

**Dell 16S**

DS16260

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 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
-  **CAUTION:** To avoid damaging the computer, ensure that the work surface is flat, dry, and clean.
-  **CAUTION:** You should only perform troubleshooting and repairs as authorized or directed by the Dell technical support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty.
-  **CAUTION:** Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity which could harm internal components.
-  **CAUTION:** To avoid damaging the components and cards, handle them by their edges, and avoid touching the pins and the contacts.
-  **CAUTION:** When you disconnect a cable, pull it by its connector or its pull tab, not the cable itself. Some cables have connectors with locking tabs or thumbscrews that you must disengage before disconnecting the cable. When disconnecting cables, keep them evenly aligned to avoid bending the connector pins. When connecting cables, ensure that the connector on the cable is correctly oriented and aligned with the port.
-  **CAUTION:** Press and eject any installed card from the media-card reader.
-  **CAUTION:** Exercise caution when handling rechargeable Li-ion batteries in laptops. Swollen batteries should not be used and must be replaced and disposed properly.

## Before working inside your computer

### About this task

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

### Steps

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

 **NOTE:** If you are using a different operating system, see the documentation of your operating system for instructions.

3. Turn off all the attached peripherals.
4. Disconnect your computer from the electrical outlet.
5. Disconnect all attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.
6. Remove any media card and optical drive from your computer, if applicable.
7. To clean the air vents, use a soft brush and move vertically.

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

8. Enter the Service Mode.

#### Service Mode

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

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

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

- a. Press and hold the B key and the power button for three seconds, or until the Dell logo appears on the screen.
- b. If the **Owner Tag** is set, it is displayed on the screen. Press any key to continue.

 **NOTE:** If the **Owner Tag** information is not already set, the computer automatically skips this step and proceeds to enter Service Mode.

- c. If the power adapter is still connected, a message appears on the screen prompting you to disconnect it. Disconnect the power adapter, then press any key to continue.
- d. When the **System Ready For Service** message appears on the screen, press any key to proceed. The computer emits three short beeps and shuts down immediately.  
The computer shuts down and enters the Service Mode.

## Safety precautions

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

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

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

## Bonding

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

## Electrostatic discharge—ESD protection

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

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

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

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

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

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

Perform the following steps to prevent ESD damage:

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

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

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

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

## ESD Field Service kit

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

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

## Working environment

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

## ESD packaging

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

## Components of an ESD Field Service kit

The components of an ESD Field Service kit are:

- **Anti-Static Mat** – The anti-static mat is dissipative and parts can be placed on it during service procedures. When using an anti-static mat, your wrist strap should be snug and the bonding wire should be connected to the anti-static mat and to any bare metal on the computer being worked on. Once deployed properly, service parts can be removed from the ESD bag and placed directly on the anti-static mat. ESD-sensitive items are safe in your hand, on the anti-static mat, in the computer, or inside an ESD bag.
- **Wrist Strap and Bonding Wire** – If an anti-static mat is not being used, the wrist strap and bonding wire should be connected directly between your wrist and an exposed metal part of the hardware. If you are using an anti-static mat, connect the wrist strap and bonding wire to the anti-static mat to ensure protection for any hardware placed on the mat. The physical connection of the wrist strap and bonding wire between your skin, the anti-static mat, and the hardware is known as bonding. Use only Field Service kits with a wrist strap, anti-static mat, and bonding wire. Never use wireless wrist straps. Always be cautious that the internal wires of a wrist strap are prone to damage from normal wear and tear, and must be checked regularly with a wrist strap tester in order to avoid accidental ESD hardware damage. It is recommended to test the wrist strap and bonding wire at least once per week.
- **ESD Wrist Strap Tester** – The wires inside an ESD strap are prone to damage over time. When using an unmonitored ESD kit, it is recommended to test the wrist strap regularly—ideally before each service session, and at a minimum, once per week. The most reliable method for testing is with a wrist strap tester. To perform the test, connect the bonding wire of the wrist strap to the tester while wearing the strap. Press the test button to initiate the check. A green LED indicates a successful test, while a red LED and audible alarm signal a failure.

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

## Transporting sensitive components

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

## After working inside your computer

### About this task

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

### Steps

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

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

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

## 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 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, refer [Updating the BIOS on Dell systems with BitLocker enabled](#).

The installation of the following components triggers BitLocker:

- Hard disk drive or solid state drive
- System board

## Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver #0
- Flat-headed screwdriver (maximum width: 4 mm)
- Plastic scribe

## Screw list

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

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

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

**Table 1. Screw list**

| Component                          | Screw type             | Quantity | Screw torque strength | Screw image                                                                           |
|------------------------------------|------------------------|----------|-----------------------|---------------------------------------------------------------------------------------|
| Base cover                         | M2x6.5 (captive screw) | 2        | 1.6 kgf-cm            |  |
|                                    | M2x4                   | 7        | 1.6 kgf-cm            |  |
| Battery                            | M2x5 (captive screw)   | 5        | 2 kgf-cm              |  |
| M.2 2230 solid-state drive         | M2x2                   | 1        | 1.6 kgf-cm            |  |
| M.2 2230 solid-state drive bracket | M2x2                   | 1        | 1.6 kgf-cm            |  |
| Fan                                | M2x3                   | 2        | 1.6 kgf-cm            |  |

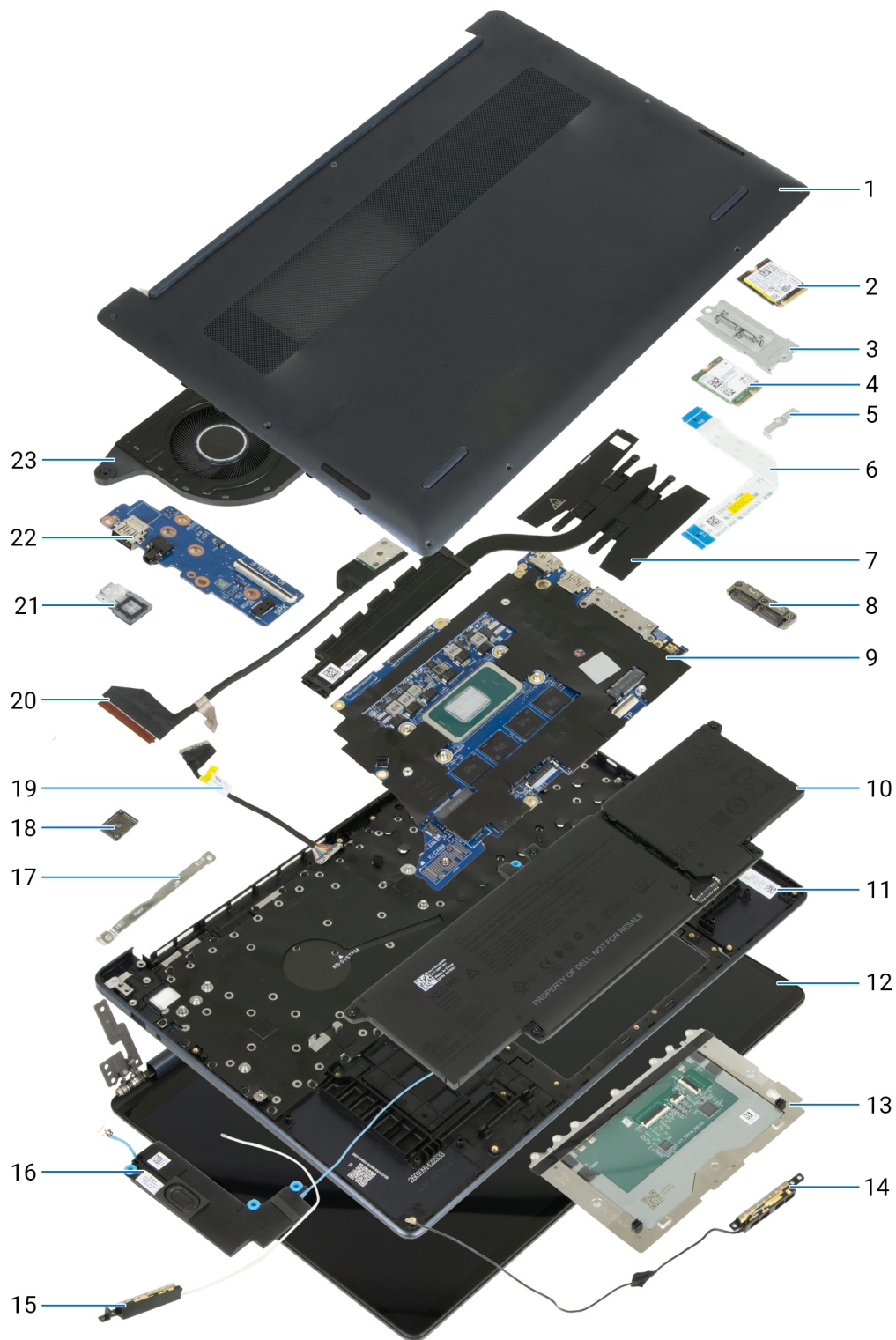


**Table 1. Screw list (continued)**

| Component                          | Screw type           | Quantity | Screw torque strength | Screw image                                                                           |
|------------------------------------|----------------------|----------|-----------------------|---------------------------------------------------------------------------------------|
| Wireless-card bracket              | M2x3                 | 1        | 1.6 kgf-cm            |    |
| Display-assembly connector bracket | M2x3                 | 2        | 1.6 kgf-cm            |    |
| Left display-assembly hinge        | M2.5x4               | 3        | 3 kgf-cm              |    |
| Right display-assembly hinge       | M2.5x4               | 3        | 3 kgf-cm              |    |
| I/O-board cable                    | M2x4                 | 1        | 1.6 kgf-cm            |    |
| I/O board                          | M1.6x1.5             | 2        | 0.7 kgf-cm            |    |
| Heat sink                          | M2x3 (captive screw) | 4        | 2 kgf-cm              |   |
| System board                       | M1.6x1.5             | 3        | 0.7 kgf-cm            |  |
| Type-C port bracket                | M2x3                 | 2        | 1.6 kgf-cm            |  |
| Type-C port module                 | M2x5                 | 3        | 2.4 kgf-cm            |  |
| Power button                       | M2x3                 | 1        | 1.6 kgf-cm            |  |
| Touchpad                           | M1.6x1.5             | 9        | 0.7 kgf-cm            |  |
|                                    | M1.6x2               | 4        | 0.7 kgf-cm            |  |
| Left antenna                       | M1.6x2.5             | 2        | 0.7 kgf-cm            |  |
| Right antenna                      | M1.6x2.5             | 2        | 0.7 kgf-cm            |  |

## Major components of Dell 16S DS16260

The following image shows the major components of Dell 16S DS16260.



**Figure 1. Major components of Dell 16S DS16260**

1. Base cover
2. M.2 2230 solid-state drive
3. M.2 2230 solid-state drive bracket
4. M.2 wireless card
5. Wireless-card bracket
6. Touchpad cable
7. Heat sink

8. USB Type-C board
9. System board
10. Battery
11. Palm-rest and keyboard assembly
12. Display assembly
13. Touchpad
14. Right antenna
15. Left antenna
16. Speaker assembly
17. Display-assembly connector bracket
18. Interposer board
19. Battery cable
20. I/O-board cable
21. Power button
22. I/O board
23. Fan

**NOTE:** Dell provides a list of components and their part numbers for the original computer configuration purchased. These parts are available depending on the warranty coverage that is selected at the time of purchase. Components from upsell or upgraded variants may not be covered under the standard system warranty. For more details or to explore purchase options, contact your Dell sales representative.

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

The replaceable components in Dell 16S DS16260 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**

| Customer Replaceable Unit (CRU) | Field Replaceable Unit (FRU)    |
|---------------------------------|---------------------------------|
| Base cover                      | Display assembly                |
| Battery                         | I/O-board cable                 |
| Battery cable                   | I/O-board                       |
| M.2 2230 SSD bracket            | Heat sink                       |
| M.2 2230 SSD                    | System board                    |
| Fan                             | USB Type-C board                |
| Wireless card                   | Power button                    |
| Wireless-card bracket           | Touchpad                        |
| Speaker assembly                | Palm-rest and keyboard assembly |

# Removing and installing Customer Replaceable Units (CRUs)

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

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

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

## Base cover

### Removing the base cover

#### Prerequisites

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

#### About this task

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

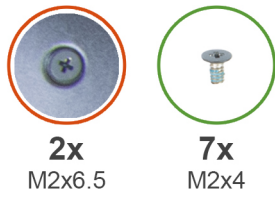


Figure 2. Removing the base cover

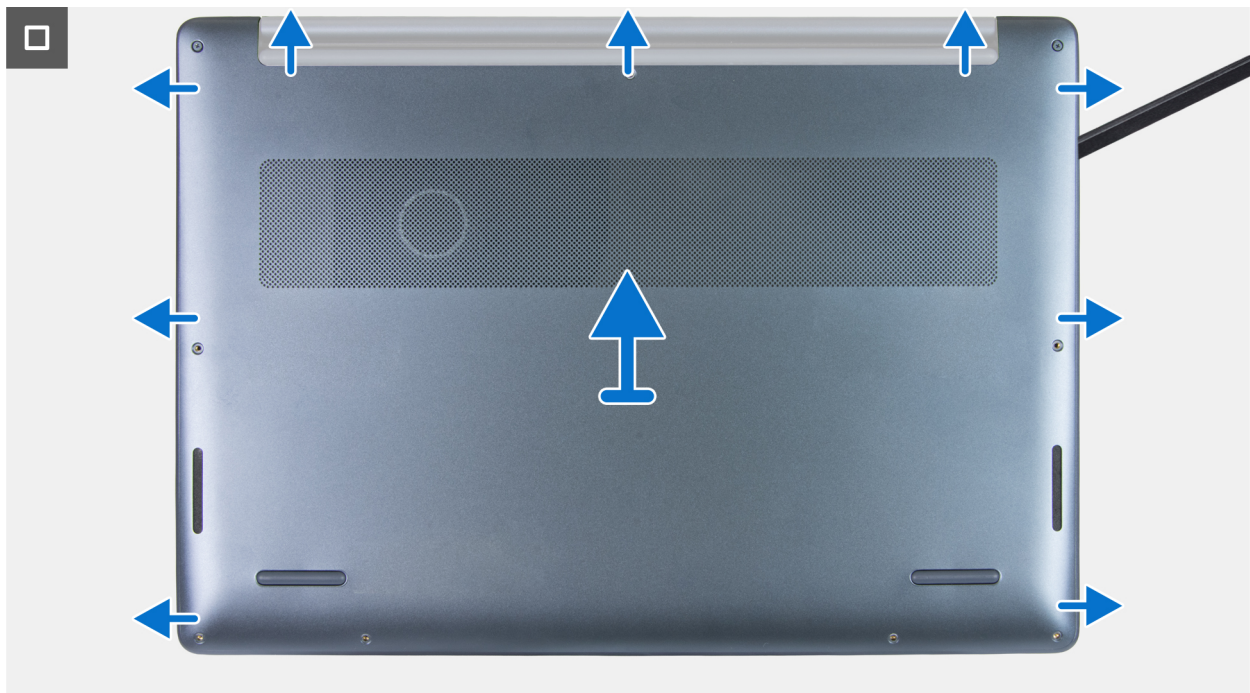


Figure 3. Removing the base cover



### Steps

1. Loosen the two captive screws (M2x6.5) that secure the base cover to the palm-rest and keyboard assembly.
2. Remove the seven screws (M2x4) that secure the base cover to the palm-rest and keyboard assembly.
3. Carefully insert a scribe and release the latches inside the base cover, starting at the hinge edge.

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

4. Slide the base cover up and lift it off the palm-rest and keyboard assembly.

## Installing the base cover

### Prerequisites

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

### About this task

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

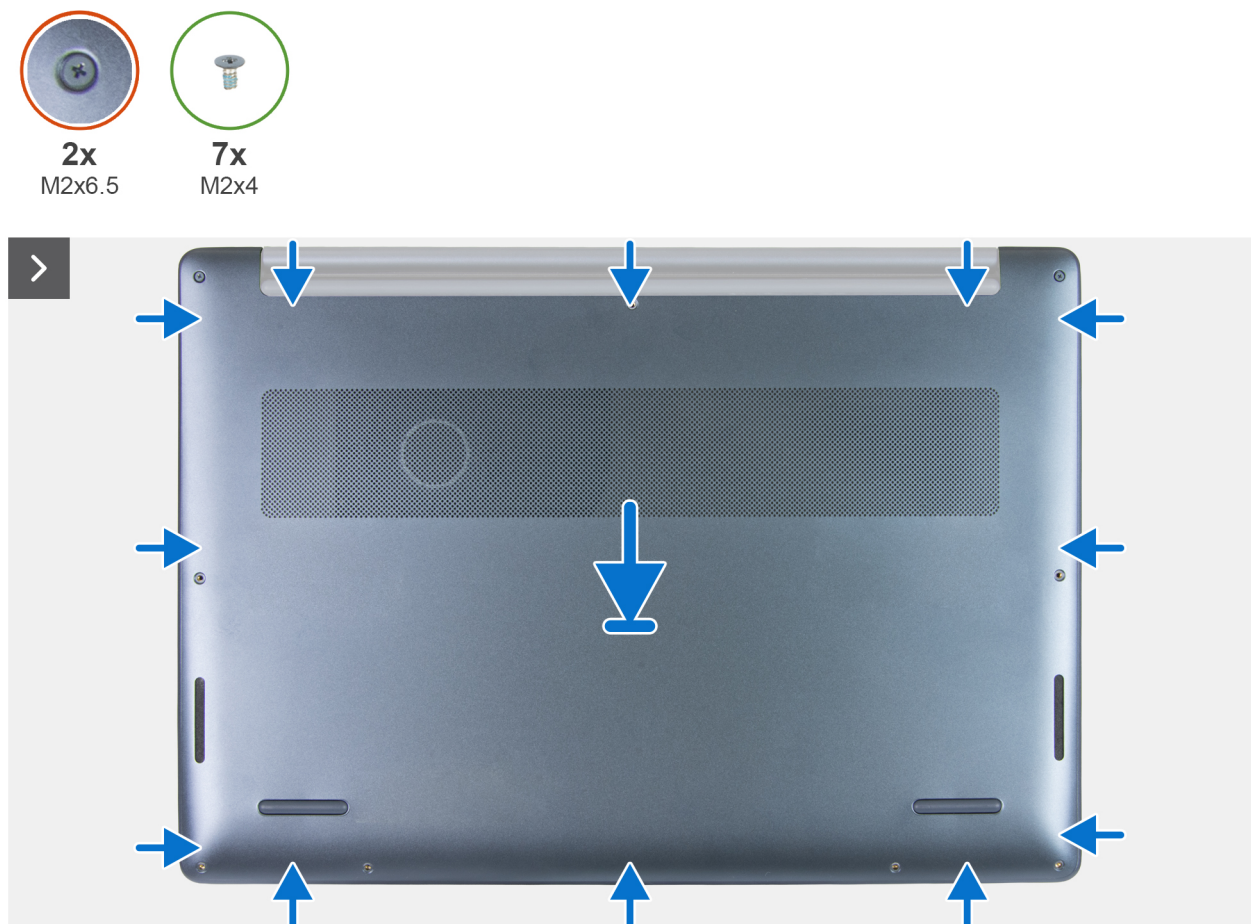


Figure 4. Installing the base cover



**Figure 5. Installing the base cover**

#### Steps

1. Align the bottom edge of the base cover with the palm-rest and keyboard assembly.
2. Align the screw holes on the base cover with the screw holes on the palm-rest and keyboard assembly, before snapping the cover into place.
3. Replace the seven screws (M2x4) to secure the base cover to the palm-rest and keyboard assembly.
4. Tighten the two captive screws (M2x6.5) that secure the base cover to the palm-rest and keyboard assembly.

#### Next steps

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

## Battery

### Rechargeable Li-ion battery precautions

#### ⚠ CAUTION:

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

### About this task

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

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

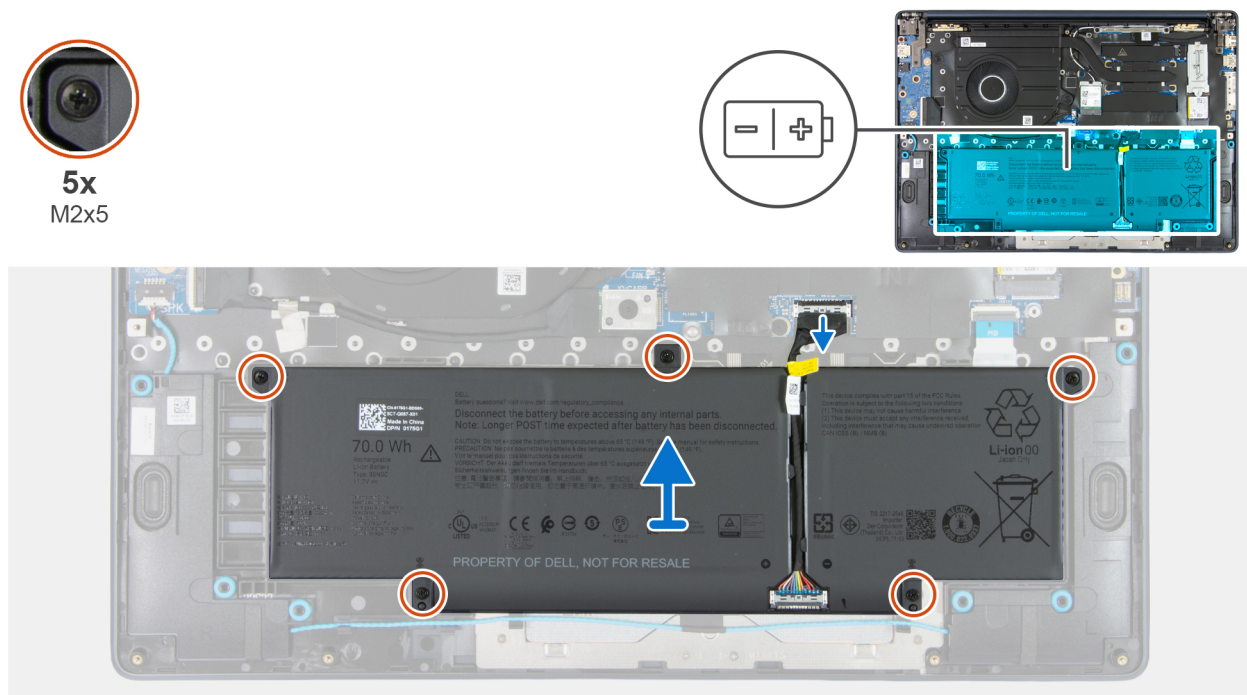


Figure 6. Removing the battery

### Steps

1. Hold the pull tab and pull it straight up to disconnect the battery cable from the connector (BATT) on the system board.
2. Remove the five captive screws (M2x5) that secure the battery to the palm-rest and keyboard assembly.
3. Lift the battery, along with the battery cable, off the palm-rest and keyboard assembly.

