

XPS 16

DA16260

Service 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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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 is shipped with your computer.

-  **WARNING:** Before working inside your computer, read the safety information that is shipped with your computer. For more safety best practices, see [Dell Regulatory Compliance Home Page](#).
-  **WARNING:** Disconnect your computer from all power sources before opening the computer cover or panels. After you finish working inside the computer, replace all covers, panels, and screws before connecting your computer to an electrical outlet.
-  **WARNING:** For laptops, discharge the battery completely before removing it. Disconnect the AC power adapter from the computer and operate the computer solely on battery power—the battery is fully discharged when the computer no longer turns on when the power button is pressed.
-  **CAUTION:** To avoid damaging the computer, ensure that the work surface is flat, dry, and clean.
-  **CAUTION:** You should only perform troubleshooting and repairs as authorized or directed by the Dell technical support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty.
-  **CAUTION:** Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity which could harm internal components.
-  **CAUTION:** To avoid damaging the components and cards, handle them by their edges, and avoid touching the pins and the contacts.
-  **CAUTION:** When you disconnect a cable, pull it by its connector or its pull tab, not the cable itself. Some cables have connectors with locking tabs or thumbscrews that you must disengage before disconnecting the cable. When disconnecting cables, keep them evenly aligned to avoid bending the connector pins. When connecting cables, ensure that the connector on the cable is correctly oriented and aligned with the port.
-  **CAUTION:** Press and eject any installed card from the media-card reader.

Before working inside your computer

Steps

1. Save and close all open files and exit all open applications.
2. Shut down your computer. For Windows operating system, click **Start** >  **Power** > **Shut down**.
 **NOTE:** If you are using a different operating system, see the documentation of your operating system for instructions.
3. Turn off all the attached peripherals.
4. Disconnect your computer from the electrical outlet.
5. Disconnect all attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.
6. Remove any media card and optical drive from your computer, if applicable.
7. To clean the air vents, use a soft brush and move vertically.

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

8. Enter the Service Mode.

Service Mode

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

 **CAUTION:** If you are unable to turn on the computer to put it into Service Mode, proceed to disconnect the battery cable.

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

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

Safety precautions

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

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

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

Bonding

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

Electrostatic discharge—ESD protection

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

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

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

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

Perform the following steps to prevent ESD damage:

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

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

For more information about the wrist strap and ESD wrist strap tester, see [Components of an ESD Field Service Kit](#).

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

ESD Field Service kit

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

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

Working environment

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

ESD packaging

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

Components of an ESD Field Service kit

The components of an ESD Field Service kit are:

- **Anti-Static Mat** – The anti-static mat is dissipative and parts can be placed on it during service procedures. When using an anti-static mat, your wrist strap should be snug and the bonding wire should be connected to the anti-static mat and to any bare metal on the computer being worked on. Once deployed properly, service parts can be removed from the ESD bag and placed directly on the anti-static mat. ESD-sensitive items are safe in your hand, on the anti-static mat, in the computer, or inside an ESD bag.
- **Wrist Strap and Bonding Wire** – If an anti-static mat is not being used, the wrist strap and bonding wire should be connected directly between your wrist and an exposed metal part of the hardware. If you are using an anti-static mat, connect the wrist strap and bonding wire to the anti-static mat to ensure protection for any hardware placed on the mat. The physical connection of the wrist strap and bonding wire between your skin, the anti-static mat, and the hardware is known as bonding. Use only Field Service kits with a wrist strap, anti-static mat, and bonding wire. Never use wireless wrist straps. Always be cautious that the internal wires of a wrist strap are prone to damage from normal wear and tear, and must

be checked regularly with a wrist strap tester in order to avoid accidental ESD hardware damage. It is recommended to test the wrist strap and bonding wire at least once per week.

- **ESD Wrist Strap Tester** – The wires inside an ESD strap are prone to damage over time. When using an unmonitored ESD kit, it is recommended to test the wrist strap regularly—ideally before each service session, and at a minimum, once per week. The most reliable method for testing is with a wrist strap tester. To perform the test, connect the bonding wire of the wrist strap to the tester while wearing the strap. Press the test button to initiate the check. A green LED indicates a successful test, while a red LED and audible alarm signal a failure.

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

Transporting sensitive components

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

After working inside your computer

About this task

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

Steps

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

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

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

Information on repairability for Québec - From Dell Canada Inc. - to Quebec consumers

Dell does not guarantee the availability of replacement parts, repair services, or information necessary for maintenance or repair.

BitLocker

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

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

The installation of the following components triggers BitLocker:

- Hard disk drive or solid state drive
- System board

Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver #0
- Torx screwdriver T5
- Plastic scribe
- ESD wrist strap
- Paper clip or SIM-ejection tool

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 1. Screw list

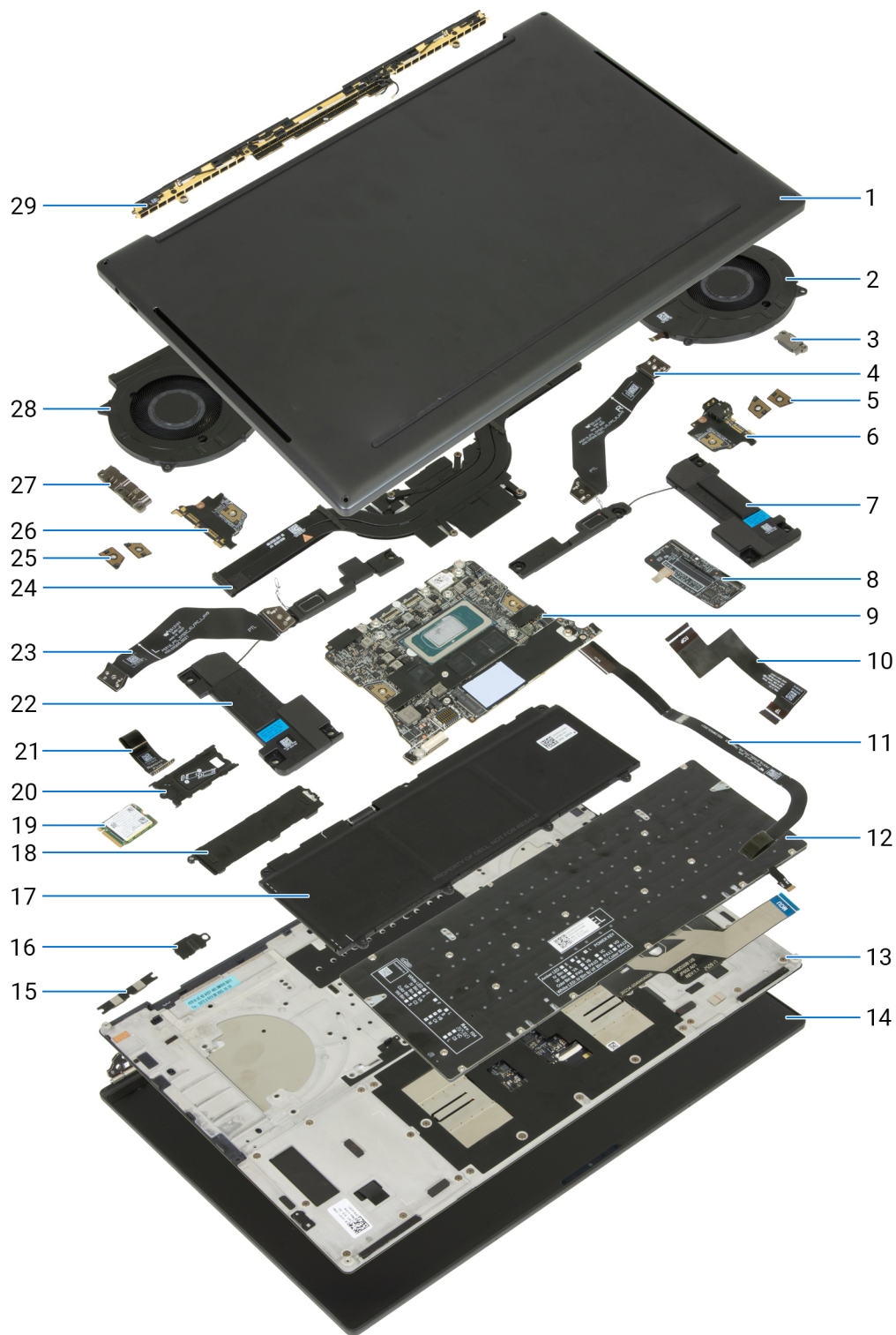
Component	Screw type	Quantity	Screw image
Palm rest	M2x3.9, Torx 5	4	
Battery	M2x3	7	
M.2 SSD	M2x3	2	
WLAN bracket	M2x3	1	
Left-thermal fan	M2x3.7	3	
Right-thermal fan	M2x3.7	3	
Display assembly (Bracket)	M1.4x1.3	2	
Display assembly (Hinges)	M2.5x5	6	
Speakers	M2x2	10	
System board	M2x2	4	
System board (PCBeam cables)	M1.6x3.4	2	
Wireless-antenna module	M2x2	2	

Table 1. Screw list (continued)

Component	Screw type	Quantity	Screw image
Wireless-antenna module	M2x3.5	4	
USB-C module	M2x4	5	
I/O daughterboard (PCBeam cable)	M1.6x3.4	2	
I/O daughterboard (base cover)	M2x3	2	
Keyboard	M1.4x1.3	23	

Major components of XPS 16 DA16260

The following image shows the major components of XPS 16 DA16260.



1. Base cover
3. Right USB module
5. Right PCBeam interposer boards
7. Right speaker
9. System board
11. Keyboard cable
13. Palm rest
15. Display-assembly bracket
17. Battery

2. Right fan
4. Right PCBeam cable
6. Right I/O daughterboard
8. MCU board
10. MCU cable
12. Keyboard
14. Display assembly
16. Wireless-module shield
18. M.2 SSD thermal shield

- | | |
|-----------------------------------|----------------------------|
| 19. M.2 2230 SSD | 20. M.2 2230 SSD bracket |
| 21. Battery cable | 22. Left speaker |
| 23. Left PCBeam cable | 24. Heatsink |
| 25. Left PCBeam interposer boards | 26. Left I/O daughterboard |
| 27. Left USB-C module | 28. Left fan |
| 29. Wireless-antenna module | |

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

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

The replaceable components in your XPS 16 DA16260 are either Customer Replaceable Units (CRUs) or Field Replaceable Units (FRUs).

CAUTION: CRUs may be replaced by the customer, following the safety precautions and replacement procedures.

CAUTION: FRUs should be replaced by an authorized service technician, who is a trained technical repair specialist.

CAUTION: Replacement of FRUs by persons other than authorized service technicians may result in damage to the computer or data loss.

NOTE: Damages resulting from improper replacement or from failure to follow instructions are not covered by your warranty. Consider having a trained technical repair specialist perform replacements of FRU components.

Table 2. CRU and FRU list

CRUs	FRUs
None	Palm-rest and keyboard assembly
	Battery
	Solid-state drive
	Wireless-module shield
	Display assembly
	Thermal fans
	Speakers
	Heat sink
	System board
	Wireless-antenna module
	USB-C modules
	I/O daughterboards
	Keyboard
	Palm rest

Removing and installing Field Replaceable Units (FRUs)

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

 **CAUTION:** FRUs should be replaced by an authorized service technician, who is a trained technical repair specialist.

 **NOTE:** Damages resulting from improper replacement or from failure to follow instructions are not covered by your warranty. Consider having a trained technical repair specialist perform replacements of FRU components.

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

Palm-rest and keyboard assembly

Removing the palm-rest and keyboard assembly

Prerequisites

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

 **NOTE:** Ensure that your computer is in Service Mode. If your computer is unable to enter Service Mode, be sure to disconnect the battery cable as instructed below.

About this task

The following video provides an overview of this task.



Watch video: [Remove the palm-rest and keyboard assembly](#)

The following images indicate the location of the palm-rest and keyboard assembly as well as base cover, and provide a visual representation of the removal procedure.



4x
M2x3.9, T5



Figure 1. Removing the palm-rest and keyboard assembly

Steps

1. Remove the four screws (M2x3.9, Torx 5) that secure the base cover to the palm-rest and keyboard assembly.
i NOTE: Use a T5 Torx screwdriver to remove the four screws (M2x3.9, Torx 5).
2. Open the display and place the computer on its side.
3. Inserting the pointed tip of a plastic scribe into the left and right screw holes on the base cover nearest to the display hinge, push firmly inwards at both holes to dislodge the palm-rest assembly.
i NOTE: If you are unable to dislodge the palm-rest assembly with a plastic scribe, use the pointed-end of a paper clip or SIM-ejection tool instead, being careful not to scratch or damage the base cover.

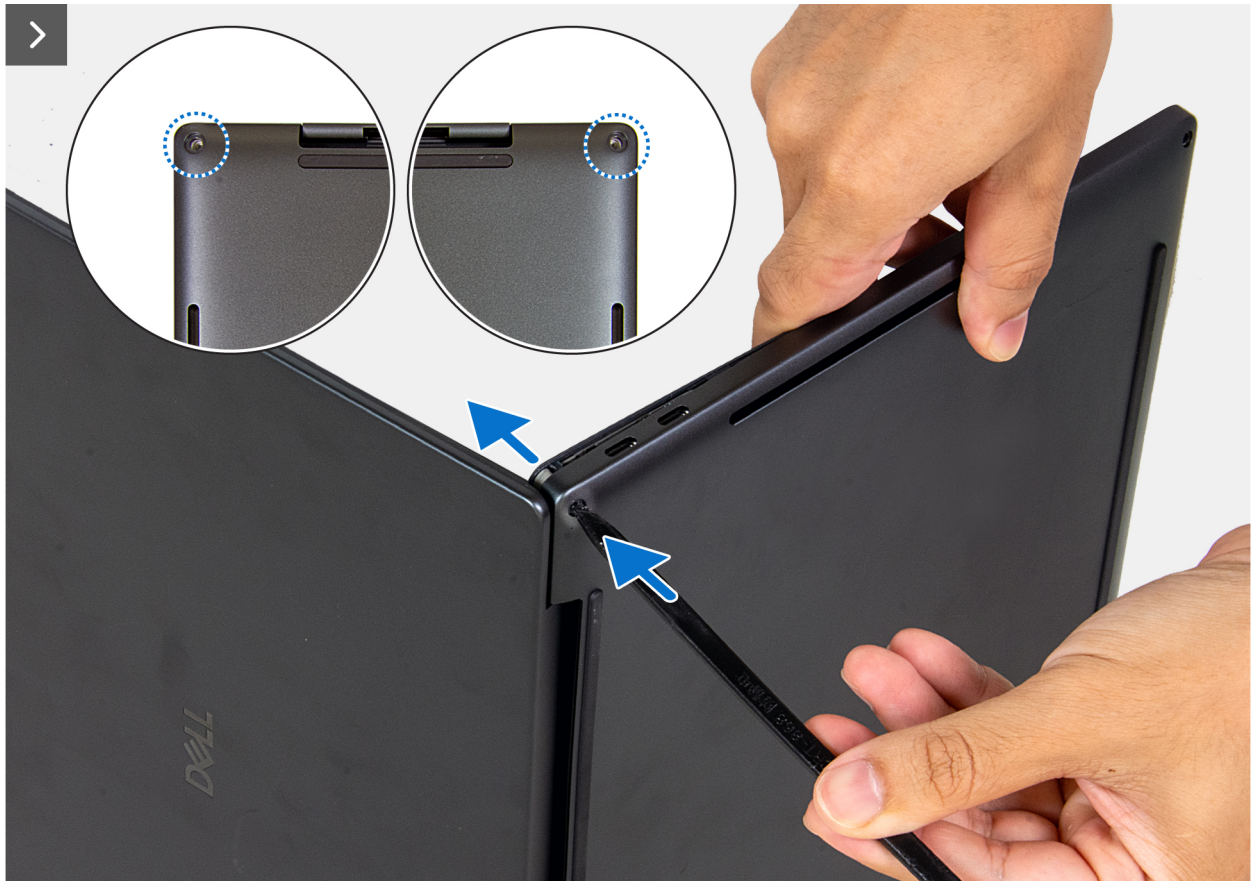


Figure 2. Dislodge the palm-rest and keyboard assembly from the base cover

4. Insert the flat end of the plastic scribe into the gaps and work down from the display-hinge area, completely loosening the palm-rest and keyboard assembly from the base cover.



Figure 3. Loosen the palm-rest and keyboard assembly from the base cover

5. Carefully lift the palm-rest and keyboard assembly away from the base cover.



Figure 4. Carefully lift the palm-rest and keyboard assembly away from the base cover

6. Turn over the palm-rest and keyboard assembly, letting it rest it on a flat surface.

NOTE: Ensure that your computer is in Service Mode. If your computer is unable to enter Service Mode, disconnect the battery cable.

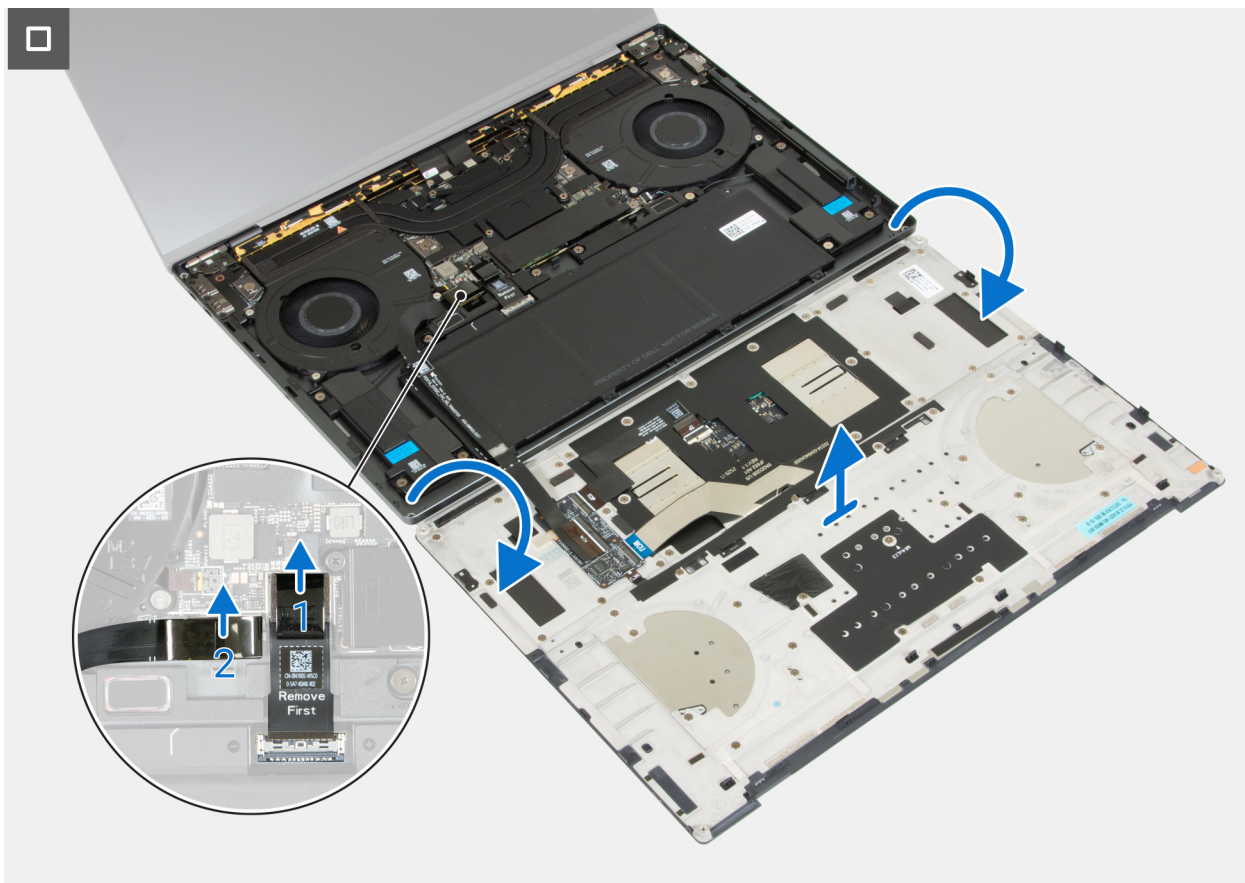


Figure 5. Disconnecting the palm-rest and keyboard assembly

7. Using the pull tab, disconnect the battery cable from the system board.

NOTE: If your computer entered into Service Mode before disassembly, you can skip this step.

8. Using the pull tab, disconnect the MCU cable from the connector on the system board.
9. Peel off the MCU cable from the battery before removing the palm-rest and keyboard assembly. The MCU cable remains connected to the palm-rest and keyboard assembly.

Installing the palm-rest and keyboard assembly

Prerequisites

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

About this task

The following video provides an overview of this task.



Watch video: [Install the palm-rest and keyboard assembly](#)

The following images indicate the location of the palm-rest and keyboard assembly as well as base cover, and provide a visual representation of the installation procedure.

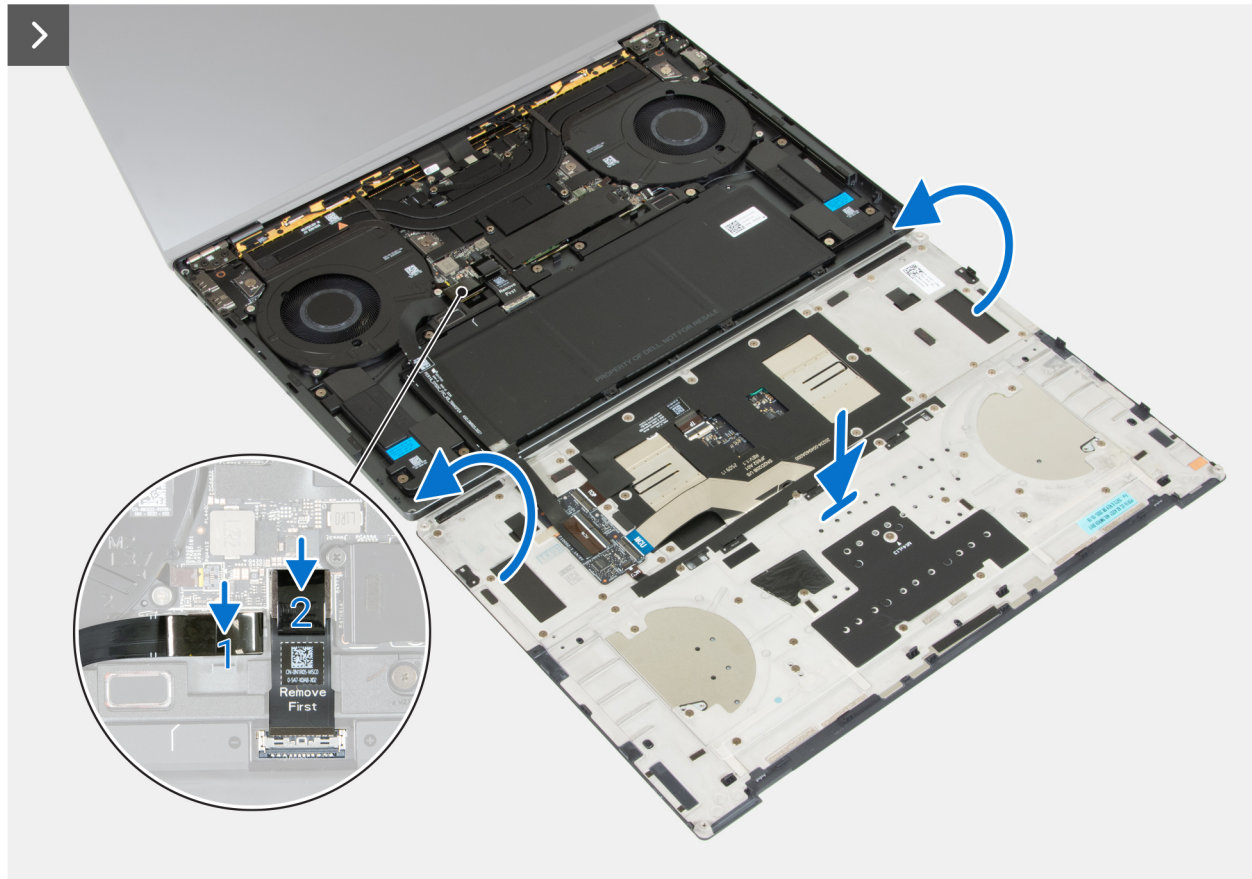


Figure 6. Installing the palm-rest and keyboard assembly

Steps

1. Place the palm-rest and keyboard assembly with connected MCU cable, in front of the base cover as shown.
2. Adhere the MCU cable to the battery, then connect the cable to the connector on the system board.
3. Connect the battery cable to the connector on the system board.
i NOTE: Skip this step if the computer was in Service Mode, and the battery was not disconnected.
4. Flip the palm-rest and keyboard assembly towards the base cover.
5. Align the front edge of the palm-rest and keyboard assembly at an angle into the bottom of the base cover, then snap the assembly into position. It should fit firmly into position, with no wide gaps visible between the palm-rest and keyboard assembly and base cover.



Figure 7. Align and snap the palm-rest and keyboard assembly into position on the base cover

6. Tighten the four screws (M2x3.9, Torx 5) that secure the base cover to the palm-rest and keyboard assembly.

NOTE: Use a T5 Torx screwdriver to tighten the four screws (M2x3.9, Torx 5).



Figure 8. Tighten the four screws (M2x3.9, Torx 5) that secure the base cover to the palm-rest and keyboard assembly

Next steps

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

Battery

Rechargeable Li-ion battery precautions

WARNING:

- Exercise caution when handling rechargeable Li-ion batteries.
- Discharge the battery completely before removing it. Disconnect the AC power adapter from the computer and operate the computer solely on battery power—the battery is fully discharged when the computer no longer turns on when the power button is pressed.
- Do not crush, drop, mutilate, or penetrate the battery with foreign objects.
- Do not expose the battery to high temperatures, or disassemble battery packs and cells.
- Do not apply pressure to the surface of the battery.
- Do not bend the battery.
- Do not use tools of any kind to pry on or against the battery.
- To prevent accidental puncture or damage to the battery and other components, ensure that no screws are lost or misplaced during the servicing of the computer.
- Always purchase genuine batteries from [Dell Site](#) or authorized Dell partners and resellers.

- Swollen batteries should not be used and should be replaced and disposed properly. For guidelines on how to handle and replace swollen rechargeable Li-ion batteries, see [Handling swollen rechargeable Li-ion batteries](#).

