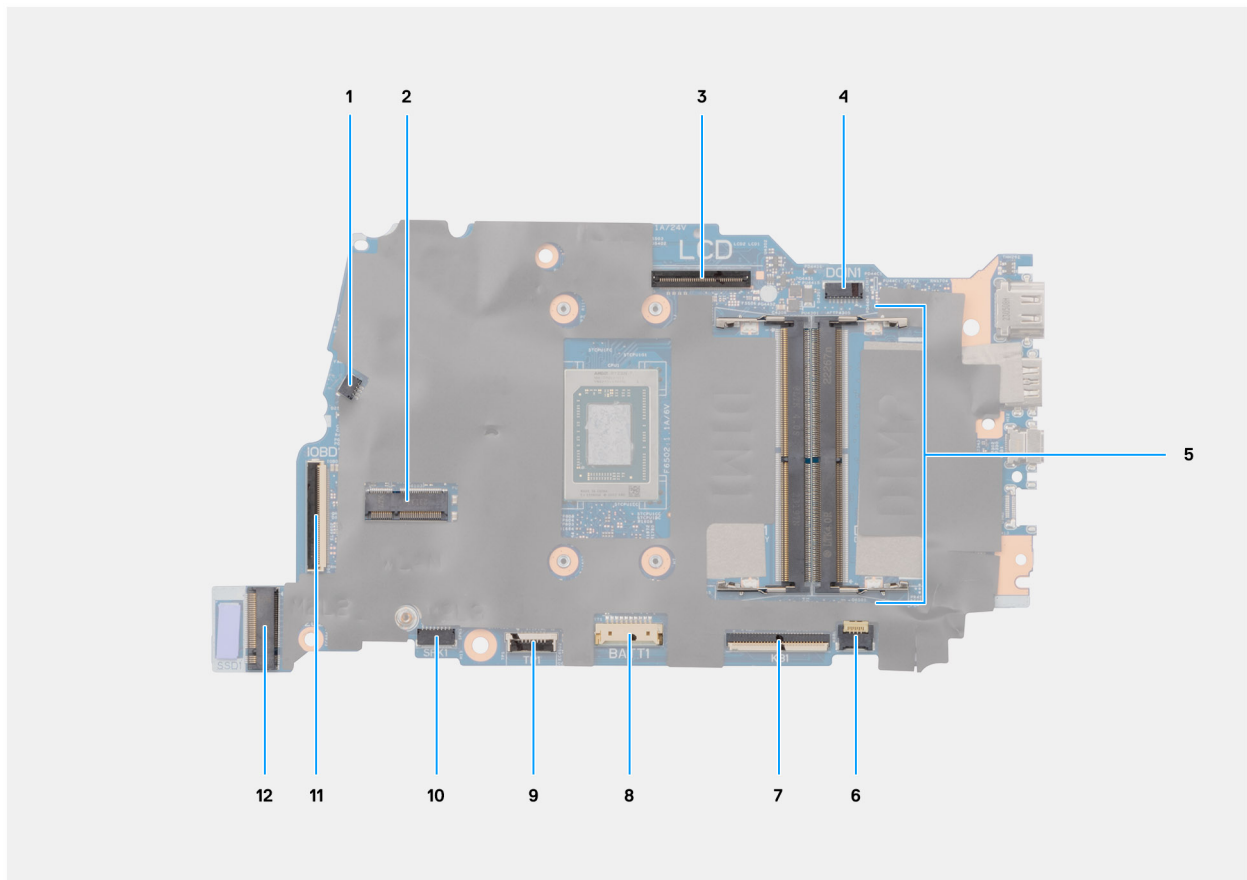


Figure 95. System board connectors

1. Fan cable connector (FAN1)
2. Wireless card connector (WLAN1)
3. eDP connector (LCD)
4. Power-adaptor port connector (DCIN1)
5. Memory module connector (DIMM1 and DIMM2)
6. Keyboard-backlight cable connector (KBBL1)
7. Keyboard cable connector (KB1)
8. Battery connector (BATT1)
9. Touchpad cable connector (TP1)
10. Speaker cable connector (SPK1)
11. I/O-board cable connector (IOBD1)
12. Solid-state drive connector (SSD1)

