# Dell 14

## DC14255

## Service Manual

Regulatory Model: P185G
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DELL Technologies

## Notes, cautions, and warnings

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

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

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

# Contents

# 1

# 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 is pressed.**

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

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

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

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

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

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

## Before working inside your computer

### About this task

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

### Steps

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

   **NOTE:** If you are using a different operating system, see the documentation of your operating system for shut-down instructions.
3. Turn off all the attached peripherals.
4. Disconnect your computer from the electrical outlet.

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

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

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

# Safety precautions

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

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

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

## Bonding

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

# Electrostatic discharge—ESD protection

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

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

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

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

Perform the following steps to prevent ESD damage:

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

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

For more information about the wrist strap and ESD wrist strap tester, see Components of an ESD Field Service Kit.

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

# ESD Field Service kit

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

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

## Working environment

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

## ESD packaging

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

## Components of an ESD Field Service kit

The components of an ESD Field Service kit are:

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

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

## Transporting sensitive components

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

## After working inside your computer

**About this task**

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

**Steps**

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

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

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

# BitLocker

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

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

The installation of the following components triggers BitLocker:

- Hard disk drive or solid state drive
- System board

# Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver #0
- Phillips screwdriver #1
- 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

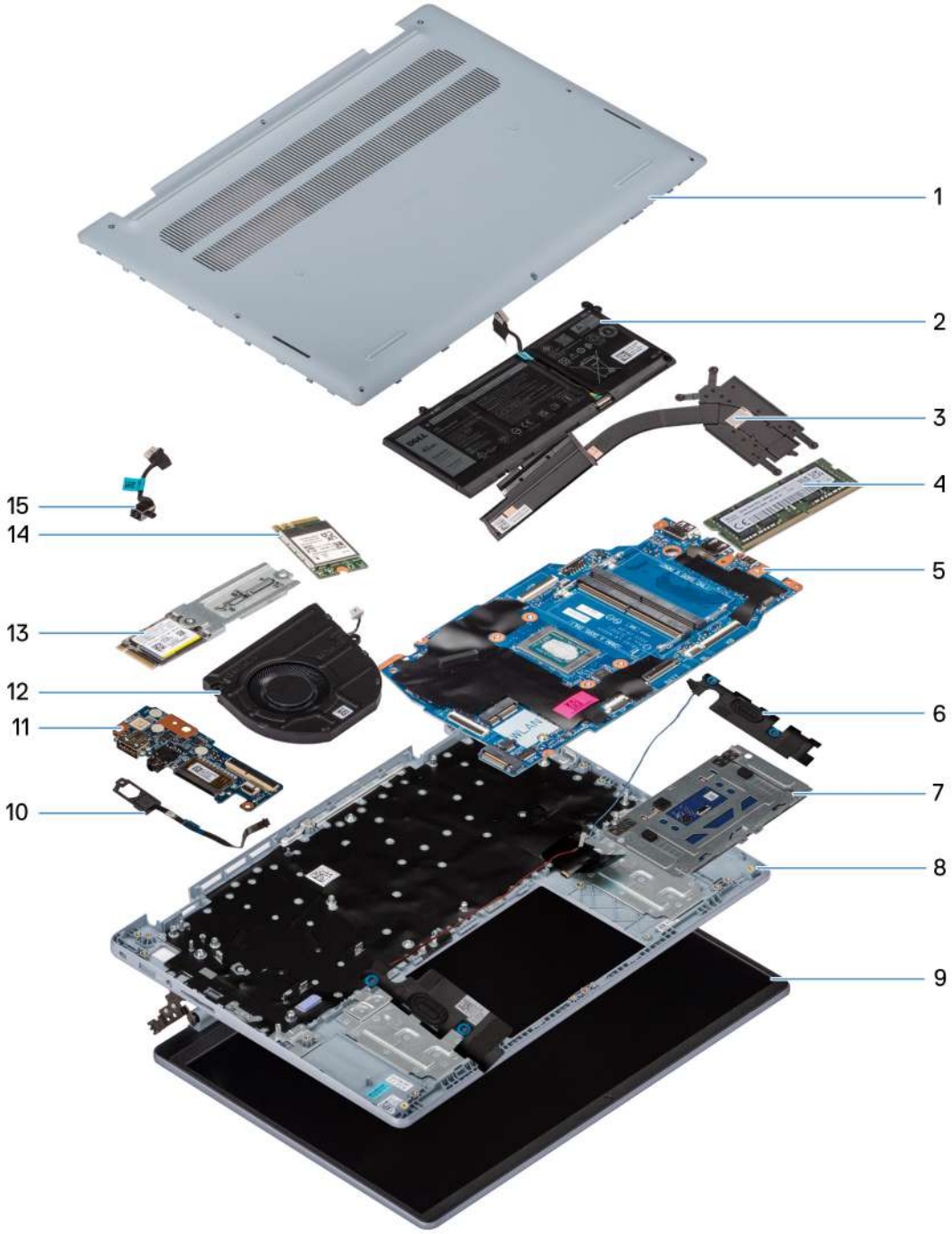
| Component | Screw type | Quantity | Screw Torque Strength | Screw image |
|---|---|---|---|---|
| Base cover | M2x4 | Plastic chassis: 6 | 1.6 kgf-cm |  |
| | | Aluminum chassis: 5 | | |
| | Captive screw<br>**NOTE:** Screws are part of the base cover. | 2 | 1.6 kgf-cm |  |
| Battery | M2x3 | 3-cell battery: 3 | 1.6 kgf-cm |  |
| | | 4-cell battery: 5 | | |
| Solid state drive | M2x3 | 1 | 1.6 kgf-cm |  |
| Solid state drive bracket | Plastic chassis: M2x2.5 | 1 | 1.6 kgf-cm |  |
| | Aluminum chassis: M2x2 | | |  |
| Wireless-card bracket | M2x3 | 1 | 1.6 kgf-cm |  |
| Fan | M2x4 | 2 | 1.6 kgf-cm |  |
| Heat sink | Captive screw<br>**NOTE:** Screws are part of the heat sink. | 4 | 1.6 kgf-cm |  |
| Touchpad assembly | Plastic chassis: M2x1.8 | 2 | 1.6 kgf-cm |  |
| | Aluminum chassis: M2x2 | 4 | |  |
| | Plastic chassis: M1.6x2.5 | 4 | 0.7 kgf-cm |  |
| | Aluminum chassis: M2x2.5 | 1 | 1.6 kgf-cm |  |
| I/O board | M2x3 | 2 | 1.6 kgf-cm |  |
| Power button with optional fingerprint reader | M2x3 | 1 | 1.6 kgf-cm |  |
| Display assembly | Plastic chassis: M2.5x4 | 4 | 3.0 kgf-cm |  |
| | Aluminum chassis: M2.5x4.5 | | |  |

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

| Component | Screw type | Quantity | Screw Torque Strength | Screw image |
|---|---|---|---|---|
| USB Type-C bracket | M2x4 | Plastic chassis: 3 | 1.6 kgf-cm |  |
| | | Aluminum chassis: 2 | | |
| System board | Plastic chassis: M2x2.5 | 2 | 1.6 kgf-cm |  |
| | Aluminum chassis: M2x2 | | |  |

# Major components of Dell 14 DC14255

The following image shows the major components of Dell 14 DC14255.