Removing the battery

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [Palm-rest and keyboard assembly](#).

About this task

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

The following video provides an overview of this task.



Watch video: [Remove the battery](#)

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

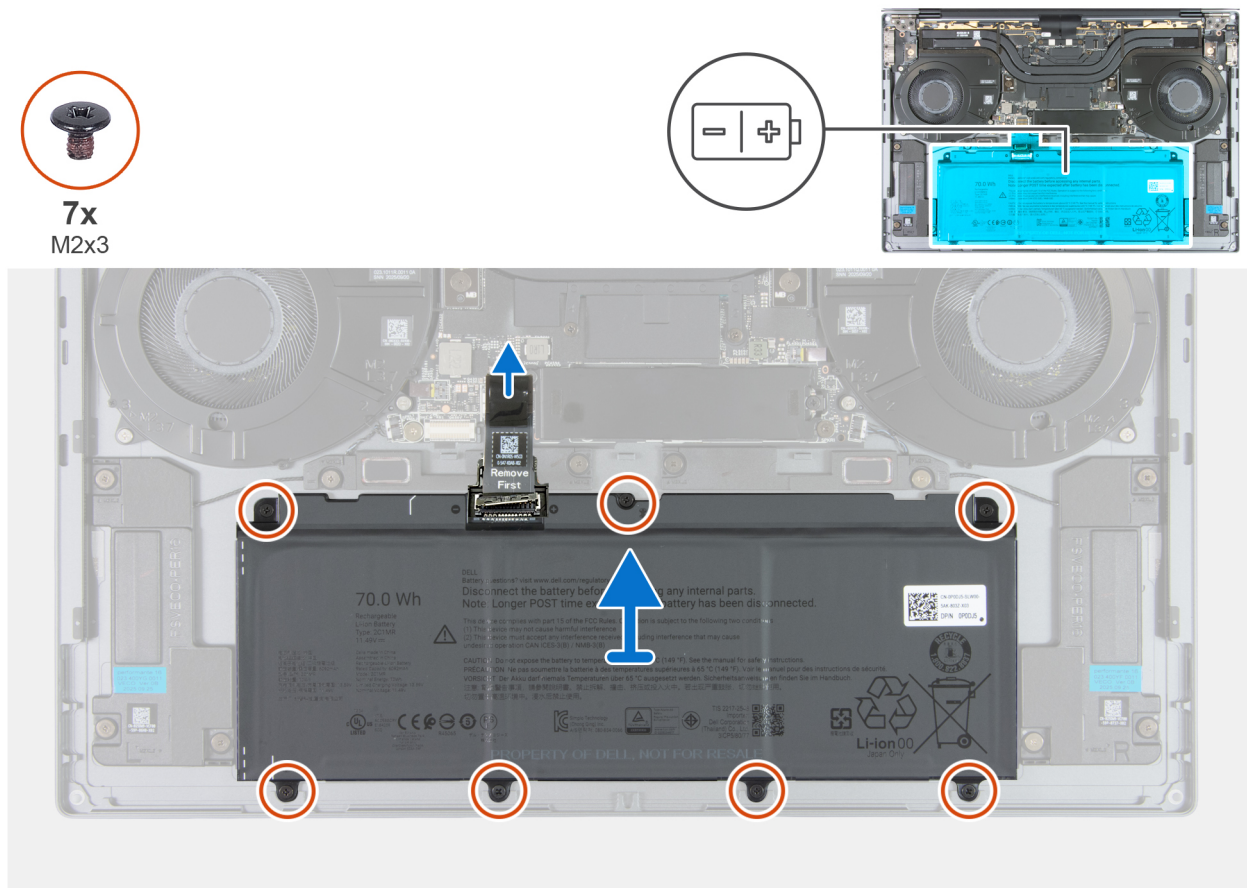


Figure 9. Removing the battery

Steps

1. Using the pull tab, disconnect the battery cable from the battery if you did not disconnect it when [removing the palm-rest and keyboard assembly](#).
2. Remove the seven screws (M2x3) that secure the battery to the base cover.
3. Using a plastic scribe if required, lift the battery off the base cover.

NOTE: Check that all screws that are removed during this procedure are accounted for before proceeding to replace the component.

Installing the battery

Prerequisites

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

About this task

The following video provides an overview of this task.

Watch video: [Install the battery](#) 

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

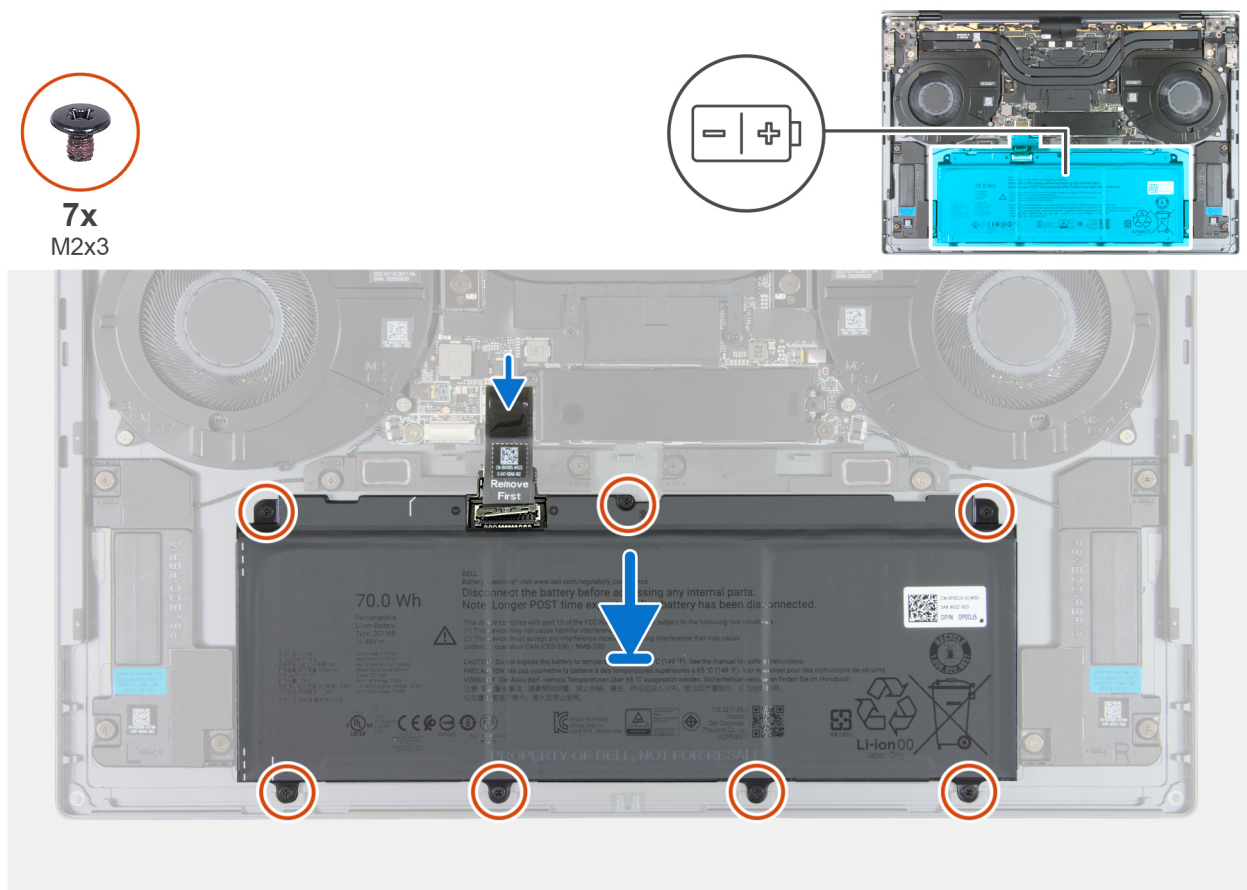


Figure 10. Installing the battery

Steps

1. Align and place the battery edge at an angle so that the tabs on the battery fit into the hooks on the base cover.
2. Replace seven screws (M2x3) that secure the battery to the base cover.

NOTE: Check that all screws are securely tightened and that the battery is properly secured to the base cover.

3. Connect the battery cable to the system board.

Next steps

1. Install the [Palm-rest and keyboard assembly](#).
2. Follow the procedure in [After working inside your computer](#).

Solid-state drive

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [Palm-rest and keyboard assembly](#).

About this task

 **NOTE:** Depending on the configuration ordered, your computer may support an M.2 2230 SSD or an M.2 2280 SSD.

 **NOTE:** This task applies only to computers shipped with an M.2 2230 SSD.

The following video provides an overview of this task.



Watch video: [Remove the M.2 2230 SSD](#)

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



2x
M2x3

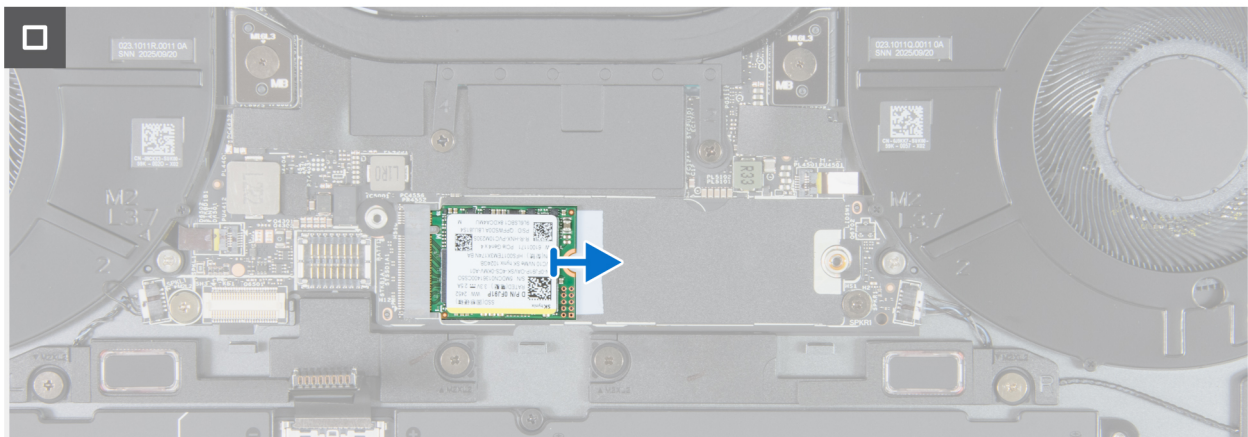
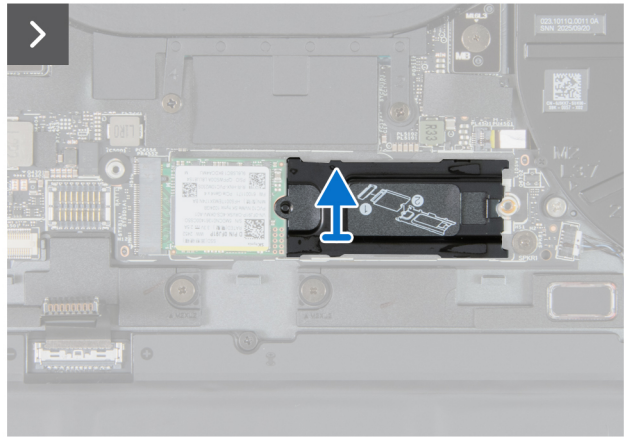
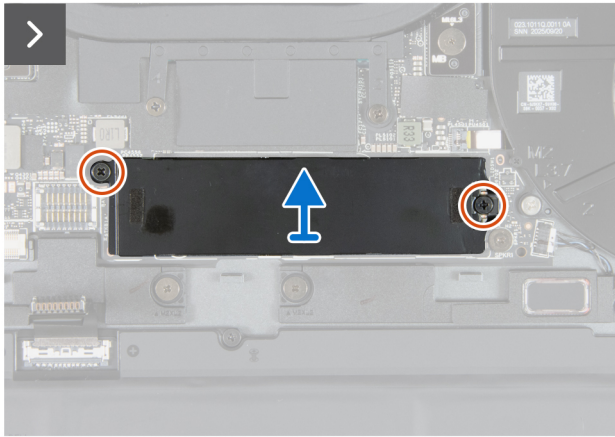
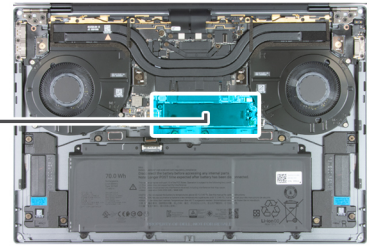


Figure 11. Remove the M.2 2230 solid-state drive

Steps

1. Remove the two screws (M2x3) that secure the M.2 SSD thermal shield to the system board.
2. Slide and remove the M.2 SSD thermal shield off the system board.
3. Lift the M.2 2230 SSD bracket off the system board.
4. Gently lift and slide the M.2 2230 SSD out of the SSD slot.

 **CAUTION:** When removing the SSD, be careful not to damage or dislodge the thermal pad on the system board.

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

Prerequisites

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

About this task

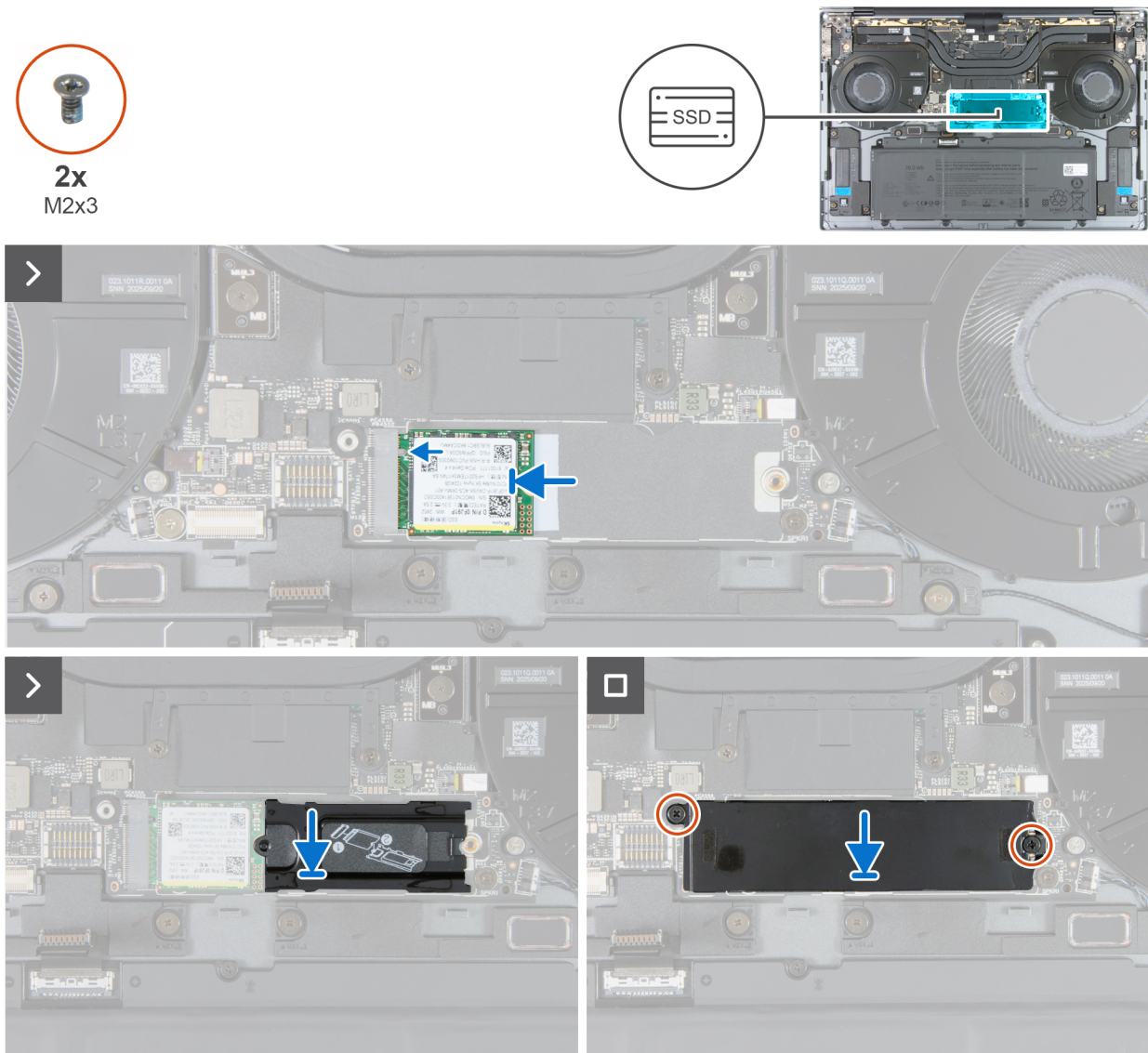
The following video provides an overview of this task.



[Watch video: Install the M.2 2230 SSD](#)

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

Figure 12. Install the M.2 2230 solid-state drive



Steps

1. Align the notch on the M.2 2230 SSD with the tab on the SSD slot, then gently slide the SSD into the slot.

 **CAUTION:** When installing the SSD, be careful not to damage or dislodge the thermal pad on the system board.

2. Angle the M.2 2230 SSD bracket into the SSD slot.
3. Place the M.2 SSD thermal shield onto the M.2230 SSD and bracket as shown, ensuring the screw holes are aligned with the system board.
4. Replace the two screws (M2x3) that secure the M.2 SSD thermal shield to the system board.

Next steps

1. Install the [Palm-rest and keyboard assembly](#).
2. Follow the procedure in [After working inside your computer](#).

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

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [Palm-rest and keyboard assembly](#).

About this task

NOTE: Depending on the configuration ordered, your computer may support an M.2 2230 SSD or an M.2 2280 SSD.

NOTE: This task applies only to computers shipped with an M.2 2280 SSD.

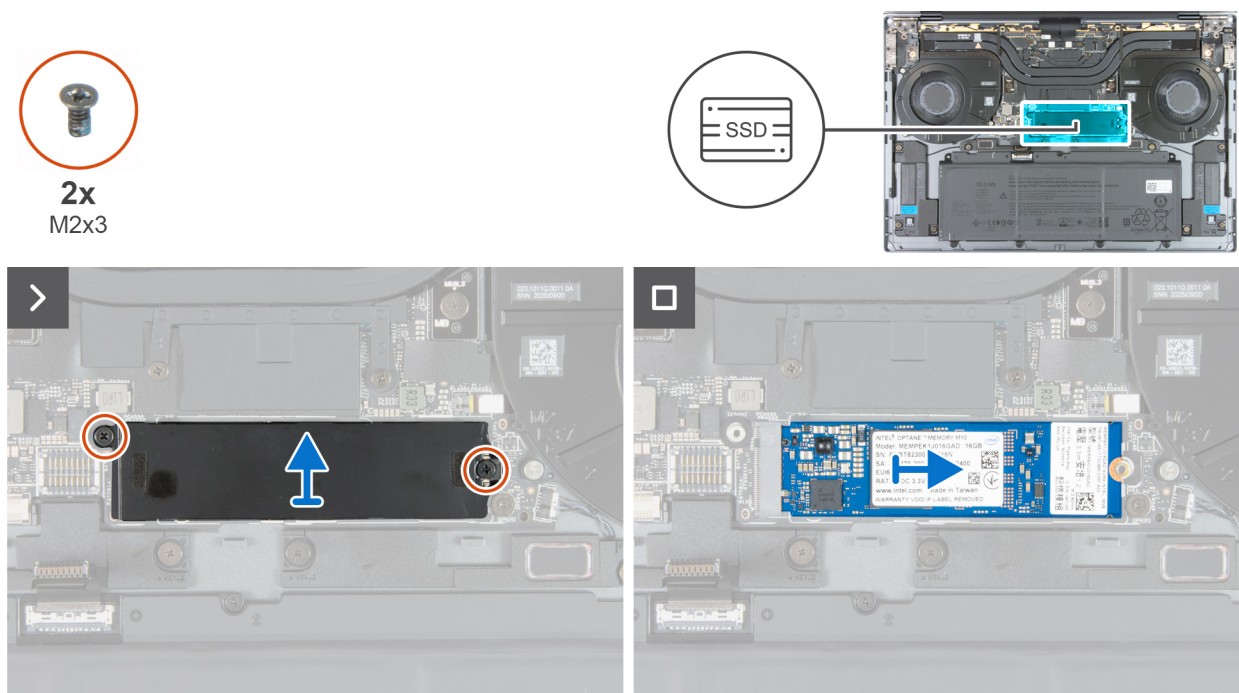
The following video provides an overview of this task.



Watch video: [Remove the M.2 2280 SSD](#)

The following image indicates the location of the M.2 2280 SSD and provides a visual representation of the removal procedure.

Figure 13. Removing the M.2 2280 solid-state drive



Steps

1. Remove the two screws (M2x3) that secure the M.2 SSD thermal shield to the system board.
2. Slide and remove the M.2 SSD thermal shield off the system board.
3. Gently lift and slide the M.2 2280 SSD out of the SSD slot.



CAUTION: When removing the SSD, be careful not to damage or dislodge the thermal pad on the system board.

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

Prerequisites

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

About this task

NOTE: Depending on the configuration ordered, your computer may support an M.2 2230 SSD or an M.2 2280 SSD.

NOTE: This task applies only to computers shipped with an M.2 2280 SSD.

The following video provides an overview of this task.



Watch video: [Install the M.2 2280 SSD](#)

The following image indicates the location of the M.2 2280 SSD and provides a visual representation of the installation procedure.

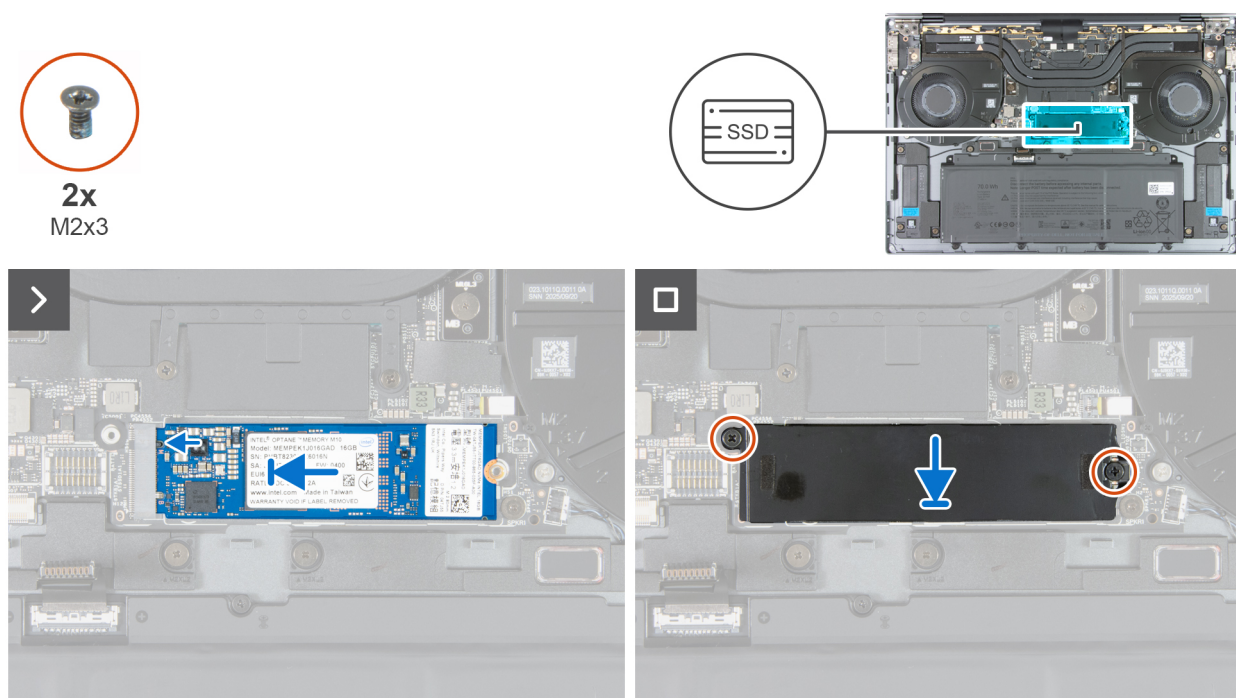


Figure 14. Install the M.2 2280 solid-state drive

Steps

1. Align the notch on the M.2 2280 SSD with the tab on the SSD slot, then gently slide the SSD into the slot.



CAUTION: When installing the SSD, be careful not to damage or dislodge the thermal pad on the system board.

2. Place the M.2 SSD thermal shield onto the M.2280 SSD as shown, ensuring the screw holes are aligned with the system board.
3. Replace the two screws (M2x3) that secure the M.2 SSD thermal shield to the system board.

Next steps

1. Install the [Palm-rest and keyboard assembly](#).

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

Wireless-module shield

Removing the wireless-module shield

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [Palm-rest and keyboard assembly](#).

About this task

The following video provides an overview of this task.