## Installing the battery

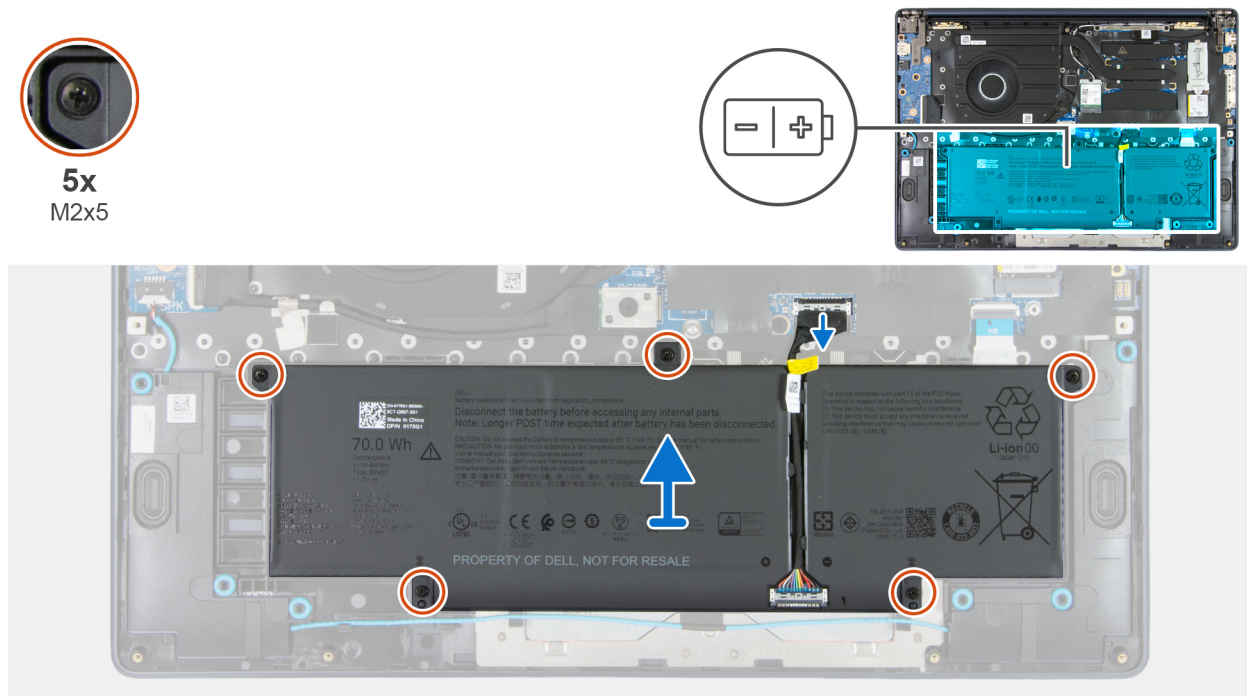
### Prerequisites

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

### About this task

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





**Figure 7. Installing the battery**

#### Steps

1. Place the battery, along with the battery cable, on the palm-rest and keyboard assembly.
2. Align the screw holes on the battery with the screw holes on the palm-rest and keyboard assembly.
3. Replace the five captive screws (M2x5) that secure the battery to the palm-rest and keyboard assembly.
4. Connect the battery cable to the connector (BATT) on the system board.

#### Next steps

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

## Battery cable

## Removing the battery cable

#### Prerequisites

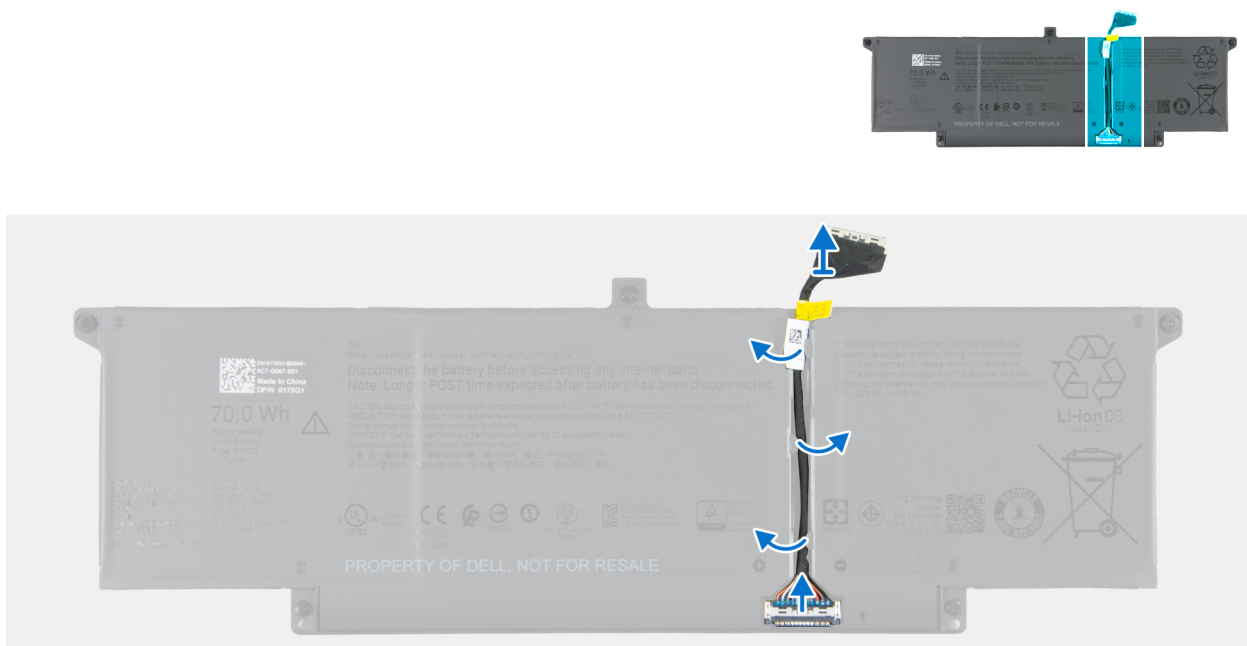
1. Follow the procedure in [Before working inside your computer](#).

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

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

#### About this task

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



**Figure 8. Removing the battery cable**

### Steps

1. Remove the battery cable from the routing guides.
2. Slide the clamp up to unlock the battery-cable connector.
3. Disconnect the battery cable from the battery.
4. Lift the battery cable off the battery.

## Installing the battery cable

### Prerequisites

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

### About this task

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



**Figure 9. Installing the battery cable**

#### Steps

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

#### Next steps

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

## M.2 solid state drive

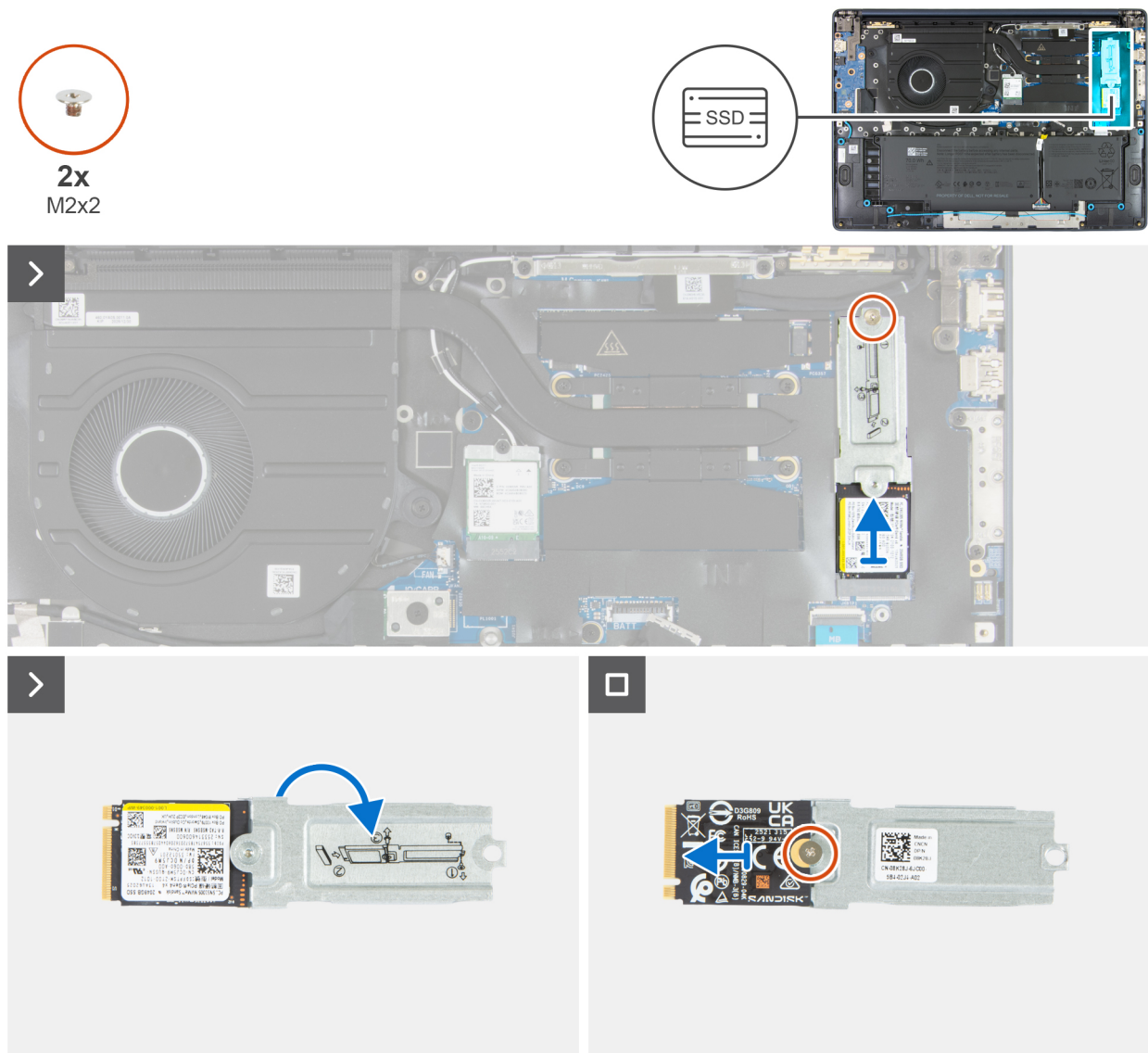
### Removing the M.2 2230 solid-state drive (SSD)

#### Prerequisites

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

#### About this task

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



**Figure 10. Removing the M.2 2230 solid-state drive**

### Steps

1. Remove the screw (M2x2) that secures the M.2 2230 solid-state drive bracket to the system board.
2. Lift at an angle and slide the M.2 2230 solid-state drive assembly from the M.2 solid-state drive slot (SDD) on the system board.
3. Turn over the M.2 2230 solid-state drive assembly and place it on a flat surface.
4. Remove the screw (M2x2) that secures the M.2 2230 solid-state drive to the M.2 2230 solid-state drive bracket.
5. Remove the M.2 2230 solid-state drive from the M.2 2230 solid-state drive bracket.

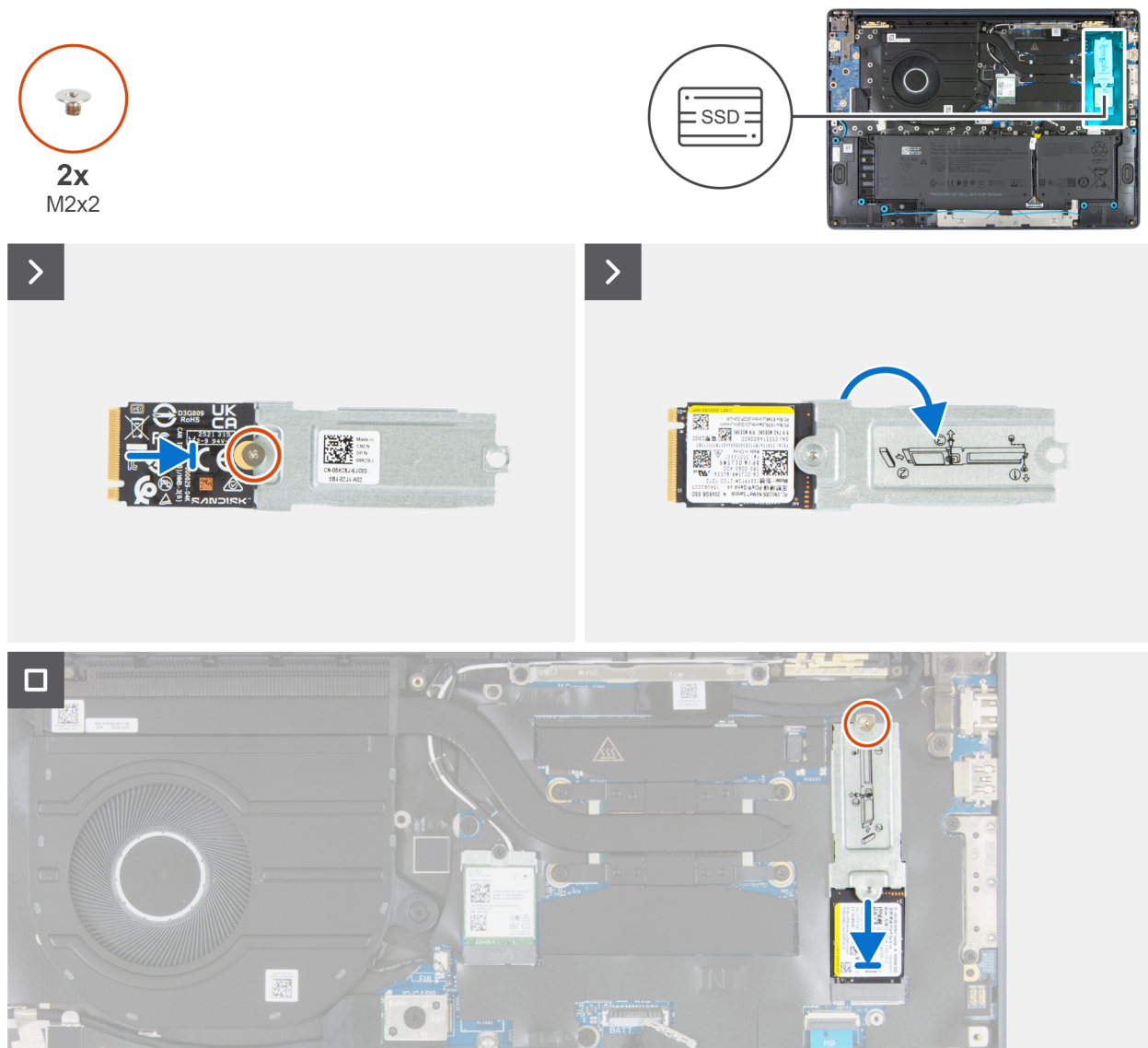
## Installing the M.2 2230 solid-state drive (SSD)

### Prerequisites

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

### About this task

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



**Figure 11. Installing the M.2 2230 solid-state drive**

### Steps

1. Place the M.2 2230 solid-state drive on the M.2 2230 solid-state drive bracket.
2. Align the screw hole on the M.2 2230 solid-state drive with the screw hole on the M.2 2230 solid-state drive bracket.
3. Replace the screw (M2x2) to secure the M.2 2230 solid-state drive to the M.2 2230 solid-state drive bracket.
4. Turn over the M.2 2230 solid-state drive assembly and place it on a flat surface.
5. Align the notch on the M.2 2230 solid-state drive to the tab on the M.2 card slot (SSD) on the right I/O-board.
6. Slide the M.2 2230 solid-state drive at an angle into the M.2 card slot on the system board.
7. Replace the screw (M2x2) that secures the M.2 2230 solid-state drive bracket to the system board.

### Next steps

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



# Fan

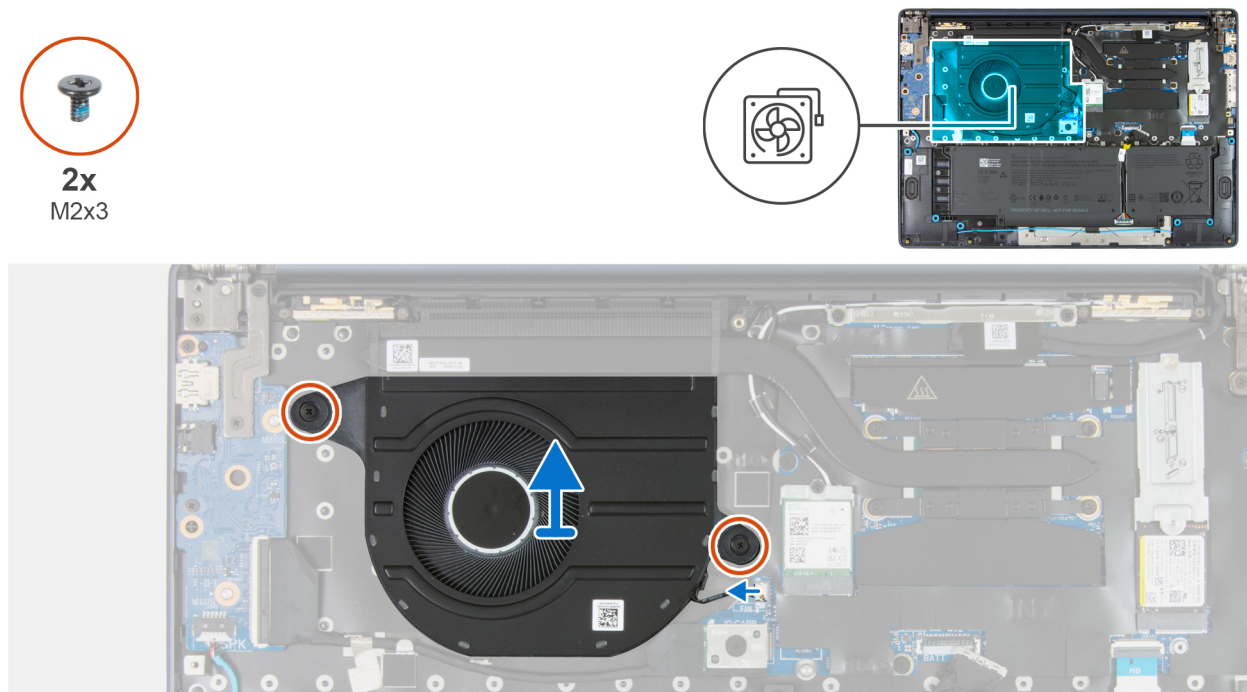
## Removing the fan

### Prerequisites

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

### About this task

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



**Figure 12. Removing the fan**

### Steps

1. Disconnect the fan cable from the connector (FAN) on the system board.
2. Remove the screw (M2x3) that secures the fan to the palm-rest and keyboard assembly.
3. Remove the screw (M2x3) that secures the fan to the system board.
4. Lift the fan off the palm-rest and keyboard assembly.

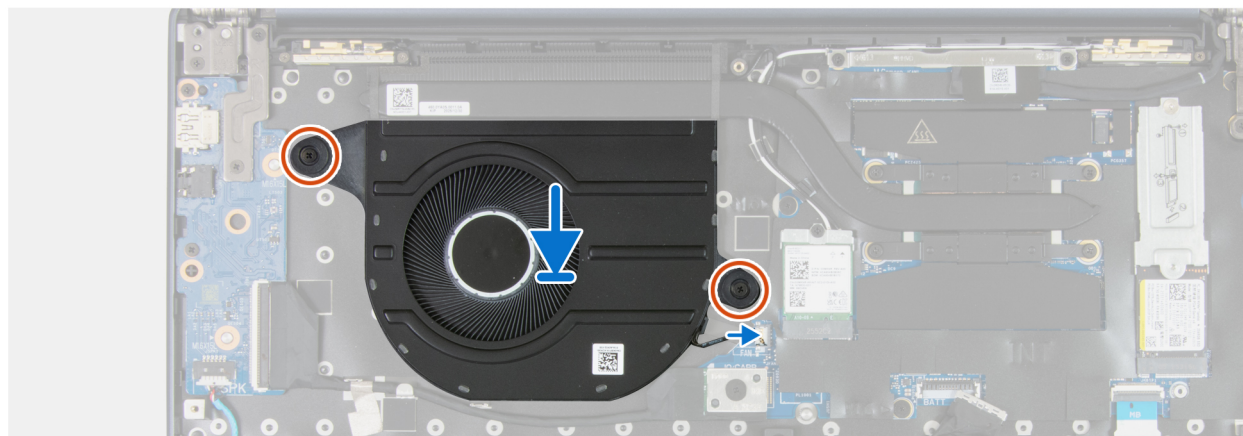
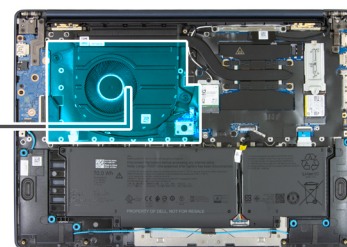
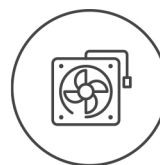
## Installing the fan

### Prerequisites

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

### About this task

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



**Figure 13. Installing the fan**

#### Steps

1. Place the fan in the slot on the palm-rest and keyboard assembly.
2. Align the screw holes on the fan with the screw holes on the system board and the palm-rest and keyboard assembly.
3. Replace the screw (M2x3) that secures the fan to the system board.
4. Replace the screw (M2x3) that secures the fan to the palm-rest and keyboard assembly.
5. Connect the fan cable to the connector (FAN) on the system board.