1. Base cover
2. Battery
3. Heat sink
4. Memory module
5. System board
6. Speakers
7. Touchpad
8. Palm-rest and keyboard assembly
9. Display assembly
10. Power button with optional fingerprint reader
11. I/O board
12. Fan
13. Solid state drive
14. Wireless card
15. Power-adapter port

**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 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 14 DC14255 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 | Heat sink |
| Battery | Speakers |
| Battery cable | Touchpad |
| Memory | Power-adapter port |
| Solid state drive | I/O-board cable |
| Wireless card | I/O board |
| Fan | Power button with optional fingerprint reader |
| | Display assembly |
| | Display bezel |
| | Display panel |
| | Display cable |
| | Camera |
| | Display back-cover and antenna assembly |
| | System board |
| | Palm-rest and keyboard assembly |

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# 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 (for computers shipped with a plastic chassis)

### Prerequisites

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

### About this task

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

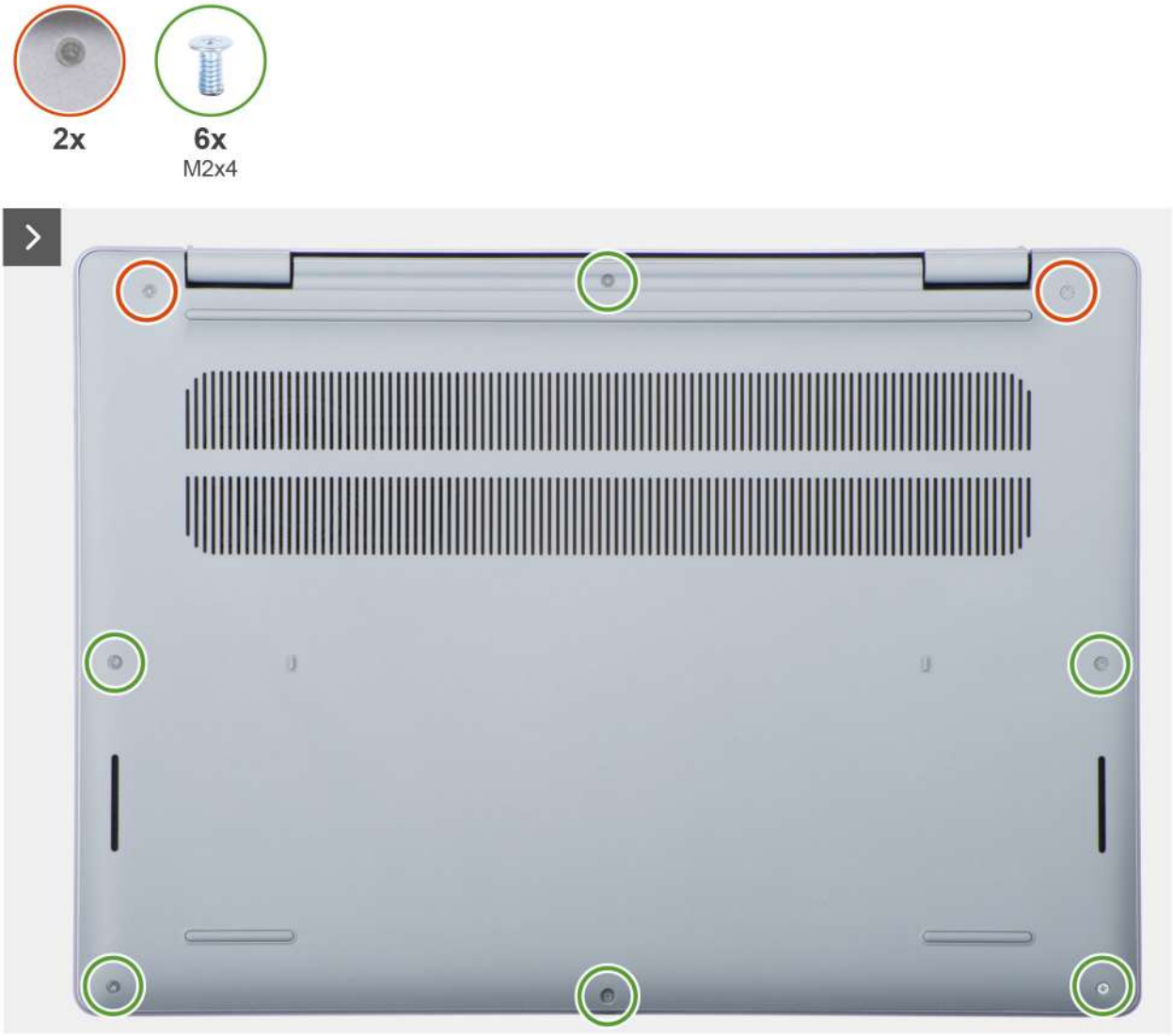


**Figure 1. Removing the base cover**

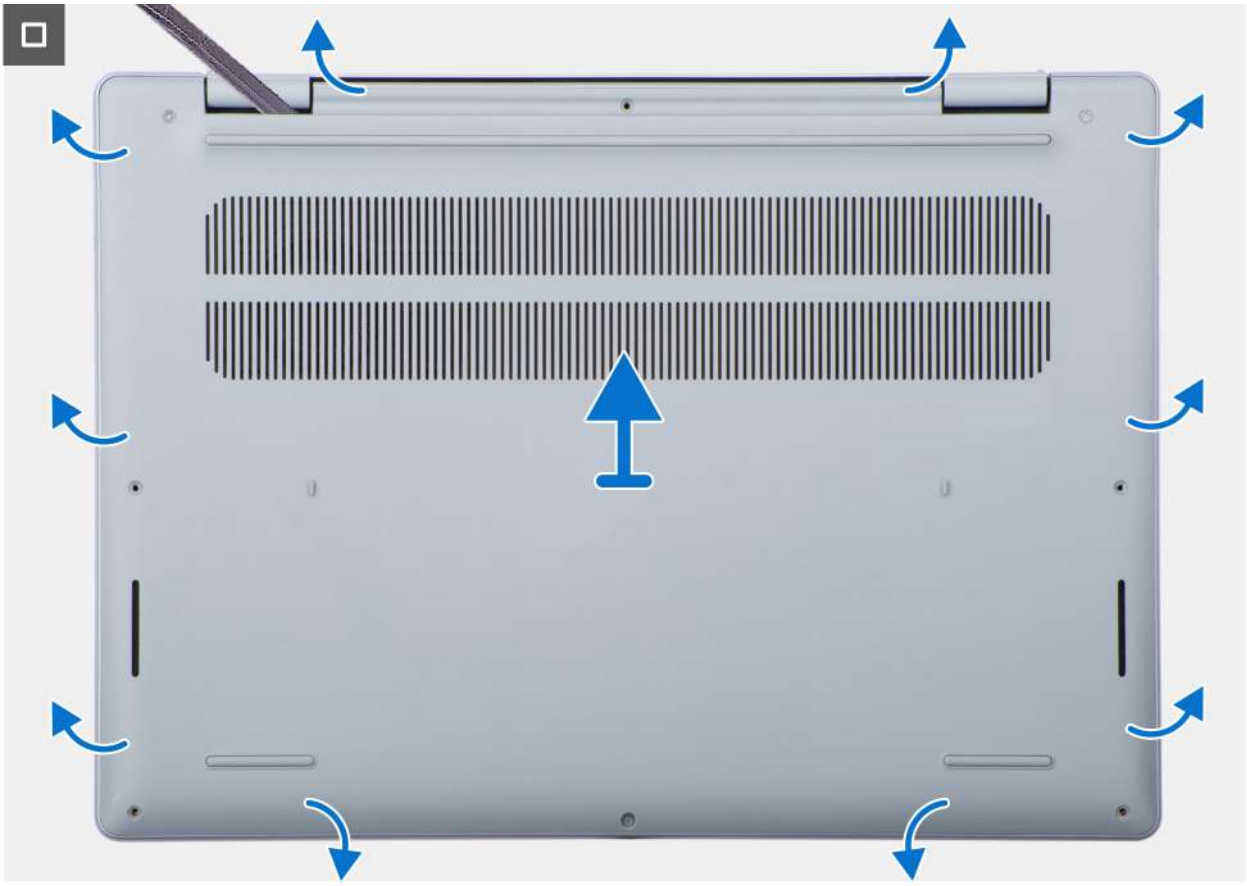

Figure 2. Removing the base cover

Figure 3. Disconnecting the battery cable

**Figure 4. Pressing the power button to drain flea power**

### Steps

1. Loosen the two captive screws and then remove the six screws (M2x4) that secure the base cover to the palm-rest and keyboard assembly.
2. Using a plastic scribe, pry open the base cover starting from the recesses, which are located in the U-shaped indents at the top edge of the base cover, near the hinges.

   **CAUTION: Do not slide the scribe along the edges of the base cover as it may damage the latches inside the base cover. Instead, insert the scribe at regular intervals and pry open the base cover.**
3. Pry open the top of the base cover followed by the left, right, and bottom to release the base cover.
4. Lift the base cover off the palm-rest and keyboard assembly.
5. Disconnect the battery cable from the connector (BATT1) on the system board.
6. Press and hold the power button for 15 to 20 seconds to ground the computer and drain the flea power.