Watch video: [Remove the wireless-module shield](#)

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

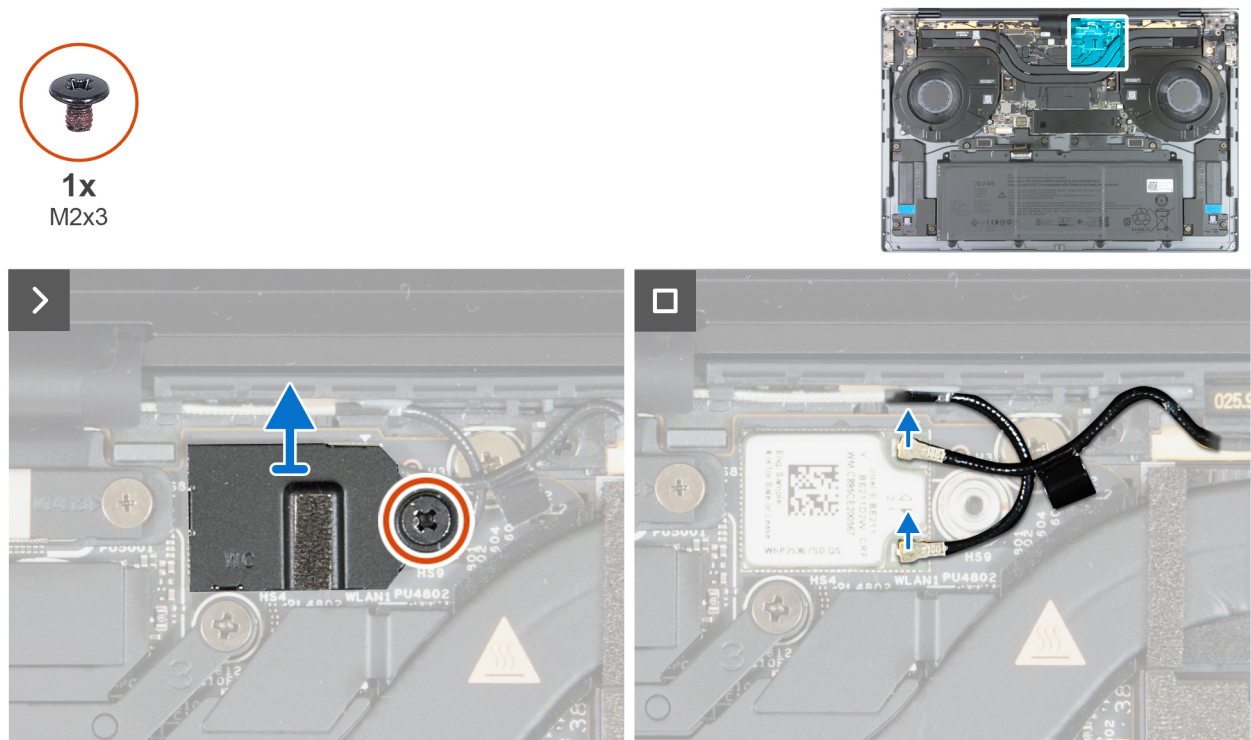


Figure 15. Removing the wireless-module shield

Steps

1. Remove the screw (M2x3) that secures the wireless-module shield to the system board.
2. Lift the wireless-module shield off the system board.
3. Disconnect the antenna cables from the wireless module, if required.

 **NOTE:** The wireless module is integrated on the system board and not replaceable.

Installing the wireless-module shield

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

Prerequisites

About this task

The following video provides an overview of this task.



Watch video: [Install the wireless-module shield](#)

The following image indicates the location of the wireless-module shield and provides a visual representation of the installation procedure.

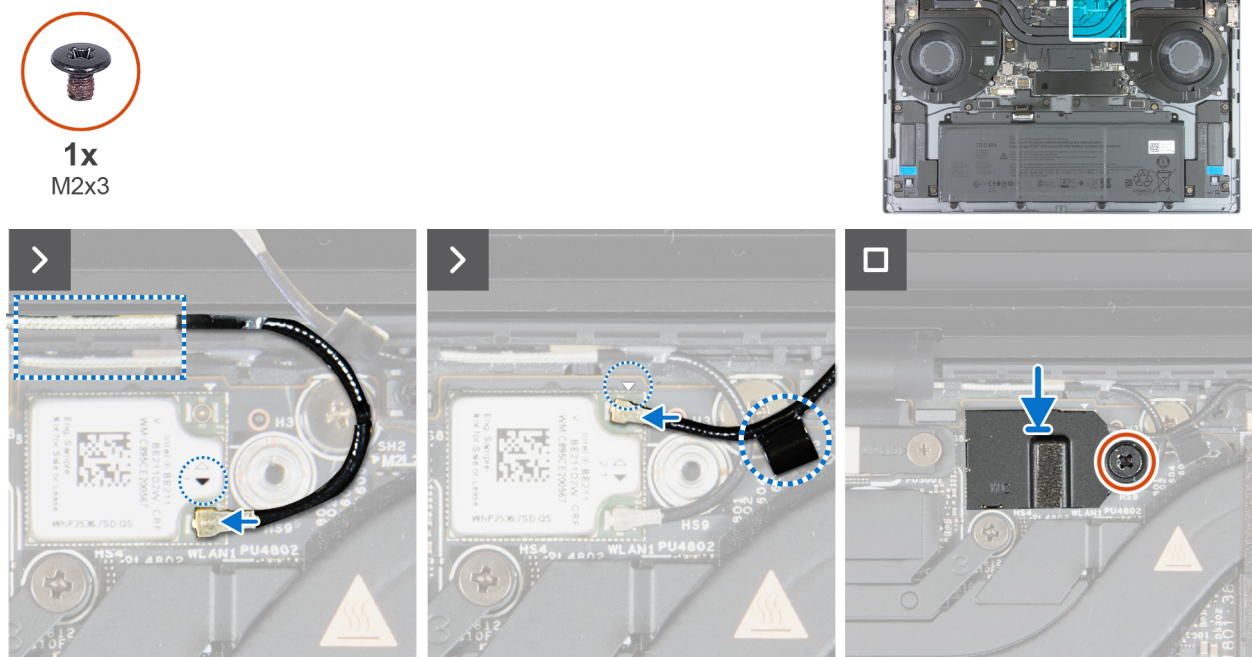


Figure 16. Installing the wireless-module shield

Steps

1. If disconnected, connect the antenna cable with the white sleeve to connector on the wireless module (indicated by the black triangle).
2. If disconnected, connect the antenna cable with the black label to the connector on the wireless module (indicated by the white triangle).
3. Align the screw hole on the wireless-module shield with the screw hole on the system board.
4. Replace the screw (M2x3) that secures the wireless-module shield to the system board.

Next steps

1. Install the [Palm-rest and keyboard assembly](#).
2. Follow the procedure in [After working inside your computer](#).

Display assembly

Removing the display assembly

Prerequisites

1. Follow the procedure in [Before working inside your computer.](#)
2. Remove the [Palm-rest and keyboard assembly.](#)

About this task

The following video provides an overview of this task.



Watch video: Remove the display assembly

NOTE: The display assembly is a Hinge-Up Design (HUD) assembly and cannot be further disassembled. If any components in the display assembly are malfunctioning and must be replaced, replace the entire display assembly.

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

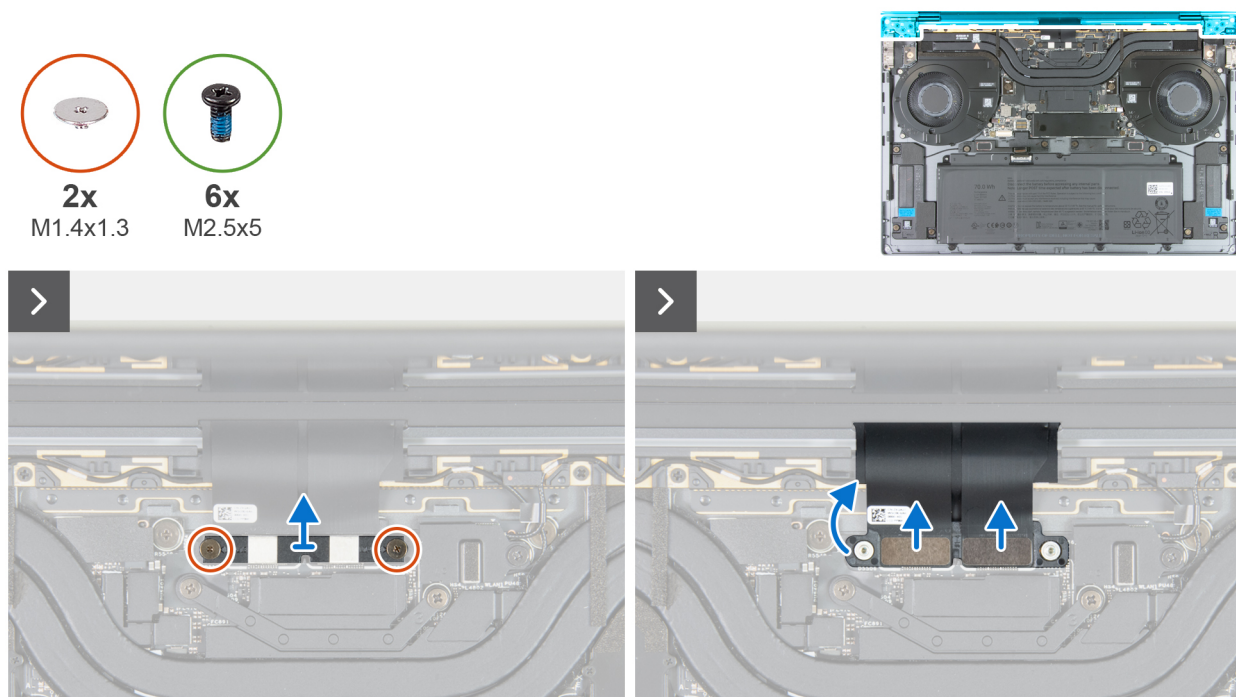


Figure 17. Removing the display assembly

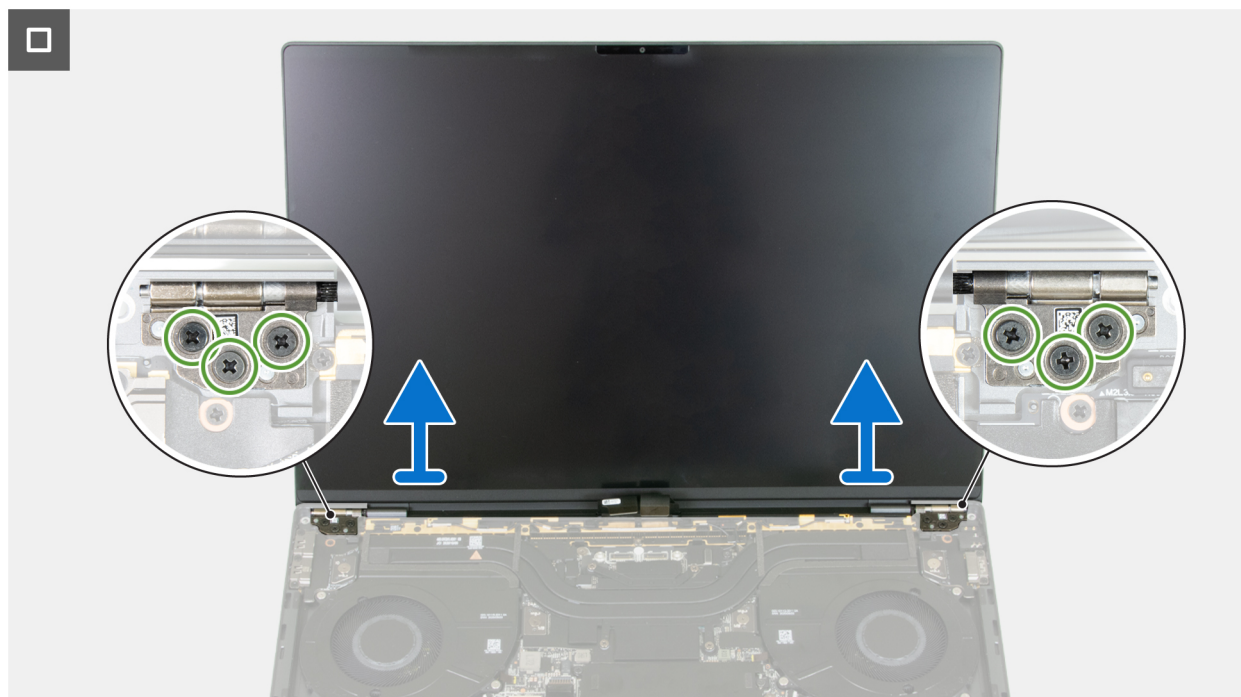


Figure 18. Removing the display assembly

Steps

1. Open the display assembly to a 90-degree angle.
2. Remove the two screws (M1.4x1.3) that secure the display-cable bracket to the base cover.
3. Remove the display-cable bracket from the base cover.
4. Disconnect the two display-cable connectors from the system board. If required, use a scribe to pry the connectors from the system board.
5. Holding the display assembly in position with one hand, remove the six screws (M2.5x5) that secure the left and right hinges of the display assembly to the base cover.
6. Tilting the display forward slightly, gently lift the display assembly off the base cover.

CAUTION: Check that the display-cable connectors are completely disconnected from the system board before proceeding to lift the display assembly clear of the system board.

7. After performing all the above steps, you are left with the display assembly.

Installing the display assembly

Prerequisites

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

About this task

The following video provides an overview of this task.



Watch video: [Install the display assembly](#)

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

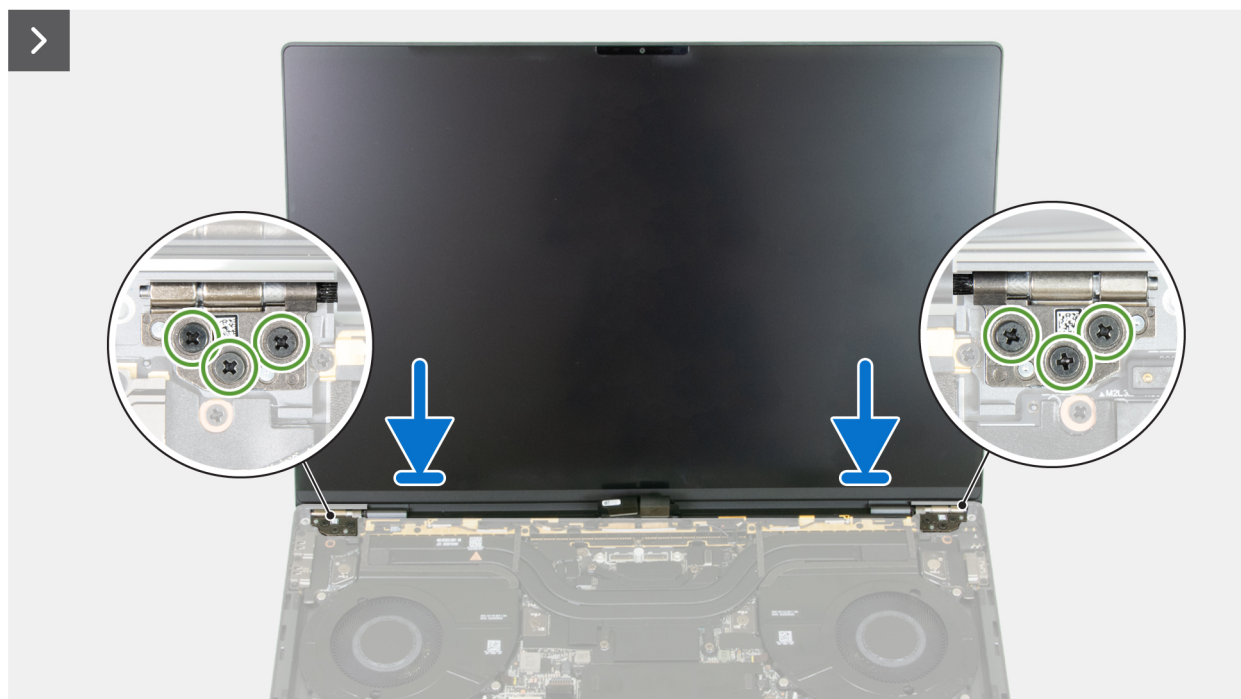
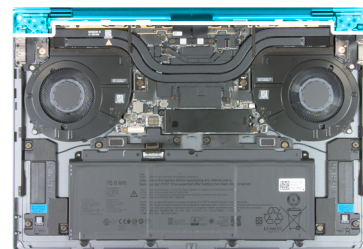


Figure 19. Installing the display assembly

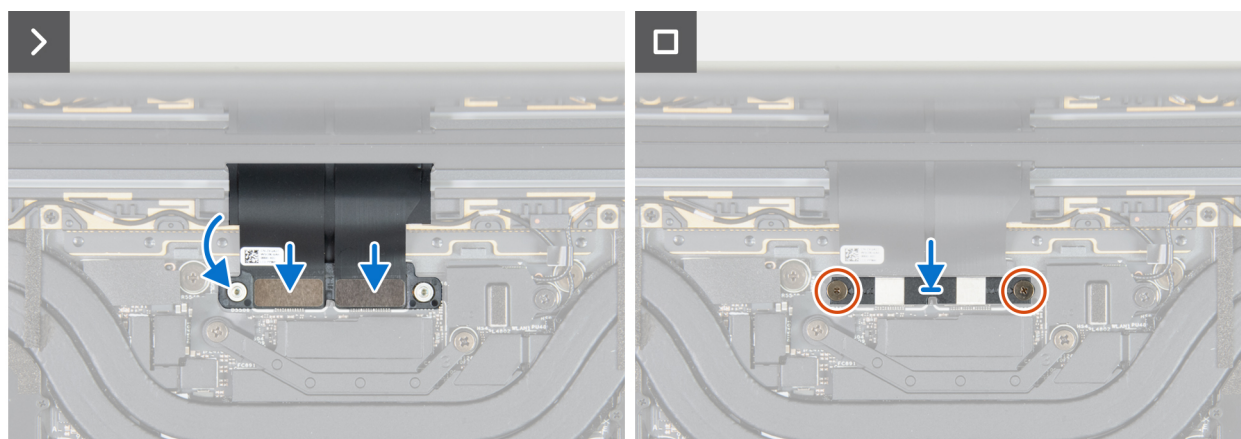


Figure 20. Installing the display assembly

Steps

1. Placing the display assembly at a 90-degree angle, align the screw holes of left and right hinges of the display assembly with the screw holes on the base cover.
2. Holding the display assembly in position with one hand, replace the six screws (M2.5x5) that secure the left and right hinges of the assembly to the base cover.
3. Position the two display-cable connectors over the connectors on the system board, pushing them securely into place.
4. Using the alignment posts, place the display-cable bracket over the cable connectors.
5. Align the screw holes on the display-cable bracket with the screw holes on the system board.

6. Replace the two screws (M1.4x1.3) that secures the display-cable bracket to the system board.

Next steps

1. Install the [Palm-rest and keyboard assembly](#).
2. Follow the procedure in [After working inside your computer](#).

Thermal fans

Removing the left-thermal fan

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [Palm-rest and keyboard assembly](#).

About this task

The following video provides an overview of this task.

Watch video: [Remove the left-thermal fan](#) 

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

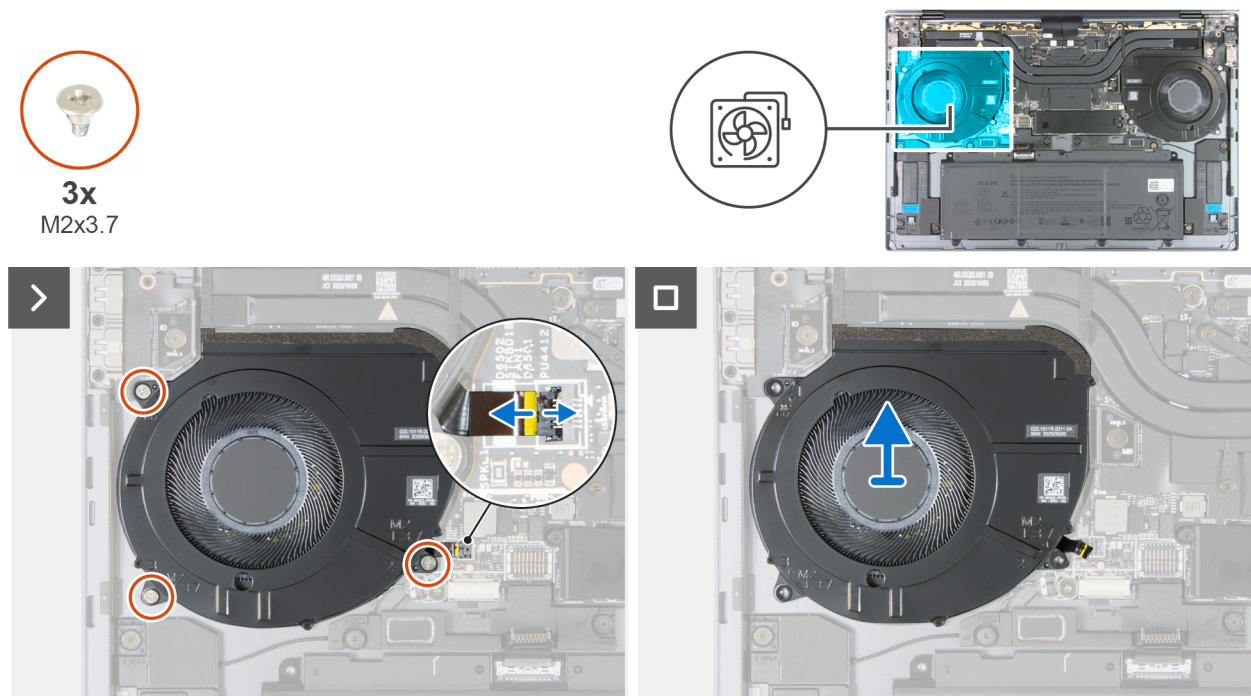


Figure 21. Removing the left-thermal fan

Steps

1. Remove the three screws (M2x3.7) that secure the fan to the base cover.

 **CAUTION:** Do not hold the fan assembly at the center, as it may damage the center bearing.

2. Open the latch and disconnect the fan cable from the connector on the system board.
3. Lift the fan off the base cover.

Installing the left-thermal fan

Prerequisites

About this task

The following video provides an overview of this task.

Watch video: [Install the left-thermal fan](#)



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

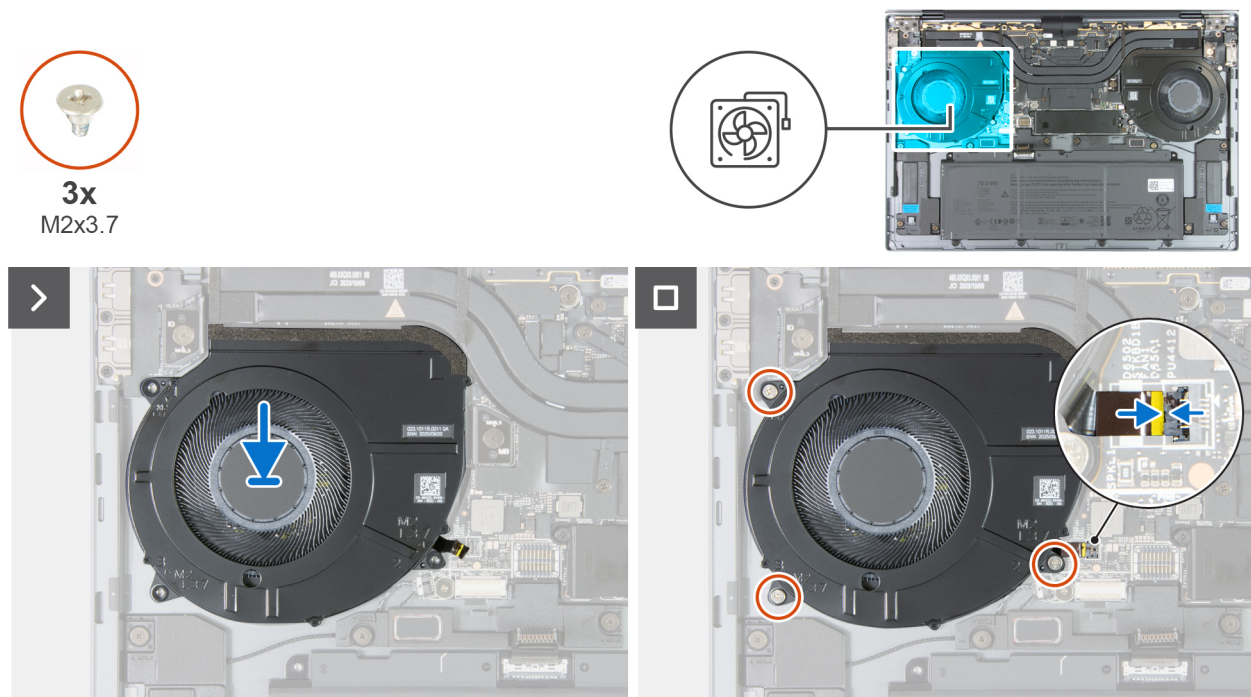


Figure 22. Installing the left-thermal fan

Steps

1. Place the fan into position on the base cover.
2. Align the screw holes on the fan with the screw holes on the base cover.
3. Replace the three screws (M2x3.7) that secure the fan to the system board and base cover.
4. Connect the fan cable to the connector on the system board and close the latch.

Next steps

1. Install the [Palm-rest and keyboard assembly](#).
2. Follow the procedure in [After working inside your computer](#).

Removing the right-thermal fan

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [Palm-rest and keyboard assembly](#).

About this task

The following video provides an overview of this task.



[Watch video: Remove the right-thermal fan](#)

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

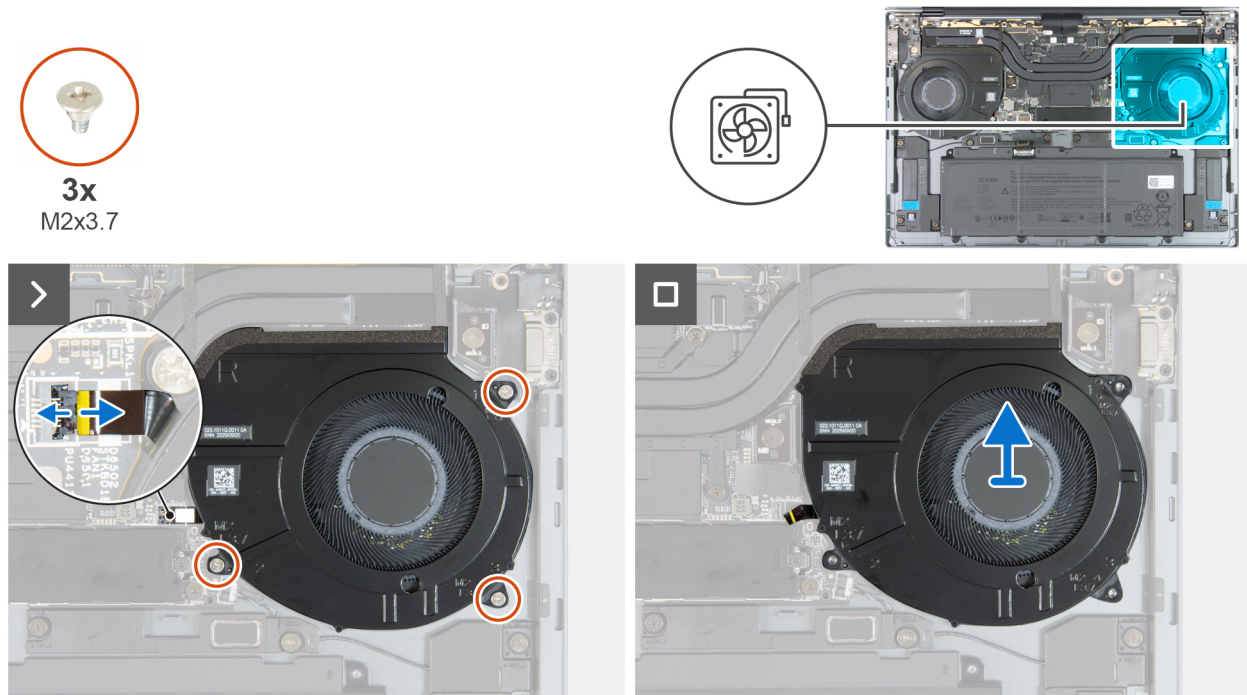


Figure 23. Removing the right-thermal fan

Steps

1. Remove the three screws (M2x3.7) that secure the fan to the base cover.

 **CAUTION:** Do not hold the fan assembly at the center, as it may damage the center bearing.

2. Open the latch and disconnect the fan cable from the connector on the system board.
3. Lift the fan off the base cover.