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

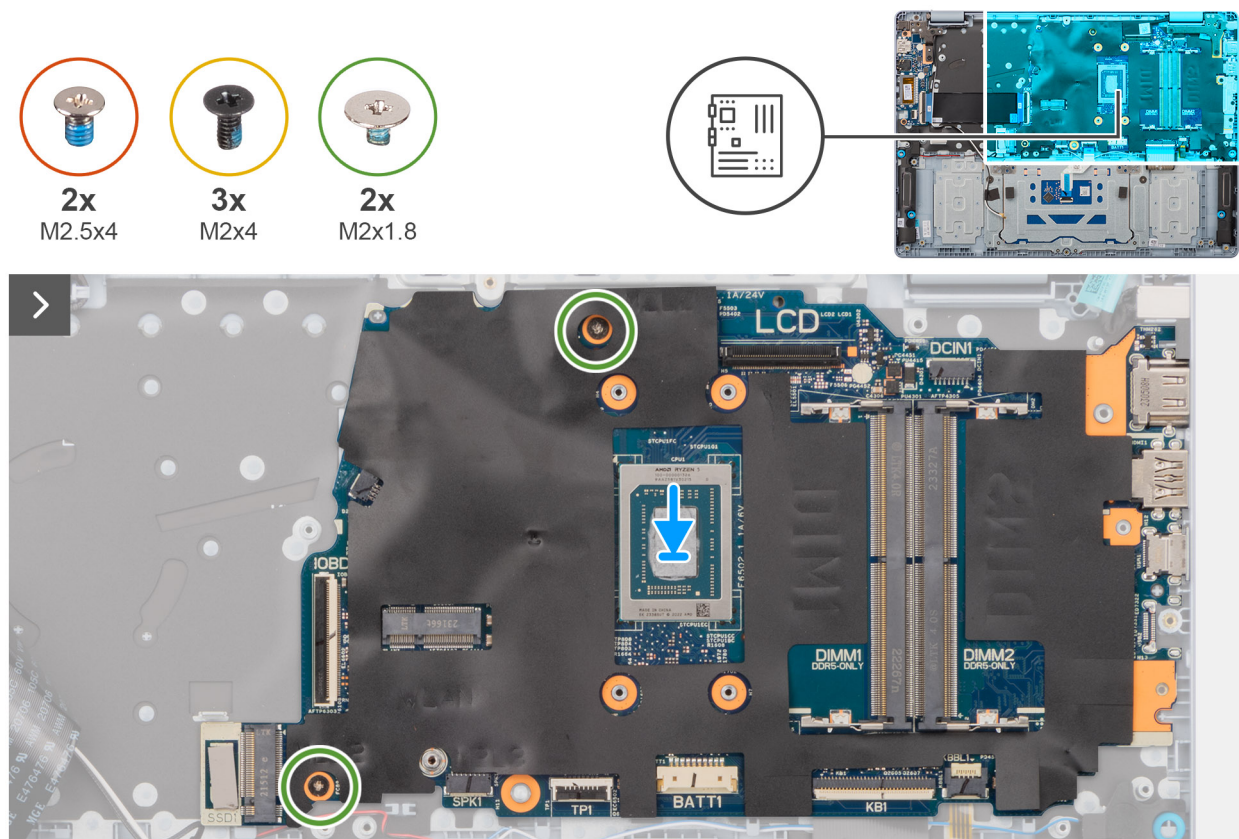


Figure 96. Installing the system board

Steps

1. Align the ports on the system board with the port slots and place the system board on the palm-rest and keyboard assembly.
2. Align the screw holes on the system board with the screw holes on the palm-rest and keyboard assembly.
3. Replace the two screws (M2x1.8) to secure the system board to the palm-rest and keyboard assembly.
4. Place the USB Type-C port bracket in the slot on the system board.
5. Align the screw holes on USB Type-C port bracket with the screw holes on the system board.
6. For computers shipped with a plastic chassis, replace the three screws (M2x4) to secure the USB Type-C port bracket to the system board.

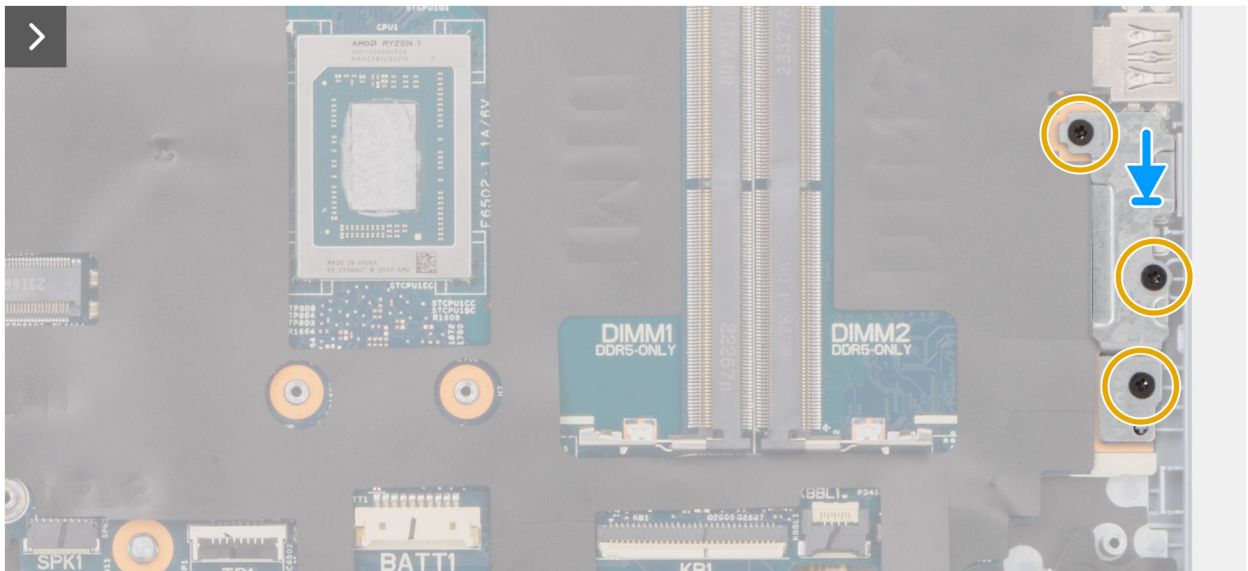


Figure 97. Installing the system board (for computers shipped with a plastic chassis)

7. For computers shipped with an aluminum chassis, replace the two screws (M2x4) to secure the USB Type-C port bracket to the system board.

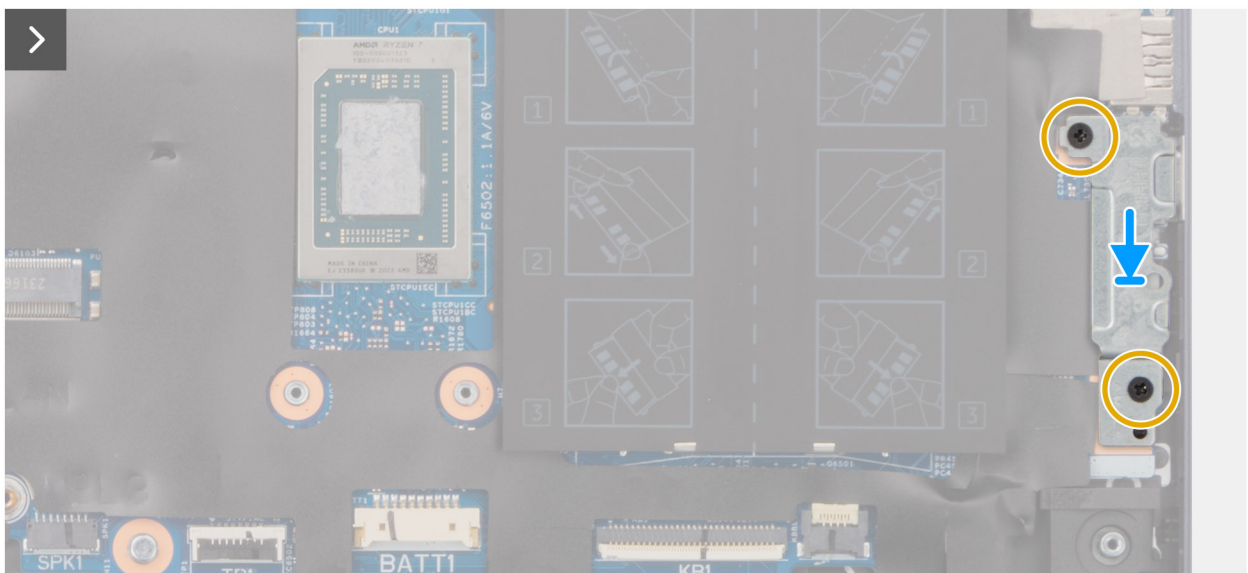


Figure 98. Installing the system board (for computers shipped with an aluminum chassis)