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

### Prerequisites

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

### About this task

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

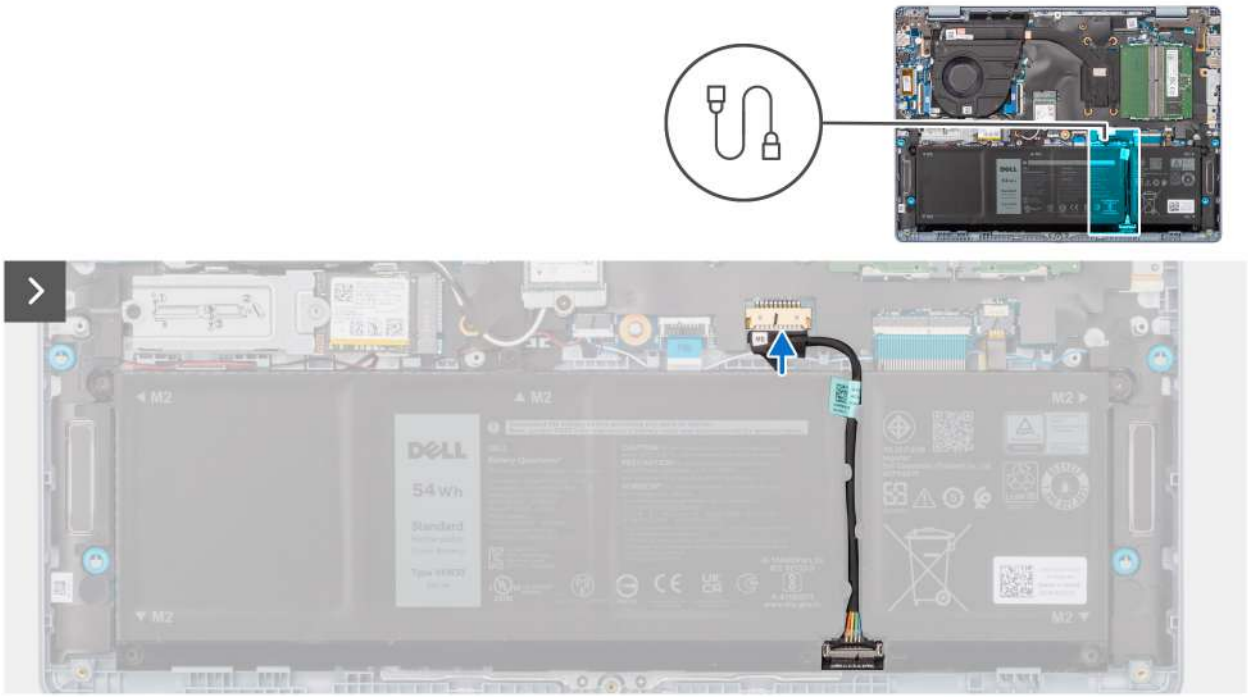


**Figure 5. Connecting the battery cable**

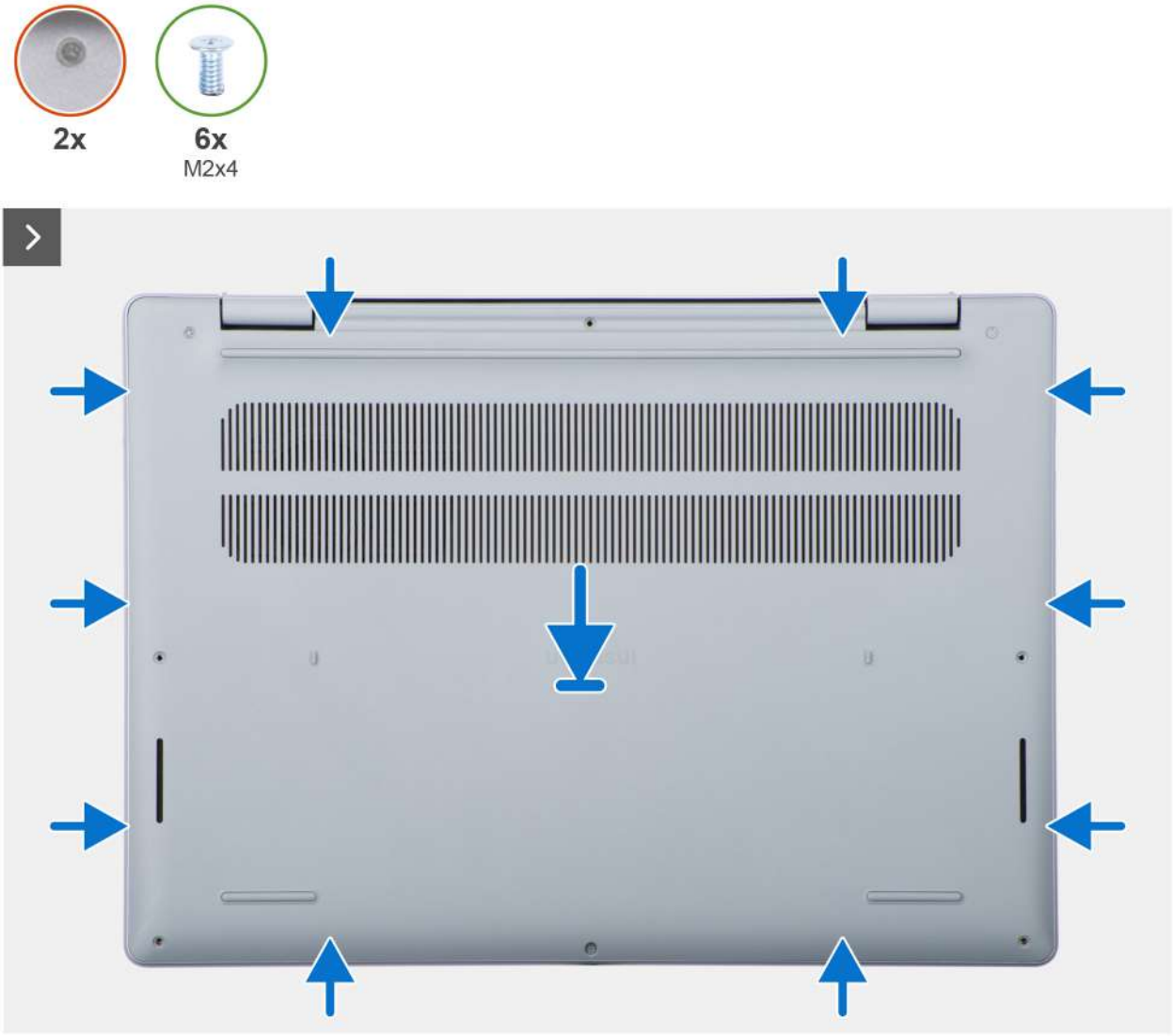


**Figure 6. Installing the base cover**

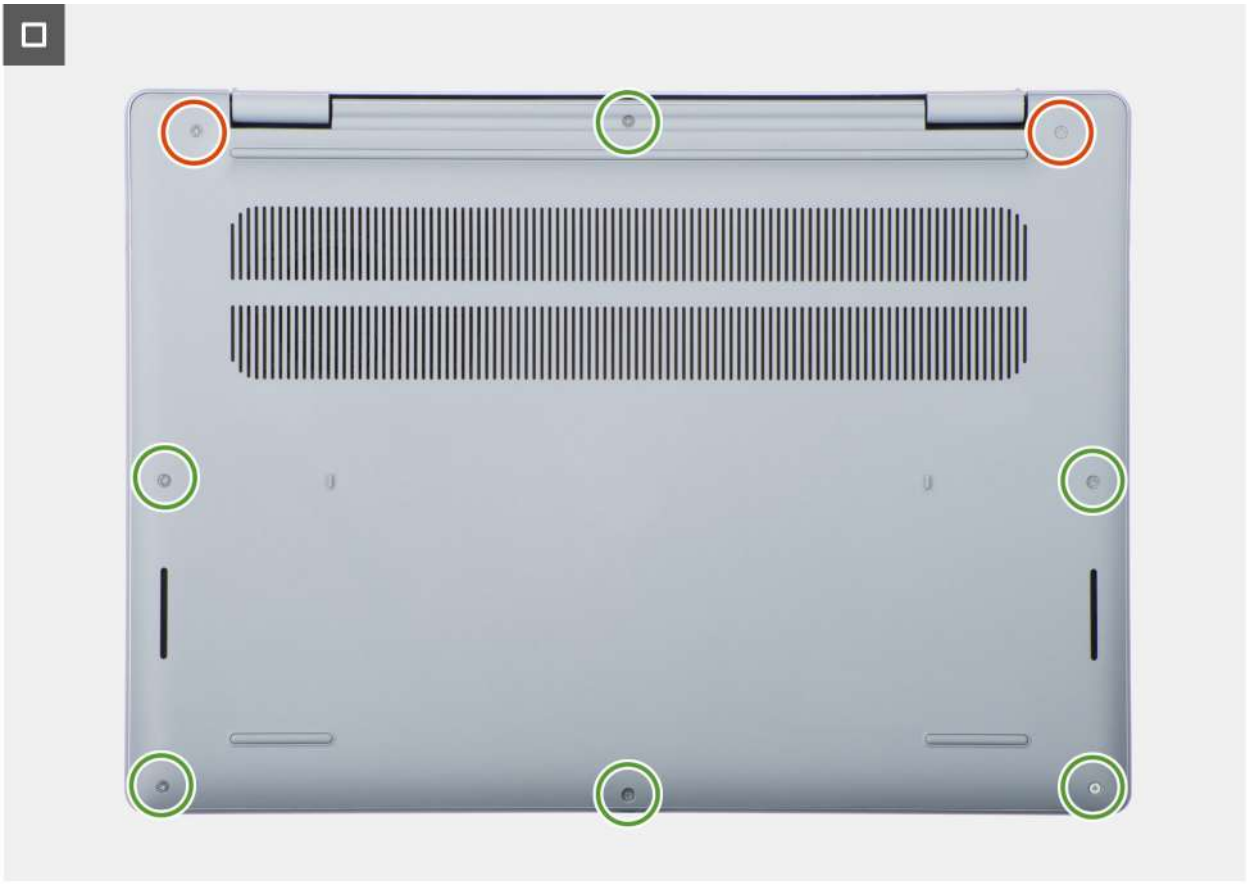