#### Next steps

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

## Wireless card

### Removing the wireless card

#### Prerequisites

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

#### About this task

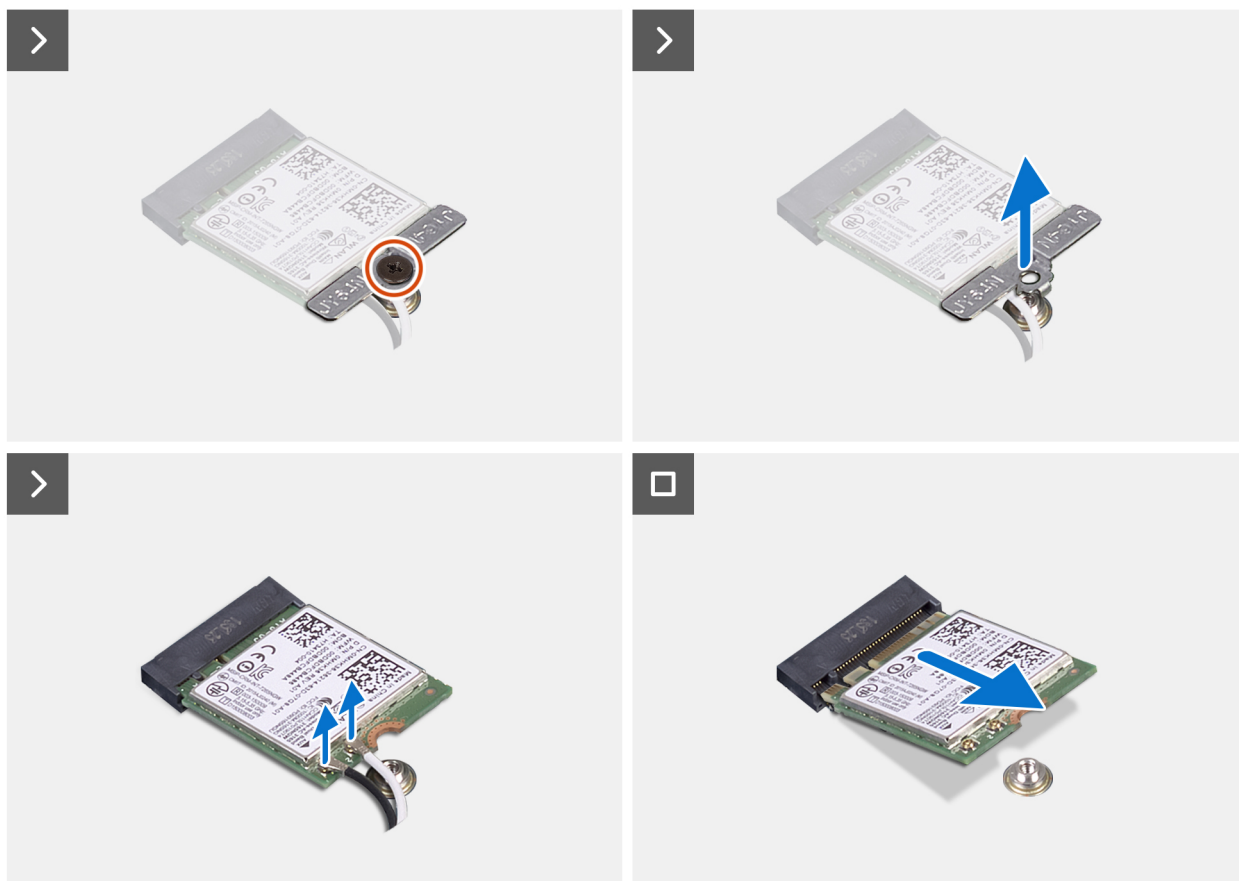
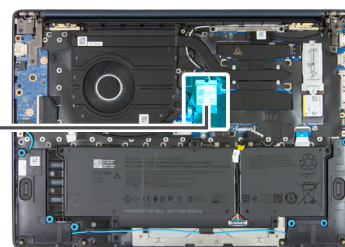
**CAUTION:** Removing the wireless card resets the BIOS setup settings to default. It is recommended that you note the BIOS setup settings before removing the wireless card.

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





1x  
M2x3



**Figure 14. Removing the wireless card**

#### Steps

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

## Installing the wireless card

#### Prerequisites

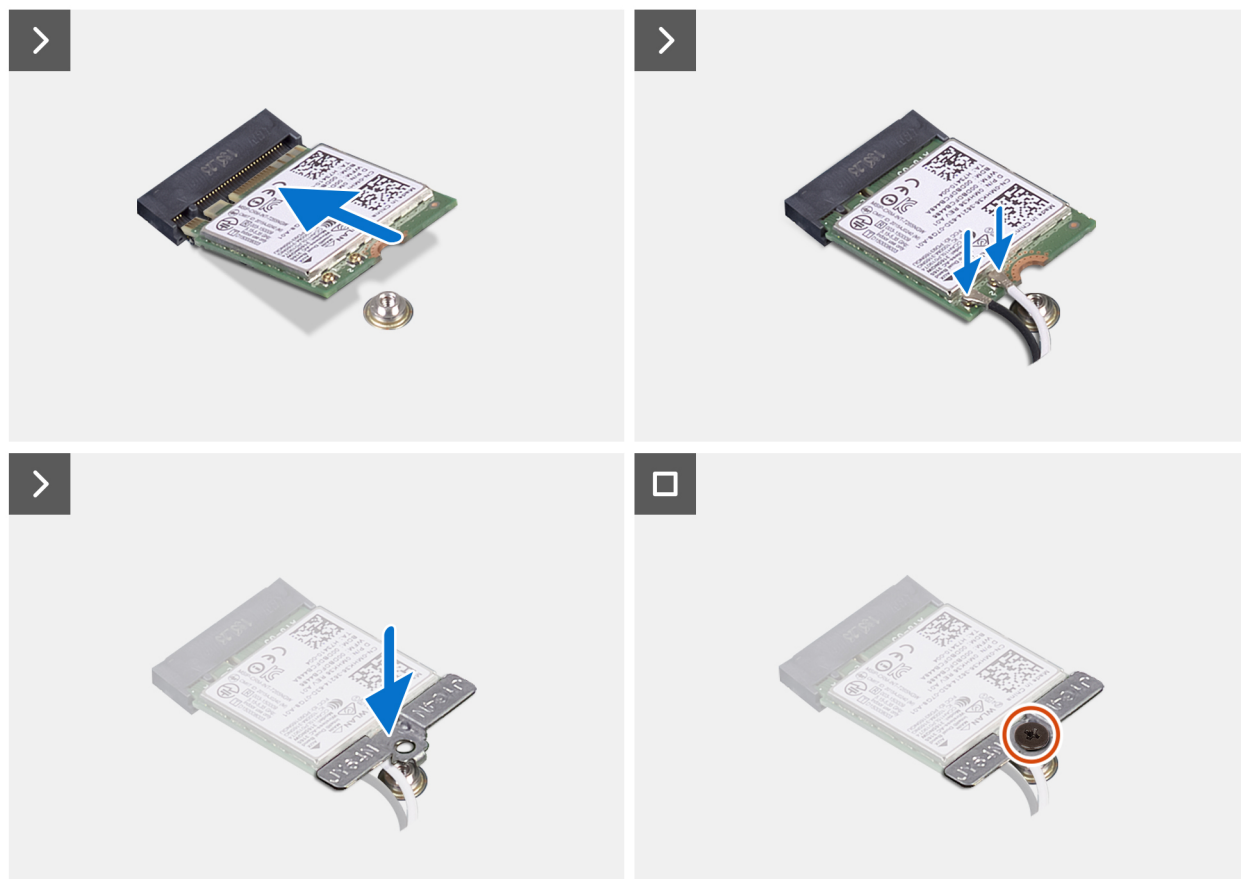
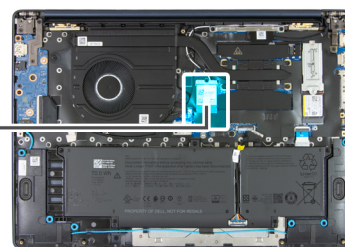
If you are replacing a component, remove the existing component before performing the installation procedure.

#### About this task

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



1x  
M2x3



**Figure 15. Installing the wireless card**

### Steps

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

**Table 3. Antenna-cable color scheme**

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

4. Place the wireless-card bracket on the wireless card.
5. Align the screw hole on the wireless-card bracket with the screw mount on the system board.
6. Replace the screw (M2x3) that secures the wireless-card bracket to the system board.

### Next steps

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

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

## Speaker assembly

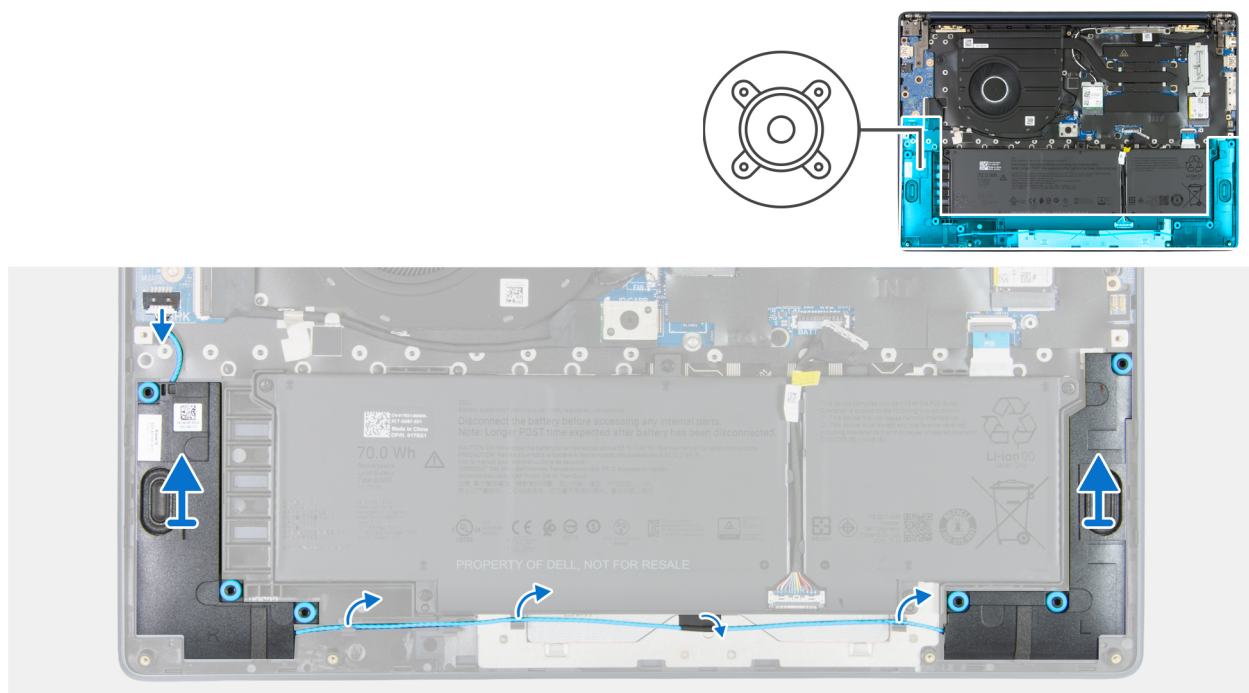
### Removing the speaker assembly

#### Prerequisites

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

#### About this task

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



**Figure 16. Removing the speaker assembly**

#### Steps

1. Disconnect the speaker cable from the connector (SPK) on the I/O board.
2. Peel off the adhesive tape and remove the speaker assembly cables from the routing guides on the palm-rest and keyboard assembly.
3. Lift the speaker assembly off the palm-rest and keyboard assembly.

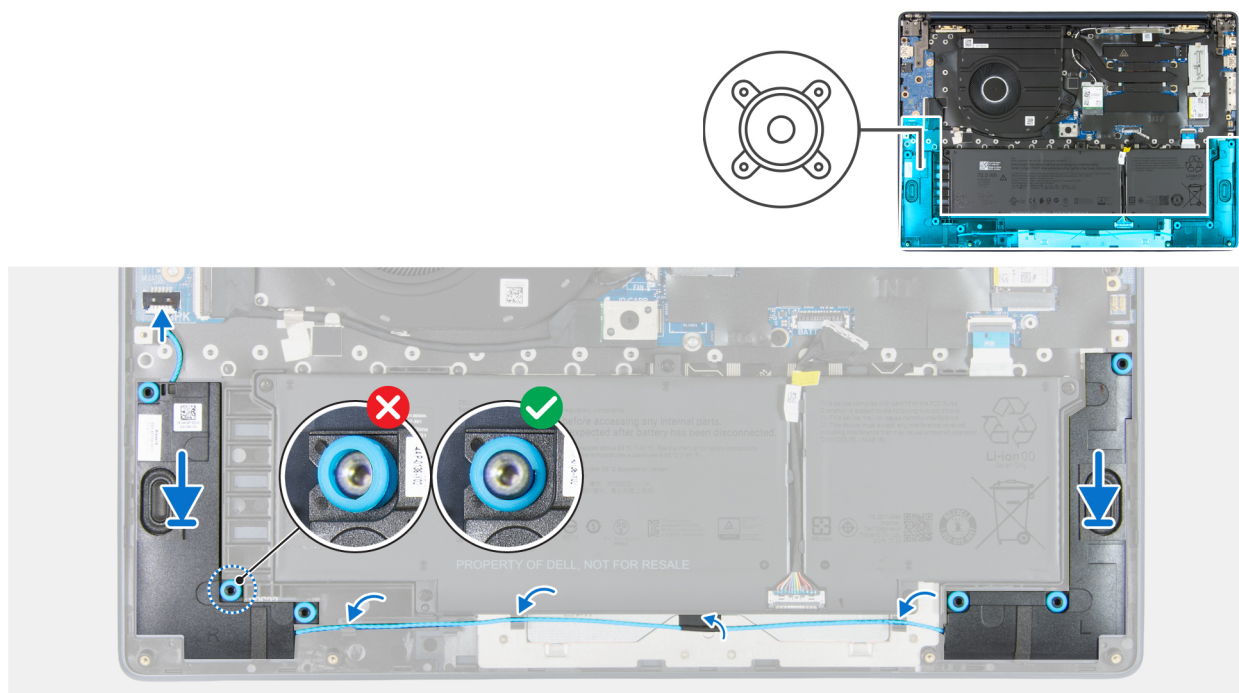
### Installing the speaker assembly

#### Prerequisites

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

#### About this task

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



**Figure 17. Installing the speaker assembly**

### Steps

1. Using the alignment posts, place the left speaker and the right speaker on the palm-rest and keyboard assembly.  
**NOTE:** Ensure that the six rubber grommets are seated into the slot and installed correctly on the speakers.
2. Route the speaker assembly cables through the routing guides on the palm-rest and keyboard assembly, and then apply the adhesive tapes to secure the cables.
3. Connect the speaker cable to the connector (SPK) on the I/O board.

### Next steps

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

# Removing and installing Field Replaceable Units (FRUs)

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

 **CAUTION:** 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.

## Display assembly

### Removing the display assembly

 **CAUTION:** The maximum operating angle for the display-panel hinge is 180 degrees.

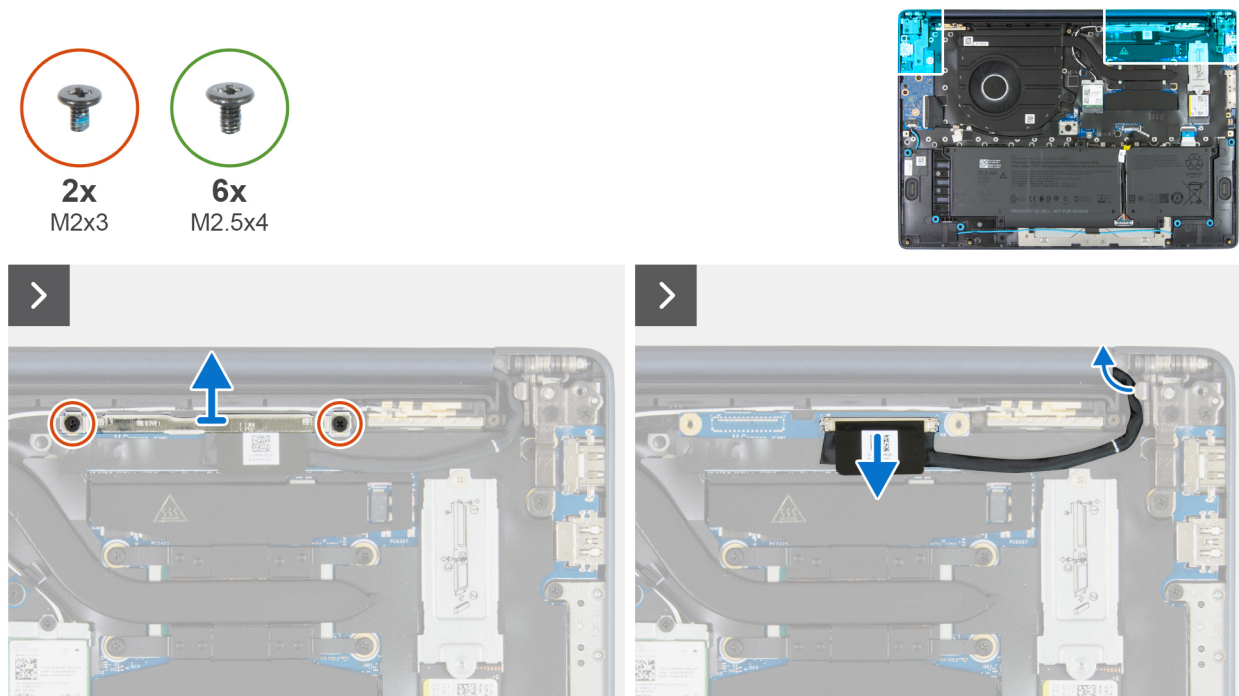
#### Prerequisites

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

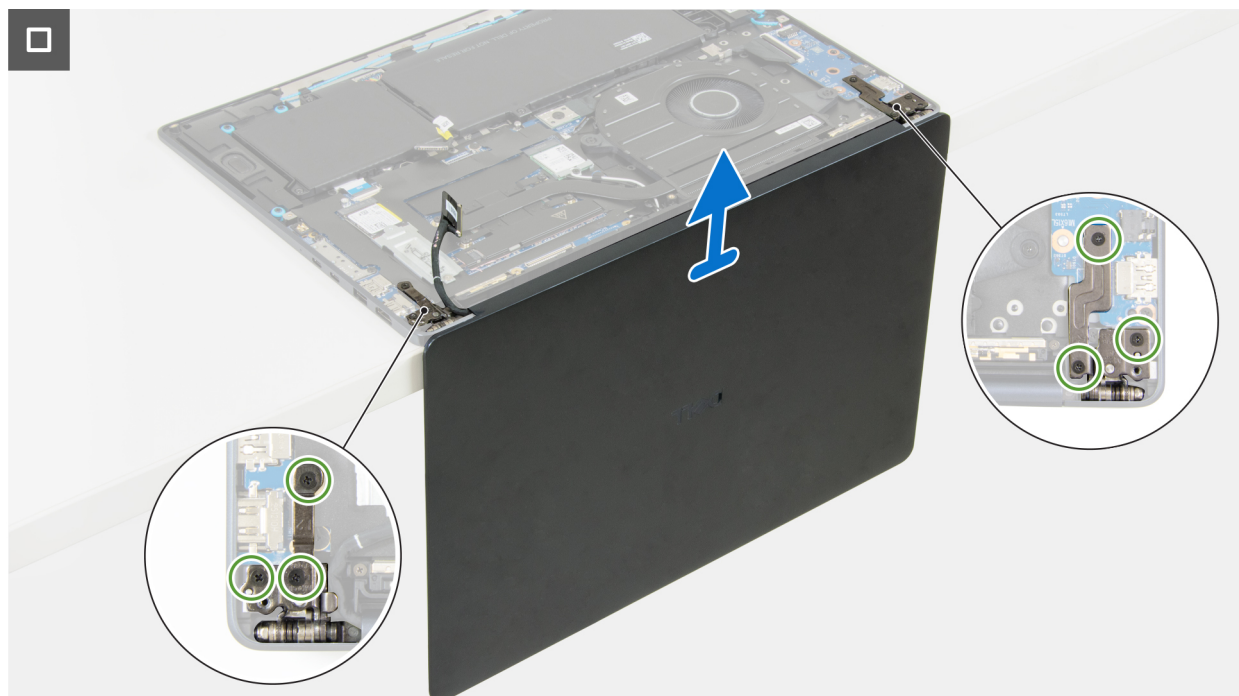
#### About this task

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





**Figure 18. Removing the display assembly**



**Figure 19. Removing the display assembly**

#### Steps

1. Remove the two screws (M2x3) that secure the display-assembly connector bracket to the system board.
2. Pull the tab to disconnect the display-assembly cable from the connector (EDP) on the system board.
3. Remove the display-assembly cable from the routing guides on the left-display hinge and palm-rest and keyboard assembly.
4. Open the display to a 90-degree angle to the palm-rest and keyboard assembly and place the computer at the edge of the table.
5. Remove the three screws (M2.5x4) that secure the left display-assembly hinge to the palm-rest and keyboard assembly.