Installing the right-thermal fan

Prerequisites

About this task

The following video provides an overview of this task.



[Watch video: Install the right-thermal fan](#)

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

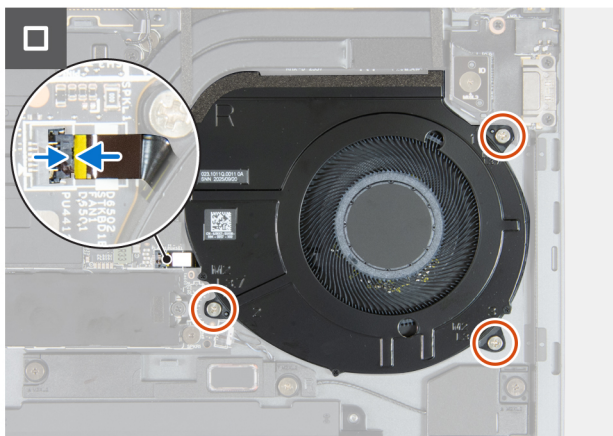
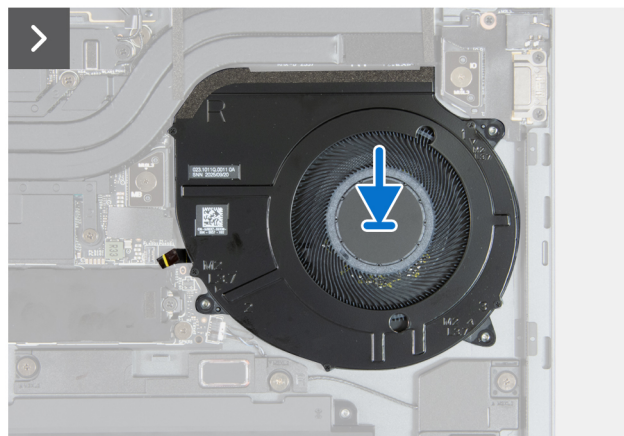
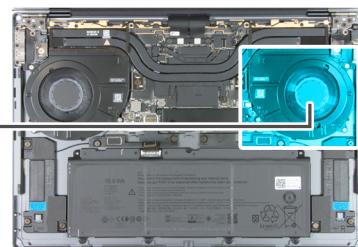
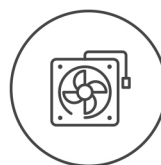


Figure 24. Installing the right-thermal fan

Steps

1. Place the fan into position on the base cover.
2. Align the screw holes on the fan with the screw holes on the base cover.
3. Replace the three screws (M2x3.7) that secure the fan to the system board and base cover.
4. Connect the fan cable to the connector on the system board and close the latch.

Next steps

1. Install the [Palm-rest and keyboard assembly](#).
2. Follow the procedure in [After working inside your computer](#).

Speakers

Removing the speakers

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [Palm-rest and keyboard assembly](#).

About this task

The following video provides an overview of this task.



[Watch video: Remove the speakers](#)

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

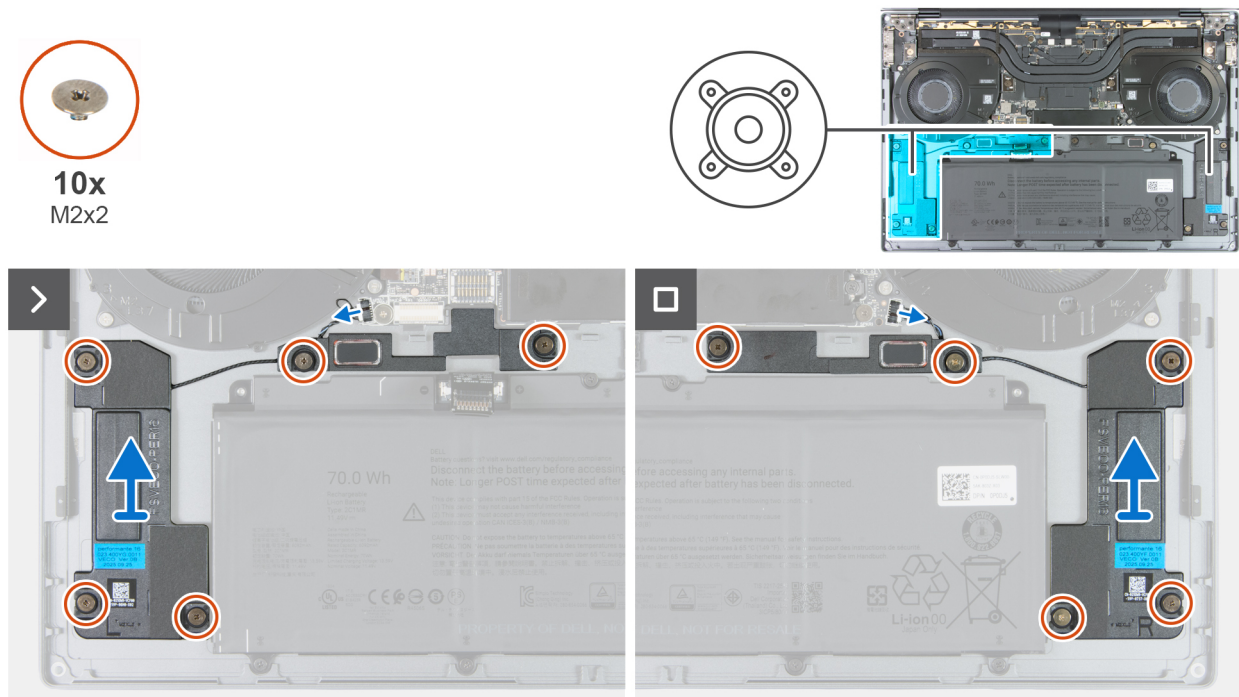


Figure 25. Removing the speakers

Steps

1. Remove the ten screws (M2x2) that secure the left and right speakers to the base cover.
2. Disconnect the speaker cables from the connectors on the system board.
3. Lift the left and right speakers off the base cover.

Installing the speakers

Prerequisites

About this task

The following video provides an overview of this task.



[Watch video: Install the speakers](#)

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

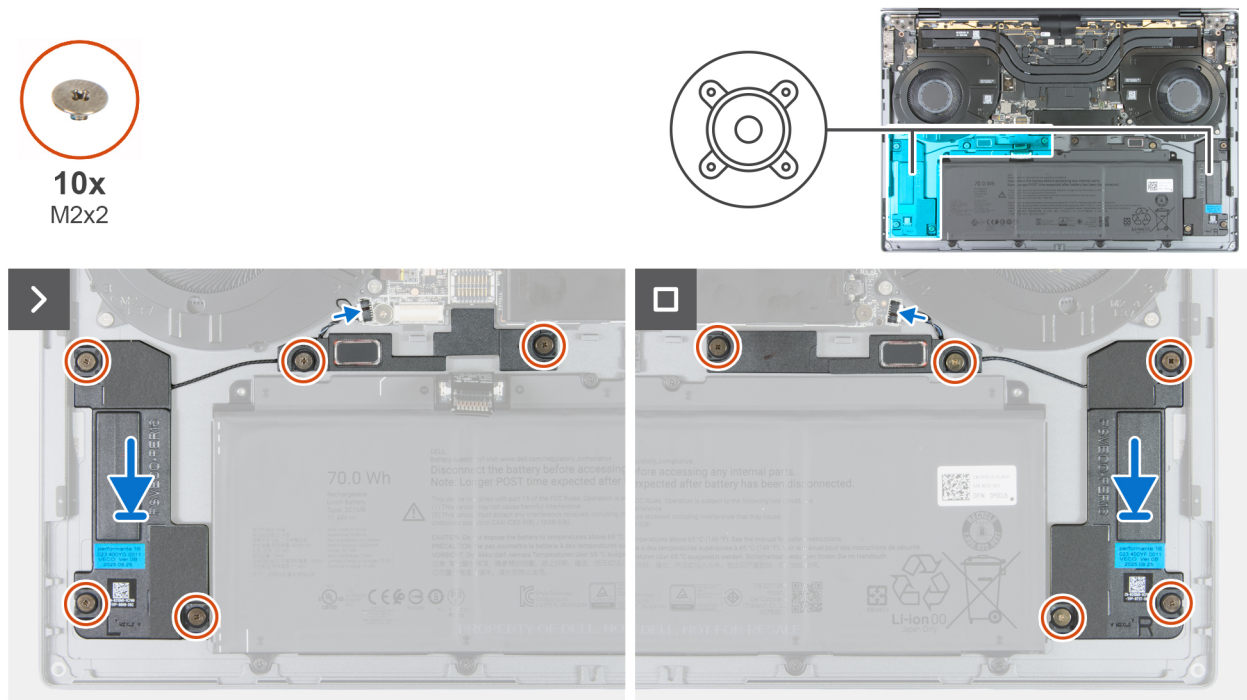


Figure 26. Installing the speakers

Steps

1. Using the alignment posts on the base cover, place the left and right speakers into position.
2. Connect the speaker cables to the connectors on the system board.
3. Replace the ten screws (M2x2) that secure the left and right speakers to the base cover.

Next steps

1. Install the [Palm-rest and keyboard assembly](#).
2. Follow the procedure in [After working inside your computer](#).

Heat sink

Removing the heat sink

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [Palm-rest and keyboard assembly](#).

About this task

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

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

The following video provides an overview of this task.



Watch video: [Remove the heat sink](#)

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



4x

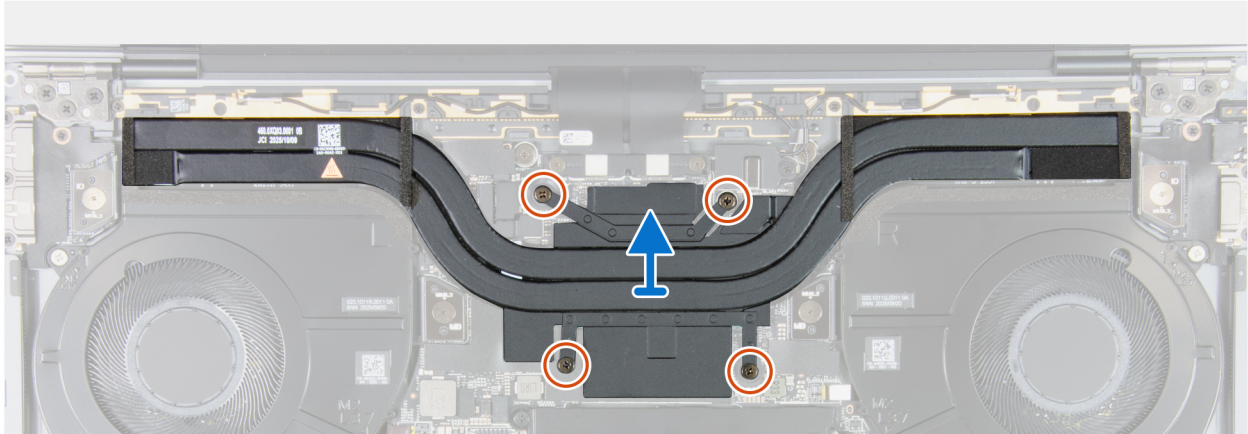
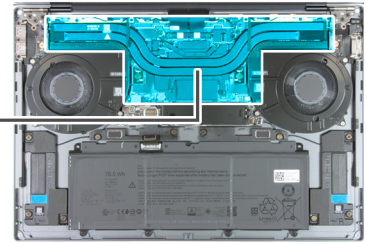


Figure 27. Removing the heat sink

Steps

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

Installing the heat sink

Prerequisites

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

About this task

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

The following video provides an overview of this task.



[Watch video: Install the heat sink](#)

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

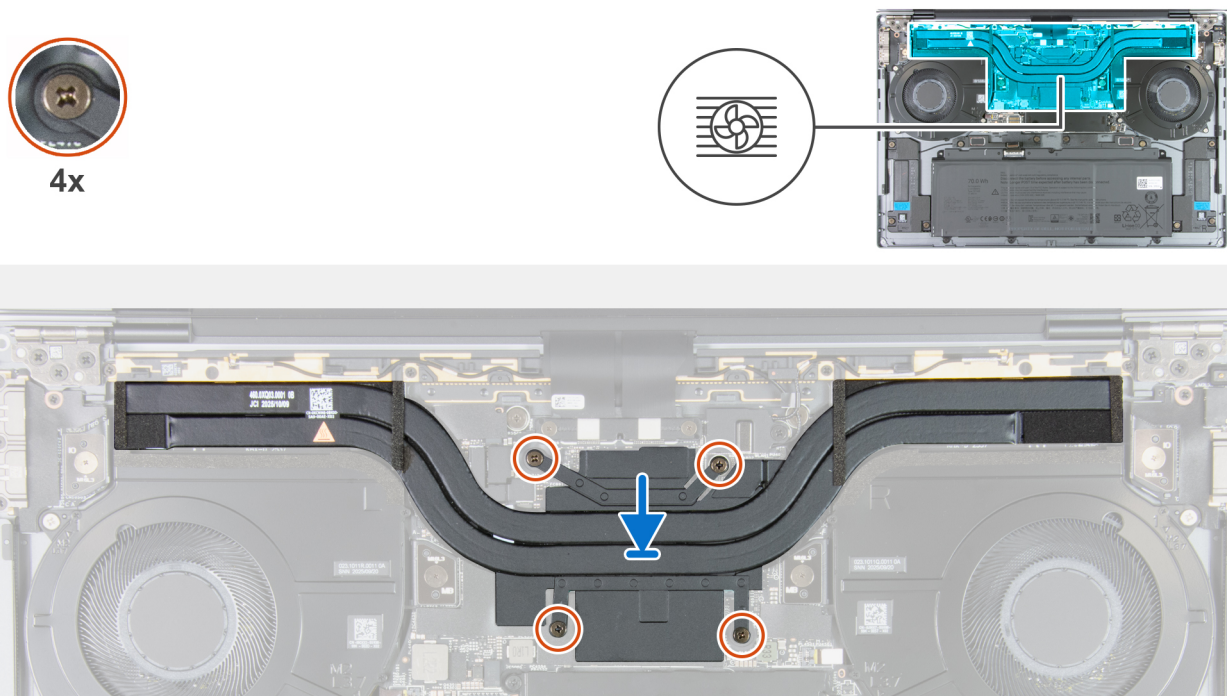


Figure 28. Installing the heat sink

Steps

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

Next steps

1. Install the [Palm-rest and keyboard assembly](#).
2. Follow the procedure in [After working inside your computer](#).

System board

Removing the system board

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [Palm-rest and keyboard assembly](#).
3. Remove the [Battery](#).
4. Remove the [Solid-state drive](#).
5. Remove the [Wireless-module shield](#).
6. Remove the [Display assembly](#).
7. Remove the [Thermal fans](#).
8. Remove the [Heat sink](#).

About this task

The following image indicates the connectors and components on your system board.

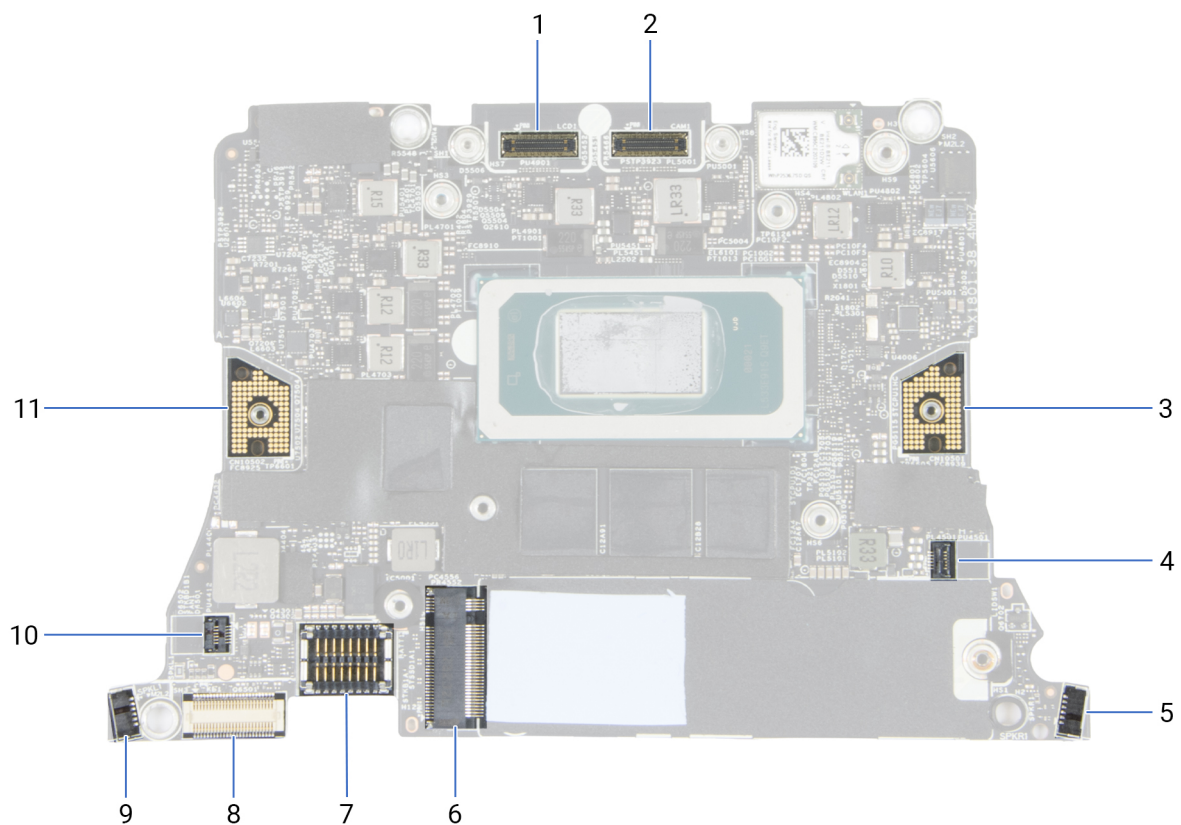


Figure 29. System-board connectors

- | | |
|--|---|
| 1. Left display assembly cable connector (for display) | 2. Right display assembly cable connector (for cameras) |
| 3. Right PCBeam connector | 4. Right fan cable connector |
| 5. Right speaker cable connector | 6. M.2 solid-state drive slot |
| 7. Battery cable connector | 8. Palm rest and keyboard assembly connector |
| 9. Left speaker cable connector | 10. Left fan cable connector |
| 11. Left PCBeam connector | |

The following video provides an overview of this task.



[Watch video: Remove the system board](#)

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

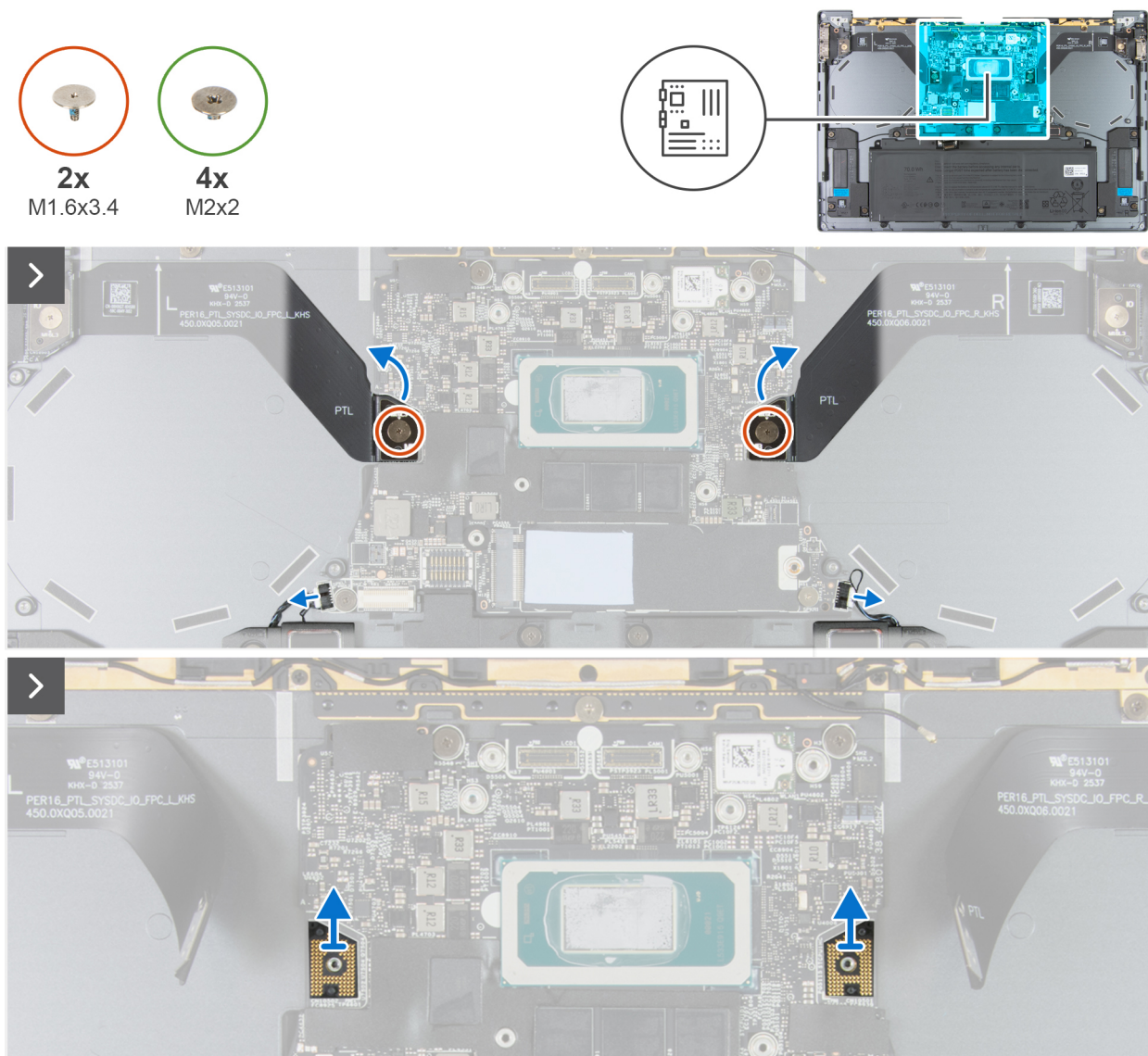


Figure 30. Removing the system board

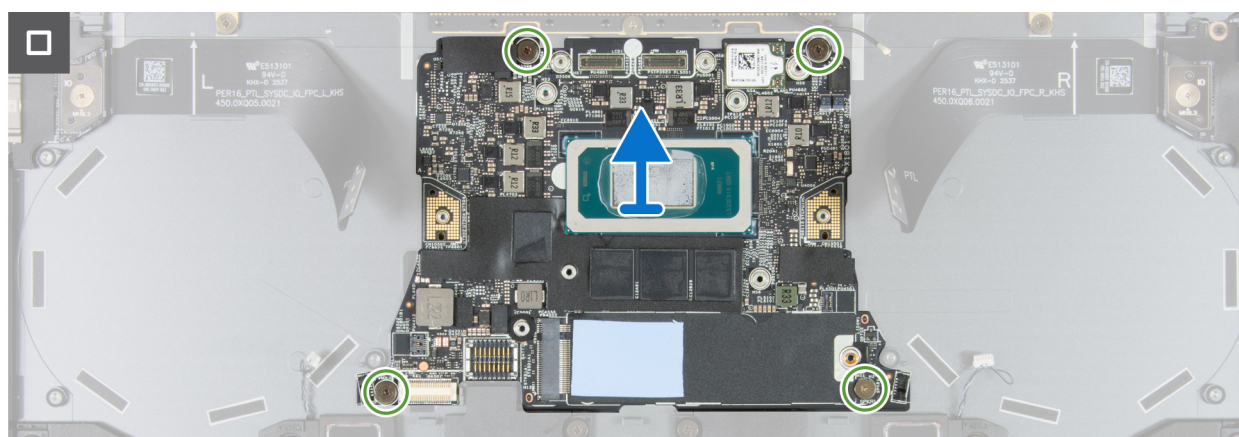


Figure 31. Removing the system board

Steps

1. Remove the two screws (M1.6x3.4) that secure the left and right PCBeam cables to the system board.

2. Pry off the left and right PCBeam interposers from the system board, storing them carefully for reuse.

CAUTION: Handle the PCBeam interposers with care by the edges. Avoid touching the pins on the connectors.

3. Disconnect the two speaker cables from the system board.
4. Remove the four screws (M2x2) that secure the system board to the base cover.
5. Hold the system board by the short (left and right) edges, and lift the board off the base cover with care.

Installing the system board

Prerequisites

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

About this task

The following image indicates the connectors and components on your system board.