**Figure 7. Installing the base cover**

### Steps

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

### Next steps

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

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

### Prerequisites

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

### About this task

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


**Figure 8. Removing the base cover**

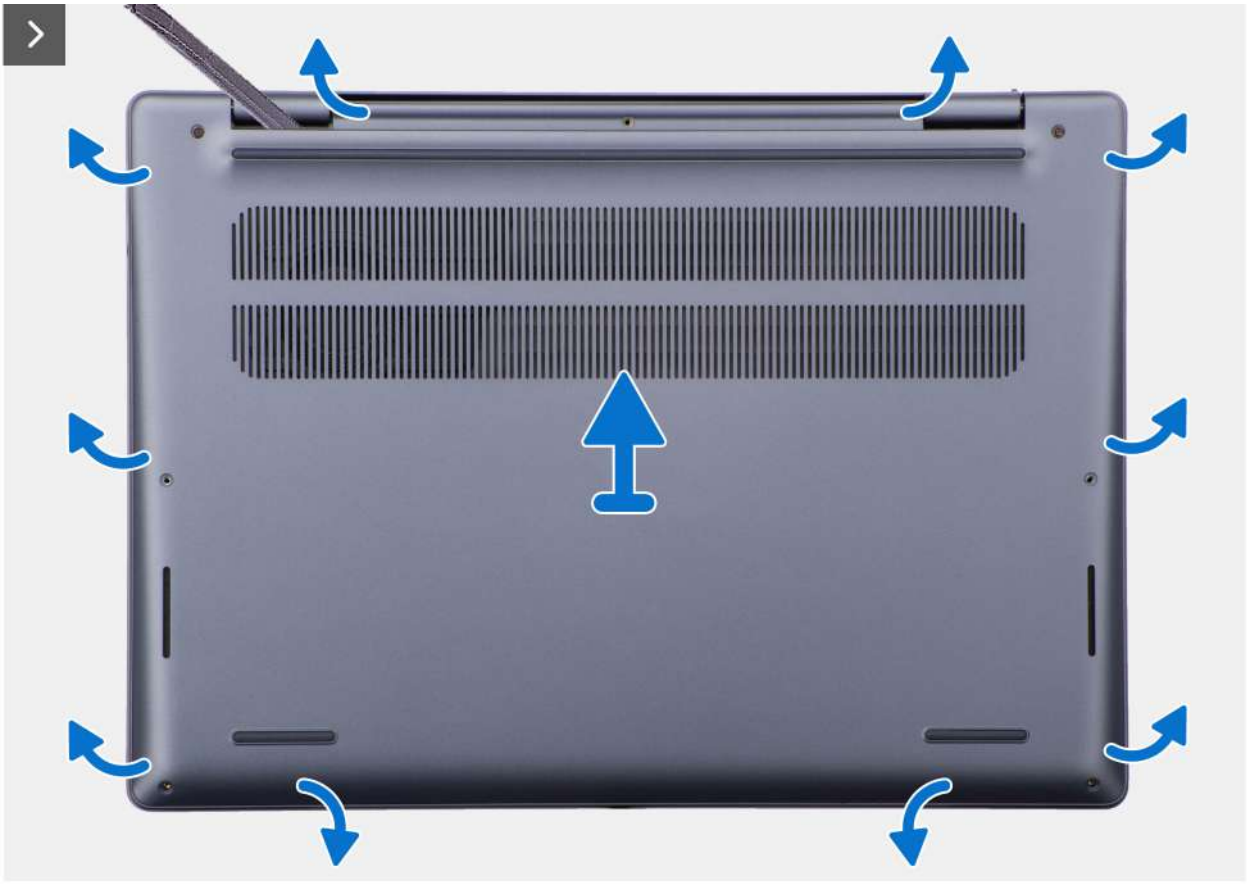

Figure 9. Removing the base cover