6. Remove the three screws (M2.5x4) that secure the right display-assembly hinge to the palm-rest and keyboard assembly.
7. Lift the display assembly off the palm-rest and keyboard assembly.



**Figure 20. Display assembly with non-touch panel**



**Figure 21. Display assembly with touchscreen**

**NOTE:** The display assembly is a Hinge-Up Design (HUD) assembly. It cannot be further disassembled once it is removed from the palm-rest and keyboard assembly. If any components in the display assembly are malfunctioning, replace the entire display assembly.

## Installing the display assembly

**CAUTION:** The maximum operating angle for the display-panel hinge is 180 degrees.

### Prerequisites

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

### About this task

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

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



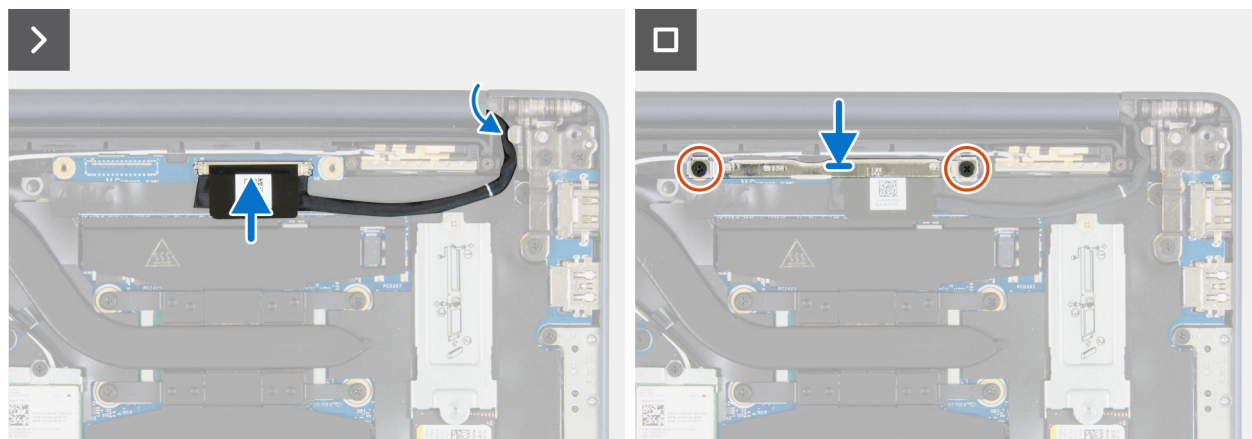
**Figure 22. Display assembly with non-touch panel**



**Figure 23. Display assembly with touchscreen**



**Figure 24. Installing the display assembly**



**Figure 25. Installing the display assembly**

### Steps

1. Place the palm-rest and keyboard assembly at the edge of the table.
2. Adjust the display hinges on the display assembly until the hinges are at a 90-degree angle to the display assembly.
3. Align the screw holes of the display hinges of the display assembly to the screw holes on the palm-rest and keyboard assembly.
4. Replace the three screws (M2.5x4) that secure the left display-assembly hinge to the palm-rest and keyboard assembly.
5. Replace the three screws (M2.5x4) that secure the right display-assembly hinge to the palm-rest and keyboard assembly.

6. Connect the display-assembly cable to the connector (EDP) on the system board and close the latch.
7. Replace the display-assembly cable into the routing guides on the left-display hinge and palm-rest and keyboard assembly.
8. Replace the two screws (M2x3) that secure the display-assembly connector bracket to the system board.

#### Next steps

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

## I/O-board cable

### Removing the I/O-board cable

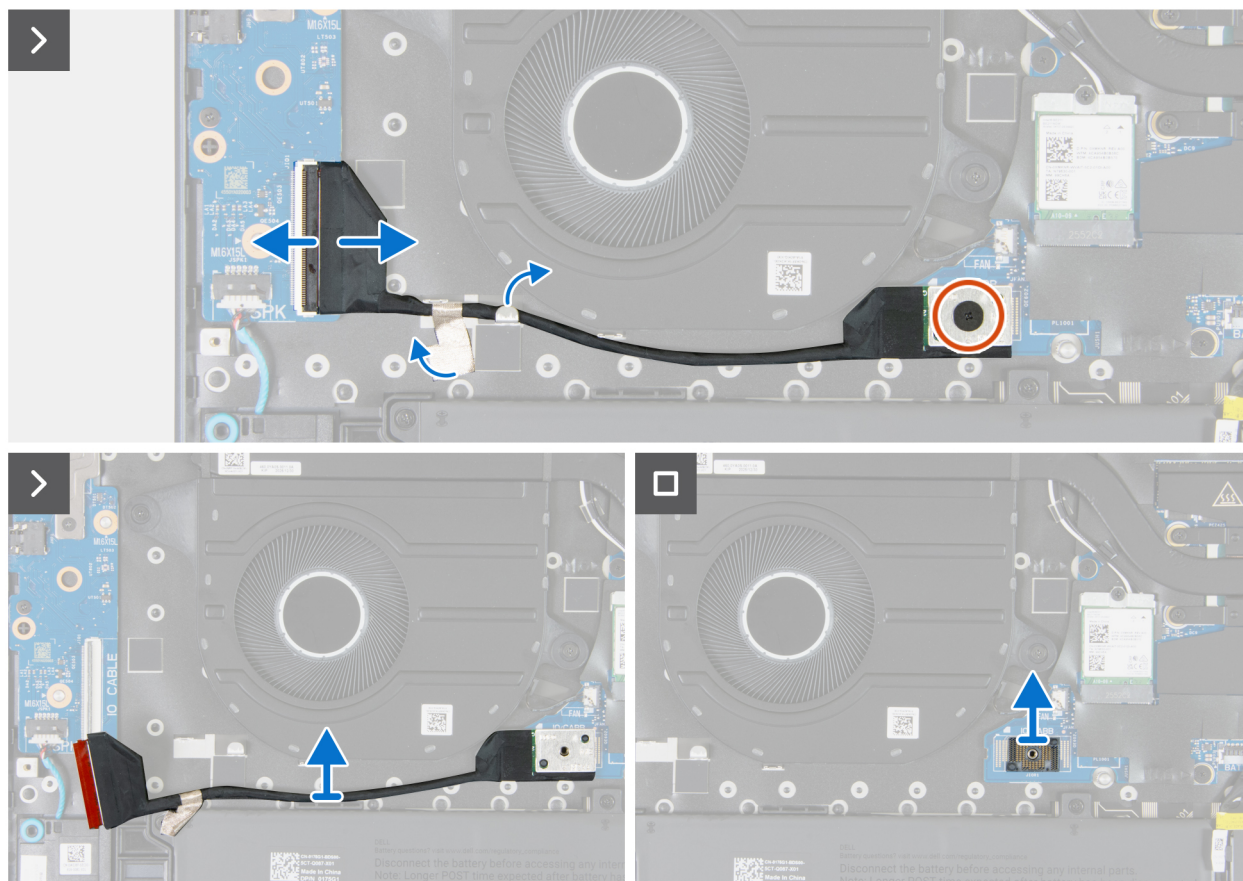
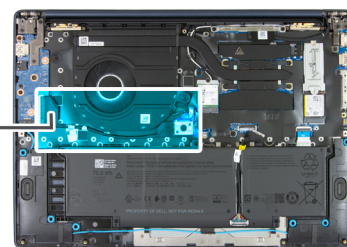
#### Prerequisites

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

#### About this task

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





**Figure 26. Removing the I/O-board cable**

### Steps

1. Open the latch and disconnect the I/O-board cable from its connector (IO CABLE) on the I/O board.
2. Remove the screw (M2x4) that secures the I/O-board cable connector to the interposer board on the system board.
3. Peel off the adhesive tape of the I/O-board cable from the I/O-board.
4. Remove the I/O-board cable from the routing guide.
5. Lift the I/O-board cable off the palm-rest and keyboard assembly.
6. Remove the interposer board from the connector (IO CABB) on the system board.

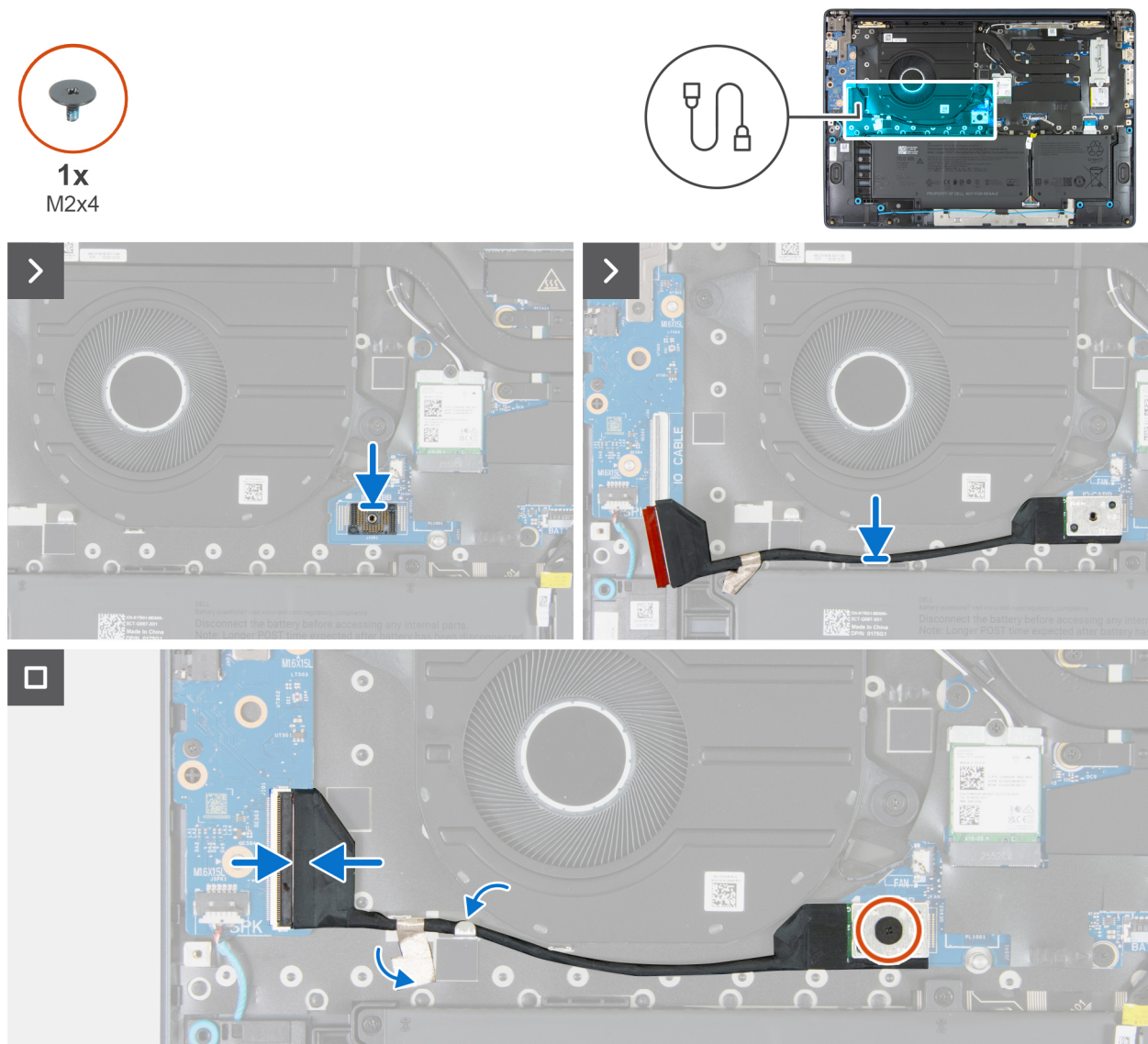
## Installing the I/O-board cable

### Prerequisites

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

### About this task

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



**Figure 27. Installing the I/O-board cable**

### Steps

1. Align the notch of the interposer board to the notch of the connector (IO CABB) on the system board.
2. Replace the interposer board on the connector (IO CABB) on the system board.
3. Place the I/O-board cable on the system board.
4. Connect the I/O-board cable to its connector (IO CABLE) on the I/O board and close the latch.
5. Replace the I/O-board cable connector over the interposer board on the system board.
6. Replace the screw (M2x4) that secures the I/O-board cable connector to the interposer board on the system board.
7. Adhere the adhesive tape of the I/O-board cable from the I/O-board.
8. Insert the I/O-board cable from the routing guide.

### Next steps

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

# I/O board

## Removing the I/O board

### Prerequisites

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

### About this task

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

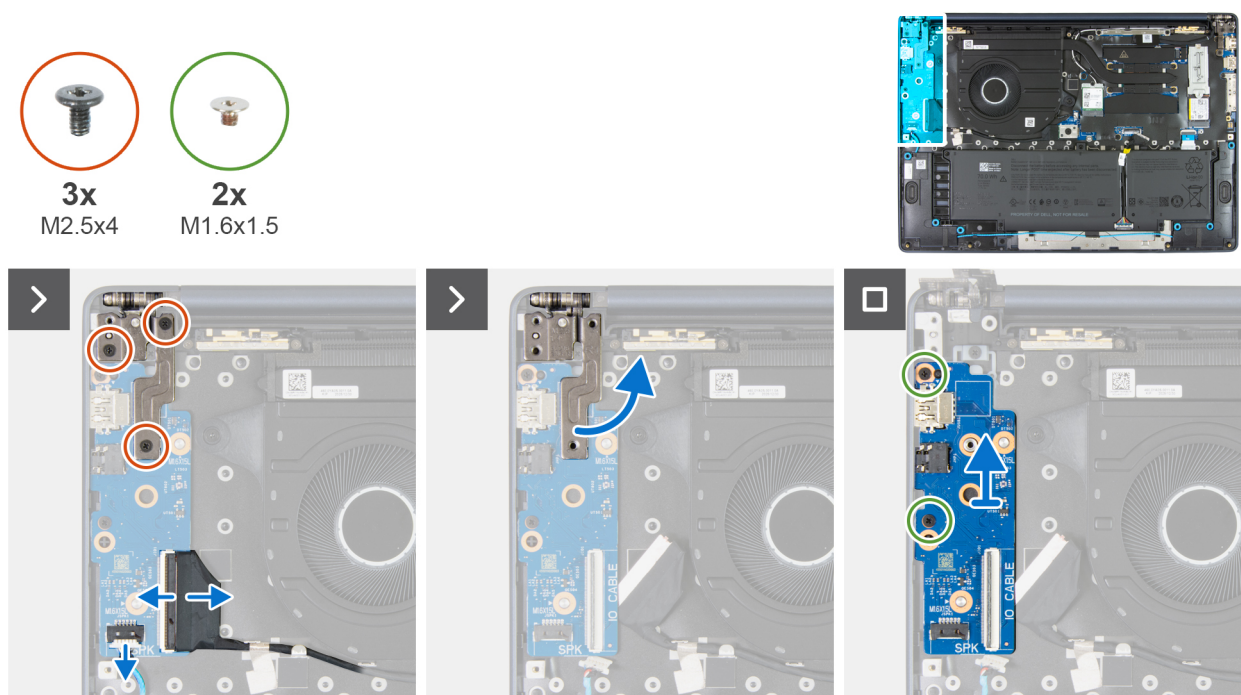


Figure 28. Removing the I/O board

### Steps

1. Remove the three screws (M2.5x4) that secure the left-display hinge to the I/O board.
2. Disconnect the speaker cable from the connector (SPK) on the I/O board.
3. Open the latch and disconnect the I/O board cable from the connector (IO CABLE) on the I/O board.
4. Open the left-display hinge until the hinge is at an angle of 90 degrees to the I/O board.
5. Remove the two screws (M1.6x1.5) that secure the I/O board to the palm-rest and keyboard assembly.
6. Lift the I/O board off the palm-rest and keyboard assembly.

## Installing the I/O board

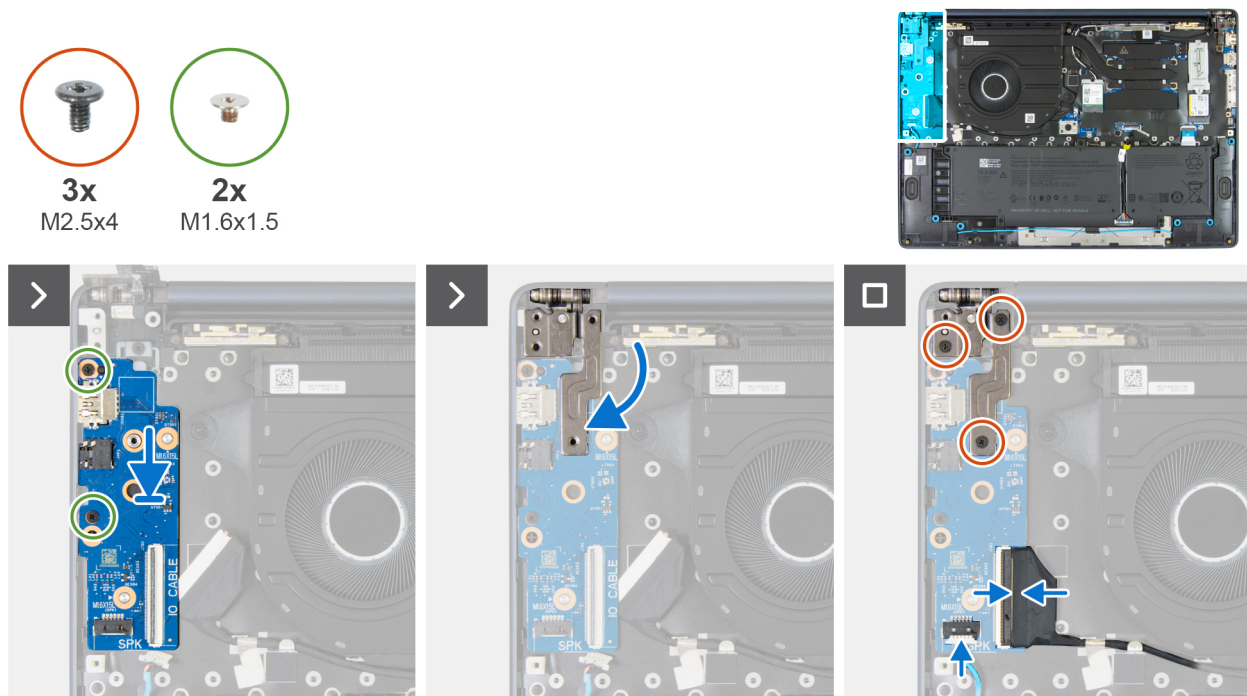
### Prerequisites

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

### About this task

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





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

#### Steps

1. Align the hole on the I/O board to the positioning pin on the palm-rest and keyboard assembly.
2. Place the I/O board on the palm-rest and keyboard assembly.
3. Replace the two screws (M1.6x1.5) that secure the I/O board to the palm-rest and keyboard assembly.
4. Close the left-display hinge until the screw holes on the hinge are aligned to the screw holes on the I/O board.
5. Replace the three screws (M2.5x4) that secure the left-display hinge to the I/O board.
6. Connect the I/O board cable from the connector (IO CABLE) on the I/O board.
7. Connect the speaker cable to the connector (SPK) on the I/O board.

#### Next steps

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

## Heat sink

### Removing the heat sink

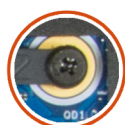
#### Prerequisites

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

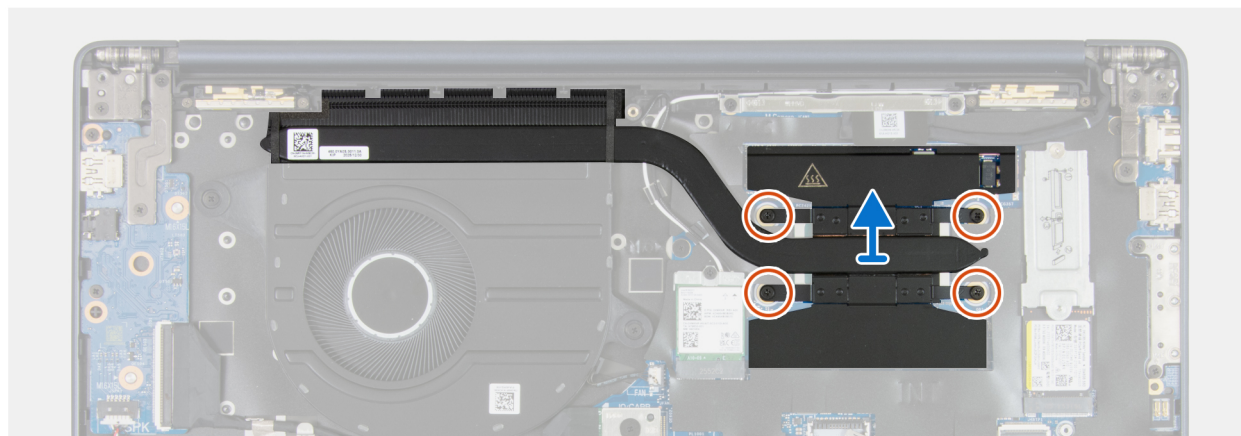
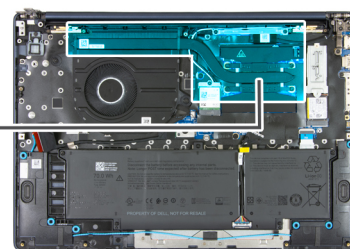
#### About this task

- NOTE:** The heat sink may become hot during normal operation. Allow sufficient time for the heat sink to cool before you touch it.
- NOTE:** For optimal cooling of the processor, do not touch the heat-transfer areas on the heat sink. The oils on your skin can reduce the heat-transfer capability of the thermal grease.

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



4x  
M2x3



**Figure 30. Removing the heat sink**

#### Steps

1. In reverse sequential order (4 > 3 > 2 > 1), loosen the four captive screws (M2x3) that secure the heat sink to the system board.