8. Connect the following cables to the connectors the system board:

- a. I/O-board cable (IOBD1)
- b. eDP cable (LCD)
- c. Power-adaptor port cable (DCIN1)
- d. Keyboard-backlight cable (KBBL1)

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

- e. Keyboard cable (KB1)
- f. Touchpad cable (TP1)
- g. Speaker cable (SPK1)

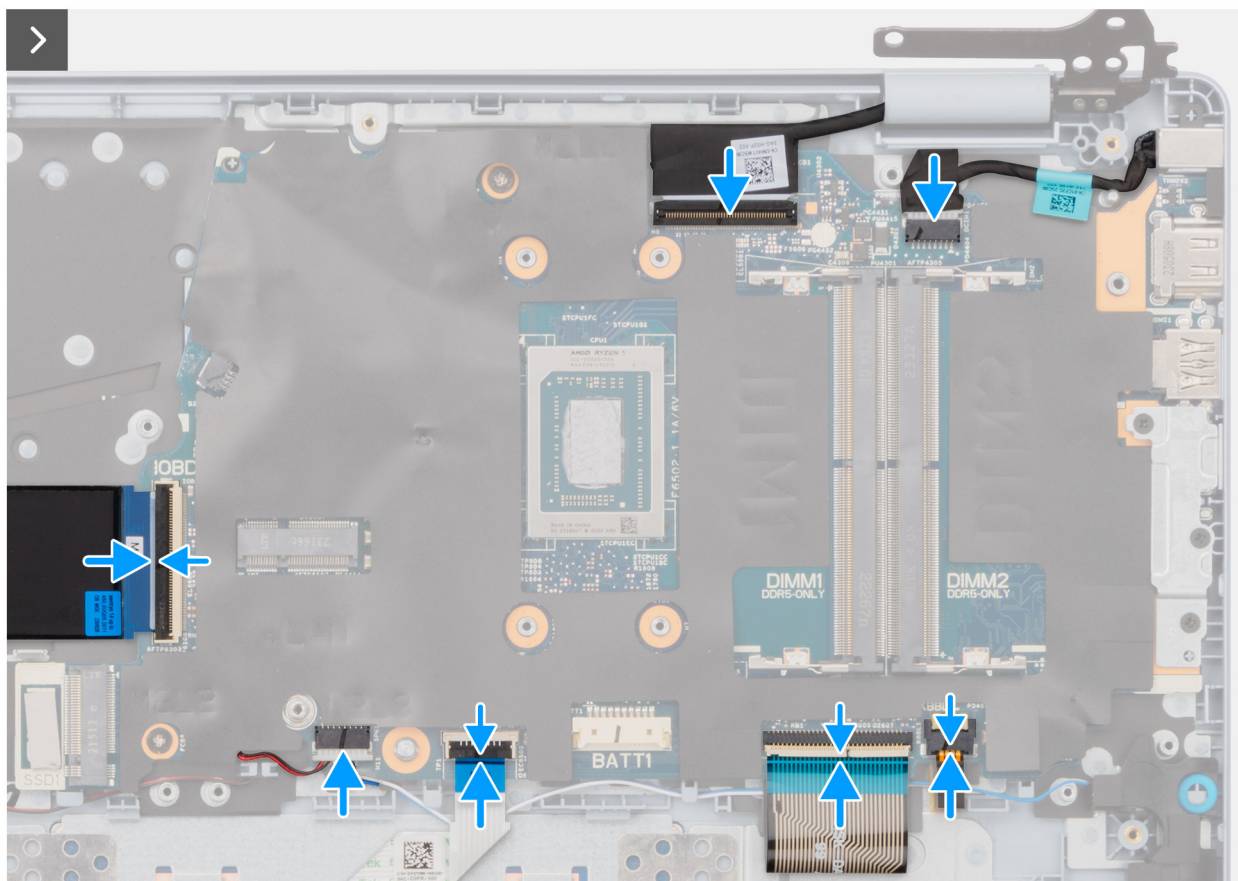


Figure 99. Installing the system board

9. Close the right display hinge to align the screw holes on the right display hinge with the screw holes on the system board and the palm-rest and keyboard assembly.
10. Replace the two screws (M2.5x4) to secure the right display hinge to the system board and the palm-rest and keyboard assembly.

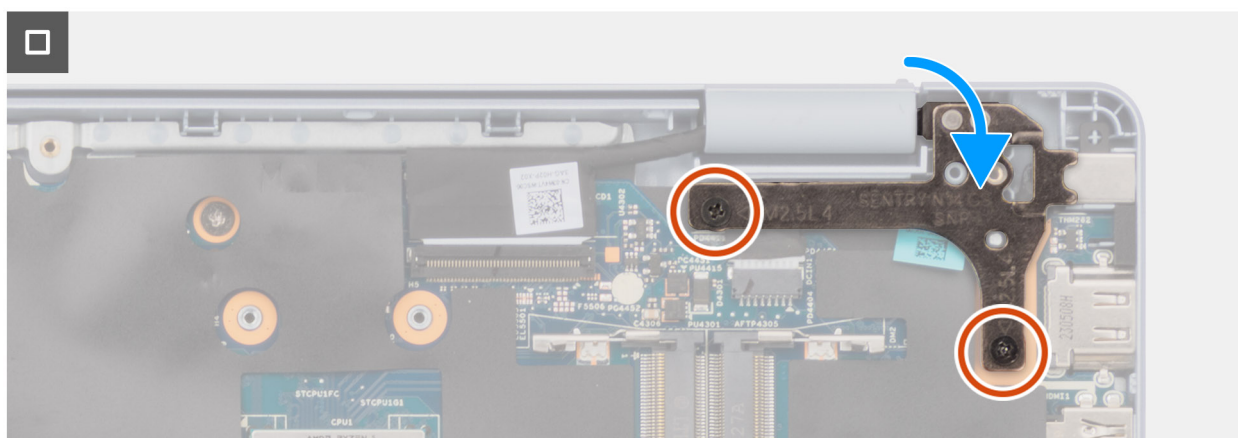


Figure 100. Installing the system board

Next steps

1. Install the [heat sink](#).
2. Install the [3-cell battery](#) or the [4-cell battery](#), whichever is applicable.
3. Install the [fan](#).
4. Install the [wireless card](#).