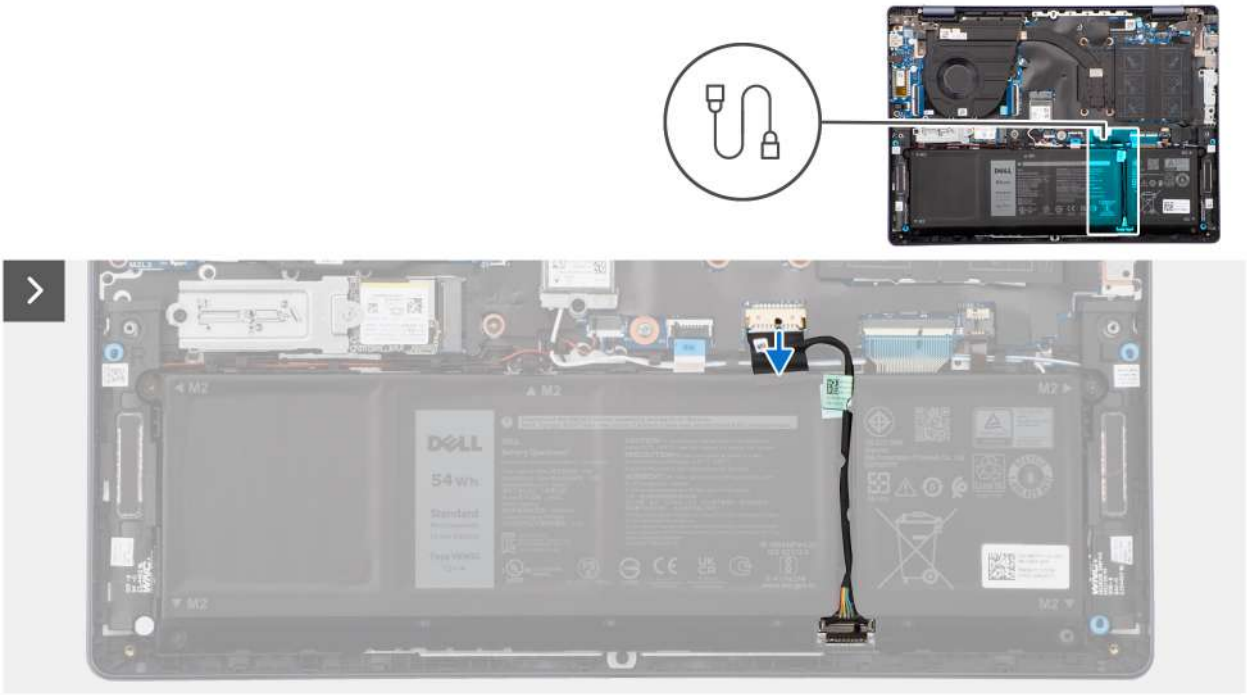

Figure 10. Disconnecting the battery cable

**Figure 11. Pressing the power button to drain flea power**

### Steps

1. Loosen the two captive screws and then remove the five screws (M2x4) that secure the base cover to the palm-rest and keyboard assembly.
2. Using a plastic scribe, pry open the base cover starting from the recesses, which are located in the U-shaped indents at the top edge of the base cover, near the hinges.