**i** **NOTE:** The screw numbers are printed on the heat sink.

2. Lift the heat sink off the system board.

## Installing the heat sink

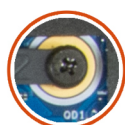
#### Prerequisites

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

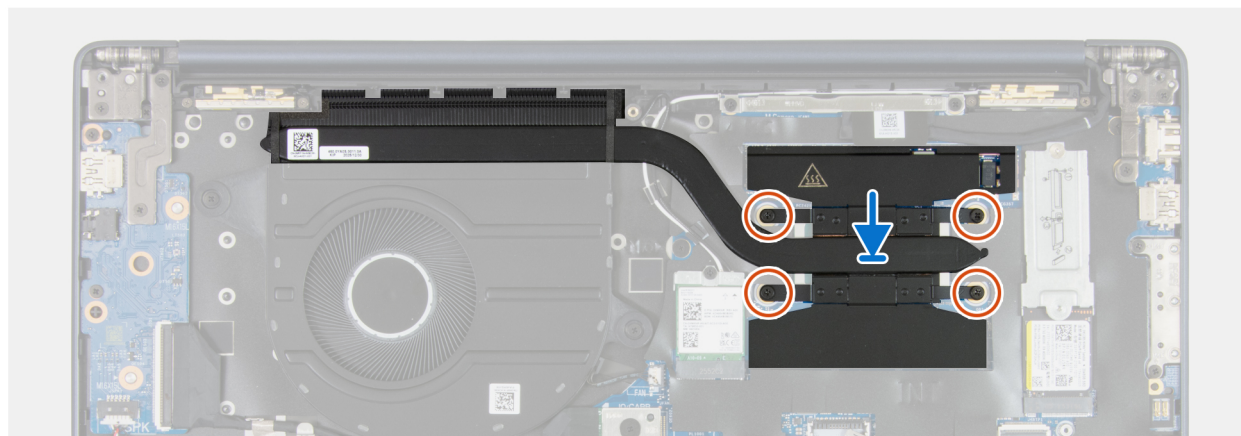
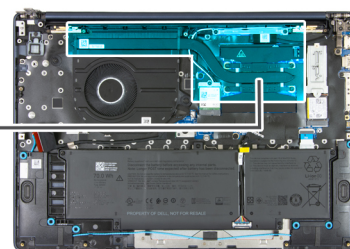
#### About this task

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

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



**4x**  
M2x3



**Figure 31. Installing the heat sink**

#### Steps

1. Place the heat sink in the slot on the system board.
2. Align the screw holes on the heat sink with the screw holes on the system board.
3. In sequential order (1 > 2 > 3 > 4), tighten the four captive screws (M2x3) that secure the heat sink to the system board.

**i** **NOTE:** The screw numbers are printed on the heat sink.

#### Next steps

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

## System board

### Removing the system board

#### Prerequisites

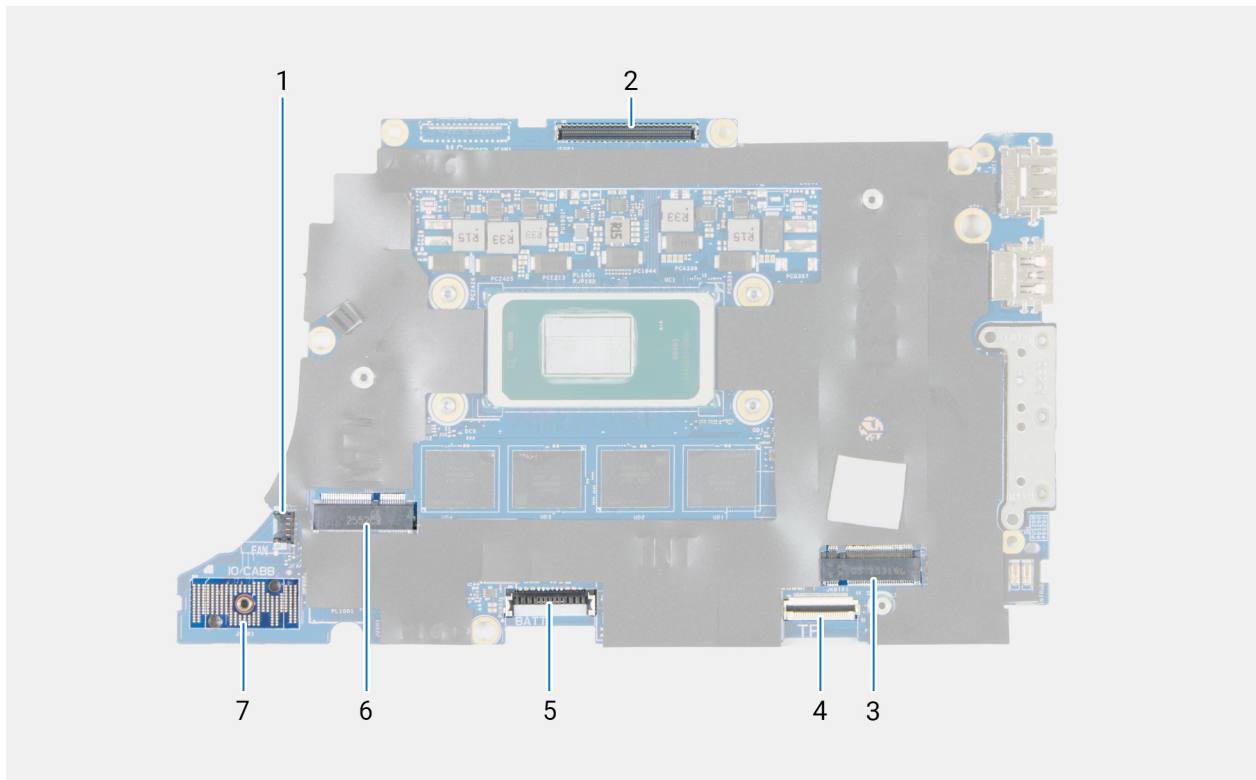
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [battery](#).
4. Remove the [M.2 2230 solid state drive](#).
5. Remove the [wireless card](#).
6. Remove the [heat sink](#).

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

#### About this task

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





**Figure 32. System board callouts**

1. Fan-cable connector (FAN)
2. Display-cable connector (EDP)
3. M.2 solid-state drive slot (SSD)
4. Touchpad-cable connector (TP)
5. Battery-cable connector (BATT)
6. M.2 wireless-card slot (WLAN)
7. Interposer board connector (IO/CABB)

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

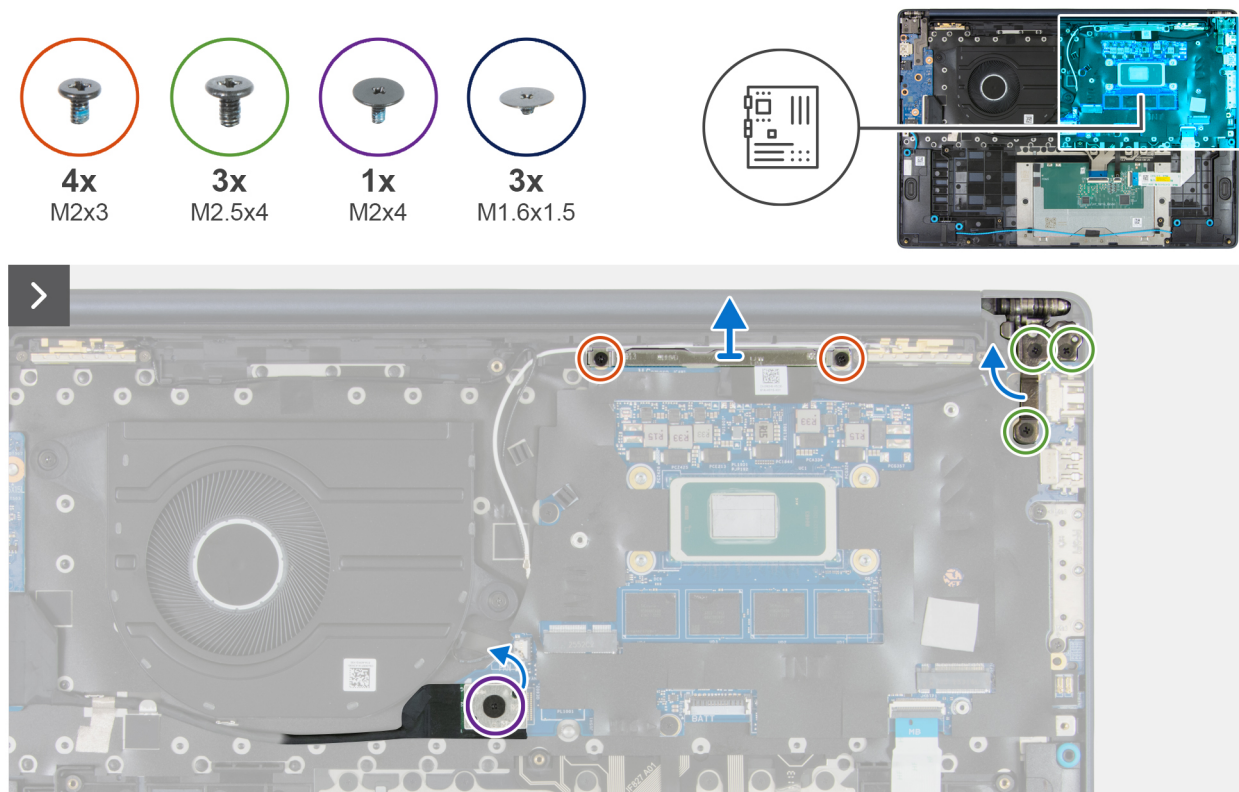


Figure 33. Removing the system board

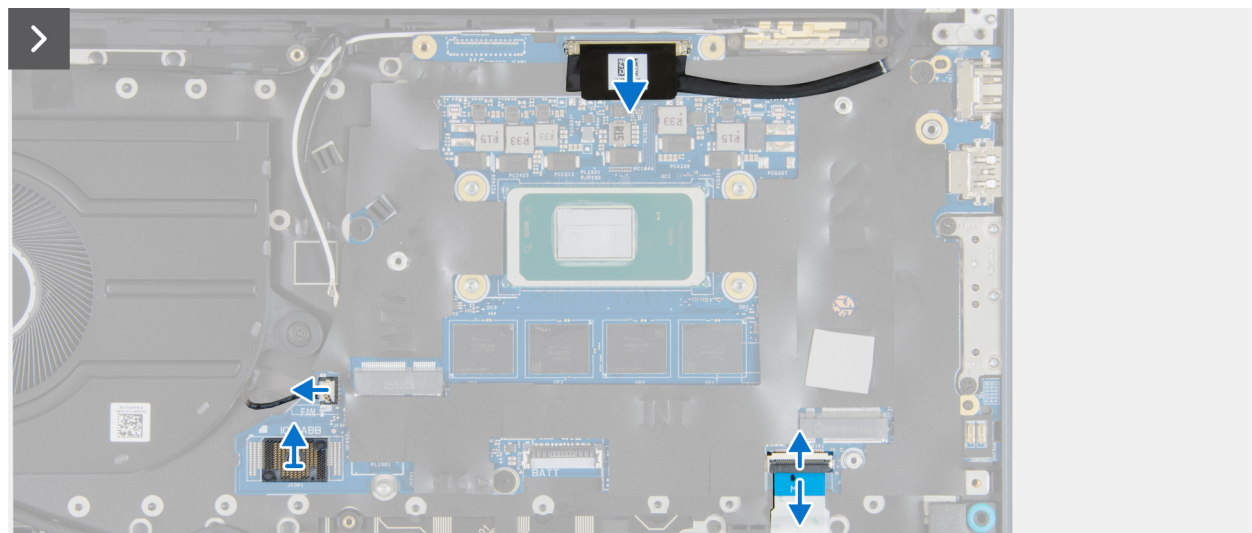
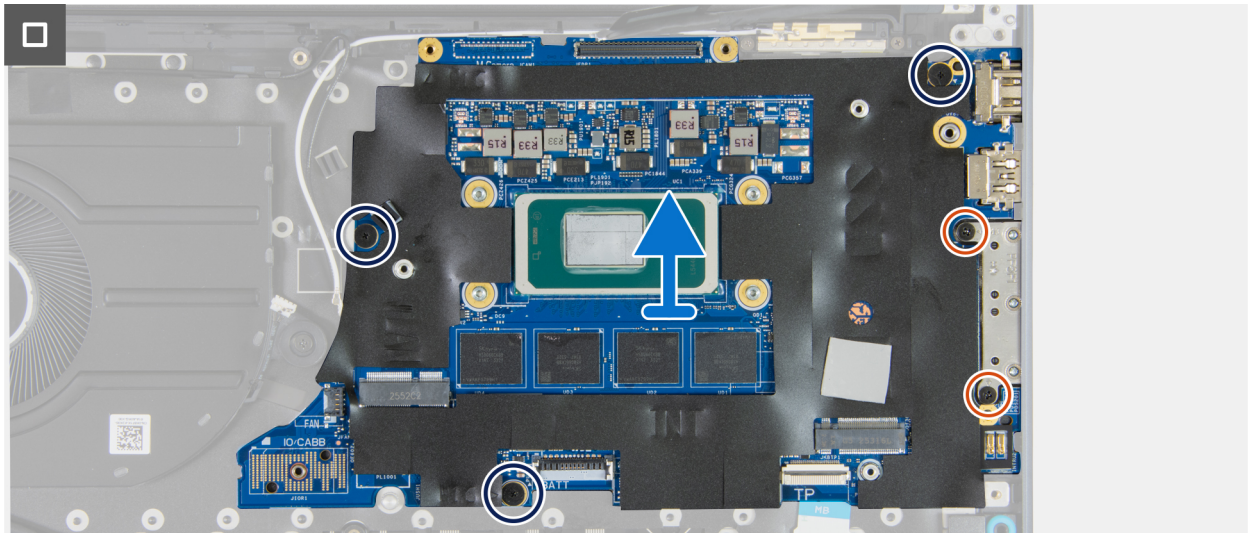


Figure 34. Removing the system board



**Figure 35. Removing the system board**

### Steps

1. Remove the screw (M2x4) that secures the I/O-board cable connector to the interposer board and the system board.
2. Remove the two screws (M2x3) that secure the display-assembly cable bracket to the system board.
3. Remove the three screws (M2.5x4) that secure the display-assembly hinge to the system board.
4. Pry open the display-assembly hinge to a 90-degree angle.
5. Disconnect the fan cable from its connector (FAN) on the system board.
6. Remove the interposer board from the connector (IO/CABB) on the system board.

**CAUTION:** The pins on the interposer board are fragile. Do not touch the pins. When handling the interposer board, hold it only by the edges or sides.

**Figure 36. Handling of the interposer board**

7. Open the latch and disconnect the touchpad cable from the connector (TP) on the system board.
8. Disconnect the display-assembly cable from the connector (EDP) on the system board.
9. Peel the display-assembly cable off the system board.
10. Remove the three screws (M1.6x1.5) that secure the system board to the palm-rest and keyboard assembly.
11. Remove the two screws (M2x3) that secure the system board to the palm-rest and keyboard assembly.
12. Lift the system board off the palm-rest and keyboard assembly.

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

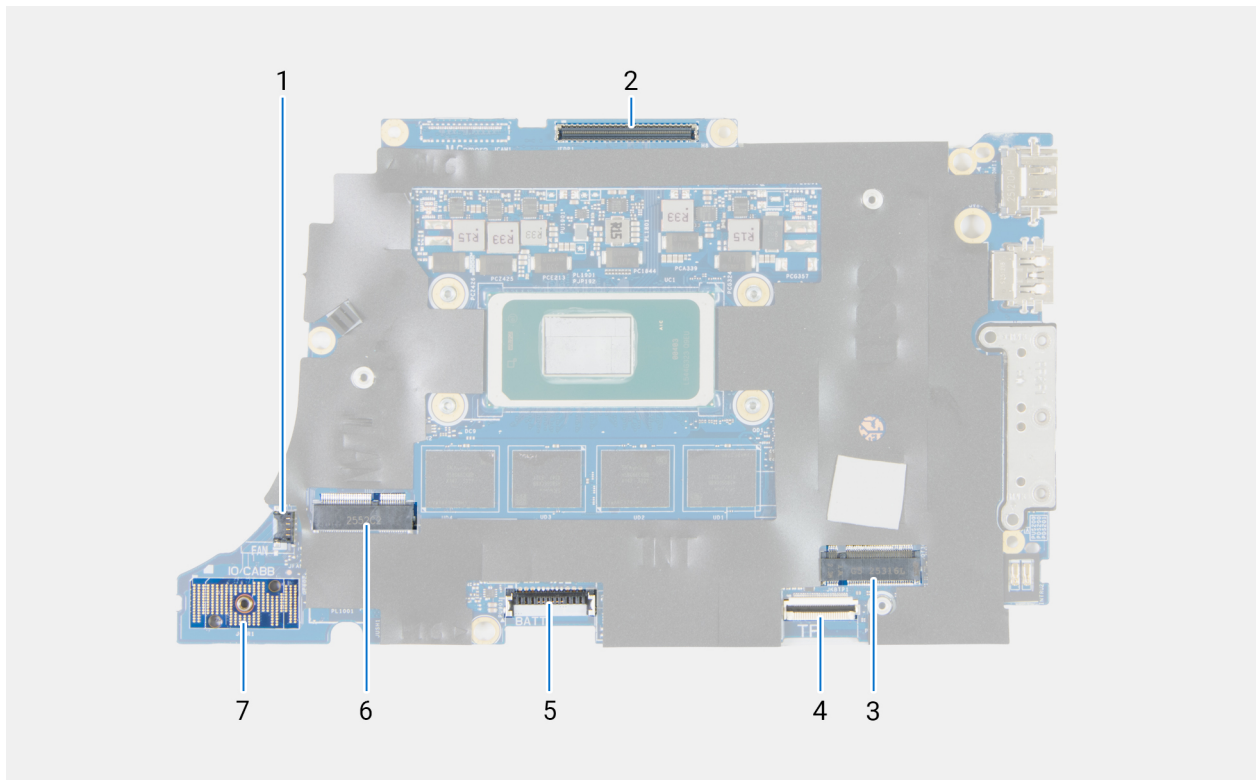
## Installing the system board

### Prerequisites

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

### About this task

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



**Figure 37. System board callouts**

1. Fan-cable connector (FAN)
2. Display-cable connector (EDP)
3. M.2 solid-state drive slot (SSD)
4. Touchpad-cable connector (TP)
5. Battery-cable connector (BATT)
6. M.2 wireless-card slot (WLAN)
7. Interposer board connector (IO/CABB)