5. Install the [solid-state drive](#).
6. Install the [memory module](#).
7. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
8. 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 removal section is intended for authorized service technicians only.


Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
3. Remove the [memory module](#).
4. Remove the [solid-state drive](#).
5. Remove the [wireless card](#).
6. Remove the [fan](#).
7. Remove the [3-cell battery](#) or the [4-cell battery](#), whichever is applicable.
8. Remove the [heat sink](#).

 **NOTE:** The system board can be removed and installed along with the heat sink, when replacing the palm-rest and keyboard assembly. This simplifies the removal and installation procedure and prevents damage to the thermal bond between the system board and heat sink.

9. Remove the [speakers](#).
10. Remove the [touchpad](#).
11. Remove the [power-adapter port](#).
12. Remove the [I/O-board cable](#).
13. Remove the [I/O board](#).
14. Remove the [power button](#) or the [power button with optional fingerprint reader](#), whichever is applicable.
15. Remove the [display assembly](#).
16. Remove the [system board](#).

About this task

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

The following image indicates the location of the palm-rest and keyboard assembly and provides a visual representation of the removal procedure.

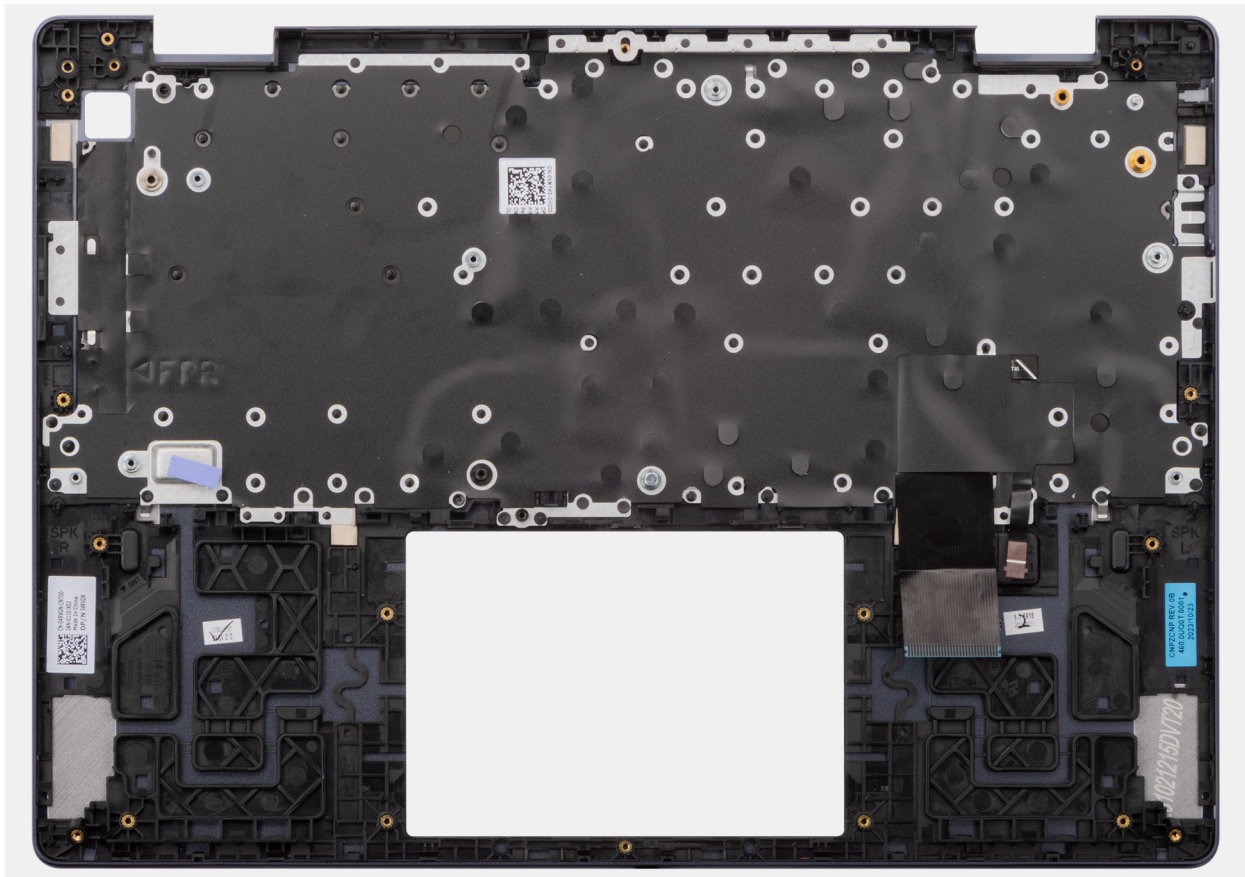


Figure 101. Palm-rest and keyboard assembly

Steps

After performing the steps in the **Prerequisites**, you are left with the palm-rest and keyboard assembly.

Installing the palm-rest and keyboard assembly

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

Prerequisites

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

About this task

The following image indicates the location of the palm-rest and keyboard assembly and provides a visual representation of the installation procedure.