   **CAUTION: Do not slide the scribe along the edges of the base cover as it may damage the latches inside the base cover. Instead, insert the scribe at regular intervals and pry open the base cover.**
3. Pry open the top of the base cover followed by the left, right, and bottom to release the base cover.
4. Lift the base cover off the palm-rest and keyboard assembly.
5. Disconnect the battery cable from the connector (BATT1) on the system board.
6. Press and hold the power button for 15 to 20 seconds to ground the computer and drain the flea power.

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

### Prerequisites

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

### About this task

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

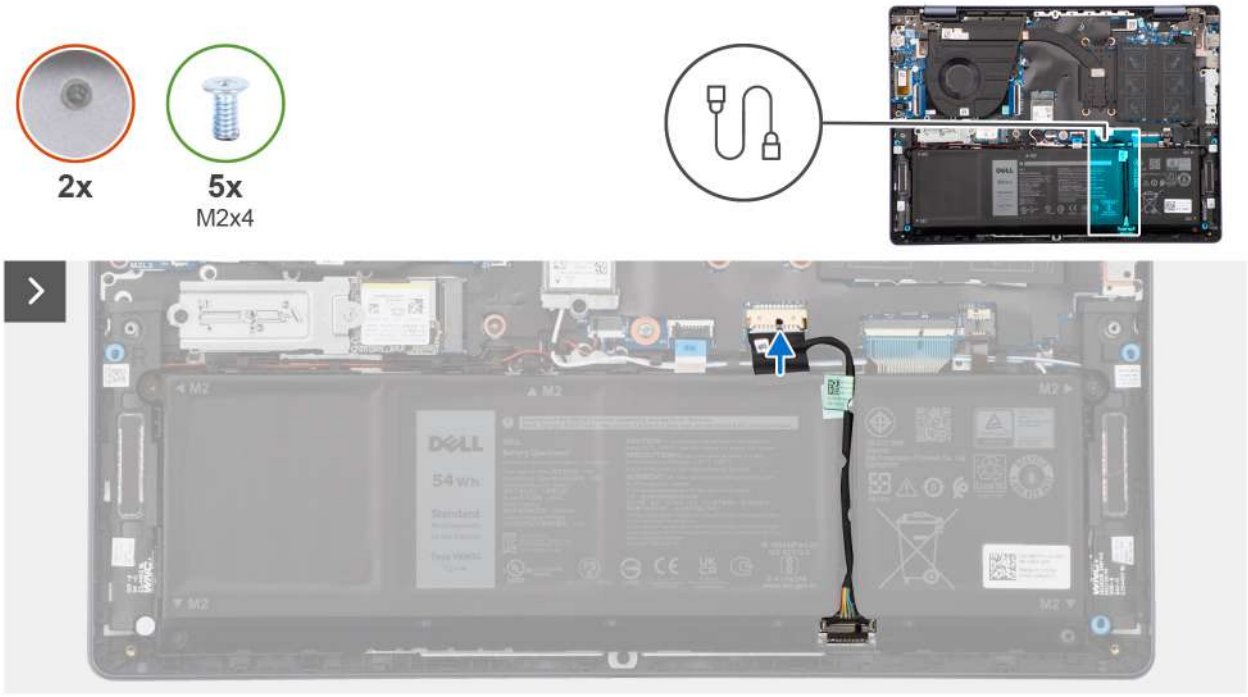


Figure 12. Connecting the battery cable

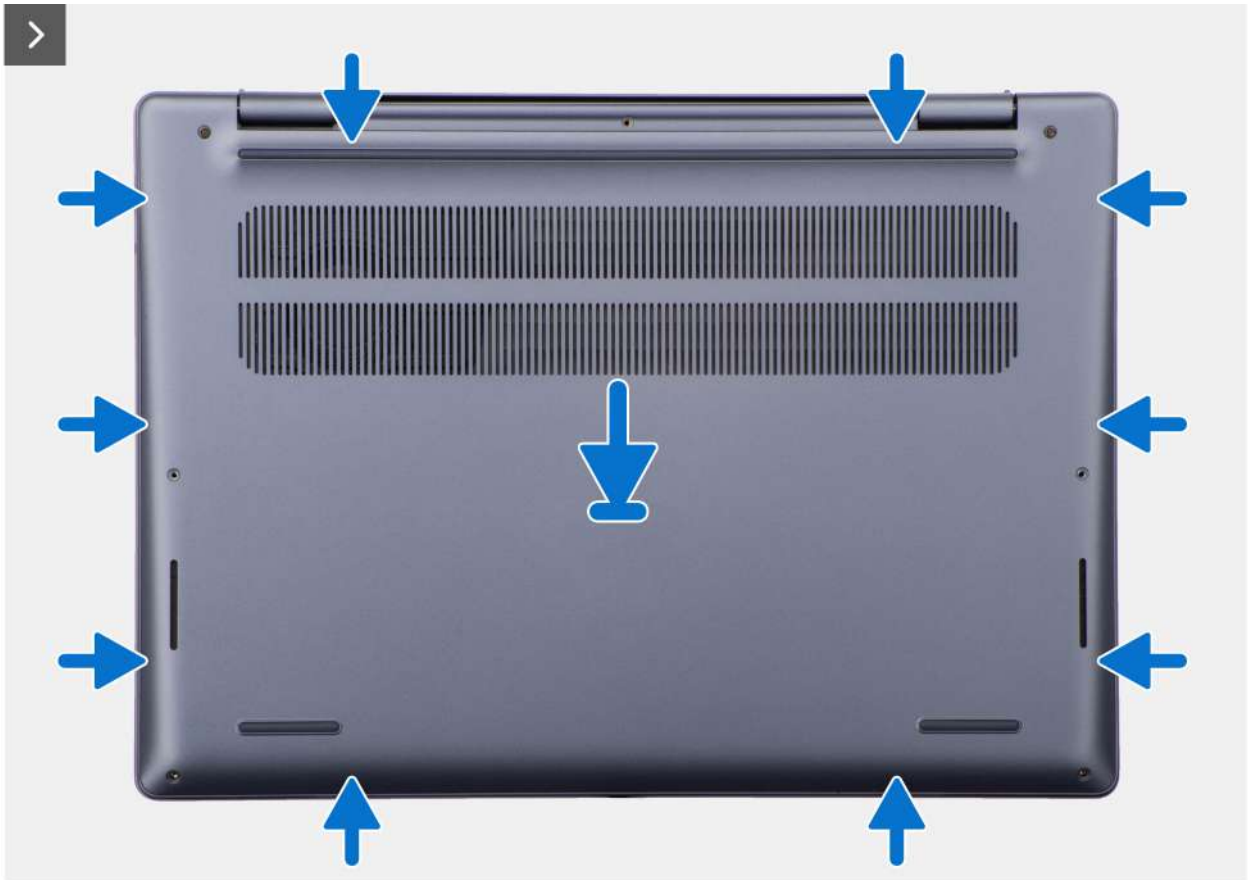

Figure 13. Installing the base cover

Figure 14. Installing the base cover