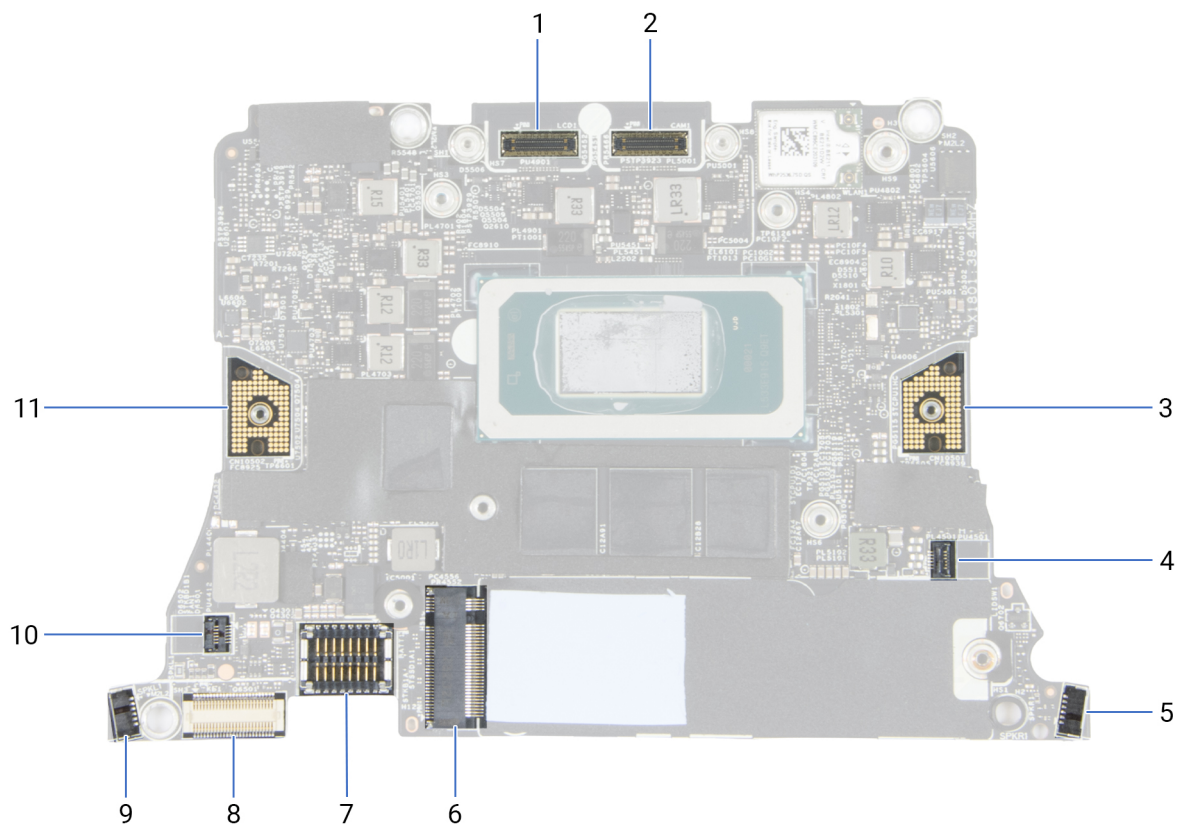


Figure 32. System-board connectors

- | | |
|--|---|
| 1. Left display assembly cable connector (for display) | 2. Right display assembly cable connector (for cameras) |
| 3. Right PCBeam connector | 4. Right fan cable connector |
| 5. Right speaker cable connector | 6. M.2 solid-state drive slot |
| 7. Battery cable connector | 8. Palm rest and keyboard assembly connector |
| 9. Left speaker cable connector | 10. Left fan cable connector |
| 11. Left PCBeam connector | |

The following video provides an overview of this task.

Watch video: [Install the system board](#)



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

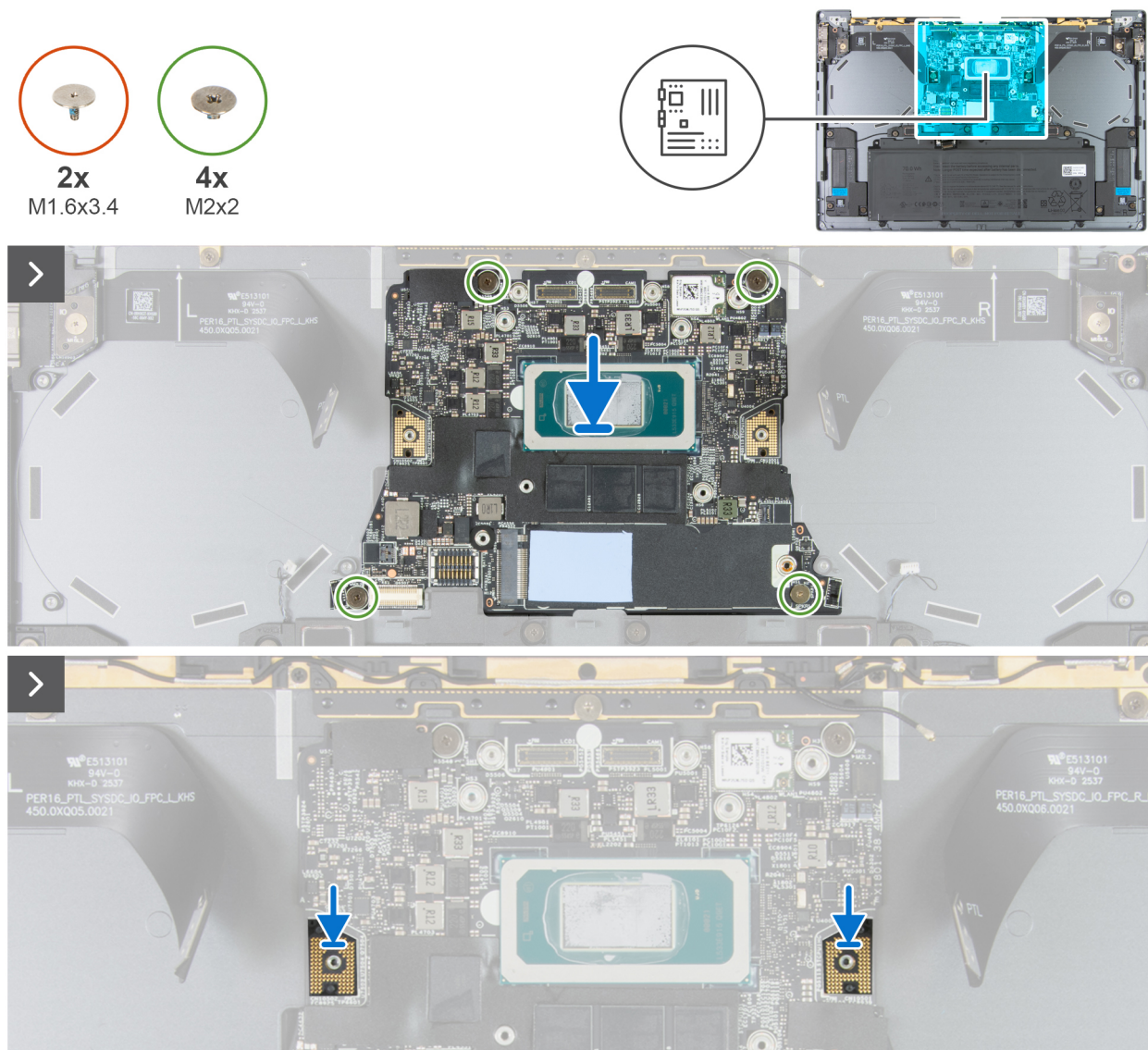


Figure 33. Installing the system board

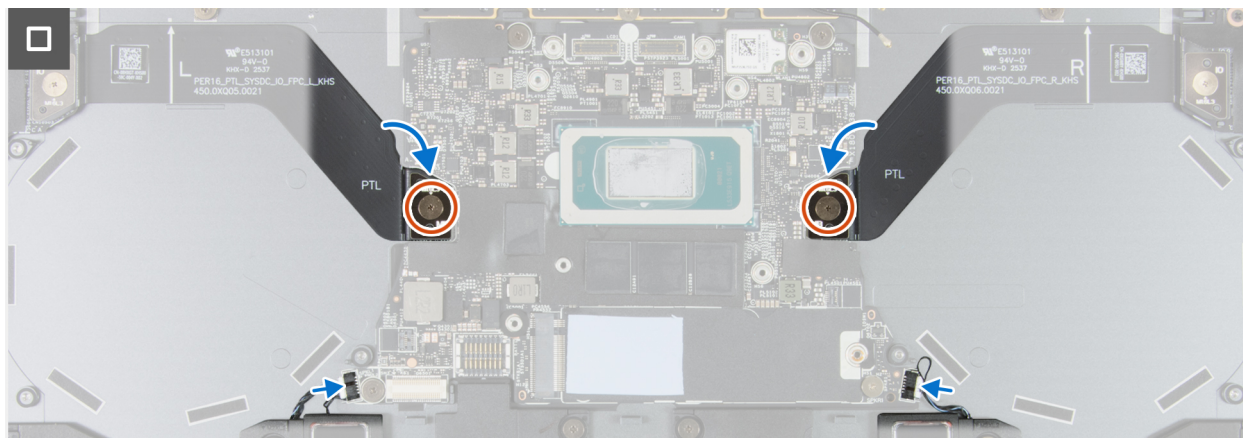


Figure 34. Installing the system board

Steps

1. Place the system board on the base cover.
2. Align the screw holes on the system board with the screw holes on the base cover.
3. Replace the four screws (M2x2) that secure the system board to the base cover.
4. Replace the left and right PCBeam interposers on the system-board connectors.

CAUTION: Handle the PCBeam interposers with care by the edges. Avoid touching the pins on the connectors.

5. Connect the left and right PCBeam cables to the PCBeam interposers on the system board.

NOTE: If replacing with new PCBeam cables, remove the blue-protective film under the cables. This allows you to adhere the cables into position on the base cover.

6. Replace the two screws (M1.6x3.4) that secure the PCBeam cables to the system board.
7. Connect the two speaker cables to the system board.

Next steps

1. Install the [Heat sink](#).
2. Install the [Thermal fans](#).
3. Install the [Display assembly](#).
4. Install the [Wireless-module shield](#).
5. Install the [Solid-state drive](#).
6. Install the [Battery](#).
7. Install the [Palm-rest and keyboard assembly](#).
8. Follow the procedure in [After working inside your computer](#).

Wireless-antenna module

Removing the wireless-antenna module

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [Palm-rest and keyboard assembly](#).
3. Remove the [Display assembly](#).
4. Remove the [Thermal fans](#).
5. Remove the [Heat sink](#).
6. Remove the [System board](#).

About this task

The following video provides an overview of this task.



[Watch video: Remove the wireless-antenna module](#)

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

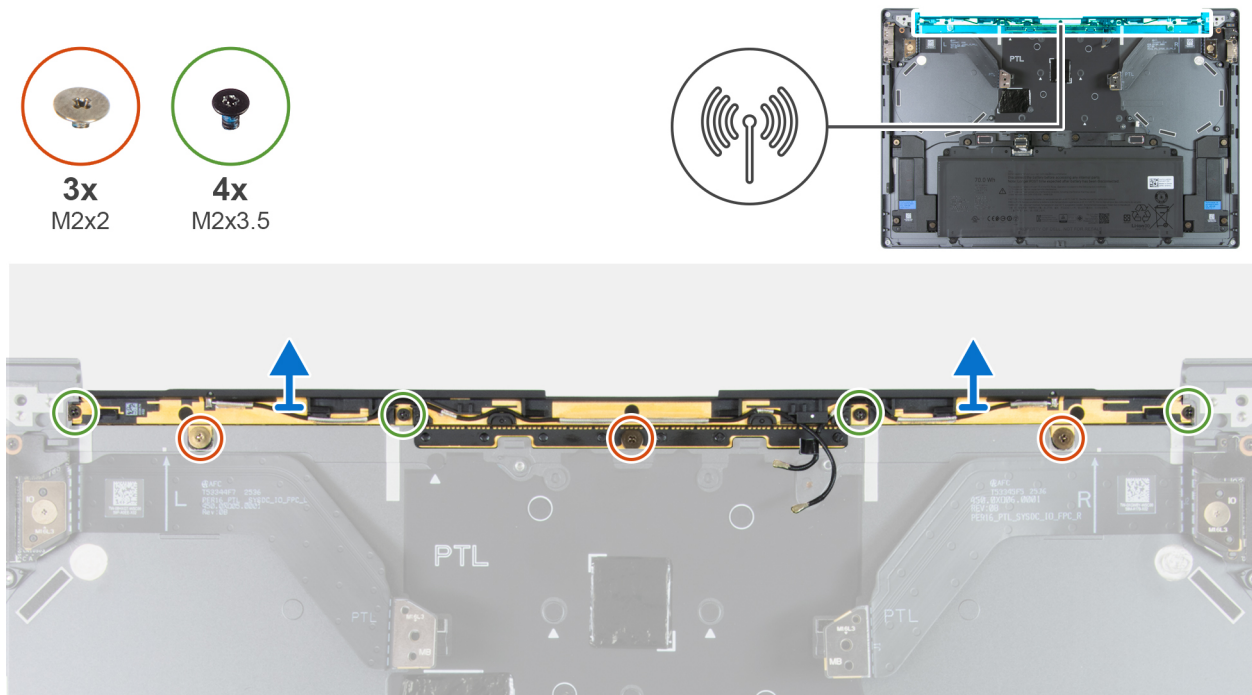


Figure 35. Removing the wireless-antenna module

Steps

1. Remove the six screws securing the wireless-antenna module to the base cover.
2. Lift the wireless-antenna module off the base cover.

Installing the wireless-antenna module

Prerequisites

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

About this task

The following video provides an overview of this task.



[Watch video: Install the wireless-antenna module](#)

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

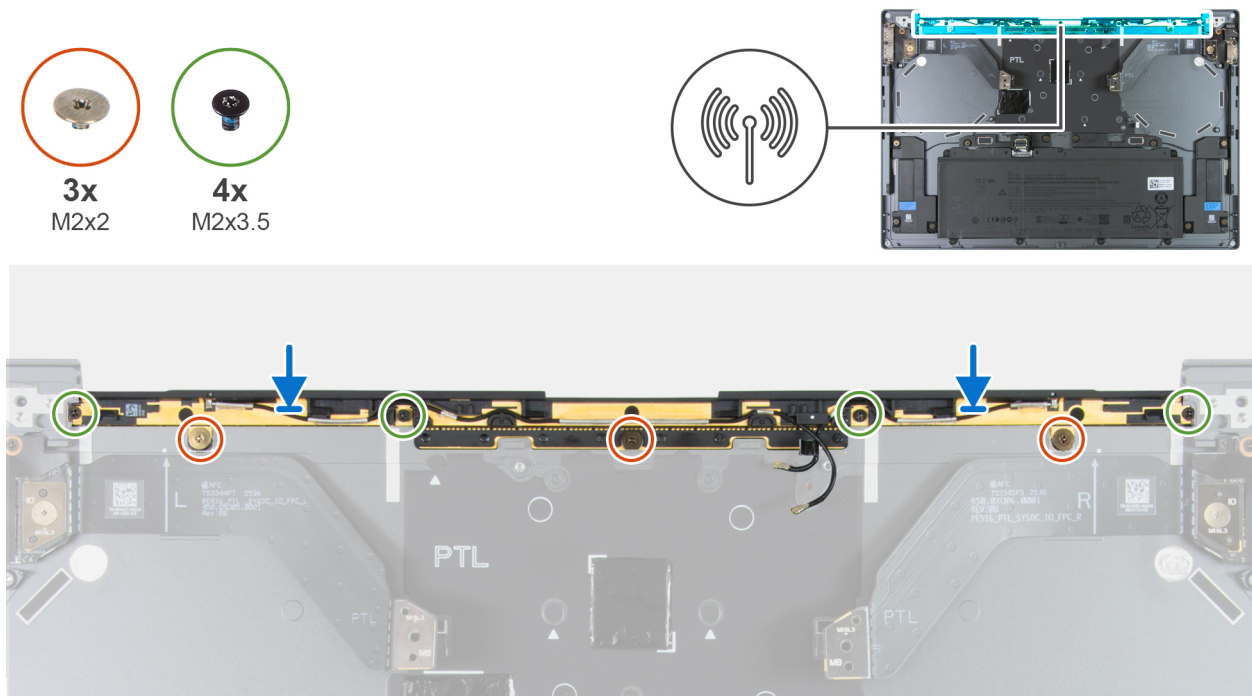


Figure 36. Installing the wireless-antenna module

Steps

1. Align the screw holes on the wireless-antenna module with the screw holes on the base cover.
2. Replace the six screws that secure the wireless-antenna module to the base cover.

Next steps

1. Install the [System board](#).
2. Install the [Heat sink](#).
3. Install the [Thermal fans](#).
4. Install the [Display assembly](#).
5. Install the [Palm-rest and keyboard assembly](#).
6. Follow the procedure in [After working inside your computer](#).

USB-C module

Removing the USB-C modules

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [Palm-rest and keyboard assembly](#).

About this task

NOTE: The left and right USB-C modules can be removed and replaced independently, and are not required to be removed or replaced as a pair.

The following video provides an overview of this task.



Watch video: [Remove the USB-C modules](#)

The following image indicates the location of the USB-C modules and provides a visual representation of the removal procedure.

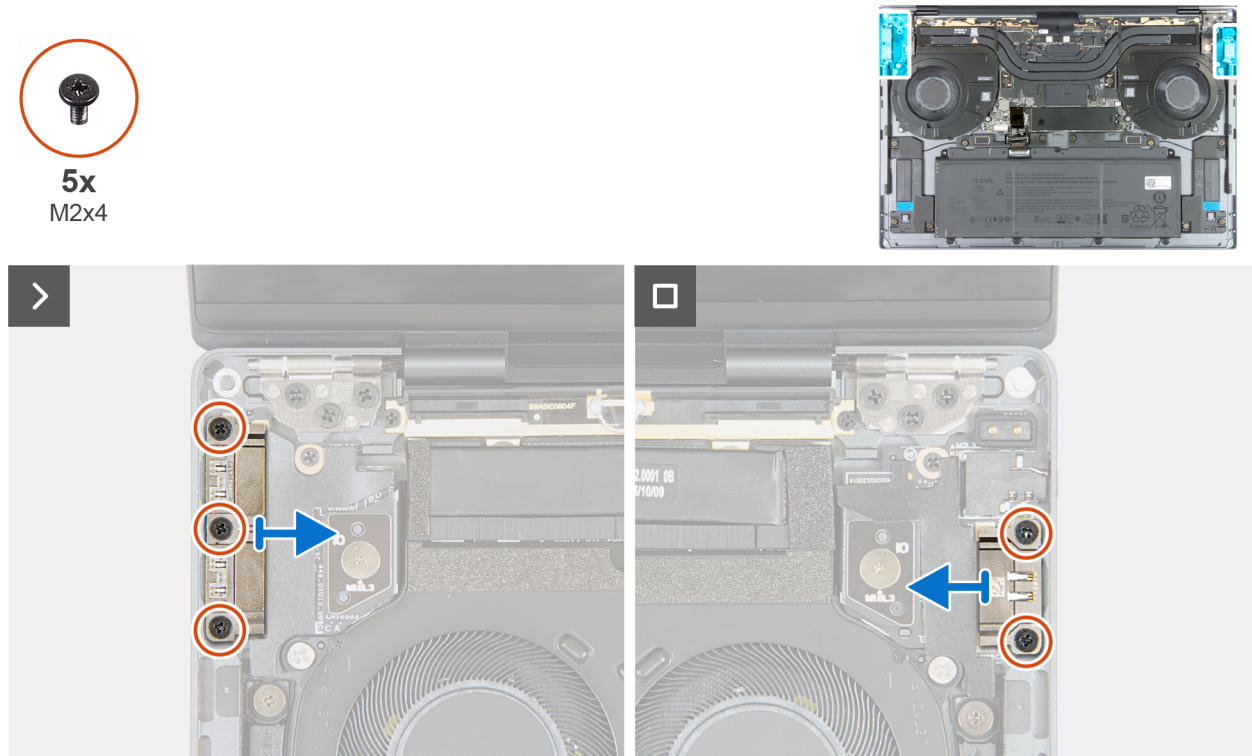


Figure 37. Removing the USB-C modules

Steps

1. Remove the three screws (M2x4) that secure the left USB-C modules to the left I/O daughterboard.
2. Remove the two screws (M2x4) that secure the right USB-C module right I/O daughterboard.
3. Lift the USB-C modules off the I/O daughterboards.

Installing the USB-C modules

Prerequisites

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

About this task

NOTE: The left and right USB-C modules can be removed and replaced independently, and are not required to be removed or replaced as a pair.

The following video provides an overview of this task.



[Watch video: Install the USB-C modules](#)

The following image indicates the location of the USB-C modules and provides a visual representation of the installation procedure.



5x
M2x4

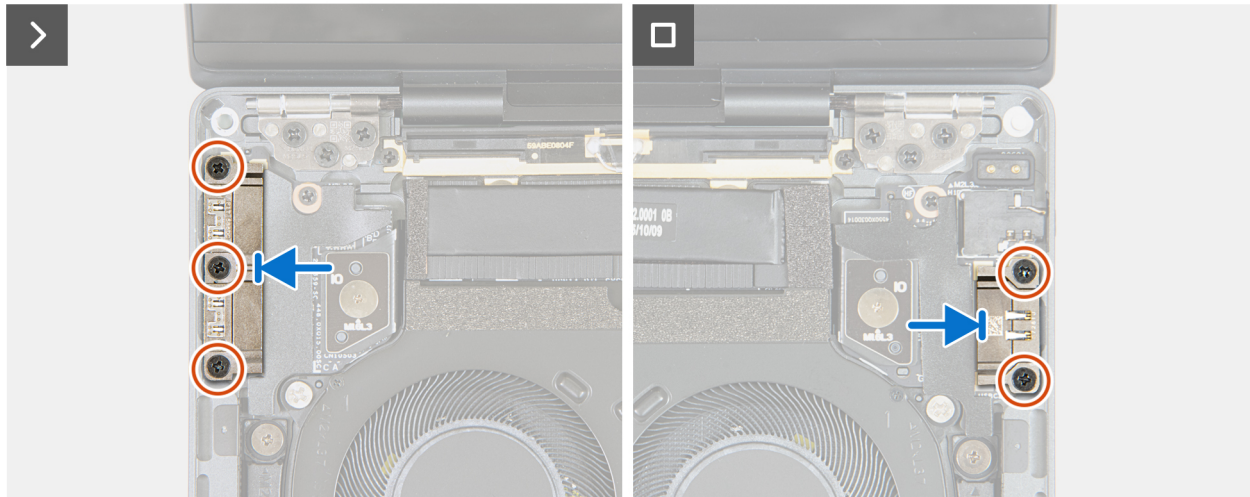
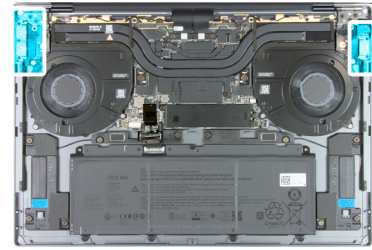


Figure 38. Installing the USB Type-C connectors

Steps

1. Align the screw holes on the right USB-C module with the screw holes on the system board.
2. Replace the two screws (M2x4.5) that secure the right USB-C module to the system board.
3. Align the screw holes on the left USB-C module with the screw holes on the system board.
4. Replace the three screws (M2x4.5) that secure the left USB-C module to the system board.

Next steps

1. Install the [Palm-rest and keyboard assembly](#).
2. Follow the procedure in [After working inside your computer](#).

I/O daughterboard

Removing the left I/O daughterboard

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [Palm-rest and keyboard assembly](#).
3. Remove the [Left USB-C module](#).

About this task

The following video provides an overview of this task.



Watch video: [Remove the left I/O daughterboard](#)

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

NOTE: The left and right I/O daughterboards can be removed and replaced independently, and are not required to be removed or replaced as a pair.

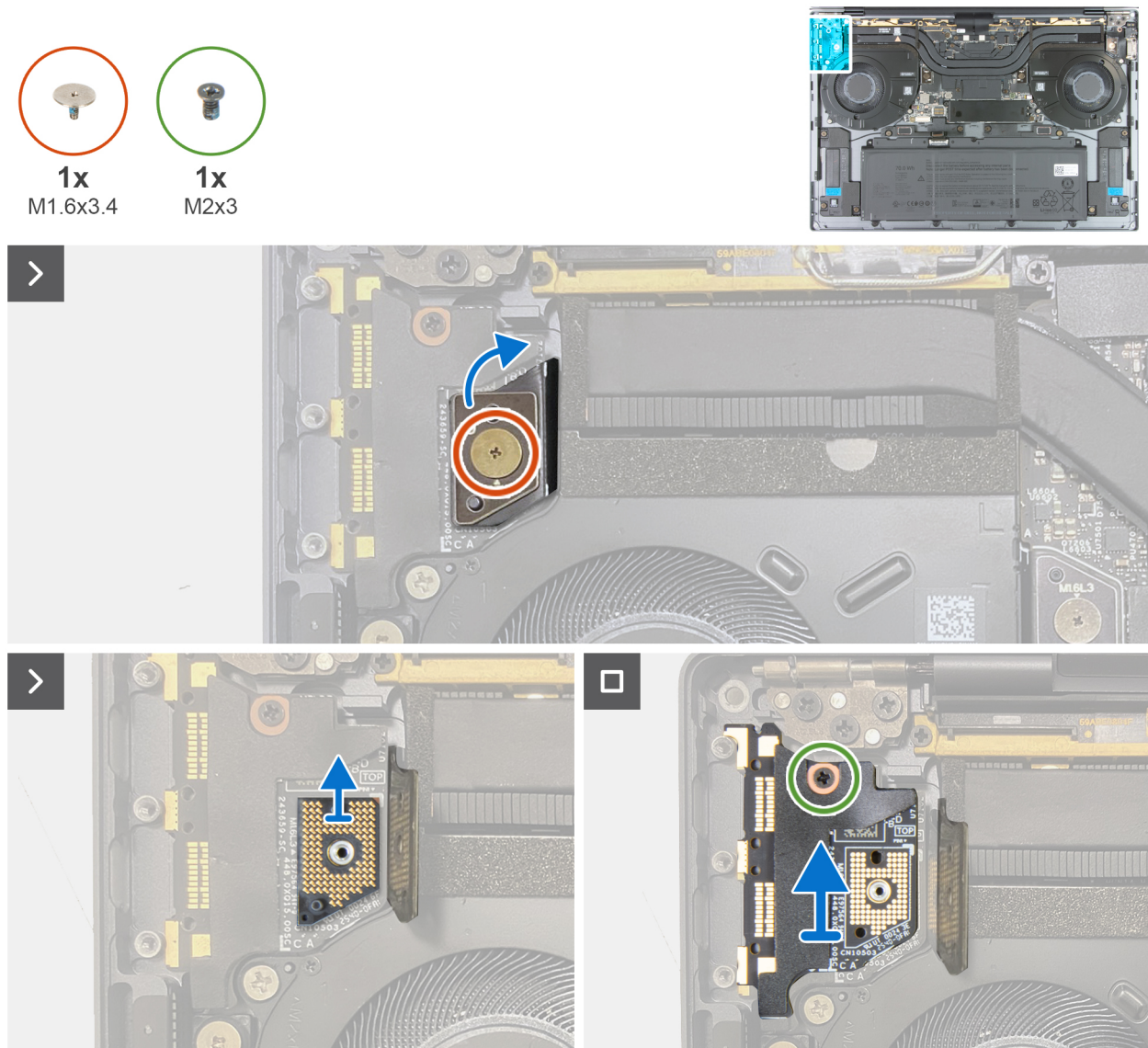


Figure 39. Removing the left I/O daughterboard

Steps

1. Remove the screw (M1.6x3.4) that secures the left PCBeam cable to the left I/O daughterboard.
2. Angle the left PCBeam cable away then pry off the left PCBeam interposer board from the left I/O daughterboard, storing it carefully for reuse.