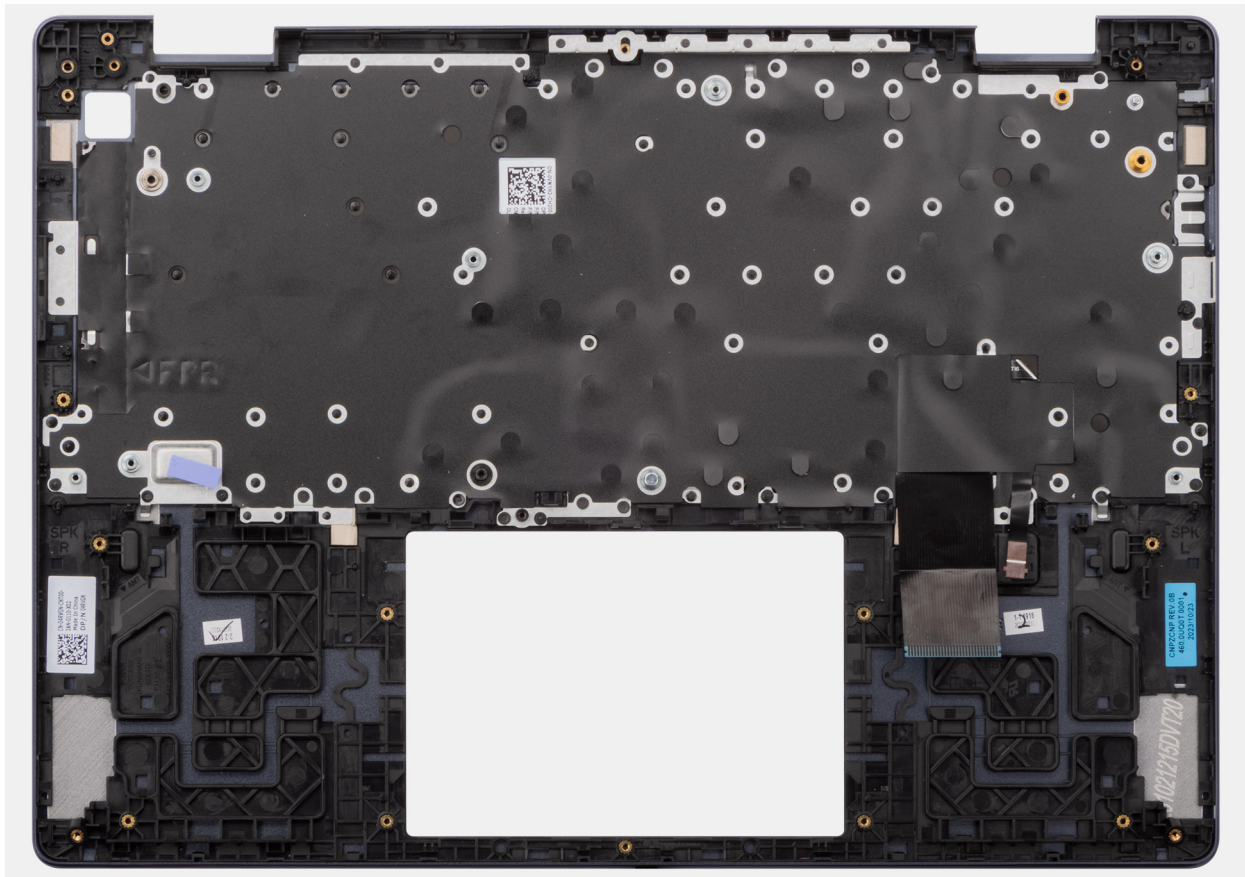


Figure 102. Palm-rest and keyboard assembly

Steps

Place the palm-rest and keyboard assembly on a flat and clean surface and perform the **Next steps** to install the palm-rest and keyboard assembly.

Next steps

1. Install the [system board](#).
2. Install the [display assembly](#).
3. Install the [power button](#) or the [power button with optional fingerprint reader](#), whichever is applicable.
4. Install the [I/O board](#).
5. Install the [I/O-board cable](#).
6. Install the [power-adaptor port](#).
7. Install the [touchpad](#).
8. Install the [speakers](#).
9. Install the [heat sink](#).
10. Install the [3-cell battery](#) or the [4-cell battery](#), whichever is applicable.
11. Install the [fan](#).
12. Install the [wireless card](#).
13. Install the [solid-state drive](#).
14. Install the [memory module](#).
15. Install the [base cover \(plastic chassis\)](#) or the [base cover \(aluminum chassis\)](#), whichever is applicable.
16. Follow the procedure in [After working inside your computer](#).

Software

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

Operating system


Your Inspiron 14 5445 supports the following operating systems:

- Windows 11 Home
- Windows 11 Home (S Mode)
- Windows 11 Pro
- Windows 11 Pro National Education

Drivers and downloads

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

BIOS Setup

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

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

Use BIOS Setup for the following purposes:

- Get information about the hardware installed in your computer, such as the amount of RAM and the capacity of the storage device.
- Change the system configuration information.
- Set or change a user-selectable option, such as the user password, type of storage device installed, and enable or disable base devices.

Entering BIOS Setup program

About this task

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

Navigation keys



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

Table 27. Navigation keys

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

One time boot menu


To enter **one time boot menu**, turn on your computer, and then press F12 immediately.

 **NOTE:** It is recommended to shutdown the computer if it is on.

The one-time boot menu displays the devices that you can boot from including the diagnostic option. The boot menu options are:

- HDD1 - Windows Boot Manager

- BIOS Setup
- Diagnostics

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

- SupportAssist OS Recovery
- BIOS Flash Update

System setup options

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

Table 28. System setup options - Main menu

Main		
	System Time	Displays the current time in HH:MM:SS format.
	System Date	Displays the current date in MM/DD/YYYY format.
	BIOS Version	Displays the BIOS version number of the computer.
	Product Name	Displays the model number of the computer.
	Service Tag	Displays the Service Tag of the computer.
	Asset Tag	Displays the Asset Tag of the computer.
	CPU Type	Displays the processor type.
	CPU Speed	Displays the processor speed.
	CPU ID	Displays the processor identification code.
	CPU Cache	
	L1 Cache	Displays the processor L1 cache size.
	L2 Cache	Displays the processor L2 cache size.
	L3 Cache	Displays the processor L3 cache size.
	M.2 PCIe SSD	Displays the type of solid-state drive installed.
	AC Adapter Type	Displays the type of AC adapter.
	System Memory	Displays the size of memory installed.
	Memory Speed	Displays the memory speed.
	Keyboard Type	Displays the type of keyboard installed on the computer.

Table 29. System setup options - Advance menu

Advanced		
	Virtualization	Enables or disables the virtualization technology. By default, the Virtualization option is enabled.
	VT for Direct I/O	Enables or disables the virtualization technology for direct I/O. By default, the VT for Direct I/O option is enabled.
	USB Emulation	Enables or disables the USB emulation feature. This feature defines how the BIOS, in the absence of a USB-aware operating system, handles USB devices. USB emulation is always enabled during POST.