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



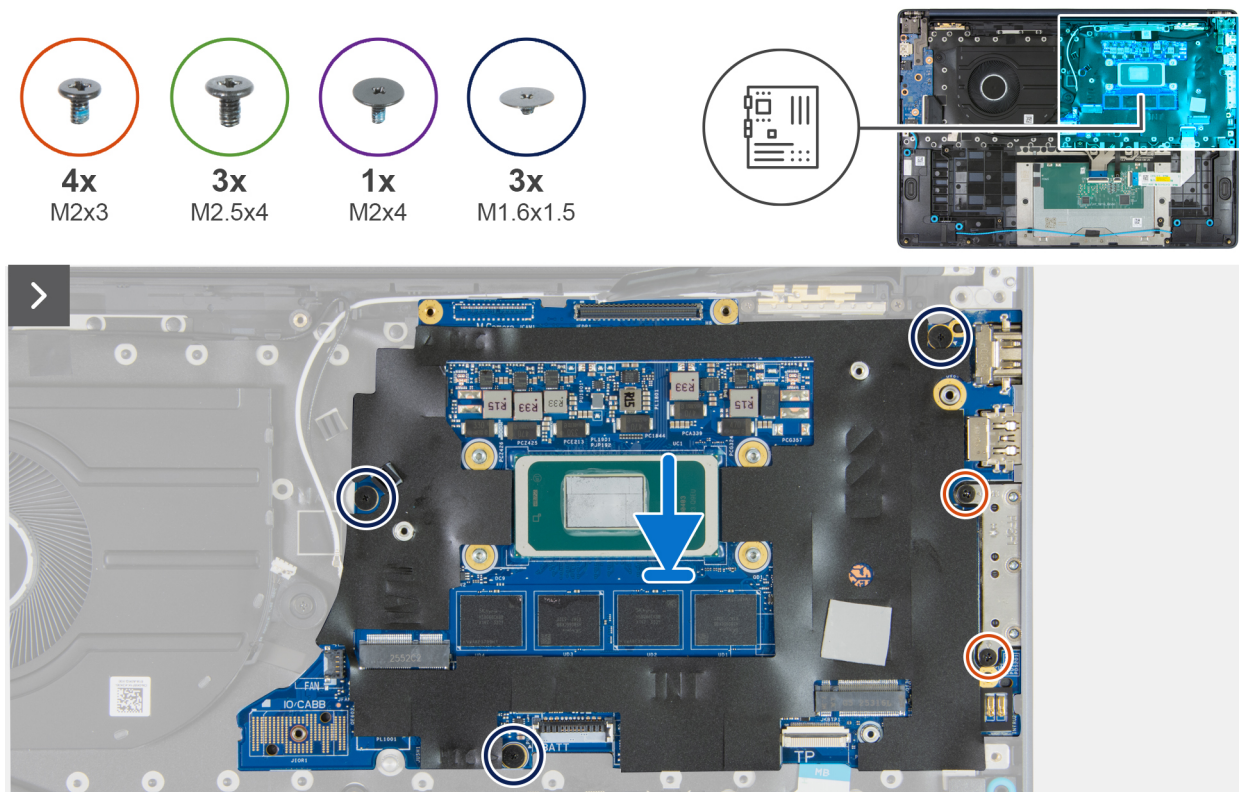


Figure 38. Installing the system board

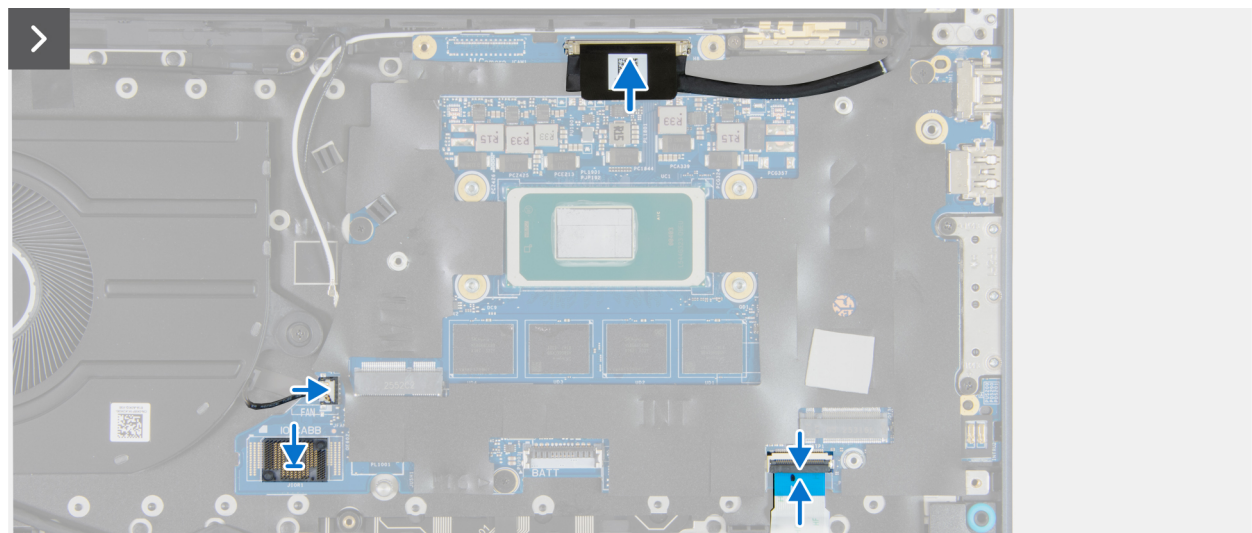
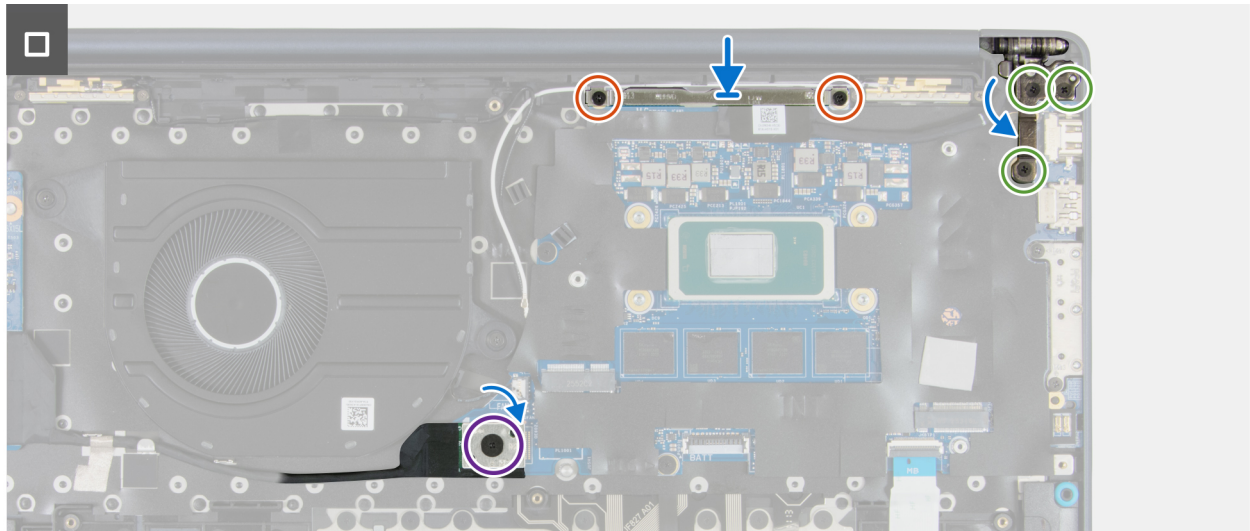


Figure 39. Installing the system board





**Figure 40. Installing the system board**

### Steps

1. Align the holes on the system board to the positioning pins on the palm-rest and keyboard assembly and slide the system board into position.
2. Replace the two screws (M2x3) that secure the system board to the palm-rest and keyboard assembly.
3. Replace the three screws (M1.6x1.5) that secure the system board to the palm-rest and keyboard assembly.
4. Connect the display-assembly cable from the connector (EDP) on the system board.
5. Adhere the display-assembly cable to the system board.
6. Connect the touchpad cable to the connector (TP) on the system board and close the latch to secure the touchpad cable.
7. Connect the fan cable to its connector (FAN) on the system board.
8. Align and place the interposer board on the connector (IO/CABB) of the system board.

**CAUTION:** The pins on the interposer board are fragile. Do not touch the pins. When handling the interposer board, hold it only by the edges or sides.

**Figure 41. Handling of the interposer board**

9. Close the display-assembly hinge and replace the three screws (M2.5x4) that secure the display-assembly hinge to the system board.

**NOTE:** Ensure the display-assembly cable is placed under the display-assembly hinge after the hinge is closed.

10. Align the screw holes of the display-assembly cable bracket to the screw holes on the system board.
11. Replace the two screws (M2x3) that secure the display-assembly cable bracket to the system board.
12. Replace the screw (M2x4) that secures the I/O-board cable connector to the interposer board and the system board.

### Next steps

1. Install the [heat sink](#).
2. Install the [wireless card](#).
3. Install the [M.2 2230 solid state drive](#).
4. Install the [battery](#).
5. Install the [base cover](#).
6. Follow the procedure in [After working inside your computer](#).

# USB Type-C board

## Removing the USB Type-C board

### Prerequisites

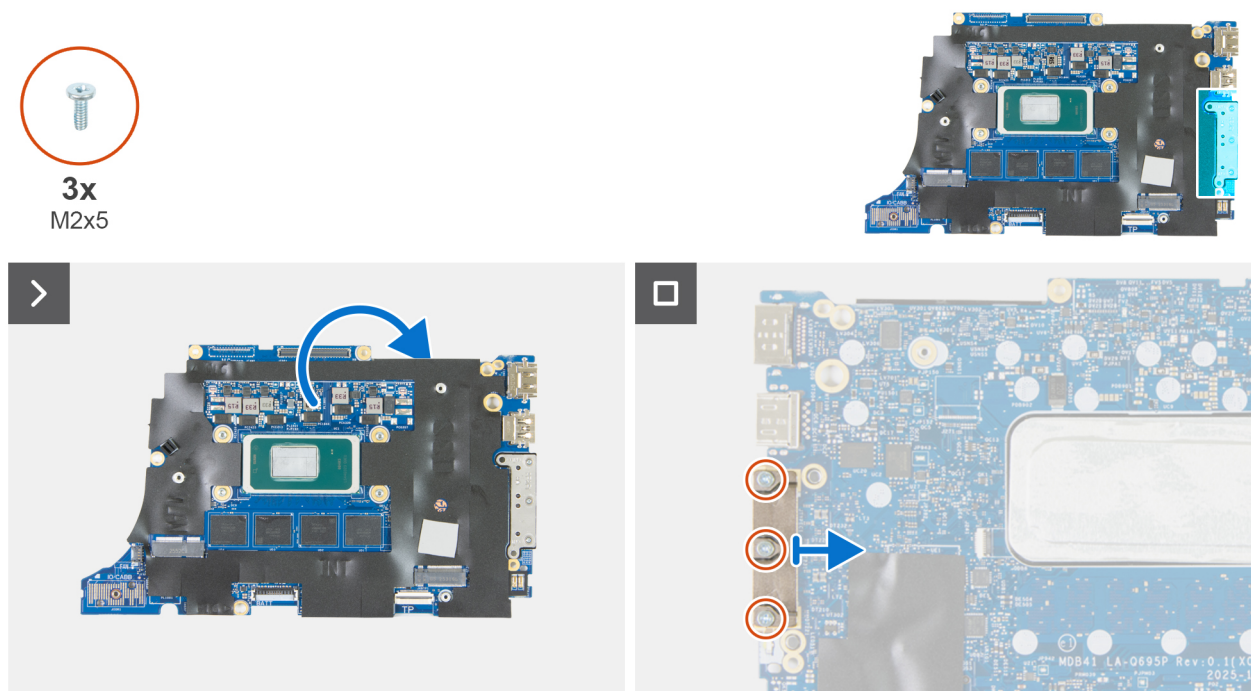
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [battery](#).
4. Remove the [M.2 2230 solid state drive](#).
5. Remove the [wireless card](#).
6. Remove the [heat sink](#).

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

7. Remove the [system board](#).

### About this task

The following images indicate the location of the USB Type-C board and provide a visual representation of the removal procedure.



**Figure 42. Removing the USB Type-C board**

### Steps

1. Turn over the system board and place it back on the flat surface.
2. Remove the three screws (M2x5) that secure the USB Type-C board to the system board.
3. Lift the USB Type-C board off the system board.

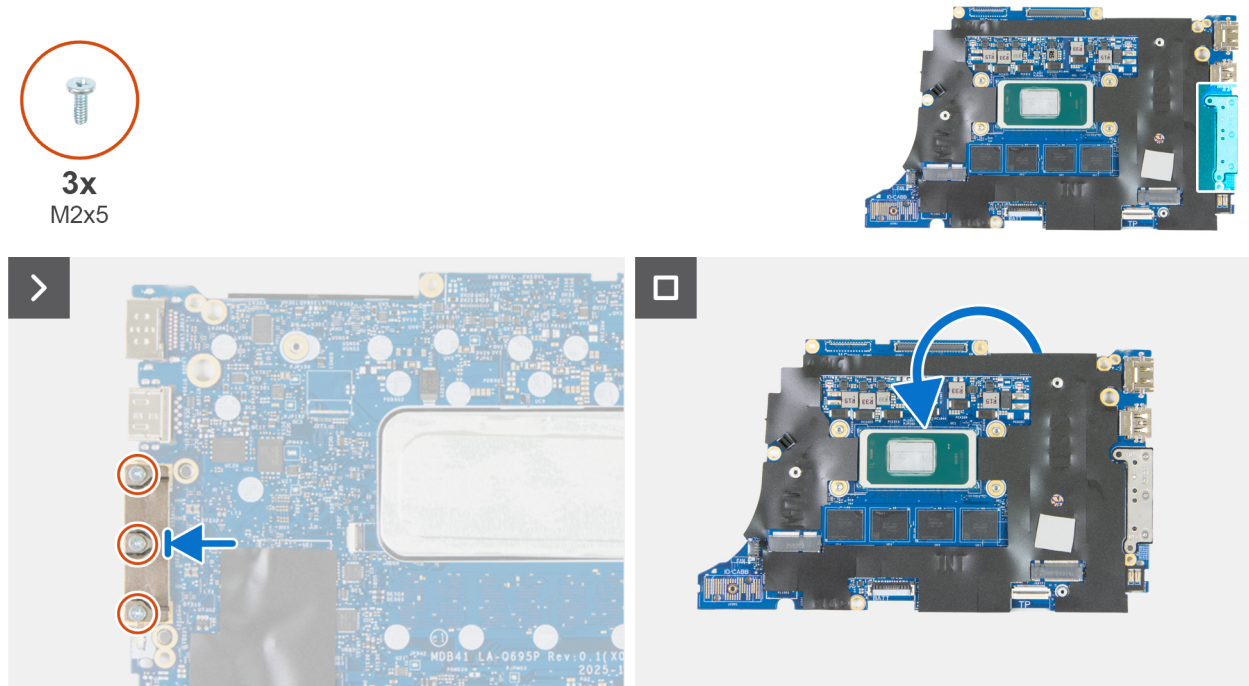
# Installing the USB Type-C board

## Prerequisites

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

## About this task

The following images indicate the location of the USB Type-C board and provide a visual representation of the installation procedure.



**Figure 43. Installing the USB Type-C board**

## Steps

1. Align the screw holes on the USB Type-C board to the screw holes on the system board.
2. Replace the three screws (M2x5) that secure the USB Type-C board to the system board.
3. Turn over the system board and place it back on the flat surface.

## Next steps

1. Install the [system board](#).
2. Install the [heat sink](#).
3. Install the [wireless card](#).
4. Install the [M.2 2230 solid state drive](#).
5. Install the [battery](#).
6. Install the [base cover](#).
7. Follow the procedure in [After working inside your computer](#).

# Power button

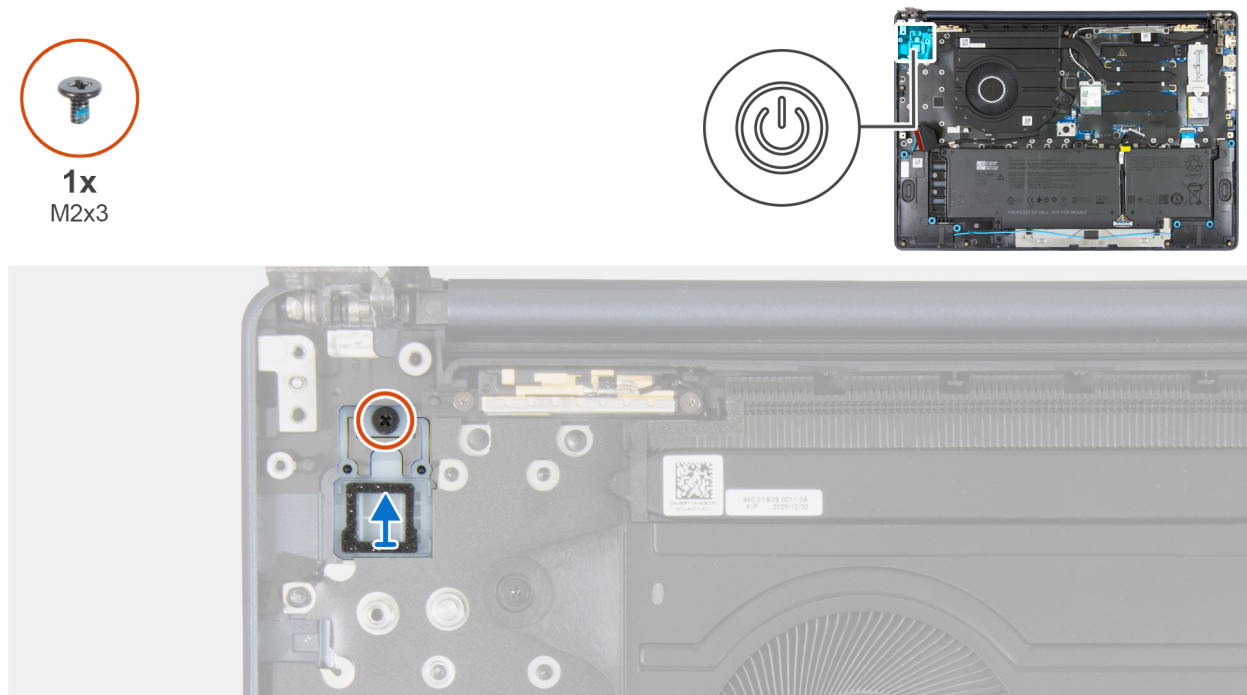
## Removing the power button

### Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [I/O board](#).

### About this task

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



**Figure 44. Removing the power button**

### Steps

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

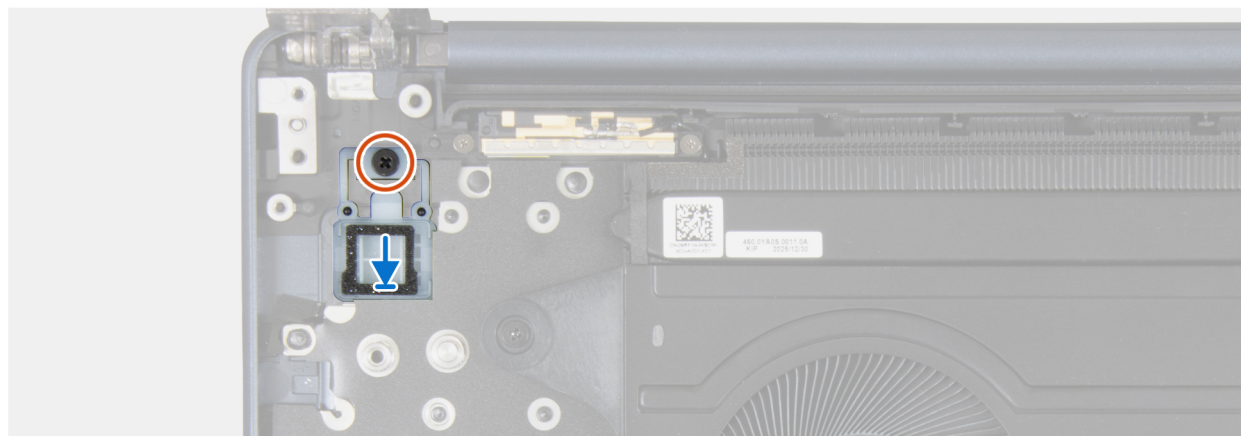
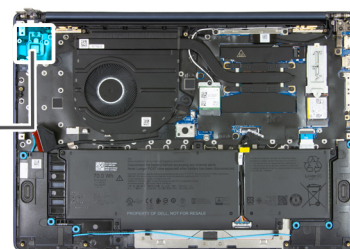
## Installing the power button

### Prerequisites

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

### About this task

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



**Figure 45. Installing the power button**

#### Steps

1. Place the power button into the slot on the palm-rest and keyboard assembly.
2. Replace the screw (M2x3) that secures the power button to the palm-rest and keyboard assembly.

#### Next steps

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

## Touchpad

### Removing the touchpad

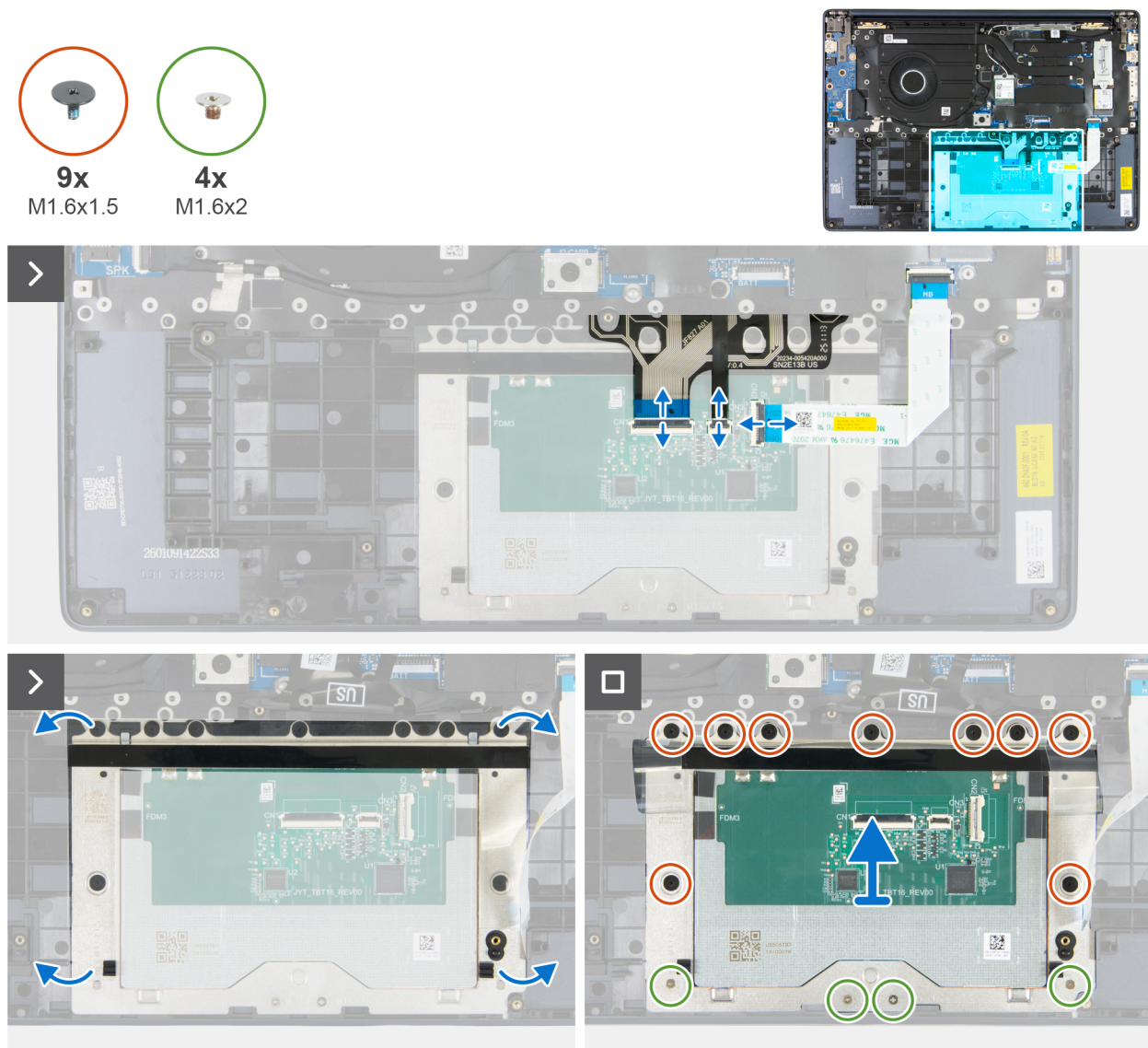
#### Prerequisites

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

#### About this task

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





**Figure 46. Removing the touchpad**

### Steps

1. Open the latch and disconnect the keyboard cable from the keyboard cable connector on the touchpad.
2. Open the latch and disconnect the backlit keyboard-cable from the backlit keyboard-cable connector on the system board.
3. Open the latch and disconnect the touchpad cable from the touchpad cable connector on the touchpad.
4. Remove the nine screws (M1.6x1.5) that secure the touchpad bracket to the palm-rest and keyboard assembly.
5. Remove the four screws (M1.6x2) that secure the touchpad bracket to the palm-rest and keyboard assembly.
6. Lift the touchpad bracket off the palm-rest and keyboard assembly.
7. Remove the touchpad from the palm-rest and keyboard assembly.