CAUTION: Handle the PCBeam interposer with care by the edges. Avoid touching the pins on the connectors.

3. Remove the screw (M2x3) that secures the left I/O daughterboard to the base cover.
4. Hold the left I/O daughterboard by the short edges, and lift it off the base cover with care.

Installing the left I/O daughterboard

Prerequisites

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

About this task

The following video provides an overview of this task.



Watch video: [Install the left I/O daughterboard](#)

The following image indicates the location of the left I/O daughterboard and provides a visual representation of the installation procedure.

NOTE: The left and right I/O daughterboards can be removed and replaced independently, and are not required to be removed or replaced as a pair.

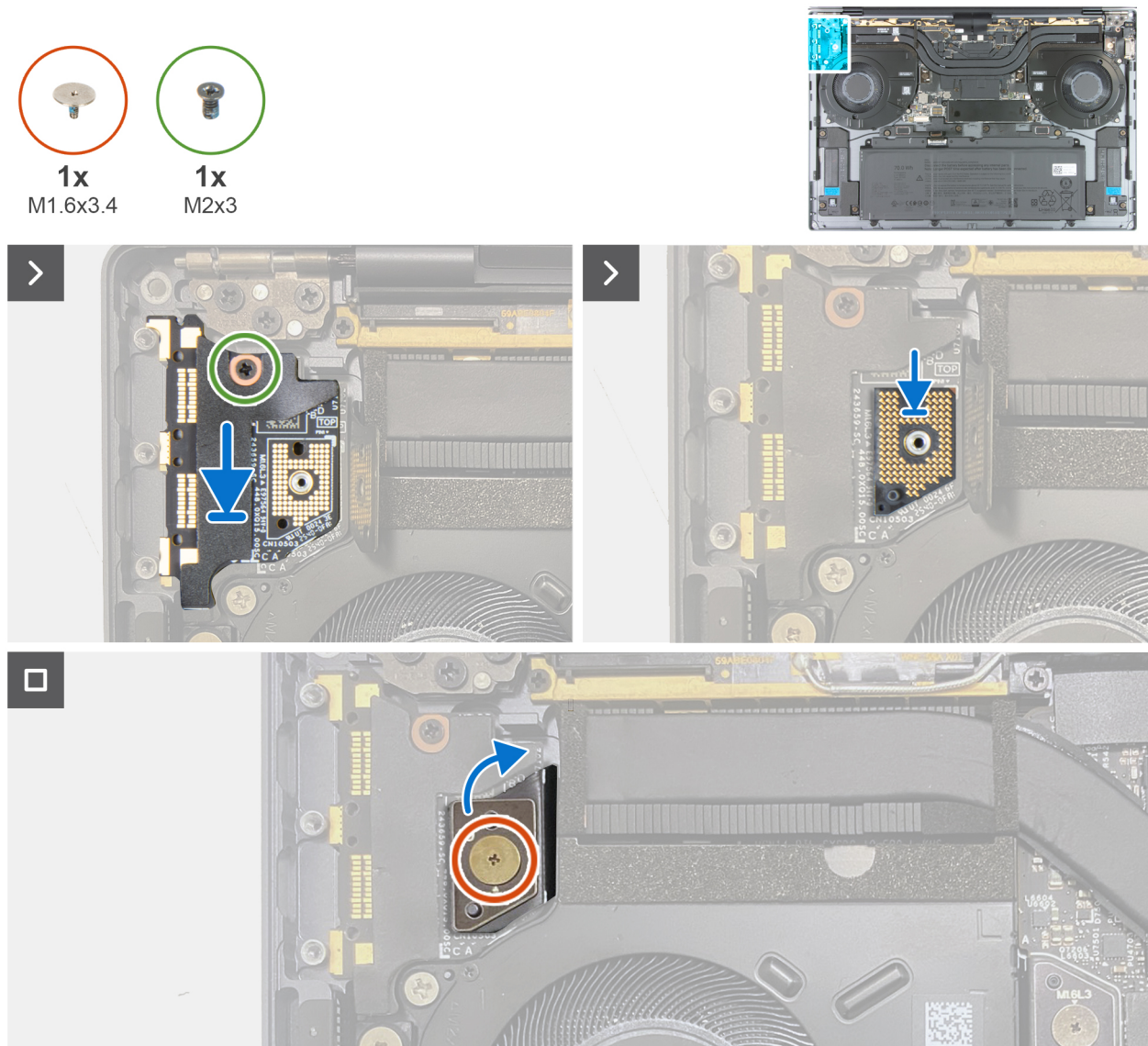


Figure 40. Installing the left I/O daughterboard

Steps

1. Place the left I/O daughterboard into position, aligning the screw hole on the daughterboard with the screw hole on the base cover.
2. Replace the screw (M2x3) that secures the left I/O daughterboard to the system board.
3. Position the left PCBeam interposer board on the left I/O daughterboard, ensuring it is seated firmly.

CAUTION: Handle the PCBeam interposer with care by the edges. Avoid touching the pins on the connectors.

4. Bend the left PCBeam cable into position over the interposer then replace the screw (M1.6x3.4) that secures the PCBeam cable to the I/O daughterboard.

Next steps

1. Install the [Left USB-C module](#).
2. Install the [Palm-rest and keyboard assembly](#).
3. Follow the procedure in [After working inside your computer](#).

Removing the right I/O daughterboard

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [Palm-rest and keyboard assembly](#).
3. Remove the [Right USB-C module](#).

About this task

The following video provides an overview of this task.



[Watch video: Remove the right I/O daughterboard](#)

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

NOTE: The left and right I/O daughterboards can be removed and replaced independently, and are not required to be removed or replaced as a pair.

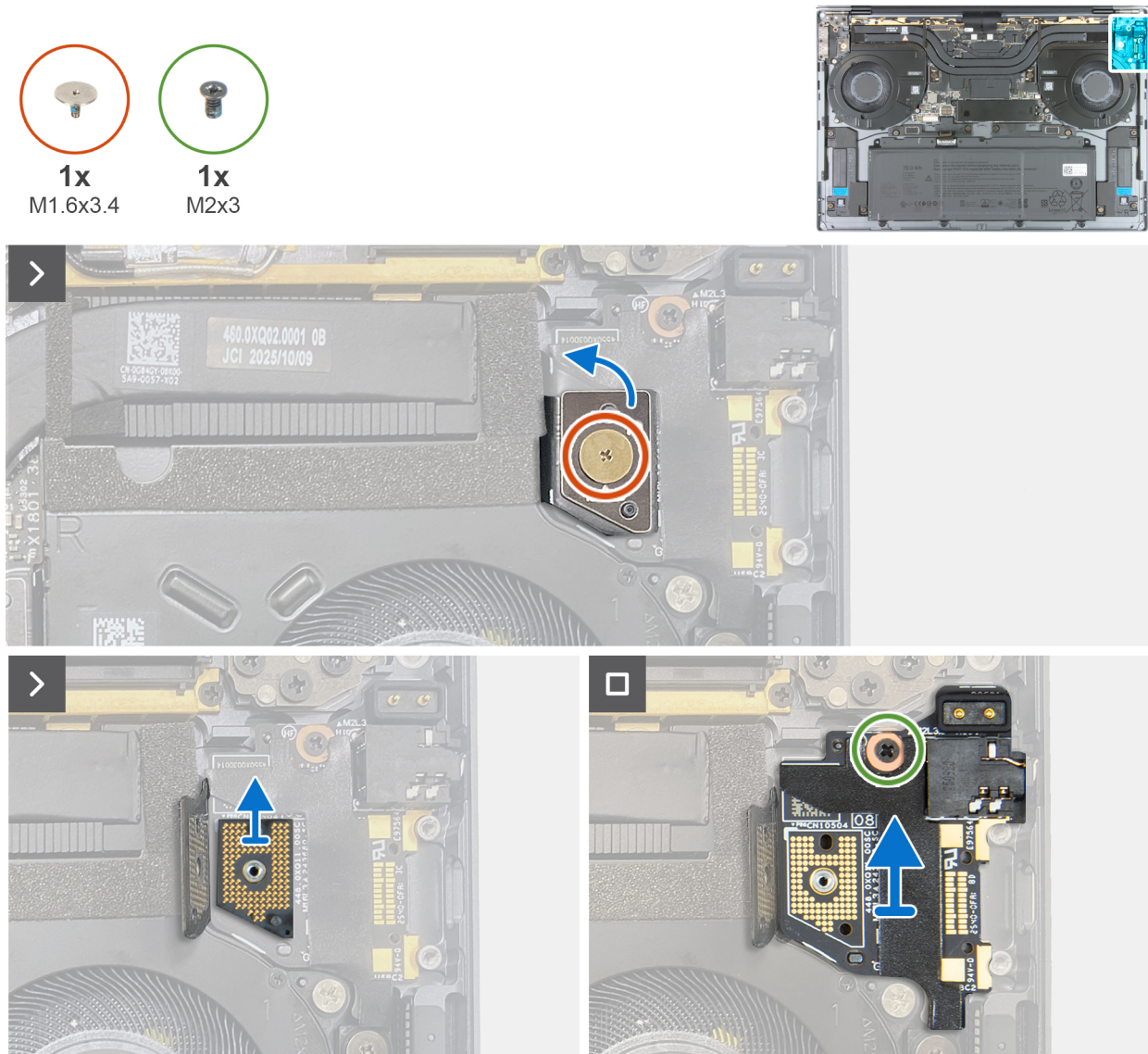


Figure 41. Removing the right I/O daughterboard

Steps

1. Remove the screw (M1.6x3.4) that secures the right PCBeam cable to the right I/O daughterboard.
2. Angle the right PCBeam cable away then pry off the right PCBeam interposer board from the right I/O daughterboard, storing it carefully for reuse.

CAUTION: Handle the PCBeam interposer with care by the edges. Avoid touching the pins on the connectors.

3. Remove the screw (M2x3) that secures the right I/O daughterboard to the base cover.
4. Hold the right I/O daughterboard by the short edges, and lift it off the base cover with care.

Installing the right I/O daughterboard

Prerequisites

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

About this task

The following video provides an overview of this task.

Watch video: Install the right I/O daughterboard



The following image indicates the location of the right I/O daughterboard and provides a visual representation of the installation procedure.

NOTE: The left and right I/O daughterboards can be removed and replaced independently, and are not required to be removed or replaced as a pair.

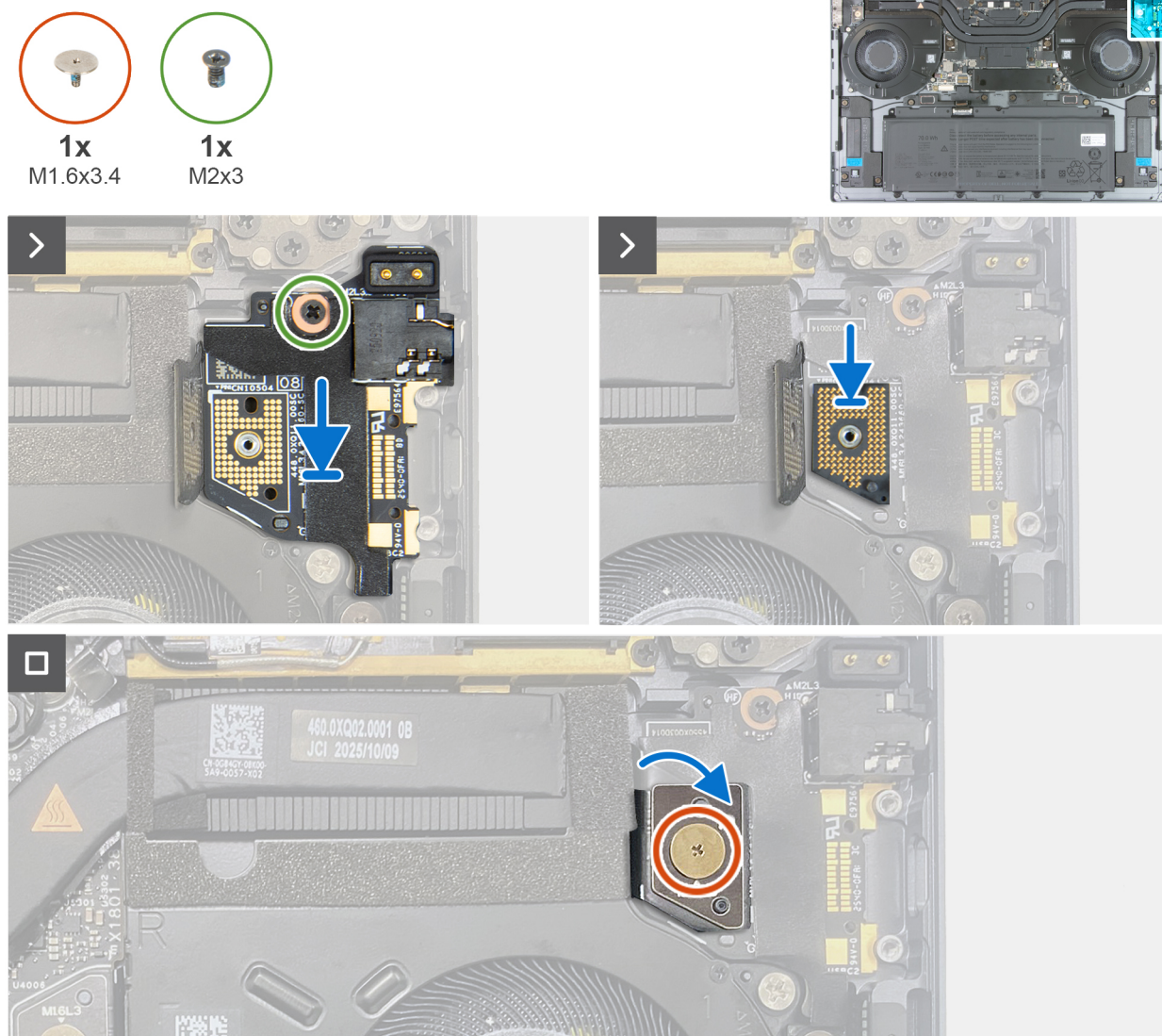


Figure 42. Installing the right I/O daughterboard

Steps

1. Place the right I/O daughterboard into position, aligning the screw hole on the daughterboard with the screw hole on the base cover.
2. Replace the screw (M2x3) that secures the right I/O daughterboard to the system board.
3. Position the right PCBeam interposer board on the right I/O daughterboard, ensuring it is seated firmly.

CAUTION: Handle the PCBeam interposer with care by the edges. Avoid touching the pins on the connectors.

4. Bend the right PCBeam cable into position over the interposer then replace the screw (M1.6x3.4) that secures the PCBeam cable to the I/O daughterboard.

Next steps

1. Install the [Right USB-C module](#).
2. Install the [Palm-rest and keyboard assembly](#).
3. Follow the procedure in [After working inside your computer](#).

Keyboard

Removing the keyboard

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [Palm-rest and keyboard assembly](#).

About this task

The following video provides an overview of this task.



[Watch video: Remove the keyboard](#)

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

 **NOTE:** Depending on the computer configuration purchased, the palm-rest and keyboard assembly may look slightly different from the images shown.

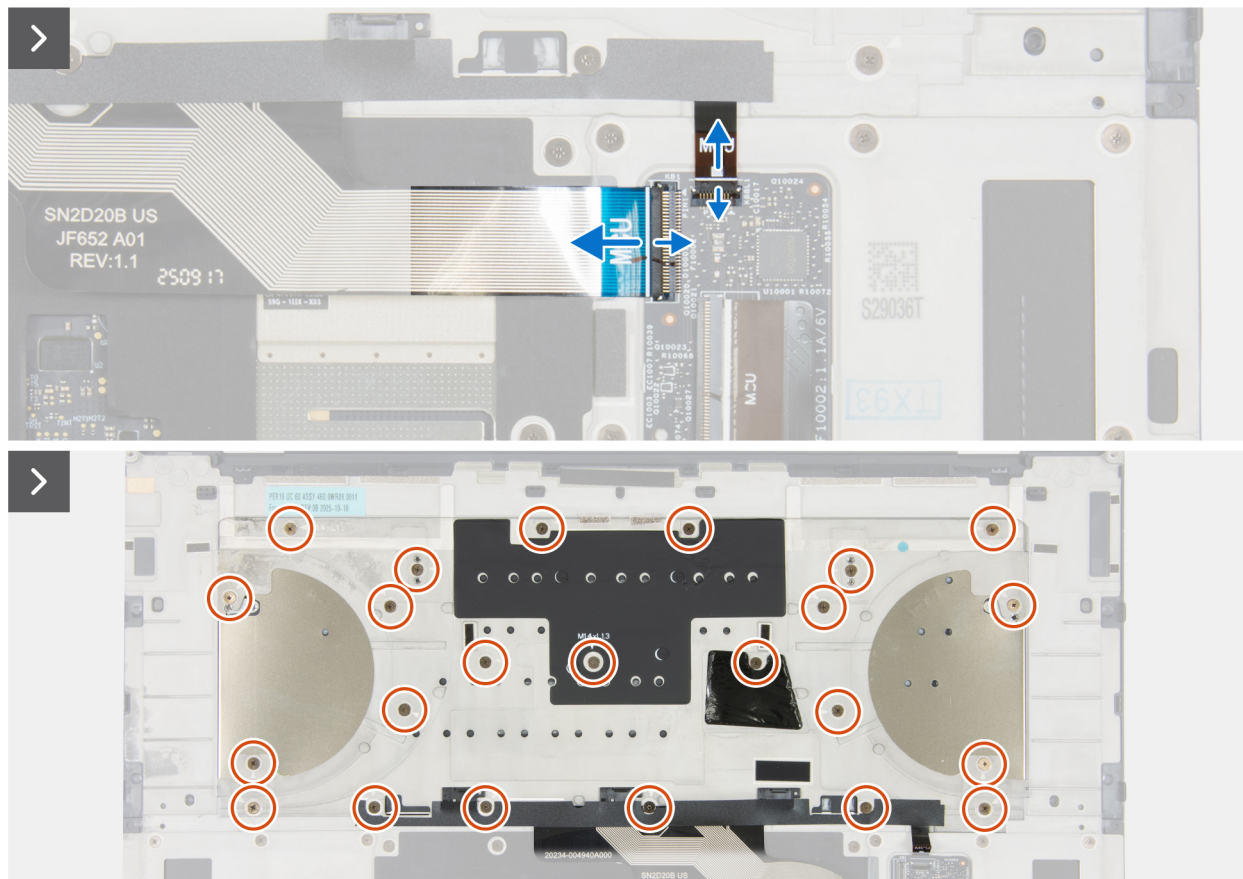
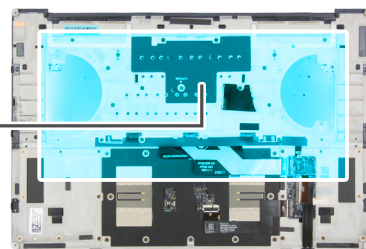


Figure 43. Removing the keyboard

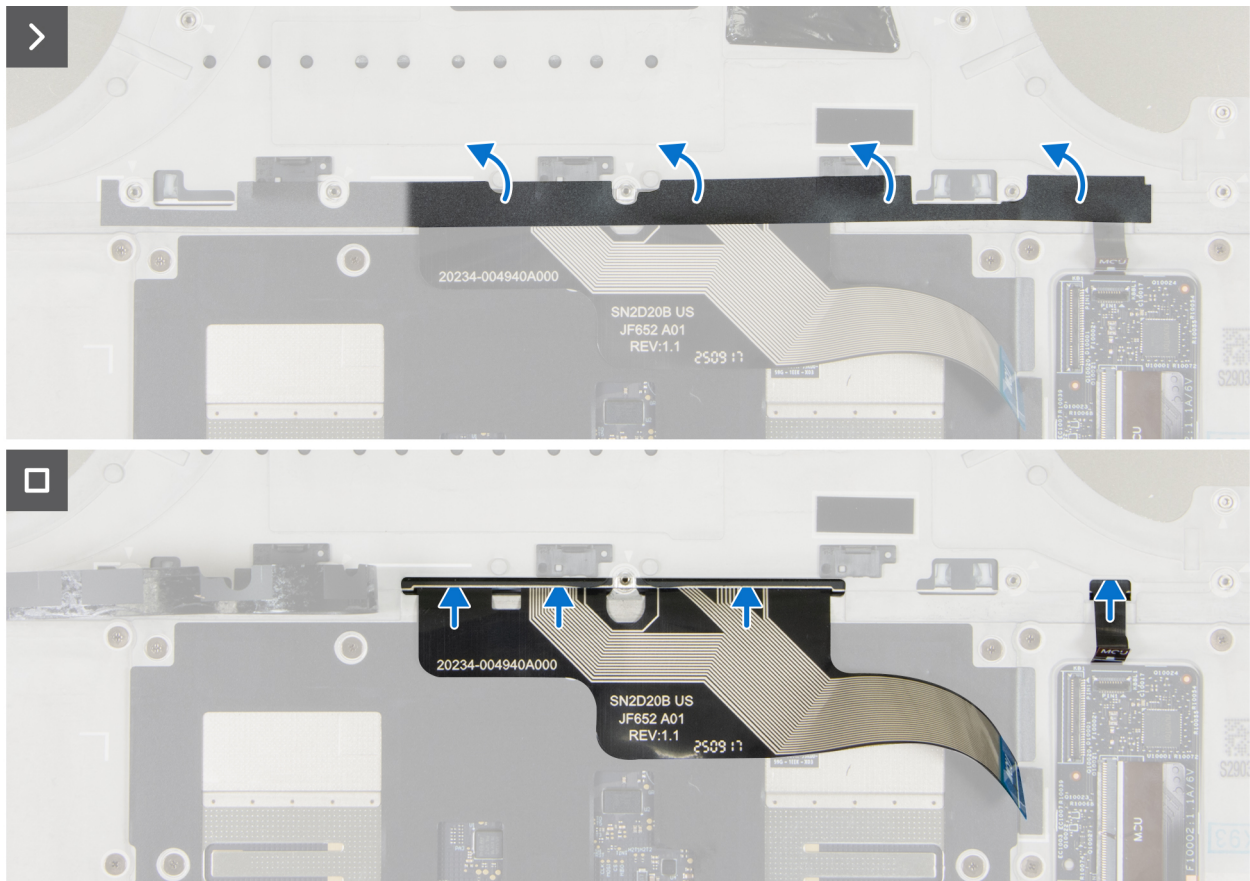


Figure 44. Removing the keyboard

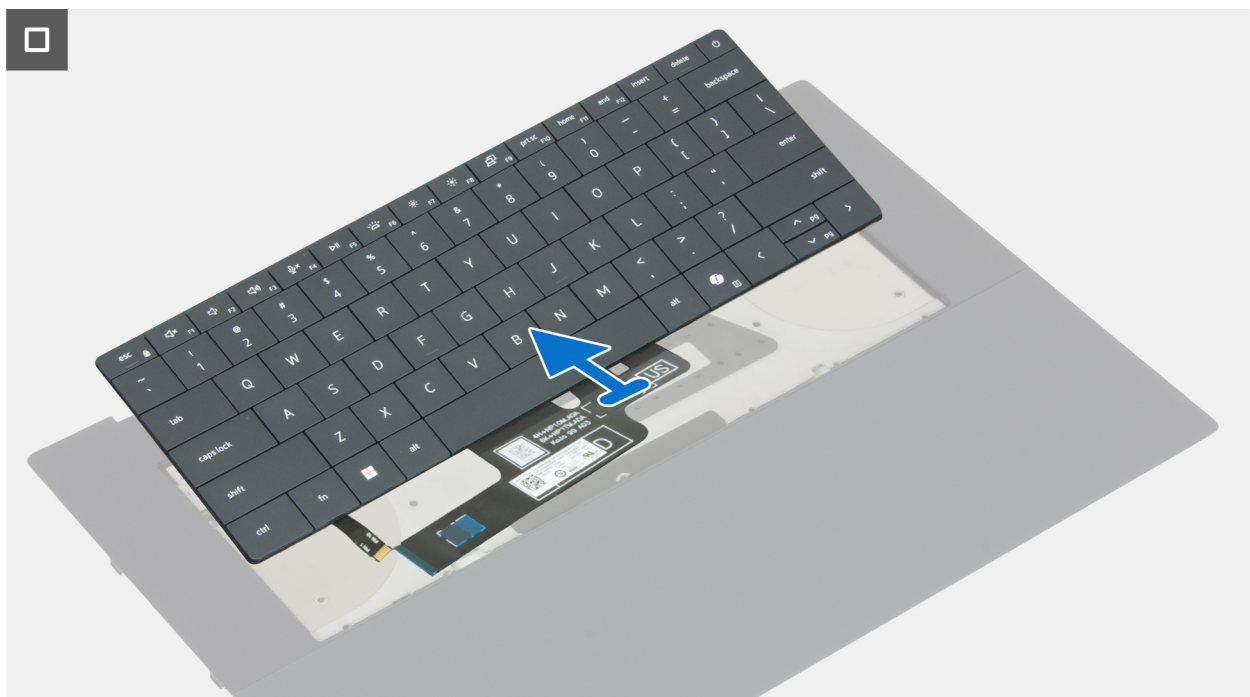


Figure 45. Removing the keyboard

Steps

1. On the palm-rest and keyboard assembly, open the latches and disconnect the two indicated cables that are connected to the MCU board.

2. Remove the 23 screws (M1.4x1.3) that secure the keyboard to the palm-rest assembly.
3. Partially peel the Mylar tape that covers the two disconnect MCU cables.
4. Carefully thread the disconnected MCU cables through the slots on the palm-rest assembly.
5. Lift the keyboard off the palm-rest assembly.

Installing the keyboard

Prerequisites

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

About this task

The following video provides an overview of this task.