Table 29. System setup options - Advance menu (continued)

Advanced	
	<p> NOTE: You cannot boot to a USB device (floppy, hard drive, or memory key) when this option is disabled.</p> <p>By default, the USB Emulation option is enabled.</p>
Adapter Warnings	<p>Allows the user to choose if the computer should display warning messages when using AC adapters that are not supported by your computer.</p> <p>By default, the Adapter Warnings option is enabled.</p>
Function Key Behavior	<p>Allows the user to set the default key behavior of the function key.</p> <p>By default, the Multimedia Key option is selected.</p>
Keyboard Illumination	<p>Allows the user to set the keyboard illumination level.</p> <p>By default, the Bright option is selected.</p>
Keyboard Backlight with AC	<p>Allows the user to set the keyboard backlight timeout duration when the computer is running on AC power. The keyboard backlight timeout value is applicable when the backlight is enabled.</p> <p>By default, the Keyboard Backlight with AC value is set to 1 minute.</p>
Keyboard Backlight with Battery	<p>Allows the user to set the keyboard backlight timeout duration when the computer is running on battery power. The keyboard backlight timeout value is applicable when the backlight is enabled.</p> <p>By default, the Keyboard Backlight with Battery value is set to 1 minute.</p>
Battery Health	<p>Displays the battery health of the computer.</p>
External USB Ports	<p>Enables or disables the external USB ports.</p> <p>By default, the External USB Ports option is enabled.</p>
Enable Audio	<p>Enables all integrated audio controller.</p> <p>By default, the Enable Audio option is enabled.</p>
Microphone	<p>Enables or disables the microphone.</p> <p>By default, the Microphone option is enabled.</p>
Camera	<p>Enables or disables the camera.</p> <p>By default, the Camera option is enabled.</p>
Secure Digital (SD) Card	<p>Enables or disables the secure digital card slot.</p> <p>By default, the Secure Digital (SD) Card option is enabled.</p>
Battery Charge Configuration	<p>Allows the user to set the battery charge settings, with a preselected custom charge start and stop time.</p> <p>By default, the Adaptive option is selected.</p>
Advanced Battery Charge Configuration	<p>Enables or disables the advanced battery charging feature.</p> <p>By default, the Advanced Battery Charge Configuration option is disabled.</p>
IPv4 HTTP Support	<p>Enables or disables the IPv4 HTTP support.</p> <p>By default, the IPv4 HTTP Support option is disabled.</p>

Table 29. System setup options - Advance menu (continued)


Advanced	
IPv6 HTTP Support	<p>Enables or disables the IPv6 HTTP support.</p> <p>By default, the IPv6 HTTP Support option is disabled.</p>
Maintenance	
Data Wipe on next boot	<p>Enables or disables data wipe on the next boot.</p> <p>Data Wipe is a secure wipe operation that deletes information from a storage device.</p> <p> CAUTION: The secure Data Wipe operation deletes information in a way that it cannot be reconstructed.</p> <p>Commands such as delete and format in the operating system may remove files from showing up in the file system. However, they can be reconstructed through forensic means as they are still represented on the physical media. Data Wipe prevents this reconstruction and is not recoverable.</p> <p>When enabled, the data wipe option will prompt to wipe any storage devices that are connected to the computer on the next boot.</p> <p>By default, the Data Wipe on next boot option is disabled.</p>
BIOS Recovery from Hard Drive	<p>Allows the user to recover certain corrupted BIOS conditions from a recovery file on the user's primary hard drive or an external USB key.</p> <p>By default, the BIOS Recovery from Hard Drive option is enabled.</p>
BIOS Auto-Recovery	<p>Allows the user to automatically recover the BIOS without user actions.</p> <p>By default, the BIOS Auto-Recovery option is disabled.</p>
SupportAssist System Resolution	
Auto OS Recovery Threshold	<p>Allows the user to set the automatic OS recovery threshold for the computer. Controls the automatic boot flow for SupportAssist System Resolution Console and for the Dell OS Recovery tool.</p> <p>By default, the Auto OS Recovery Threshold value is set to 2.</p>
SupportAssist OS Recovery	<p>Enables or disables the boot flow for SupportAssist OS Recovery tool when certain system errors occur.</p> <p>By default, the SupportAssist OS Recovery option is enabled.</p>

Table 30. System setup options - Security menu

Security	
Admin Password	<p>Displays if the administrator password is clear or set.</p> <p>By default, the Admin Password is not set.</p>
System Password	<p>Displays if the system password is clear or set.</p> <p>By default, the System Password is not set.</p>

Table 30. System setup options - Security menu (continued)


Security	
Asset Tag	<p>Allows the user to create a computer Asset Tag that can be used by an IT administrator to uniquely identify a particular computer.</p> <p> NOTE: Once set in BIOS, the Asset Tag cannot be changed.</p>
Admin Password	<p>Allows the user to set the administrator password.</p> <p>The Administrator Password prevents unauthorized access to the BIOS Setup options. Once the administrator password is set, the BIOS setup options can only be modified after providing the correct password.</p> <p>The following rules and dependencies apply to the Administrator Password -</p> <ul style="list-style-type: none"> • The administrator password cannot be set if computer and/or internal hard drive passwords are previously set. • The administrator password can be used in place of the computer and/or internal hard drive passwords. • When set, the administrator password must be provided during a firmware update. • Clearing the administrator password also clears the computer password (if set). <p>Dell Technologies recommends using an administrator password to prevent unauthorized changes to BIOS setup options.</p>
System Password	<p>Allows the user to set the system password.</p> <p>The System Password prevents the computer from booting to an operating system without entering the correct password.</p> <p>The following rules and dependencies apply when the System Password is used -</p> <ul style="list-style-type: none"> • The computer shuts down when idle for approximately 10 minutes at the computer password prompt. • The computer shuts down after three incorrect attempts to enter the computer password. • The computer shuts down when the Esc key is pressed at the System Password prompt. • The computer password is not prompted when the computer resumes from standby mode. <p>Dell Technologies recommends using the computer password in situations where it is likely that a computer may be lost or stolen.</p>
Password Change	<p>Allows the user to permit or deny system password or hard disk drive password changes.</p> <p>By default, the Permitted option is selected.</p>
Absolute	<p>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.</p> <p>By default, the Absolute option is enabled.</p> <p>For additional security, Dell Technologies recommends keeping the Absolute option enabled.</p>