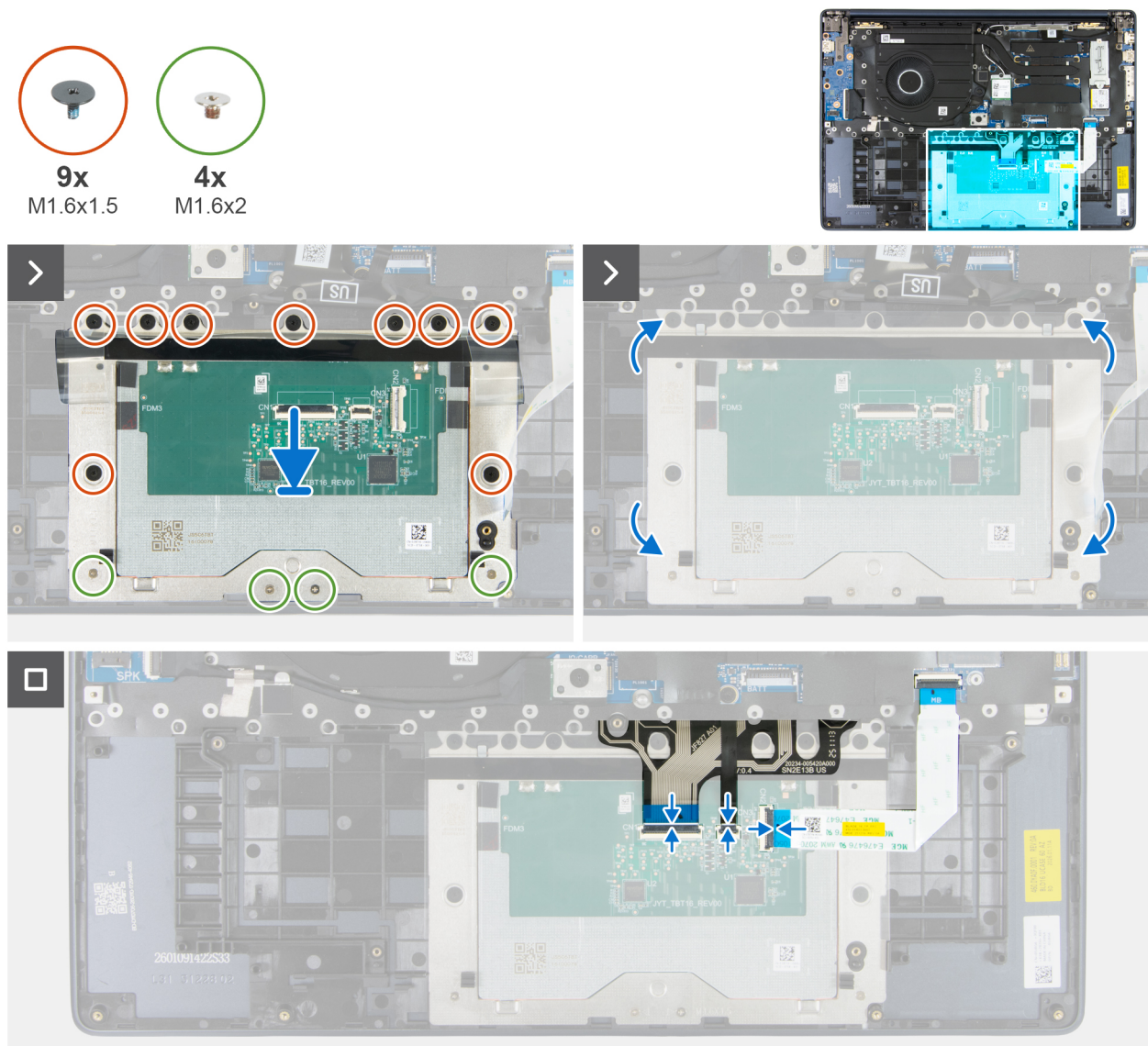
## Installing the touchpad

### Prerequisites

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

### About this task

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



**Figure 47. Installing the touchpad**

### Steps

1. Place the touchpad into its slot on the palm-rest and keyboard assembly.
2. Place the touchpad bracket on the touchpad.
3. Align the screw holes on the touchpad bracket with the screw holes on the palm-rest and keyboard assembly.
4. Replace the nine screws (M1.6x1.5) that secure the touchpad bracket to the palm-rest and keyboard assembly.
5. Replace the four screws (M1.6x2) that secure the touchpad bracket to the palm-rest and keyboard assembly.
6. Connect the touchpad cable from the touchpad cable connector on the touchpad and close the latch.
7. Connect the backlit keyboard-cable from the backlit keyboard-cable connector on the system board and close the latch.
8. Connect the keyboard cable from the keyboard cable connector on the touchpad and close the latch.

### Next steps

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

# Antennas

## Removing the left antenna

### Prerequisites

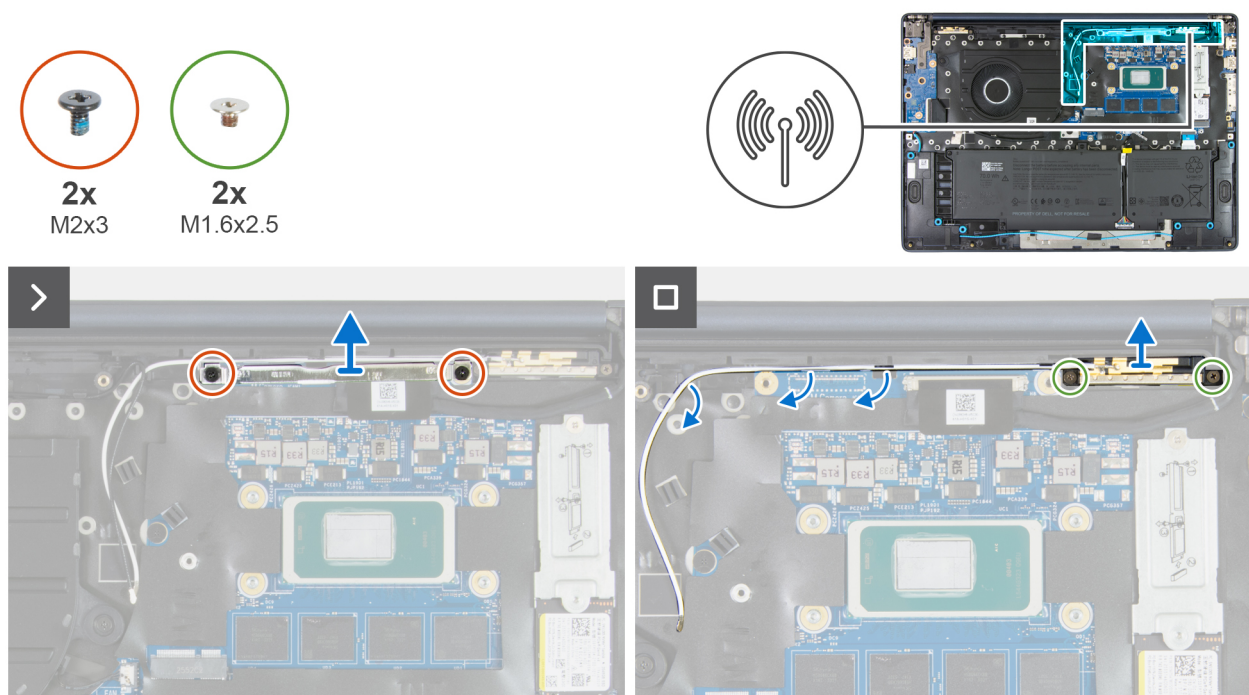
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [battery](#).
4. Remove the [fan](#).
5. Remove the [M.2 2230 solid-state drive](#).
6. Remove the [wireless card](#).
7. Remove the [heat sink](#).

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

8. Remove the [system board](#).

### About this task

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



**Figure 48. Removing the left antenna**

### Steps

1. Remove the two screws (M2x3) that secure the display-assembly connector bracket to the palm-rest and keyboard assembly.
2. Remove the left-antenna cable from the routing guides on the palm-rest and keyboard assembly.
3. Remove the two screws (M1.6x2.5) that secure the left antenna to the palm-rest and keyboard assembly.
4. Lift the left antenna and the cable off the palm-rest and keyboard assembly.



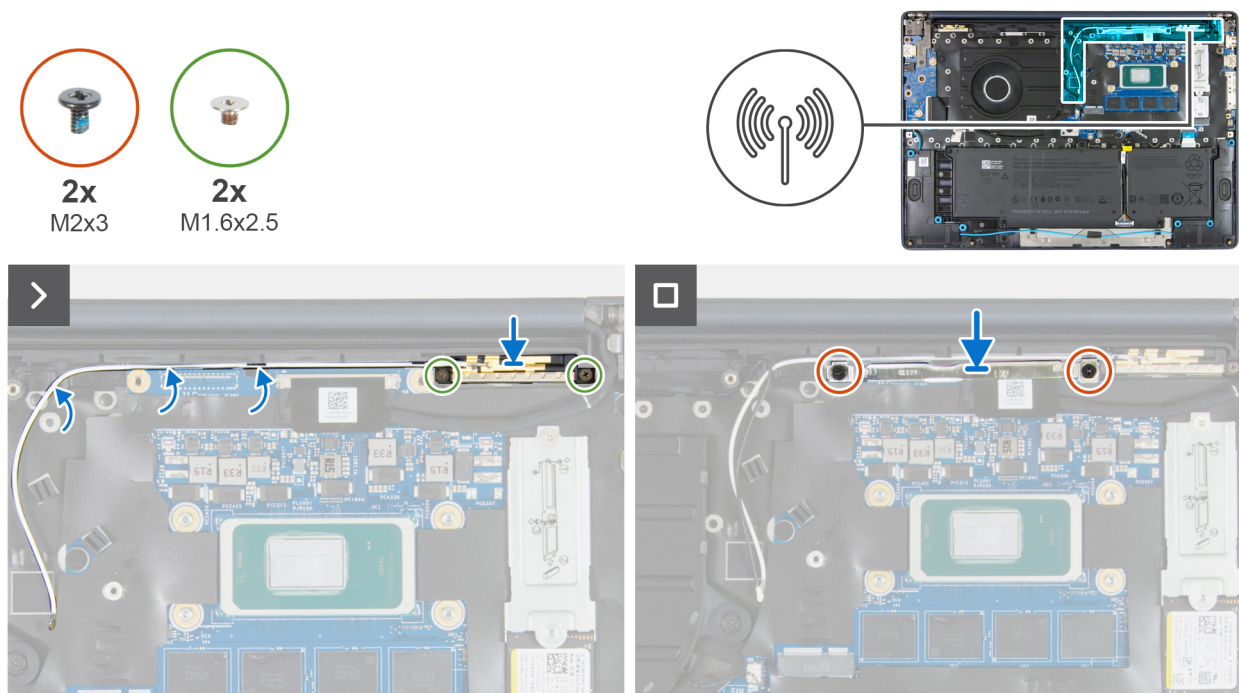
## Installing the left antenna

### Prerequisites

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

### About this task

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



**Figure 49. Installing the left antenna**

### Steps

1. Align the hole on the left antenna to the positioning pin on the palm-rest and keyboard assembly and place the left antenna into position.
2. Align the screw holes on the left antenna with the screw holes on the palm-rest and keyboard assembly.
3. Replace the two screws (M1.6x2.5) that secure the left antenna to the palm-rest and keyboard assembly.
4. Place the left-antenna cable into the routing guides on the palm-rest and keyboard assembly.
5. Replace the two screws (M2x3) that secure the display-assembly connector bracket to the palm-rest and keyboard assembly.

### Next steps

1. Install the [system board](#).

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

2. Install the [heat sink](#).
3. Install the [wireless card](#).
4. Install the [M.2 2230 solid-state drive](#).
5. Install the [fan](#).
6. Install the [battery](#).
7. Install the [base cover](#).
8. Follow the procedure in [After working inside your computer](#).

## Removing the right antenna

### Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [battery](#).
4. Remove the [fan](#).
5. Remove the [M.2 2230 solid-state drive](#).
6. Remove the [wireless card](#).
7. Remove the [heat sink](#).

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

8. Remove the [system board](#).

### About this task

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

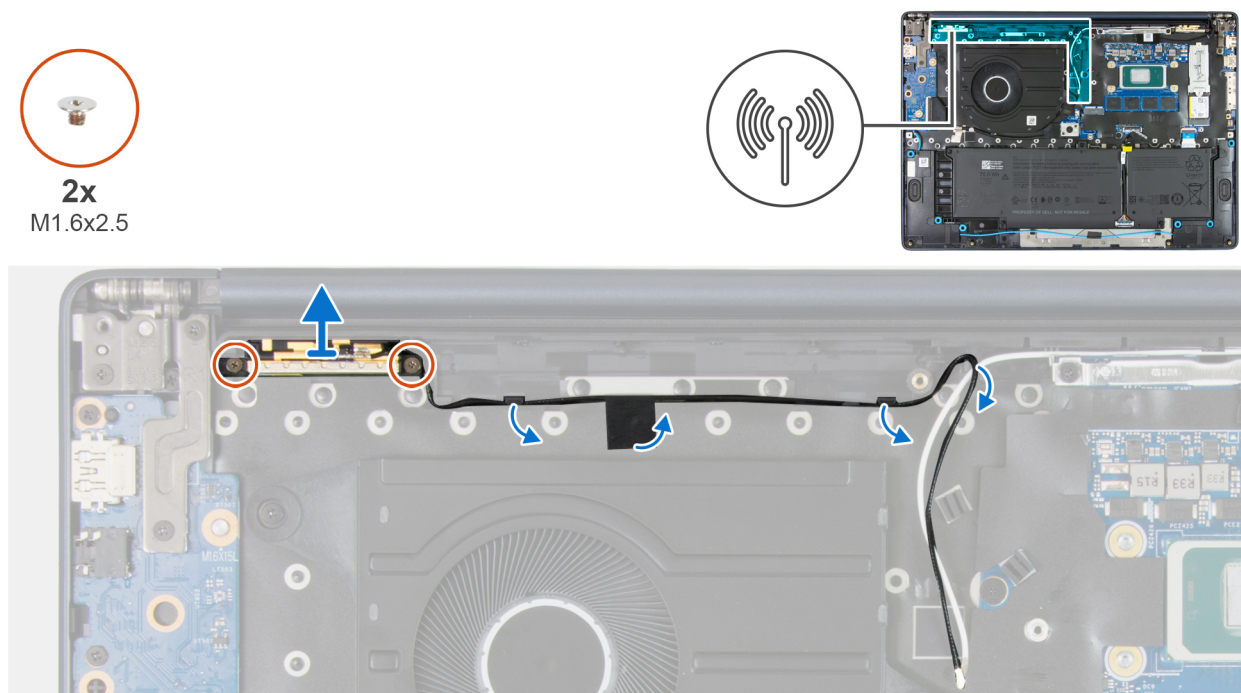


Figure 50. Removing the right antenna

### Steps

1. Remove the two screws (M1.6x2.5) that secure the right antenna to the palm-rest and keyboard assembly.
2. Remove the right-antenna cable from the routing guides on the palm-rest and keyboard assembly and the system board.
3. Lift the right antenna and the cables off the palm-rest and keyboard assembly.

## Installing the right antenna

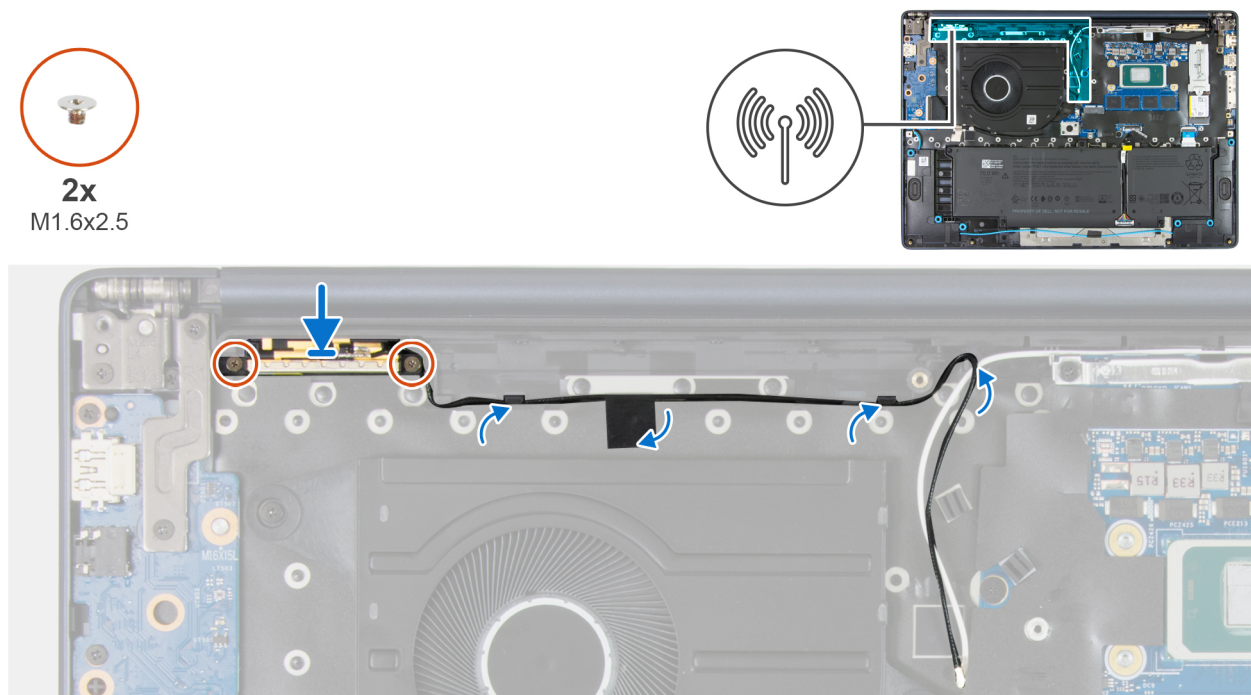
### Prerequisites

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



### About this task

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



**Figure 51. Installing the right antenna**

### Steps

1. Align the hole on the right antenna to the positioning pin on the palm-rest and keyboard assembly and place the right antenna into position.
2. Align the screw holes on the right antenna with the screw holes on the palm-rest and keyboard assembly.
3. Replace the two screws (M1.6x2.5) that secure the right antenna to the palm-rest and keyboard assembly.
4. Place the right-antenna cable into the routing guides on the palm-rest and keyboard assembly and the system board.

### Next steps

1. Install the [system board](#).

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

2. Install the [heat sink](#).
3. Install the [wireless card](#).
4. Install the [M.2 2230 solid-state drive](#).
5. Install the [fan](#).
6. Install the [battery](#).
7. Install the [base cover](#).
8. Follow the procedure in [After working inside your computer](#).

## Palm-rest and keyboard assembly

### Removing the palm-rest and keyboard assembly

#### Prerequisites

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

2. Remove the [base cover](#).
3. Remove the [M.2 2230 solid-state drive](#).
4. Remove the [battery](#).
5. Remove the [fan](#).
6. Remove the [wireless card](#).
7. Remove the [speaker assembly](#).
8. Remove the [display assembly](#).
9. Remove the [I/O-board cable](#).
10. Remove the [I/O board](#).
11. Remove the [heat sink](#), if applicable.
12. Remove the [system board](#).

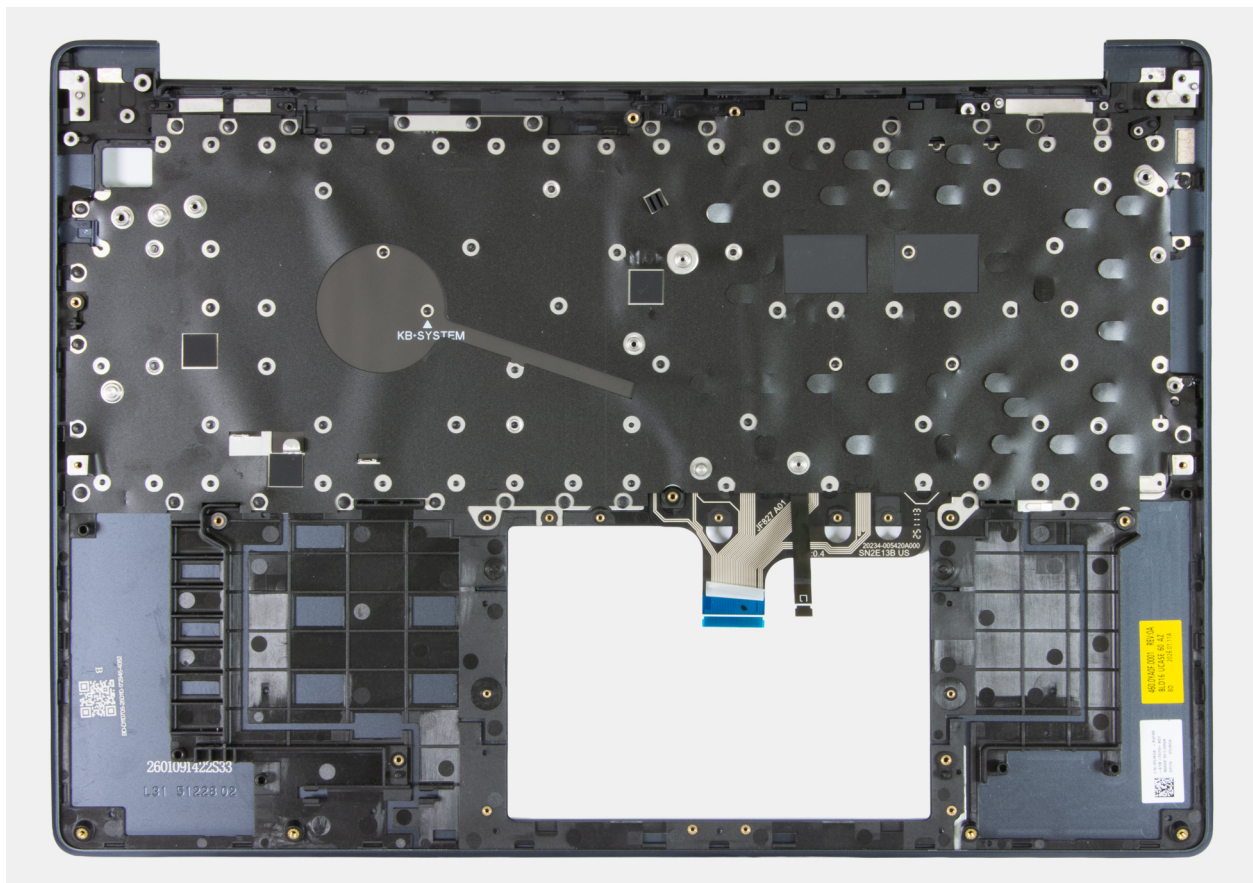
**NOTE:** The system board can be removed as an assembly with the heat sink attached. This action also preserves the thermal bond between the system board and heat sink.