### Steps

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

### Next steps

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

# Battery

## Rechargeable Li-ion battery precautions

**WARNING:**

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

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

# Removing the 3-cell battery

### Prerequisites

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

### About this task

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

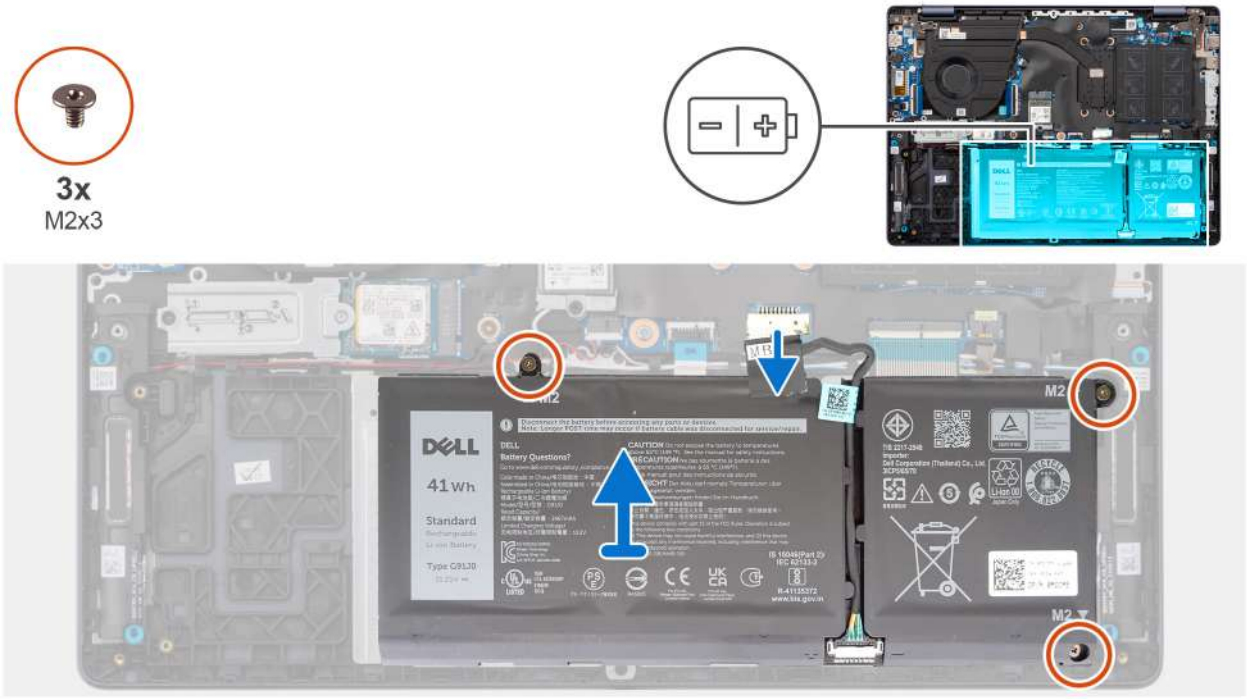


**Figure 15. Removing the battery**

### Steps

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

# Installing the 3-cell 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.

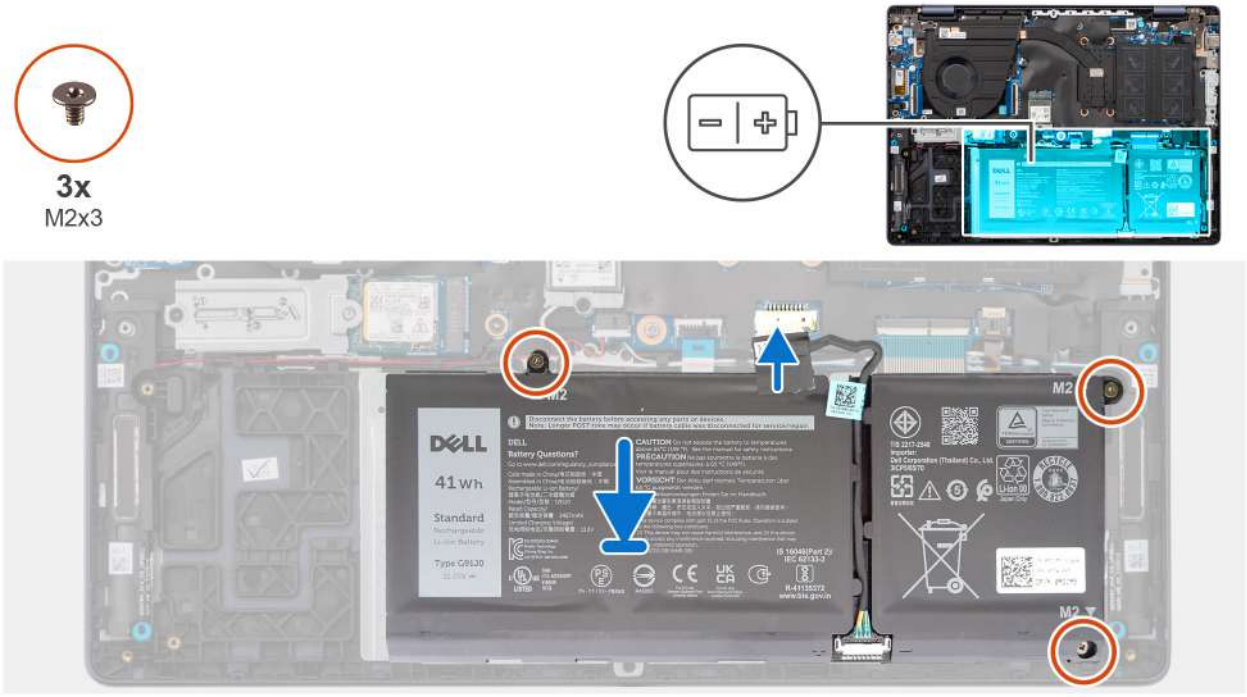


**Figure 16. Installing the battery**

### Steps

1. Place the battery, along with the battery cable, in the slot 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 three screws (M2x3) to secure the battery to the palm-rest and keyboard assembly.