Table 30. System setup options - Security menu (continued)


Security	
	<p> NOTE: When the Absolute features are activated, the Absolute integration cannot be disabled from the BIOS setup screen.</p>
Absolute Status	<p>Allows the user to activate or deactivate the Absolute Status feature. Displays if the system password is clear or set.</p> <p>By default, the Absolute Status is deactivated.</p>
SED Block SID Authentication	<p>Enables or disables SED Block SID Authentication.</p> <p>By default, the SED Block SID Authentication option is disabled.</p>
PPI Bypass for SED Block SID Command	<p>Enables or disables PPI Bypass for SED Block SID Command.</p> <p>By default, the PPI Bypass for SED Block SID Command option is disabled.</p>
WINDOWS SMM SECURITY MITIGATIONS TABLE (WSMT)	<p>Enables or disables configuration of platform features on Dell Client Systems with WSMT-enabled BIOS.</p> <p>By default, the WINDOWS SMM SECURITY MITIGATIONS TABLE (WSMT) option is enabled.</p>
Firmware TPM	<p>Enables or disables the firmware TPM.</p> <p>By default, the Firmware TPM option is disabled.</p>
PPI Bypass for Clear Command	<p>Allows the user to control the TPM Physical Presence Interface (PPI). When enabled, this setting allows the operating system to skip BIOS PPI user prompts when issuing the Clear command. Changes to this setting take effect immediately.</p> <p>By default, the PPI Bypass for Clear Commands option is disabled.</p> <p>For additional security, Dell Technologies recommends keeping the PPI Bypass for Clear Commands option disabled.</p>
TPM Security	
PPI Bypass for Enable Commands	<p>The Physical Presence Interface (PPI) Bypass options can be used to allow the operating system to manage certain aspects of the TPM. If these options are enabled, you are not prompted to confirm certain changes to the TPM configuration.</p> <p>By default, the PPI Bypass for Enable Commands option is disabled.</p> <p>For additional security, Dell Technologies recommends keeping the PPI Bypass for Enable Commands option enabled.</p>
PPI Bypass for Disable Commands	<p>By default, the PPI Bypass for Disable Commands option is disabled.</p> <p>For additional security, Dell Technologies recommends keeping the PPI Bypass for Disable Commands option disabled.</p>

Table 30. System setup options - Security menu (continued)

Security	
Attestation Enable	<p>The Attestation Enable option controls the endorsement hierarchy of TPM. Disabling the Attestation Enable option prevents TPM from being used to digitally sign certificates.</p> <p>By default, the Attestation Enable option is enabled.</p> <p>For additional security, Dell Technologies recommends keeping the Attestation Enable option enabled.</p> <p>NOTE: When disabled, this feature may cause compatibility issues or loss of functionality in some operating systems.</p>
Key Storage Enable	<p>The Key Storage Enable option controls the storage hierarchy of TPM, which is used to store digital keys. Disabling the Key Storage Enable option restricts the ability of TPM to store owner's data.</p> <p>By default, the Key Storage Enable option is enabled.</p> <p>For additional security, Dell Technologies recommends keeping the Key Storage Enable option enabled.</p> <p>NOTE: When disabled, this feature may cause compatibility issues or loss of functionality in some operating systems.</p>
SHA-256	<p>Allows the user to control the hashing algorithm that is used by the TPM. When enabled, the TPM uses the SHA-256 hashing algorithm. When disabled, the TPM uses the SHA-1 hash algorithm.</p> <p>By default, the SHA-256 option is enabled.</p> <p>For additional security, Dell Technologies recommends keeping the SHA-256 option enabled.</p>
Clear	<p>When enabled, the Clear option clears information that is stored in the TPM after exiting the computer's BIOS. This option returns to the disabled state when the computer restarts.</p> <p>By default, the Clear option is disabled.</p> <p>Dell Technologies recommends enabling the Clear option only when TPM data is required to be cleared.</p>
TPM State	<p>Enables or disables the Trusted Platform Module (TPM). This is the normal operating state for the Trusted Platform Module (TPM) when you want to use its complete array of capabilities.</p> <p>By default, the TPM State option is enabled.</p>
Enable Pre-Boot DMA Support	<p>Allows the user to control the Pre-Boot DMA protection for both internal and external ports. This option does not directly enable DMA protection in the operating system.</p> <p>NOTE: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi).</p> <p>By default, the Enable Pre-Boot DMA Support option is enabled.</p> <p>For additional security, Dell Technologies recommends keeping the Enable Pre-Boot DMA Support option enabled.</p>

Table 30. System setup options - Security menu (continued)

Security	
Enable OS Kernel DMA Support	<p>NOTE: This option is provided only for compatibility purposes, as certain older hardware may not be DMA compliant.</p> <p>Allows you to control the Kernel DMA protection for both internal and external ports. This option does not directly enable DMA protection in the operating system. For operating systems that support DMA protection, this setting indicates to the operating system that the BIOS supports the feature.</p> <p>NOTE: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi).</p> <p>By default, the Enable OS Kernel DMA Support option is enabled.</p> <p>NOTE: This option is provided only for compatibility purposes, as certain older hardware may not be DMA compliant.</p>
Internal Port DMA Compatibility Mode	<p>Allows you to control the boot compatibility for integrated PCIe peripherals by disabling PCIe DMA protection on internal PCIe ports.</p> <p>When enabled, BIOS will notify the operating system that the internal ports are not DMA capable. This option is to help with devices that have operating system DMA compatibility issues. This option does not directly enable DMA protection in the operating system.</p> <p>NOTE: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi).</p> <p>By default, the Internal Port DMA Compatibility Mode option is disabled.</p> <p>NOTE: This option is provided only for compatibility purposes, as certain older hardware may not be DMA compliant.</p>
UEFI Firmware Capsule Updates	<p>Enables or disables BIOS updates through UEFI capsule update packages.</p> <p>NOTE: Disabling this option blocks the BIOS updates from services such as Microsoft Windows Update and Linux Vendor Firmware Service (LVFS).</p> <p>By default, the UEFI Capsule Firmware Updates option is enabled.</p>
Secure Boot	<p>Secure Boot is a method of guaranteeing the integrity of the boot path by performing additional validation of the operating system and PCI add-in cards. The computer stops booting to the operating system when a component is not authenticated during the boot process. Secure Boot can be enabled in BIOS setup or using management interfaces like Dell Command Configure, but can only be disabled from BIOS setup.</p>
Secure Boot	<p>Enables or disables the computer to boot using only validated boot software.</p> <p>By default, the Enable Secure Boot option is enabled.</p>