[Watch video: Install the keyboard](#)

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

NOTE: Depending on the computer configuration purchased, the palm-rest and keyboard assembly may look slightly different from the images shown.

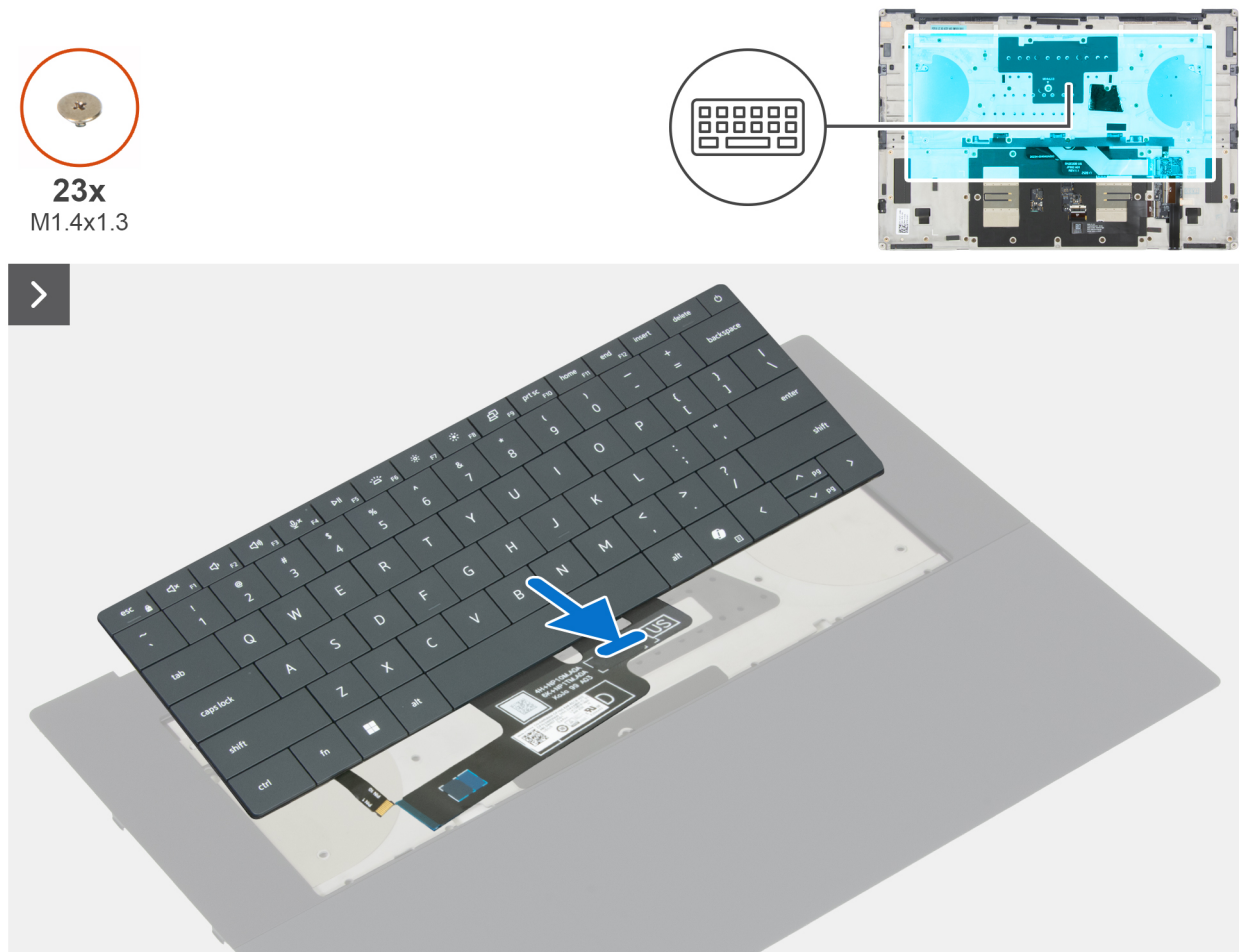


Figure 46. Installing the keyboard

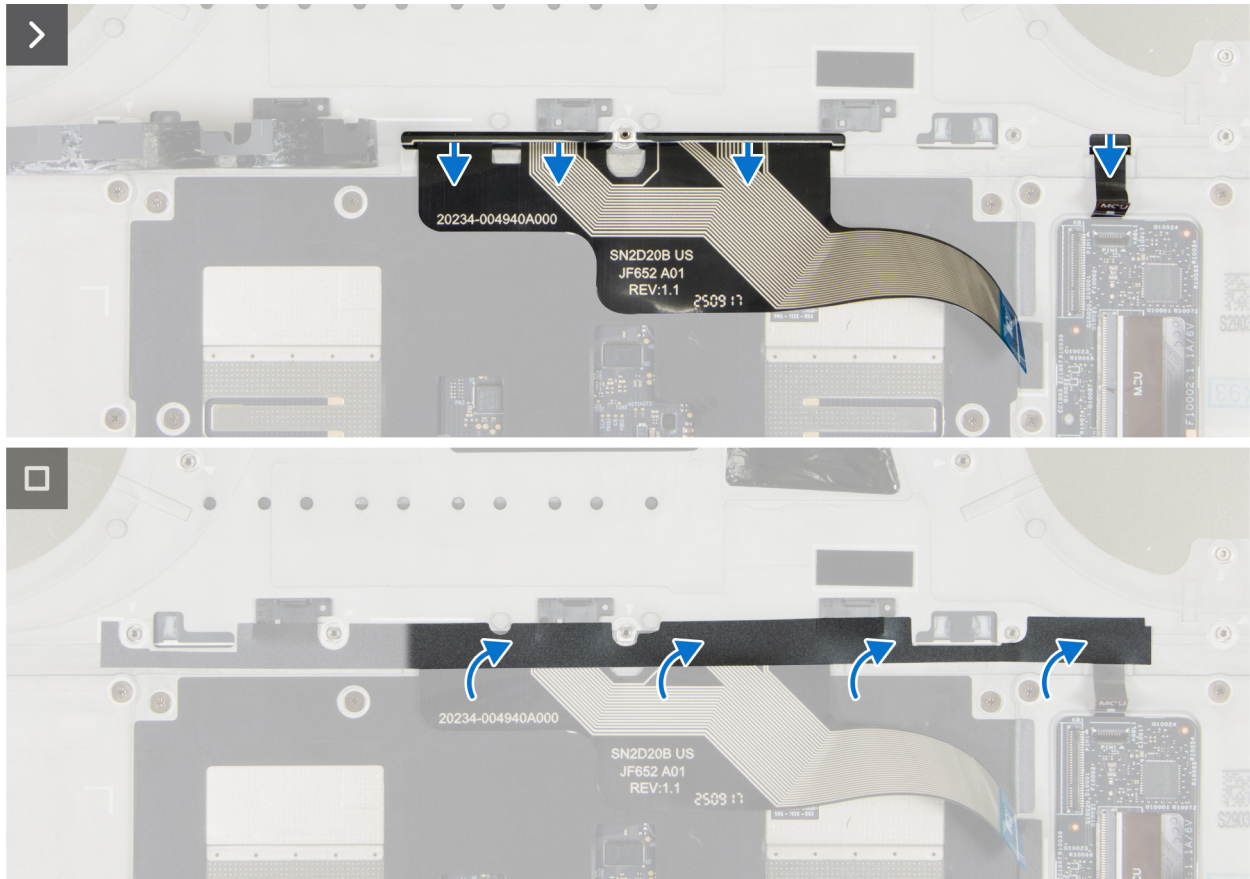


Figure 47. Installing the keyboard

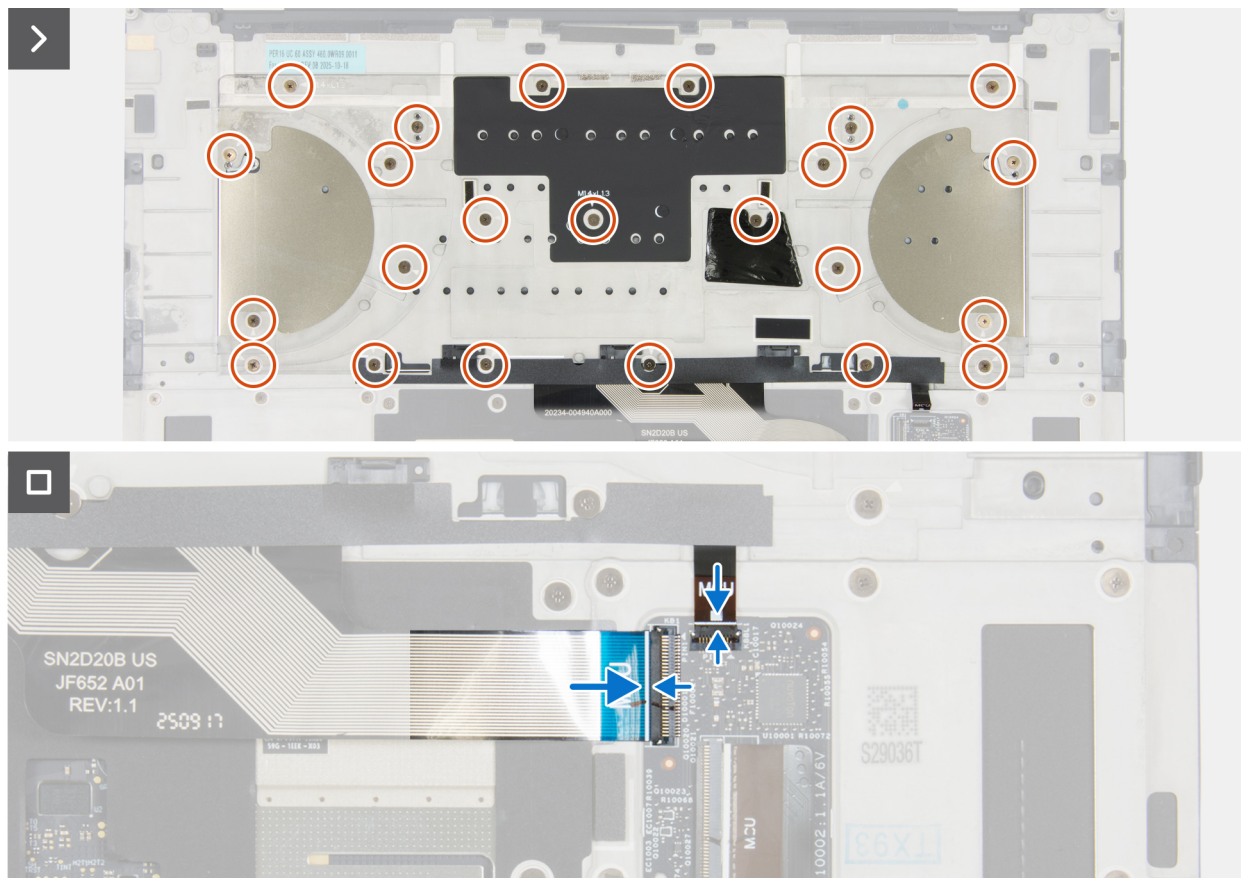


Figure 48. Installing the keyboard

Steps

1. Insert the keyboard at an angle into the palm-rest assembly.
2. Carefully thread the two MCU cables through the slots on the palm-rest assembly.
3. Adhere the Mylar tape that covers the two MCU cables.
4. Replace the 23 screws (M1.4x1.3) that secure the keyboard to the palm-rest assembly.
5. Connect the MCU cables to the MCU board and close the latches.

Next steps

1. Install the [Palm-rest and keyboard assembly](#).
2. Follow the procedure in [After working inside your computer](#).

Palm rest

Removing the palm rest

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [Palm-rest and keyboard assembly](#).
3. Remove the [Keyboard](#).

About this task

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

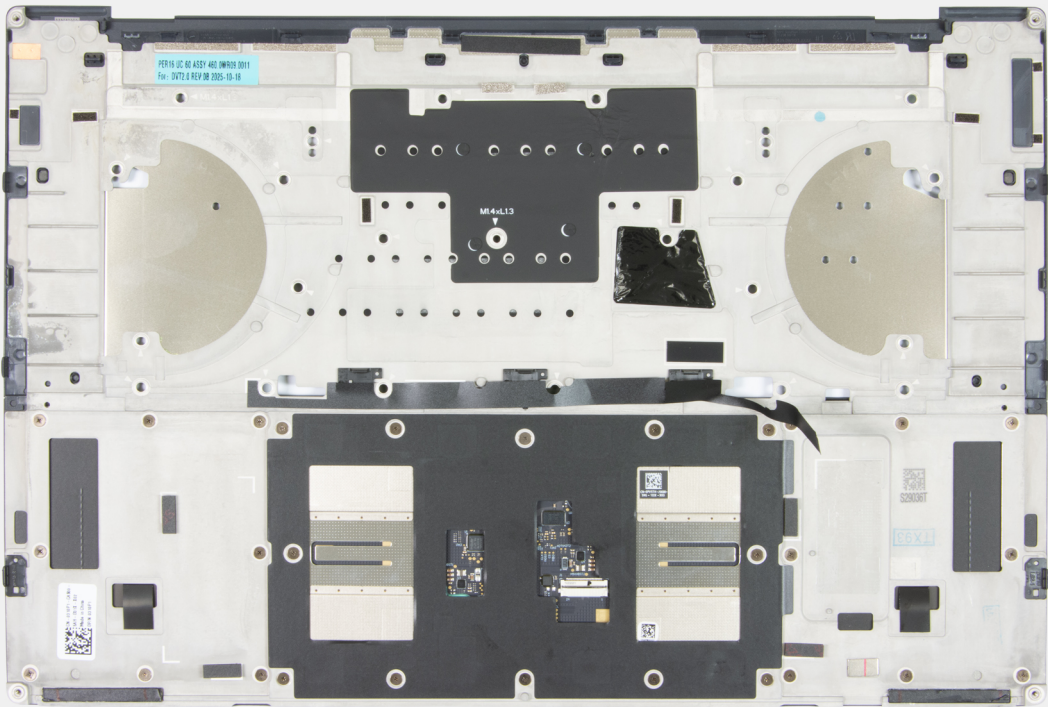


Figure 49. Palm rest

Steps

After performing the steps in the pre-requisites, you are left with the palm rest.

Installing the palm rest

Prerequisites

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

About this task

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

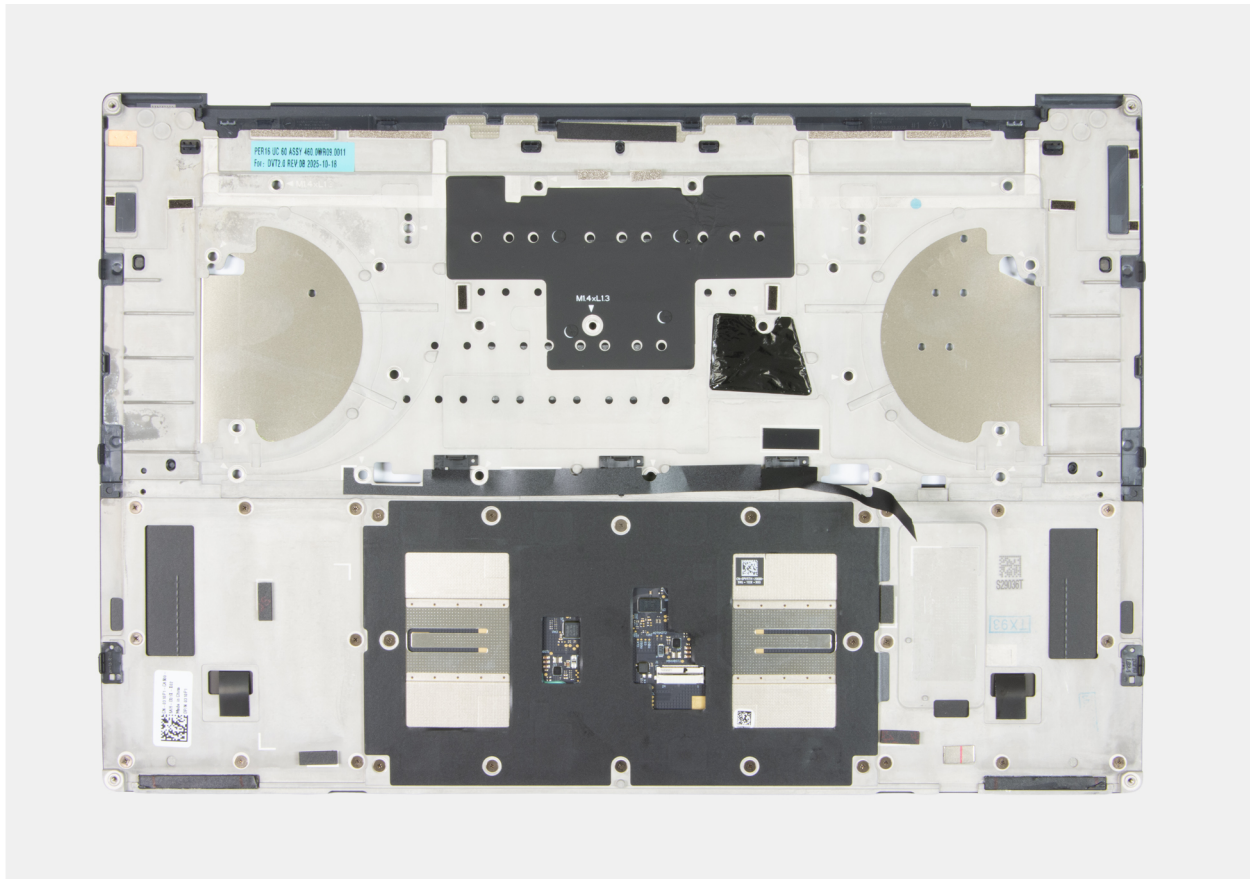


Figure 50. Palm rest

Steps

Place the palm rest on a flat surface.

Next steps

1. Install the [Keyboard](#).
2. Install the [Palm-rest and keyboard assembly](#).
3. 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 XPS 16 DA16260 supports the following operating systems:

- Windows 11 Pro
- Windows 11 Pro Education
- Windows 11 Home
- Windows 11 Enterprise

Drivers and downloads

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

BIOS Setup

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

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

Use BIOS Setup for the following purposes:

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

Entering BIOS setup program

About this task

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

F12 One Time Boot menu

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

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

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

- Removable Drive (if available)
- STXXXX Drive (if available)

NOTE: XXXX denotes the SATA drive number.

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

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

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 3. Navigation keys

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.

Table 3. Navigation keys (continued)

Keys	Navigation
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.

View Advanced Setup options

About this task

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

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

To enable Advanced Setup:

Steps

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

View Service options

About this task

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

 **NOTE:** Service options are described in [System Setup options](#).

To view Service options:

Steps

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

System Setup options

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

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

Table 4. System Setup options—Overview menu

Overview	
XPS 16 DA16260	
BIOS Version	Displays the BIOS version number.
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Displays the Asset Tag of the computer.
Manufacture Date	Displays the manufacture date of the computer.
Ownership Date	Displays the ownership date of the computer.
Express Service Code	Displays the Express Service Code of the computer.
Ownership Tag	Displays the Ownership Tag of the computer.
Signed Firmware Update	Displays whether the Signed Firmware Update is enabled on your computer. By default, the Signed Firmware Update option is enabled.  NOTE: To view this option, enable Service options as described in View Service options.
System UUID	Displays the UUID (Universally Unique Identifier) assigned to your computer.
BATTERY Information	
Primary	Displays the primary battery of the computer.
Battery Level	Displays the battery level of the computer.
Battery State	Displays the battery state of the computer.
Health	Displays the battery health of the computer.
AC Adapter	Displays whether an AC adapter is connected. If connected, displays the type of AC adapter that is connected.
Battery Life Type	Displays the battery configuration type of the computer.
PROCESSOR Information	
Processor Type	Displays the processor type.
Maximum Clock Speed	Displays the maximum processor clock speed.
Minimum Clock Speed	Displays the minimum processor clock speed.  NOTE: To view this option, enable Service options as described in View Service options.
Current Clock Speed	Displays the current processor clock speed.  NOTE: To view this option, enable Service options as described in View Service options.
Core Count	Displays the number of cores on the processor.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Processor ID	Displays the processor identification code.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Processor L2 Cache	Displays the processor L2 Cache size.
Processor L3 Cache	Displays the processor L3 Cache size.
Microcode Version	Displays the microcode version.

Table 4. System Setup options—Overview menu (continued)

Overview	
	 NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Intel Hyper-Threading Capable	Displays whether the processor is Hyper-Threading (HT) capable.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Intel vPro Technology	Displays whether the processor supports vPro technology.
MEMORY Information	
Memory Installed	Displays the total memory installed on the computer.
Memory Available	Displays the total memory available on the computer.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Memory Speed	Displays the memory speed.
Memory Channel Mode	Displays single or dual channel mode.  NOTE: To view this option, enable Service options as described in View Service options .
Memory Technology	Displays the technology that is used for the memory.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
DEVICES Information	
Panel Type	Displays the type of display panel available on the computer.
Panel Revision	Displays the display panel revision on the computer.
Video Controller	Displays the type of video controller available on the computer.
Video Memory	Displays the video memory information of the computer.
Wi-Fi Device	Displays the wireless device information of the computer.
Native Resolution	Displays the native resolution of the computer.
Video BIOS Version	Displays the video BIOS version of the computer.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Audio Controller	Displays the audio controller information of the computer.
Bluetooth Device	Displays the Bluetooth device information of the computer.
Pass Through MAC Address	Displays the MAC address of the video pass-through.

Table 5. System Setup options—Boot Configuration menu

Boot Configuration	
Boot Sequence	
Boot Mode: UEFI only	Displays the boot mode of the computer.
Boot Sequence	Displays the boot sequence.
Enable PXE Boot Priority	PXE (Preboot eXecution Environment) allows the computer to boot from a network server instead of from a local drive. This option is disabled by default.

Table 5. System Setup options—Boot Configuration menu (continued)

Boot Configuration	
Secure Boot	Secure Boot is a method of guaranteeing the integrity of the boot path by performing additional validation of the operating system and PCI add-in cards. The computer stops booting to the operating system when a component is not authenticated during the boot process. Secure Boot can be enabled in BIOS setup or using management interfaces like Dell Command Configure, but can only be disabled from BIOS setup.
Enable Secure Boot	Enables the computer to boot using only validated boot software. By default, this Enable Secure Boot option is disabled. For additional security, Dell Technologies recommends keeping the Secure Boot option enabled to ensure that the UEFI firmware validates the operating system during the boot process.  NOTE: To enable Secure Boot, the computer must be in UEFI boot mode and the Enable Legacy Option ROMs option must be turned off.
Enable Microsoft UEFI CA	When disabled, the UEFI CA is removed from the BIOS UEFI Secure Boot database.  CAUTION: If you disable Microsoft UEFI CA, the computer may not boot, computer graphics may not function, some devices may not function properly, and the computer could become unrecoverable. By default, the Enable Microsoft UEFI CA option is enabled. For additional security, Dell Technologies recommends keeping the Enable Microsoft UEFI CA option enabled to ensure the broadest compatibility with devices and operating systems.
Legacy Microsoft Third Party UEFI CA	When enabled, allows Secure Boot to trust and load UEFI binaries signed by Microsoft's third-party Certificate Authority (CA), enabling compatibility with non-Microsoft operating systems like Linux.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Secure Boot Mode	Enables or disables the Secure Boot operation mode. By default, the Deployed Mode is selected. Deployed Mode should be selected for normal operation of Secure Boot.
Expert Key Management	
Enable Custom Mode	Enables or disables the keys in the PK, KEK, db, and dbx security key databases to be modified. By default, the Enable Custom Mode option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Custom Mode Key Management	Selects the custom values for expert key management. By default, the PK option is selected.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 6. System Setup options—Integrated Devices menu

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

Table 6. System Setup options—Integrated Devices menu (continued)

Integrated Devices	
Time	Sets the computer time in HH/MM/SS 24-hour format. You can select between a 12-hour or 24-hour clock. Changes to the time format take effect immediately.
Camera	
Enable Camera	Enables the camera. By default, the Enable Camera option is enabled.  NOTE: Depending on the configuration ordered, the camera setup option may not be available.
Audio	
Enable Audio	Enables all integrated audio controller. By default, all the options are enabled.
Enable Microphone	Enables the microphone. By default, the Enable Microphone option is enabled.  NOTE: Depending on the configuration ordered, the microphone setup option may not be available.
Enable Internal Speaker	Enables the internal speaker. By default, the Enable Internal Speaker option is enabled.
USB/Thunderbolt Configuration	
Enable USB Boot Support	Enables booting from USB mass storage devices that are connected to external USB ports. By default, the Enable USB Boot Support option is enabled.
Enable External USB Ports	Enables the external USB ports. By default, the Enable External USB Ports option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable Thunderbolt Technology Support	
Enable Thunderbolt Technology Support	Enables the associated ports and adapters for Thunderbolt Technology support. By default, the Enable Thunderbolt Technology Support option is enabled.
Enable Thunderbolt Boot Support	
Enable Thunderbolt Boot Support	Enables the Thunderbolt adapter-peripheral device and USB devices that are connected to the Thunderbolt adapter to be used during BIOS Preboot. By default, the Enable Thunderbolt Boot Support option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Disable USB4 PCIE Tunneling	Disables the USB4 PCIE Tunneling option. By default, the Disable USB4 PCIE Tunneling option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Video/Power only on Type-C Ports	Enables or disables the Type-C port functionality to video or only power. By default, the Video/Power only on Type-C Ports option is disabled.

Table 6. System Setup options—Integrated Devices menu (continued)

Integrated Devices	
 NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.	
Type-C Dock	
Type-C Dock Override	Enables or disables to use connected Type-C Dell Dock to provide data stream with external USB ports disabled. When Type-C Dock override is enabled, the Video/Audio/LAN submenu is activated. By default, the Type-C Dock Override option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Type-C Dock LAN	Enables or disables the usage of LAN on the external ports of the connected Type-C Dell docking station. By default, the Type-C Dock LAN option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 7. System Setup options—Storage menu

Storage	
SATA/NVMe Operation	
SATA/NVMe Operation	Sets the operating mode of the integrated SATA hard drive controller. By default, the AHCI/NVMe option is selected.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Storage Interface	
Port Enablement	Enables or disables the M.2 PCIe SSD option. By default, the M.2 PCIe SSD option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Smart Reporting	Enables or disables the Smart reporting option. By default, the Smart Reporting option is disabled.  NOTE: To view this option, enable Service options as described in View Service options.
Drive Information	
Displays the information of onboard drives.	