13. Remove the [power button](#).
14. Remove the [touchpad](#).
15. Remove the [left antenna](#).
16. Remove the [right antenna](#).

### About this task

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

The following image shows the palm-rest and keyboard assembly after the **Prerequisites** have been performed.



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

**NOTE:** The palm-rest and keyboard assembly includes the keyboard and is shipped as a single serviceable part. If any component in the palm-rest and keyboard assembly is faulty, replace the entire assembly.

## Steps

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

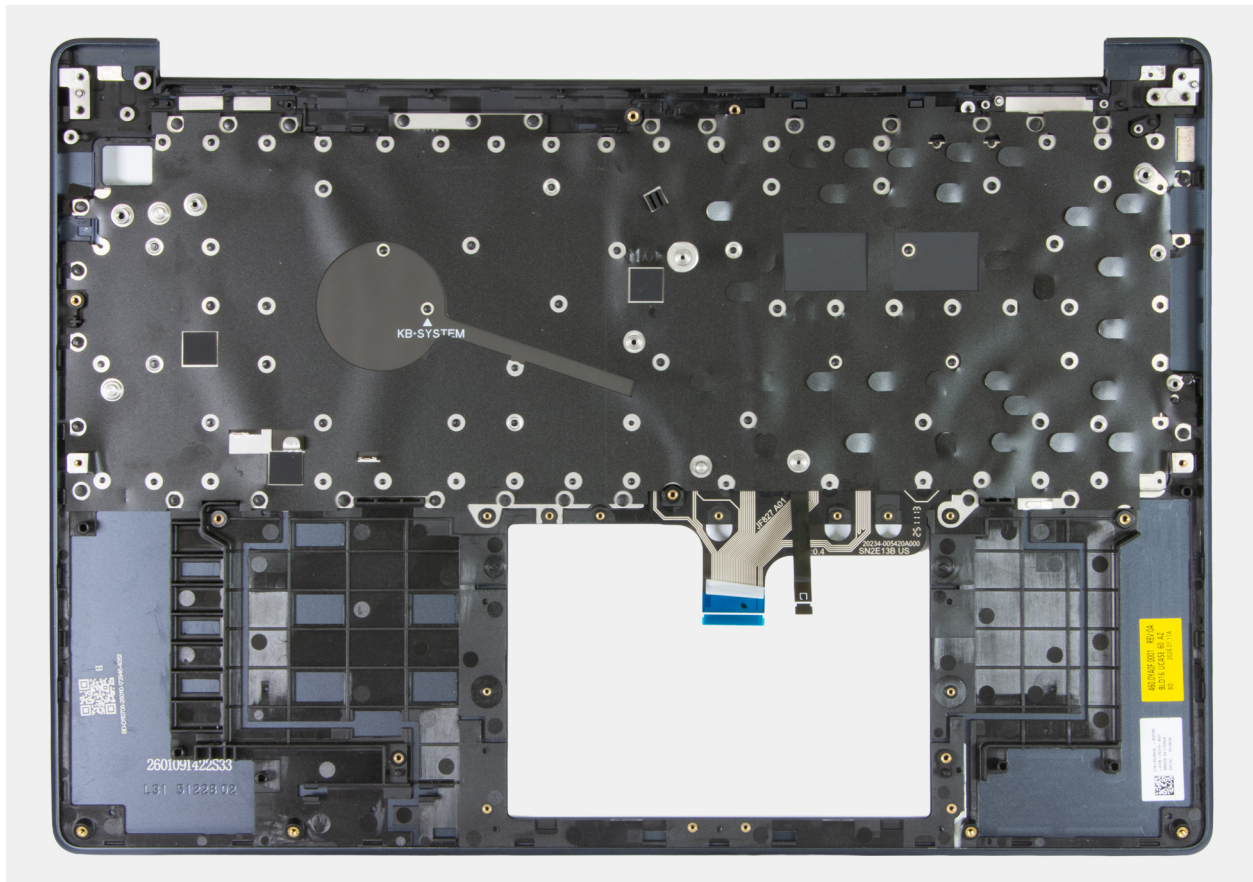
# Installing the palm-rest and keyboard assembly

## Prerequisites

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

## About this task

The image below shows the palm-rest and keyboard assembly.



**Figure 53. Palm-rest and keyboard assembly**

## Steps

1. Place the palm-rest and keyboard assembly on a flat surface.
2. Perform the **Next steps** to install the palm-rest and keyboard assembly.

## Next steps

1. Install the [right antenna](#).
2. Install the [left antenna](#).
3. Install the [touchpad](#).
4. Install the [power button](#).
5. Install the [system board](#).

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

6. Install the [heat sink](#), if applicable.
7. Install the [I/O board](#).
8. Install the [I/O-board cable](#).
9. Install the [display assembly](#).
10. Install the [speaker assembly](#).
11. Install the [wireless card](#).
12. Install the [fan](#).
13. Install the [battery](#).
14. Install the [M.2 2230 solid-state drive](#)
15. Install the [base cover](#).
16. Follow the procedure in [After working inside your computer](#).

# Software

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

## Operating system

Your Dell 16S DS16260 supports the following operating systems:

- Windows 11 Home
- Windows 11 Pro

## 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 below may differ.

Use BIOS Setup for the following purposes:

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

## Entering BIOS Setup program

Turn on or restart your computer and press F2 immediately.

## Navigation keys

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

**Table 4. Navigation keys**

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

## F12 One Time Boot menu

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

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

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

- Removable Drive (if available)
- Diagnostics

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

# View Advanced Setup options

## About this task

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

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

## To enable Advanced Setup:

### Steps

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

# System setup options

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

Table 5. System setup options—Overview menu

| Overview             | Description                                                               |
|----------------------|---------------------------------------------------------------------------|
| Dell 16S DS16260     |                                                                           |
| 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.                               |
| System UUID          | Displays the System Universally Unique Identifier (UUID) of the computer. |
| <b>BATTERY</b>       | Displays the battery health information.                                  |
| Primary              | Displays the primary battery.                                             |
| Battery Level        | Displays the battery level.                                               |
| Battery State        | Displays the battery state.                                               |
| Health               | Displays the battery health.                                              |
| AC Adapter           | Displays whether an AC adapter is connected.                              |
| Battery Life Type    | Displays the battery life type of the computer.                           |
| <b>PROCESSOR</b>     |                                                                           |
| Processor Type       | Displays the processor type.                                              |
| Maximum Clock Speed  | Displays the maximum processor clock speed.                               |
| Processor L2 Cache   | Displays the processor L2 Cache size.                                     |

**Table 5. System setup options—Overview menu (continued)**

| Overview                 | Description                                                       |
|--------------------------|-------------------------------------------------------------------|
| Processor L3 Cache       | Displays the processor L3 Cache size.                             |
| Intel vPro Technology®   | Displays whether Intel vPro Technology®.                          |
| <b>MEMORY</b>            |                                                                   |
| Memory Installed         | Displays the total computer memory installed.                     |
| Memory Speed             | Displays the memory speed.                                        |
| <b>DEVICES</b>           |                                                                   |
| Panel Type               | Displays the panel type of the computer.                          |
| Panel Revision           | Displays the panel revision of the computer.                      |
| Video Controller         | Displays the integrated graphics information of the computer.     |
| Video Memory             | Displays the video memory information of the computer.            |
| Wi-Fi Device             | Displays the Wi-Fi device installed in the computer.              |
| Native Resolution        | Displays the native resolution of the computer.                   |
| Audio Controller         | Displays the audio controller information of the computer.        |
| Bluetooth® Device        | Displays whether a Bluetooth device is installed in the computer. |
| Pass Through MAC Address | Displays the MAC address of the video pass-through.               |

**Table 6. System setup options—Boot Configuration menu**

| Boot Configuration       | Description                                                                                                                                                                                                               |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Boot Sequence</b>     |                                                                                                                                                                                                                           |
| Boot Sequence            | Specifies the order that the BIOS searches the list of devices to find an operating system to boot.<br>By default, <b>Windows Boot Manager</b> is selected.                                                               |
| <b>Secure Boot</b>       |                                                                                                                                                                                                                           |
| Enable Secure Boot       | Enables secure boot using only validated boot software.<br>Default: <b>OFF</b>                                                                                                                                            |
| Enable Microsoft UEFI CA | Enables UEFI CA to be included in the BIOS UEFI Secure Boot DB.<br>Default: <b>ON</b>                                                                                                                                     |
| Secure Boot Mode         | Modifies the behavior of Secure Boot to allow evaluation or enforcement of UEFI driver signatures. Deployed Mode should be selected for normal operation of Secure Boot.<br>By default, <b>Deployed Mode</b> is selected. |

**Table 7. System setup options—Integrated Devices menu**

| Integrated Devices                   | Description                                                                                                                                         |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date/Time</b>                     |                                                                                                                                                     |
| Date                                 | Sets the computer date in MM/DD/YYYY format. Changes to the date take effect immediately.                                                           |
| Time                                 | Sets the computer time in HH/MM/SS 24-hour format. You can switch between a 12-hour and 24-hour clock. Changes to the time take effect immediately. |
| <b>USB/Thunderbolt Configuration</b> |                                                                                                                                                     |

**Table 7. System setup options—Integrated Devices menu (continued)**

| Integrated Devices      | Description                                                                                                                                                                         |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Enable USB Boot Support | Enables or disables booting from USB mass storage devices such as external hard drive, optical drive, and USB drive.<br><br>By default, <b>Enable USB Boot Support</b> is selected. |

**Table 8. System setup options—Storage menu**

| Storage           | Description                                                 |
|-------------------|-------------------------------------------------------------|
| Drive Information | Displays the information of various onboard drives.         |
| M.2 PCIe SSD-0    |                                                             |
| Type              | Displays the M.2 PCIe SSD type information of the system.   |
| Device            | Displays the M.2 PCIe SSD device information of the system. |

**Table 9. System setup options—Power menu**

| Power                 | Description                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Battery Configuration |                                                                                                                                                                                                                                                                                                                                                                           |
| Battery Configuration | Enables or disables the computer to run on battery during peak power usage hours. Use the table <b>Custom Charge Start</b> and <b>Custom Charge Stop</b> , to prevent AC power usage between certain times of each day.<br><br>By default, the <b>Adaptive</b> option is selected. Battery settings are adaptively optimized based on your typical battery usage pattern. |
| Lid Switch            |                                                                                                                                                                                                                                                                                                                                                                           |
| Enable Lid Switch     | Enables or disables the lid switch.<br><br>Default: <b>ON</b>                                                                                                                                                                                                                                                                                                             |

**Table 10. System setup options—Security menu**

| Security                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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.<br><br>When set to <b>Enabled</b> , a notification is displayed on the next boot and the event is logged in the BIOS Events log.<br><br>When set to <b>Disabled</b> , no notification is displayed and no event is logged in the BIOS Events log.<br><br>When set to <b>On-Silent</b> , the event is logged in the BIOS Events log, but no notification is displayed.<br><br>By default, the <b>Chassis Intrusion Detection</b> option is disabled.<br><br>For additional security, Dell Technologies recommends keeping the <b>Chassis Intrusion</b> option enabled. |
| Clear Intrusion Warning  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Block Boot Until Cleared | The <b>Block Boot Until Clear</b> option is enabled when <b>Chassis Intrusion</b> is enabled. When enabled, the computer does not boot until the chassis intrusion is cleared.<br><br>Default: <b>OFF</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Data Wipe on Next Boot   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

**Table 10. System setup options—Security menu (continued)**

| Security        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Start Data Wipe | <p>Data Wipe is a secure wipe operation that deletes information from a storage device.</p> <p> <b>WARNING:</b> The Secure Data Wipe operation deletes information in a way that it cannot be reconstructed.</p> <p>Commands such as delete and format in the operating system may remove files from showing up in the file system. However, they can be reconstructed through forensic means as they are still represented on the physical media. Data Wipe prevents this reconstruction and the data can no longer be recovered.</p> <p>When enabled, the data wipe option provides prompts to wipe any storage devices that are connected to the computer on the next boot.</p> <p>Default: <b>OFF</b></p> |
| Absolute®       | <p>Absolute Software provides various cyber security solutions, some requiring software preloaded on Dell computers and integrated into the BIOS. To use these features, you must enable the Absolute BIOS setting and contact Absolute for configuration and activation.</p> <p>By default, the <b>Enable Absolute</b> option is enabled.</p> <p>For additional security, Dell Technologies recommends keeping the <b>Absolute</b> option enabled.</p> <p> <b>NOTE:</b> When the Absolute features are activated, the Absolute integration cannot be disabled from the BIOS setup screen.</p>                                                                                                                |

**Table 11. System setup options—Passwords menu**

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

**Table 12. System setup options—Update, Recovery menu**

| Update, Recovery                  | Description                                                                                               |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Connected Service Delivery</b> |                                                                                                           |
| Connected Service Delivery        | <p>Enables or disables the support and services resources on this computer.</p> <p>Default: <b>ON</b></p> |

**Table 13. System setup options—System Management menu**

| System Management | Description                               |
|-------------------|-------------------------------------------|
| Service Tag       | Displays the Service Tag of the computer. |

**Table 14. System setup options—Keyboard menu**

| Keyboard                                     | Description                                                                                                                                       |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Keyboard Backlight Timeout on Battery</b> |                                                                                                                                                   |
| Keyboard Backlight Timeout on Battery        | <p>Allows for selection of keyboard backlight timeout value, when the computer is running on battery power.</p> <p>Default: <b>10 seconds</b></p> |



**Table 15. System setup options—Pre-boot Behavior menu**

| Pre-boot Behavior                   | Description                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Adapter warnings</b>             |                                                                                                                                                                                                                                                                                                                                                                                                   |
| Enable Adapter warnings             | Enables or disables the computer to display adapter warning messages when adapters with too little power capacity are detected.<br>Default: <b>ON</b>                                                                                                                                                                                                                                             |
| <b>Warnings and Errors</b>          |                                                                                                                                                                                                                                                                                                                                                                                                   |
| Warnings and Errors                 | Selects an action on encountering a warning or error during boot.<br>Default: <b>Prompt on Warnings and Errors. Stop, prompt, and wait for user input when warnings or errors are detected.</b><br> <b>NOTE:</b> Errors deemed critical to the operation of the computer hardware will always halt the computer. |
| <b>MAC Address Pass-Through</b>     |                                                                                                                                                                                                                                                                                                                                                                                                   |
| MAC Address Pass-Through            | Replaces the external NIC MAC address (in a supported dock or dongle) with the selected MAC address from the computer.<br>By default, the <b>System Unique MAC Address</b> option is enabled.                                                                                                                                                                                                     |
| <b>Unsupported hardware warning</b> |                                                                                                                                                                                                                                                                                                                                                                                                   |
| Unsupported hardware warning        | Enables or disables warning messages when the computer detects hardware that may not work as expected.<br>Default: <b>ON</b>                                                                                                                                                                                                                                                                      |

**Table 16. System setup options—System Logs menu**

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

# 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, refer [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 [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, refer [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 [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 [Updating the BIOS from the One Time Boot Menu](#) at [Dell Support Site](#)..

## System and setup password

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

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

**Table 17. System and setup password**

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

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

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

## Assigning a System Setup password

### Prerequisites

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

### Steps

1. To enter the **System Setup**, press **F2** immediately after a power-on or reboot.
2. In the **System BIOS** or **System Setup** screen, select **Security** and press Enter.  
The **Security** screen is displayed.
3. Select **System/Admin Password** and create a password in the **Enter the new password** field.  
Use the following guidelines to create the system password:
  - Password can be up to 32 characters.
  - Password must contain at least one special character: "( ! " # \$ % & ' \* + , - . / : ; < = > ? @ [ \ ] ^ \_ ` { | } )"
  - The password can contain numbers from 0 to 9.
  - The password can contain alphabets A to Z and a to z.
4. Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
5. Press Y to save the changes.  
The computer restarts.

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

### Prerequisites

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

### Steps

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

## Clearing system and setup passwords

### About this task

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

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

# 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 quick diagnostic test begins.
 

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

## Built-in self-test (BIST)

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

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

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

#### How to run M-BIST

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

Table 18. LED error codes

| Blinking Pattern |       | Possible Problem       |
|------------------|-------|------------------------|
| Amber            | White |                        |
| 2                | 1     | Processor Failure      |
| 2                | 8     | LCD Power rail failure |
| 1                | 1     | TPM detection failure  |
| 2                | 4     | Memory/RAM failure     |

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

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

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

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

### How to invoke the LCD-BIST

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

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

## 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 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.

## System-diagnostic lights

This section lists the system-diagnostic lights of your Dell 16S DS16260.

**Table 19. System-diagnostic lights**

| Blinking pattern |       | Problem description               |
|------------------|-------|-----------------------------------|
| Amber            | White |                                   |
| 1                | 1     | TPM detection failure             |
| 1                | 2     | Unrecoverable SPI flash failure   |
| 1                | 3     | Short in hinge cable tripped OCP1 |
| 1                | 4     | Short in hinge cable tripped OCP2 |
| 1                | 5     | EC unable to program i-Fuse       |

**Table 19. System-diagnostic lights (continued)**

| Blinking pattern |       | Problem description                                              |
|------------------|-------|------------------------------------------------------------------|
| Amber            | White |                                                                  |
| 1                | 6     | EC internal failure                                              |
| 1                | 7     | Non-RPMC Flash on boot guard fused system                        |
| 1                | 8     | Chipset catastrophic error detected                              |
| 2                | 1     | Processor failure                                                |
| 2                | 2     | System board: BIOS or ROM (Read-Only Memory) failure             |
| 2                | 3     | System board: No memory or RAM (Random-Access Memory) detected   |
| 2                | 4     | System board: Memory or RAM (Random-Access Memory) failure       |
| 2                | 5     | System board: Memory or RAM (Random-Access Memory) failure       |
| 2                | 6     | System-board or chipset error                                    |
| 2                | 7     | Display failure - SBIOS message                                  |
| 2                | 8     | Display failure - EC detection of power rail failure             |
| 3                | 2     | PCI of video card/chip failure                                   |
| 3                | 3     | BIOS recovery image not found                                    |
| 3                | 4     | BIOS recovery image found but invalid                            |
| 3                | 5     | Power-rail failure                                               |
| 3                | 6     | System BIOS Flash corruption                                     |
| 3                | 7     | Management Engine (ME) error                                     |
| 3                | 8     | Lithium-ion battery cannot operate due to low temperature        |
| 4                | 1     | Memory or RAM (Random-Access Memory) failure                     |
| 4                | 2     | Processor failure                                                |
| 4                | 3     | Display panel failure (potential cracked panel)                  |
| 4                | 4     | Power-rail failure at the system board                           |
| 4                | 5     | Display panel failure and power-rail failure at the system board |
| 4                | 6     | Display-assembly cable (EDP) failure                             |
| 5                | 1     | NVME-based recovery in progress                                  |
| 5                | 2     | Invalid platform ID (0xFF) detected                              |

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

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

- Solid white—Camera is in use.

- Off—Camera is not in use.

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

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

## Recovering the operating system

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

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

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

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

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

## Real-Time Clock (RTC Reset)

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

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

## Backup media and recovery options

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

## Network power cycle

### About this task

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

### Steps

1. Turn off the computer.
2. Turn off the modem.

 **NOTE:** Some Internet service providers (ISPs) provide a modem and router combo device.

3. Turn off the wireless router.
4. Wait for 30 seconds.
5. Turn on the wireless router.
6. Turn on the modem.
7. Turn on the computer.

# Drain flea power (perform hard reset)

## About this task

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

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

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

Perform the following steps to drain the flea power:

## Steps

1. Turn off the computer.
2. Disconnect the power adapter from the computer.
3. Remove the base cover.
4. Remove the battery.
5. Press and hold the power button for 20 seconds to drain the flea power.
6. Install the battery.
7. Install the base cover.
8. Connect the power adapter to the computer.
9. Turn on the computer.

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



# Getting help and contacting Dell Technologies

## Self-help resources

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

**Table 20. Self-help resources**

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

## Contacting Dell Technologies

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

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

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

## 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 21. Revision history**

| Revision | Date     | Description            |
|----------|----------|------------------------|
| A00      | May 2026 | Original publish date. |