Table 30. System setup options - Security menu (continued)

Security	
Select Secure Boot	<p>For additional security, Dell Technologies recommends keeping the Secure Boot option enabled to ensure that the UEFI firmware validates the operating system during the boot process.</p> <p>NOTE: For Secure Boot to be enabled, the computer is required to be in UEFI boot mode and the Enable Legacy Option ROMs option is required to be turned off.</p> <p>Allows the user to select the Secure Boot operation mode. By default, the Deployed Mode option is selected.</p> <p>NOTE: Deployed Mode should be selected for normal operation of Secure Boot.</p>

Table 31. System setup options - Boot menu

Boot	
File Browser Add Boot Option	Allows the user to add boot options.
File Browser Del Boot Option	Allows the user to delete boot options.

Table 32. System setup options - Exit menu

Exit	
Exit Saving Changes	Allows the user to save the changes and exit the BIOS setup.
Save Change Without Exit	Allows the user to save the changes without exiting the BIOS setup.
Exit Discarding Changes	Allows the user to exit the BIOS setup without saving the changes.
Load Optimal Defaults	Allows the user to restore default values for all BIOS setup options.
Discard Changes	Allows the user to load previous values for all BIOS setup options.

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 33. System and setup password

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

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

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

Assigning a System Setup password

Prerequisites

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

Steps


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

Deleting or changing an existing system password or setup password

Prerequisites

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


Steps

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

Clearing system and setup passwords

About this task

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

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

Troubleshooting

Handling swollen rechargeable Li-ion batteries

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

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

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

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

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

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

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

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


For more information on how to find the Service Tag for your computer, see [Locate the Service Tag for your Dell Laptop](#).

Dell SupportAssist Pre-boot System Performance Check diagnostics

About this task

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

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


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

For more information, see the knowledge base article [000181163](#).

Running the SupportAssist Pre-Boot System Performance Check

Steps

1. Turn on your computer.
2. As the computer boots, press the F12 key.
3. On the boot menu screen, select **Diagnostics**.
The diagnostic quick test begins.


 **NOTE:** For more information about running the SupportAssist Pre-Boot System Performance Check on a specific device, see [Dell Support Site](#).

4. If there are any issues, error codes are displayed.
Note the error code and validation number and contact Dell.


Built-in self-test (BIST)

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

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

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

How to run M-BIST

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

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


Table 34. LED error codes

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

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

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

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

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

How to invoke the L-BIST

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


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

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

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

How to invoke the LCD-BIST

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

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

System-diagnostic lights

This section lists the system-diagnostic lights of your Inspiron 14 5445.

Power and battery-status light

The power and battery status light indicates the power and battery status of the computer. These are the power states:

Solid white: Power adapter is connected and the battery has more than 5% charge.

Amber: Computer is running on battery and the battery has less than 5% charge.

Off:

- Power adapter is connected, and the battery is fully charged.
- Computer is running on battery, and the battery has more than 5% charge.
- Computer is in sleep state, hibernation, or turned off.

The power and battery-status light may blink amber or white according to pre-defined "beep codes" indicating various failures.

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

The following table shows different power and battery-status light patterns and associated problems.

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

Table 35. System-diagnostic lights

Blinking pattern		Problem description
Amber	White	
1	1	TPM detection failure
1	2	Unrecoverable SPI flash failure
1	3	Short in hinge cable tripped OCP1
1	4	Short in hinge cable tripped OCP2
1	5	EC unable to program i-Fuse
1	6	EC internal failure
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	Invalid memory installed
2	6	System-board or chipset error
2	7	Display failure - SBIOS message
2	8	Display failure - EC detection of power rail failure
3	1	RTC reset
3	2	PCI, video card/chip failure
3	3	BIOS recovery image not found
3	4	Recovery image found but invalid

Table 35. System-diagnostic lights (continued)

Blinking pattern		Problem description
Amber	White	
3	5	Power-rail failure
3	6	System BIOS Flash incomplete
3	7	Management Engine (ME) error

NOTE: Blinking 3-3-3 LEDs 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 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 the Caps Lock is enabled or disabled.

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

Recovering the operating system

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

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

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

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

Real-Time Clock (RTC Reset)

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

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

Backup media and recovery options


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

Network power cycle

About this task

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

Steps

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

Drain flea power (perform hard reset)

About this task


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


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

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

Perform the following steps to drain the flea power:

Steps

1. Turn off the computer.
2. Disconnect the power adapter from the computer.
3. Remove the base cover.
4. Remove the battery.
 **CAUTION:** The battery is a Field Replaceable Unit (FRU) and the removal and installation procedures are intended for authorized service technicians only.
5. Press and hold the power button for 20 seconds to drain the flea power.
6. Install the battery.
7. Install the base cover.
8. Connect the power adapter to the computer.
9. Turn on the computer.

 **NOTE:** For more information about performing a hard reset, go to [Dell Support Site](#). On the menu bar at the top of the Support page, select Support > Support Library. In the Search field on the Support Library page, type the keyword, topic, or model number, and then click or tap the search icon to view the related articles.

Getting help and contacting Dell

Self-help resources


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


Table 36. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	Dell Site
Contact Support	In Windows search, type <code>Contact Support</code> , and press Enter.
Online help for operating system	Windows Support Site Linux Support Site
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals, and documents.	Your Dell computer is uniquely identified using a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, enter the Service Tag or Express Service Code at Dell Support Site . For more information about how to find the Service Tag for your computer, see Locate the Service Tag on your computer .
Dell knowledge base articles	<ol style="list-style-type: none"> 1. Go to Dell Support Site. 2. On the menu bar at the top of the Support page, select Support > Support Library. 3. In the Search field on the Support Library page, type the keyword, topic, or model number, and then click or tap the search icon to view the related articles.

Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see [Dell Support Site](#).

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

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