Table 8. System Setup options—Display menu

Display	
Display Brightness	
Brightness on battery power	By default, the screen brightness is set to 50 when the computer is running on battery power. Set the screen brightness when the computer is running on battery power.  NOTE: To view this option, enable Service options as described in View Service options.
Brightness on AC power	By default, the screen brightness is set to 100 when the computer is running on AC power. Set the screen brightness when the computer is running on AC power.

Table 8. System Setup options—Display menu (continued)

Display	
	 NOTE: To view this option, enable Service options as described in View Service options.
Touchscreen	Enables or disables the touch screen option. By default, the Touchscreen option is enabled.  NOTE: Only available on computers with touch screen displays.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Full Screen Logo	Enables or disables the computer to display full screen logo, if the image matches screen resolution. By default, the Full Screen Logo option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 9. System Setup options—Connection menu

Connection	
Wireless Device Enable	
WLAN	Enables or disables the internal WLAN device. By default, the WLAN option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Bluetooth	Enables or disables the internal Bluetooth device. By default, the Bluetooth option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Wireless Radio Control	
Control WLAN Radio	Enable to sense the connection of the computer to a wired network and then disables the selected WLAN radio. Upon disconnection from the wired network, the selected wireless radios are reenabled. By default, the Control WLAN Radio option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
HTTP(s) Boot Feature	
HTTP(s) Boot	When enabled, supports HTTP(s) boot on the client BIOS, which offers wired or wireless and HTTP/HTTPS connection options.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
HTTP(s) Boot Modes	In Auto Mode, the boot URL is obtained from the DHCP response; the boot URL specifies the HTTP Boot Server and location of the Network Boot Program (NBP) file. In Manual mode, the user enters the URL in the text box, which must start with <code>http://</code> or <code>https://</code> and end with the NBP file name. By default, Auto Mode is selected.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 9. System Setup options—Connection menu (continued)

Connection	
Certificate	Upload or delete the CA certificate. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable UEFI Network Stack	Enables or disables the UEFI Network Stack and controls the onboard LAN Controller. By default, the Enable UEFI Network Stack option is enabled. NOTE: To view this option, enable Service options as described in View Service options.

Table 10. System Setup options—Power menu

Power	
Battery Configuration	Configure battery-charge settings to suit user requirements. By default, the ExpressCharge option is enabled. ExpressCharge quickly charges the battery using Dell fast-charge technology. This option is recommended for users who need the battery to recharge rapidly. When the computer is powered off, the battery typically charges to 80% within one hour and to 100% within two hours. Charging may take longer if the computer is powered on. Use the Custom Charge table to specify the battery charge start and stop thresholds.
Advanced Configuration	
Enable Advanced Battery Charge Configuration	Enables Advanced Battery Charge Configuration from the beginning of the day to a specified work period. When enabled, Advanced Battery Charged maximizes battery health while still supporting heavy use during the work day. By default, the Enable Advanced Battery Charge Configuration option is disabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Peak Shift	
Enable Peak Shift	Enables or disables the computer to run on battery during peak power usage hours. By default, the Enable Peak Shift option is disabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Thermal Management	This setting allows for cooling of fan and processor heat management to adjust system performance, noise and temperature. By default, the Optimized option is selected. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
USB Wake Support	
Wake on Dell USB-C Dock	When enabled, connecting a Dell USB-C Dock wakes the computer from Standby, Hibernate, and Power Off. By default, the Wake on Dell USB-C Dock option is enabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 10. System Setup options—Power menu (continued)

Power	
Block Sleep	Enables or disables the computer from entering Sleep (S3) mode in the operating system. By default, the Block Sleep option is disabled.  NOTE: When enabled, the computer does not go to Sleep, Intel Rapid Start is disabled automatically, and the operating system power option is blank if it was set to Sleep.  NOTE: To view this option, enable Service options as described in View Service options.
Lid Switch	
Enable Lid Switch	Enables or disables the Lid Switch. By default, the Enable Lid Switch option is enabled.
Power On Lid Open	When enabled, allows the computer to turn on from the off state whenever the lid is opened. By default, the Power On Lid Open option is enabled.
Intel Speed Shift Technology	Enables or disables the Intel Speed Shift Technology support. When enabled, the operating system selects the appropriate processor performance automatically. By default, the Intel Speed Shift Technology option is enabled.  NOTE: To view this option, enable Service options as described in View Service options.

Table 11. System Setup options—Security menu

Security	
TPM 2.0 Security	Trusted Platform Module (TPM) is a security device that stores computer-generated keys for encryption and features such as BitLocker, Virtual Secure Mode, remote Attestation.
TPM 2.0 Security On	Selects whether or not TPM is visible to the operating system. By default, the TPM 2.0 Security On option is enabled. For additional security, Dell Technologies recommends keeping TPM 2.0 Security On enabled to allow these security technologies to fully function.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Clear	When enabled, the Clear option clears information that is stored in the TPM after exiting the system's BIOS. This option returns to the disabled state when the computer restarts. By default, the Clear option is disabled. Dell Technologies recommends enabling the Clear option only when TPM data is required to be cleared.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
PPI Bypass for Clear Commands	The PPI Bypass for Clear Commands option allows the operating system to manage certain aspects of PTT. When enabled, you are not prompted to confirm changes to the PTT configuration. By default, the PPI Bypass for Clear Commands option is disabled. For additional security, Dell Technologies recommends keeping the PPI Bypass for Clear Commands option disabled.

Table 11. System Setup options—Security menu (continued)

Security	
	 NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Intel Total Memory Encryption	
Multi-Key Total Memory Encryption	Allows you to clear the events that are logged when tampering of firmware device is detected. By default, the Multi-Key Total Memory Encryption (Up to 16 keys) option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Chassis Intrusion	
Chassis Intrusion	Enables or disables the detection of chassis intrusion events. This feature notifies the user when the base cover has been removed from the computer. When set to Enabled, a notification is displayed on the next boot and the event is logged in the BIOS Events log. When set to Disabled, no notification is displayed and no event is logged in the BIOS Events log. When set to On-Silent, the event is logged in the BIOS Events log, but no notification is displayed. By default, the Chassis Intrusion Detection option is set to On-Silent. For additional security, Dell Technologies recommends keeping the Chassis Intrusion option enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Clear Intrusion Warning	Clears the chassis intrusion warning. By default, the Clear Intrusion Warning option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Block Boot Until Cleared	The Block Boot Until Clear option is enabled when Chassis Intrusion is enabled. When enabled, the computer does not boot until the chassis intrusion is cleared.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Intel Total Storage Encryption	
Total Storage Encryption	Hardware-based security solution that encrypts data stored on storage devices. Disabling this feature reverts encryption to software-based. Be sure to have BitLocker recovery keys available before changing this setting.  NOTE: By default, Total Storage Encryption is enabled if the computer processor supports vPro technology.  NOTE: To view this option, enable Service options as described in View Service options.
SMM Security Mitigation	
	Enables or disables additional UEFI SMM Security Mitigation protections. This option uses the Windows SMM Security Mitigations Table (WSMT) to confirm to the operating system that security best practices have been implemented by the UEFI firmware. By default, the SMM Security Mitigation option is enabled. For additional security, Dell Technologies recommends keeping the SMM Security Mitigation option enabled unless you have a specific application which is not compatible.

Table 11. System Setup options—Security menu (continued)

Security	
	 NOTE: This feature may cause compatibility issues or loss of functionality with some legacy tools and applications.  NOTE: To view this option, enable Service options as described in View Service options.
Data Wipe on Next Boot	
Start Data Wipe	Data Wipe is a secure wipe operation that deletes information from a storage device.  CAUTION: The secure Data Wipe operation deletes information in a way that it cannot be reconstructed. Commands such as delete and format in the operating system may remove files from showing up in the file system. However, they can be reconstructed through forensic means as they are still represented on the physical media. Data Wipe prevents this reconstruction and the data can no longer be recovered. When enabled, the data wipe option provides prompts to wipe any storage devices that are connected to the computer on the next boot. By default, the Start Data Wipe option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Absolute	Absolute Software provides various cyber security solutions, some requiring software preloaded on Dell computers and integrated into the BIOS. To use these features, you must enable the Absolute BIOS setting and contact Absolute for configuration and activation. By default, the Absolute option is enabled. For additional security, Dell Technologies recommends keeping the Absolute option enabled.  WARNING: The Permanently Disabled option can only be selected once. When Permanently Disabled is selected, Absolute Persistence cannot be reenabled. No further changes to the Enable/Disable states are allowed.  NOTE: The Enable/Disable options are unavailable while the computer is in the activated state.  NOTE: When the Absolute features are activated, the Absolute integration cannot be disabled from the BIOS Setup screen.
UEFI Boot Path Security	Enables or disables the computer to prompt the user to enter the Administrator password (if set) when booting to a UEFI boot path device from the F12 boot menu. By default, the Always Except Internal HDD option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Authenticated BIOS Interface	An authenticated BIOS interface is a protected, verified method for interacting with BIOS so that only authorized, trusted firmware updates and configuration changes are allowed. By default, the Authenticated BIOS Interface option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 11. System Setup options—Security menu (continued)

Security	
Clear Certificate Store	The certificate store is a secure database of trusted keys used to validate boot and firmware components. You can opt to clear all certificates in the Key Management Service (KMS) storage.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Legacy Manageability Interface Access	Controls access to BIOS settings when Authenticated BIOS Interface is enabled. By default, the Legacy Manageability Interface Access option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Firmware Device Tamper Detection	Allows you to control the firmware device tamper detection feature. This feature notifies the user when the firmware device is tampered. When enabled, a screen warning message is displayed on the computer and a tamper detection event is logged in the BIOS Events log. The computer fails to reboot until the event is cleared. By default, the Silent option is enabled. This enables the Firmware Device Tamper Detection option and adds a BIOS event entry but no warning will be displayed and booting will not be blocked. For additional security, Dell Technologies recommends keeping the Firmware Device Tamper Detection option enabled.
Clear Firmware Device Tamper Detection	Allows you to clear the events that are logged when tampering of firmware device is detected. By default, the Clear Firmware Device Tamper Detection option is disabled.
Pluton Security Processor	Pluton Security Processor is utilized by the operating system to provide security services such as Key Storage Provider functionality. By default, the Pluton Security Processor option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 12. System Setup options—Passwords menu

Passwords	
Administrator Password	The Administrator Password prevents unauthorized access to the BIOS Setup options. Once the administrator password is set, the BIOS Setup options can only be modified after providing the correct password. The following rules and dependencies apply to the Administrator Password - • The administrator password cannot be set if system and/or internal storage passwords are previously set. • The administrator password can be used in place of the system and/or internal storage passwords. • When set, the administrator password must be provided during a firmware update. • Clearing the administrator password also clears the system password (if set). Dell Technologies recommends using an administrator password to prevent unauthorized changes to BIOS Setup options.
System Password	The System Password prevents the computer from booting to an operating system without entering the correct password. The following rules and dependencies apply when the System Password is used - • The computer shuts down when idle for approximately 10 minutes at the system password prompt.

Table 12. System Setup options—Passwords menu (continued)

Passwords	
	• The computer shuts down after three incorrect attempts to enter the system password. • The computer shuts down when the Esc key is pressed at the System Password prompt. • The system password is not prompted when the computer resumes from standby mode. Dell Technologies recommends using the system password in situations where it is likely that a computer may be lost or stolen.
Hard Drive Password i NOTE: On some computers, the M.2 PCIe SSD-0 Password option is shown.	The hard drive password can be set to prevent unauthorized access of the data stored on the solid state drive. The computer prompts for the hard drive password during boot in order to unlock the drive. A password-secured hard drive stays locked even when removed from the computer or placed into another computer. It prevents an attacker from accessing data on the drive without authorization. The following rules and dependencies apply when the Hard Drive Password or M.2 PCIe SSD-0 Password option is used. • The hard drive password option cannot be accessed when the hard drive is disabled in the BIOS Setup. • The computer shuts down when idle for approximately 10 minutes at the hard drive password prompt. • The computer shuts down after three incorrect attempts to enter the hard drive password and treats the hard drive as not available. • The hard drive does not accept password unlock attempts after five incorrect attempts to enter the hard drive password from the BIOS Setup. The hard drive password must be reset for the new password unlock attempts. • The computer treats the hard drive as not available when the Esc key is pressed at the hard drive password prompt. • The hard drive password is not prompted when the computer resumes from standby mode. When the hard drive is unlocked by the user before the computer goes into standby mode, it remains unlocked after the computer resumes from standby mode. • If the system and hard drive passwords are set to the same value, the hard drive unlocks after the correct system password is entered. Dell Technologies recommends using a hard drive password to protect unauthorized data access.
Password Configuration	The Password configuration page includes several options for changing the requirements of BIOS passwords. You can modify the minimum and maximum length of the passwords as well as require passwords to contain certain character classes (upper case, lower case, digit, special character). When the Lower Case Letter option is enabled, the password requires at least one lower case letter. When the Upper Case Letter option is enabled, the password requires at least one upper case letter. When the Digit option is enabled, the password requires at least one numeric digit. When the Special Character option is enabled, the password requires at least one special character from the set: !"#%&'()*+,-./:;<=>?@[\\]^_`{ }~. When setting Minimum Characters for password length, Dell Technologies recommends setting the minimum password length to at least eight characters. i NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 12. System Setup options—Passwords menu (continued)

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

Table 12. System Setup options—Passwords menu (continued)

Passwords	
	 NOTE: To view this option, enable Service options as described in View Service options.

Table 13. System Setup options—Update, Recovery menu

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

Table 14. System Setup options—System Management menu

System Management	
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Creates a computer Asset Tag that an IT administrator can use to uniquely identify a particular computer.

Table 14. System Setup options—System Management menu (continued)

System Management	
	 NOTE: Once set in the BIOS, the Asset Tag cannot be changed.
Intel AMT capability	Configure Intel Active Management Technology (AMT) options, which can be enabled, disabled, or restricted.  NOTE: To view this option, enable Service options as described in View Service options.
AC Behavior	
Wake on AC	Enables or disables the computer to turn on and go to boot when AC power is supplied to the computer. By default, the Wake on AC option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Wake on LAN	
Wake on LAN	Enables or disables the computer to turn on by a special LAN signal. By default, the Wake on LAN option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Auto On Time	Enable to set the computer to turn on automatically every day or on a preselected date and time. This option can be configured only if the Auto On Time is set to Everyday, Weekdays, or Selected Days. By default, the Auto On Time option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
First Power On Date	
Set Ownership Date	Set an ownership date for the computer. By default, the Set Ownership Date option is disabled.
Diagnostics OS agent requests	Enable or disable the option for applications running in the operating system to run with preboot diagnostics on subsequent boots.  NOTE: To view this option, enable Service options as described in View Service options.
Power-On-Self-Test Automatic Recovery	Enable or disable the automatic recovery of the computer from no power or no-POST failure by applying mitigation steps. By default, the Power-On-Self-Test Automatic Recovery option is enabled.  NOTE: To view this option, enable Service options as described in View Service options.

Table 15. System Setup options—Keyboard menu

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

Table 15. System Setup options—Keyboard menu (continued)

Keyboard	
	 NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Keyboard Illumination	Configures the operating mode of the keyboard illumination feature. By default, the Auto option is selected.  NOTE: To view this option, enable Service options as described in View Service options.
Keyboard Backlight Timeout on AC	Sets the timeout value for the keyboard backlight when an AC adapter is connected to the computer. By default, the 1 minute option is selected.  NOTE: To view this option, enable Service options as described in View Service options.
Keyboard Backlight Timeout on Battery	Sets the timeout value for the keyboard backlight when the computer is running only on the battery power. The keyboard backlight timeout value is only effective when the backlight is enabled. By default, the 1 minute option is selected.

Table 16. System Setup options—Pre-boot Behavior menu

Pre-boot Behavior	
Adapter Warnings	Enables the warning messages during boot when the adapters with less power capacity are detected. By default, the Adapter Warnings option is enabled.
Warnings and Errors	Enables or disables the action to be taken when a warning or error is encountered. By default, the Prompt on Warnings and Errors option is selected.  NOTE: Errors deemed critical to the operation of the computer hardware stop the functioning of the computer.
Extend BIOS POST Time	Sets the BIOS POST (Power-On Self-Test) load time. By default, the 0 seconds option is selected.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
MAC Address Pass-Through	Replaces the external NIC MAC address (in a supported dock or dongle) with the selected MAC address from the computer. By default, the System Unique MAC Address option is selected.
Sign of Life	
Early Logo Display	Displays the Logo Sign of Life. By default, the Early Logo Display option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Show Ownership Tag with Logo	Enables the display of the Ownership Tag in addition to the BIOS Boot logo. This option is available only if an Ownership Tag has been set. By default, the Show Ownership Tag with Logo option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 17. System Setup options—Virtualization menu

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

Table 17. System Setup options—Virtualization menu (continued)

Virtualization Support	
	 NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Internal Port DMA Compatibility Mode	When enabled, the BIOS notifies the operating system that internal ports are not DMA-capable. This may be needed if devices have compability issues between the operating system and DMA. By default, Internal Port DMA Compatibility Mode is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 18. System Setup options—Performance menu

Performance	
Multi-Core Support	
Active Multiple Performance Cores (P-Cores) Select	Changes the number of CPU P-Cores available to the operating system. The default value is set to the maximum number of cores. By default, the All Active option is selected.  NOTE: To view this option, enable Service options as described in View Service options.
Active Efficient Cores (E-Cores) Select	Changes the number of CPU P-Cores available to the operating system. The default value is set to the maximum number of cores. By default, the All Active option is selected.  NOTE: This option is only available if the computer is configured with an Intel Core Ultra X7 358H or Intel Core Ultra X9 388H processor.  NOTE: To view this option, enable Service options as described in View Service options.
C-State Control	
Enable C-State Control	Enables or disables the ability of the CPU to enter and exit low-power state. When disabled, it disables all C-states. When enabled, it enables all C-states that the chipset or platform allows. By default, the Enable C-State Control option is enabled.  NOTE: To view this option, enable Service options as described in View Service options.
Intel Turbo Boost Technology	
Enable Intel Turbo Boost Technology	Enables or disables the Intel TurboBoost mode of the processor. When enabled, the Intel TurboBoost driver increases the performance of the CPU or graphics processor. By default, the Enable Intel Turbo Boost Technology option is enabled.  NOTE: To view this option, enable Service options as described in View Service options.
Intel SpeedStep	
Enable Intel SpeedStep Technology	Enables the computer to dynamically adjust processor voltage and core frequency, decreasing average power consumption and heat production. By default, the Enable Intel SpeedStep Technology option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 19. System Setup options—System Logs menu

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

Updating the BIOS

Updating the BIOS in Windows

About this task

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

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

Steps

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

Updating the BIOS using the USB drive in Windows

About this task

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

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

Steps

1. Go to [Dell Support Site](#).
2. Go to **Identify your product or ask support**. In the box, enter the product identifier, model, service request or describe what you are looking for, and then click **Search**.
 **NOTE:** If you do not have the Service Tag, click **Detect This PC**. The site automatically detects your device, and you can then click **Explore Product Support** to go to the support page for your device. You can also use the product ID or manually browse for your computer model.
3. Click **Drivers & Downloads**.
4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. Create a bootable USB drive. For more information, search the Knowledge Base Resource at [Dell Support Site](#).
8. Copy the BIOS Setup program file to the bootable USB drive.
9. Connect the bootable USB drive to the computer that needs the BIOS update.
10. Restart the computer and press **F12**.
11. Select the USB drive from the **One Time Boot Menu**.
12. Type the BIOS Setup program filename and press **Enter**.
The **BIOS Update Utility** appears.
13. Follow the on-screen instructions to complete the BIOS update.

Updating the BIOS from the One-Time boot menu

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

System and admin 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 20. System and admin password

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

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

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

Assigning a System/Admin password

Prerequisites

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

Steps

1. To enter the **BIOS Setup**, press F2 immediately after a power-on or reboot.
2. In the **BIOS Setup** screen, select **Passwords** and press Enter.
The **Passwords** screen is displayed.
3. Select **System/Admin Password** and create a password in the **Enter the new password** field.
The password can:
 - be up to 32 characters.
 - contain numbers from 0 to 9, or
 - contain upper and lower-case alphabets from A to Z.
4. Type the system/admin password that you entered earlier in the **Confirm new password** field and click **OK**.
5. Select **Yes** 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 BIOS System Setup before attempting to delete or change the existing system password and/or setup password. You cannot delete or change an existing system password or setup password if the **Password Status** is Locked. To enter the System Setup, press F2 immediately after a power-on or reboot.

Steps

1. To enter the **BIOS Setup**, press F2 immediately after a power-on or reboot.
2. In the **BIOS Setup** screen, select **Passwords** and press Enter.
The **Passwords** screen is displayed.
3. In the **Passwords** screen, verify that the **Password Status** is Unlocked.
4. Select **System Password**. Update or delete the existing system password, and press Enter or Tab.
5. Select **Admin Password**. Update or delete the existing admin password, and press Enter or Tab.
 **NOTE:** If you change the system/admin password, reenter the new password when prompted. If you delete the system/admin password, confirm the deletion when prompted.
6. Press Esc.
A message prompts you to save the changes.
7. Select **Yes** to save the changes.
The computer restarts.

Clearing CMOS settings

About this task

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

Steps

1. Disconnect the battery cable as instructed in [Removing the palm-rest and keyboard assembly](#).
2. Wait for one minute.
3. Reconnect the battery cable to the system board.
4. Replace the [Palm-rest and keyboard assembly](#).

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 at [Dell Support Site](#).

Dell SupportAssist Pre-boot System Performance Check diagnostics

About this task

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

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

- View status messages that inform you when the tests are completed successfully.
 - View error messages that inform you of problems encountered during testing.
- NOTE:** Some tests for specific devices require user interaction. Always ensure that you are present at the computer when the diagnostic tests are performed.

For more information, see [How to Run Dell Preboot Diagnostics and Hardware Tests on Your Dell Computer](#).

Running the SupportAssist Pre-Boot System Performance Check

Steps

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

NOTE: For more information about running the SupportAssist Pre-Boot System Performance Check on a specific device, see [Dell Support Site](#).
4. If there are any issues, error codes are displayed.
Note the error code and validation number and contact Dell.

Built-in self-test (BIST)

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

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

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

How to run M-BIST

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

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

Table 21. LED error codes

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

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

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

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

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

How to invoke the L-BIST

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

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

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

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

How to invoke the LCD-BIST

1. Turn off your computer.
2. Disconnect any peripherals that are connected to the computer. Connect only the AC adapter (charger) to the computer.
3. Ensure that the LCD (screen) is clean (no dust particles on the surface of the screen).
4. Press and hold the **D** key and press the power button to enter LCD-BIST mode. Continue to hold the **D** key until the computer boots up.
5. The screen displays solid colors and changes colors on the entire screen to white, black, red, green, and blue twice.
6. Then it displays the colors white, black, and red.
7. Carefully inspect the screen for abnormalities (any lines, fuzzy color, or distortion on the screen).
8. At the end of the last solid color (green), 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 XPS 16 DA16260.

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

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

Table 22. Diagnostic light codes

Diagnostic light codes (Amber, White)	Problem description
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	Generic catch-all for ungraceful EC code flow errors
1,7	Non-RPMC Flash on Boot Guard fused system
1,8	Chipset "Catastrophic Error" signal has tripped
2,1	CPU failure
2,2	System board failure (includes BIOS corruption or ROM error)
2,3	No memory or RAM failure
2,4	Memory or RAM failure
2,5	Invalid memory installed
2,6	System board or chipset Error
2,7	Potential LCD panel damage or LCD cable failure (SBIOS message)
2,8	Power-rail failure at the system board
3,1	CMOS battery failure
3,2	PCI or video card or chip failure
3,3	BIOS recovery image not found
3,4	BIOS recovery image found but invalid
3,5	Power-rail error
3,6	Flash corruption is detected by SBIOS
3,7	Timeout waiting on ME to reply to HECI message
4,3	LCD panel failure
4,4	Cable and LCD power rail failure
4,5	LCD power rail, cable and LCD panel failure
4,6	LCD cable failure
6,1	The power adapter is not detected, and the battery-charge level is at 2% or less
6,2	The Dell power adapter is underpowered and unable to turn on the computer
6,3	The non-Dell power adapter is underpowered and is unable to turn on the computer

Recovering the operating system

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

Dell SupportAssist OS Recovery is a stand-alone tool that is preinstalled on Dell computers running the Windows operating system. It consists of tools to diagnose and troubleshoot issues that may occur before your computer boots to the operating

system. It enables you to diagnose hardware issues, repair your computer, back up your files, and restore your computer to its factory state.

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

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

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

Real-Time Clock (RTC Reset)

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

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

Backup media and recovery options

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

Network power cycle

About this task

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

Steps

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

Drain flea power (perform hard reset)

About this task

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

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

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

Perform the following steps to drain the flea power:

Steps

1. Turn off the computer.
2. Disconnect the power adapter from the computer.
3. Remove the palm-rest and keyboard assembly.

 **NOTE:** This step should include disconnecting the battery from the system board.

4. Press and hold the power button for 20 seconds to drain the flea power.
5. Install the palm-rest and keyboard assembly.

 **NOTE:** This step should include connecting the battery to the system board.

6. Connect the power adapter to the computer.
7. Turn on the computer.

 **NOTE:** For more information about performing a hard reset, search for knowledge base articles about the topic at the [Dell Support Site](#).

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 23. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	Dell Site
Tips	
Contact Support	In Windows search, type <code>Contact Support</code> , and press Enter.
Online help for operating system	Windows Support Site
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals, and documents.	Your Dell computer is uniquely identified using a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, enter the Service Tag or Express Service Code at Dell Support Site. For more information about how to find the Service Tag for your computer, see Locate the Service Tag on your computer.
Dell knowledge base articles	1. Go to Dell Support Site. 2. On the menu bar at the top of the Support page, select Support > Support Library. 3. In the Search field on the Support Library page, type the keyword, topic, or model number, and then click or tap the search icon to view the related articles.

Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see [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.

Revision history

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

Table 24. Revision history

Revision	Date	Description
A04	07-2026	Updates to system diagnostics
A03	04-2026	Includes videos and updates to I/O board service procedure
A02	03-2026	Updates to ExpressCharge and several service-related topics
A01	01-2026	Updates to camera and screw specifications
A00	01-2026	Original publish date.