### Next steps

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

## Removing the 4-cell battery

### Prerequisites

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

### About this task

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

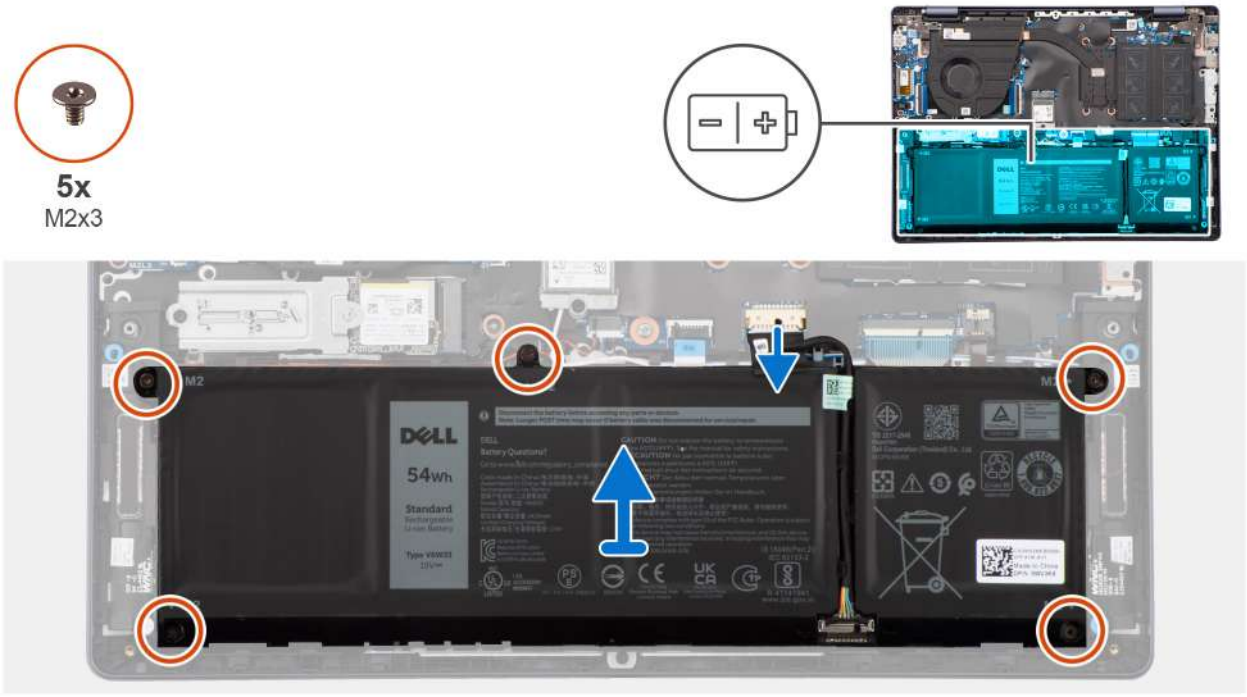


**Figure 17. Removing the battery**

### Steps

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

## Installing the 4-cell 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.

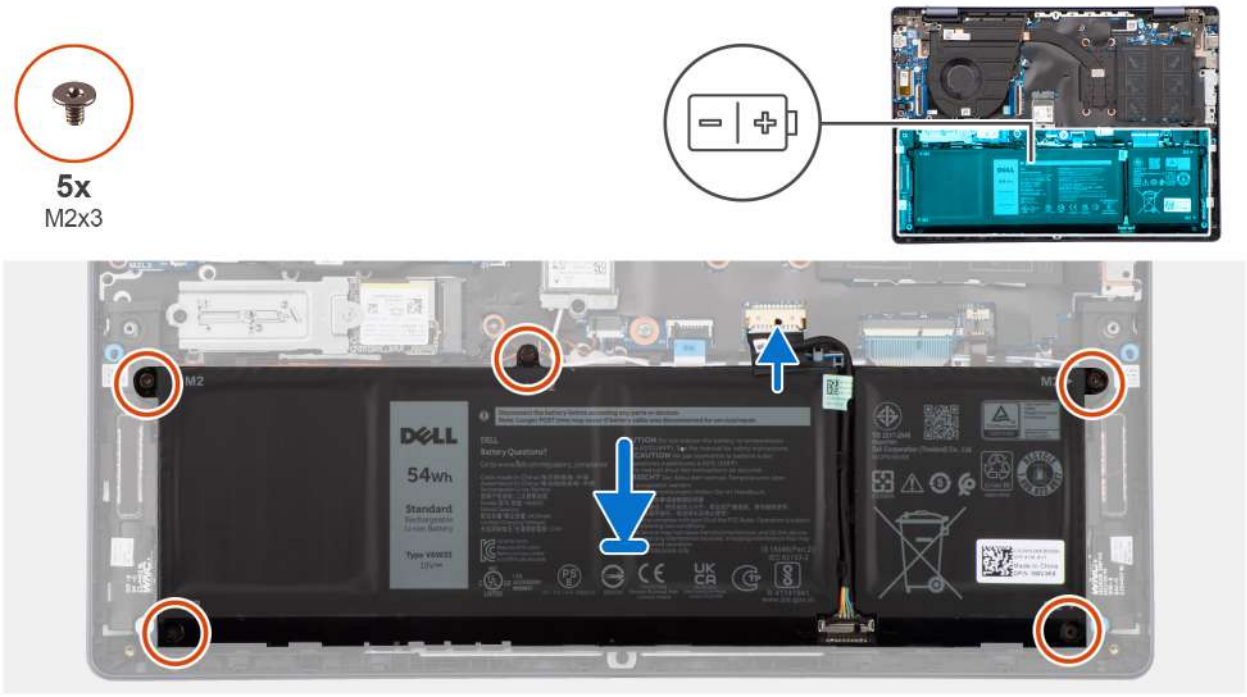


**Figure 18. Installing the battery**

### Steps

1. Place the battery, along with the battery cable, in the slot 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 screws (M2x3) to secure the battery to the palm-rest and keyboard assembly.

### Next steps

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

## Disconnecting the battery cable

### Prerequisites

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

### About this task

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


**Figure 19. Disconnecting the battery cable**

### Steps

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

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

# Connecting the battery cable

### 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.

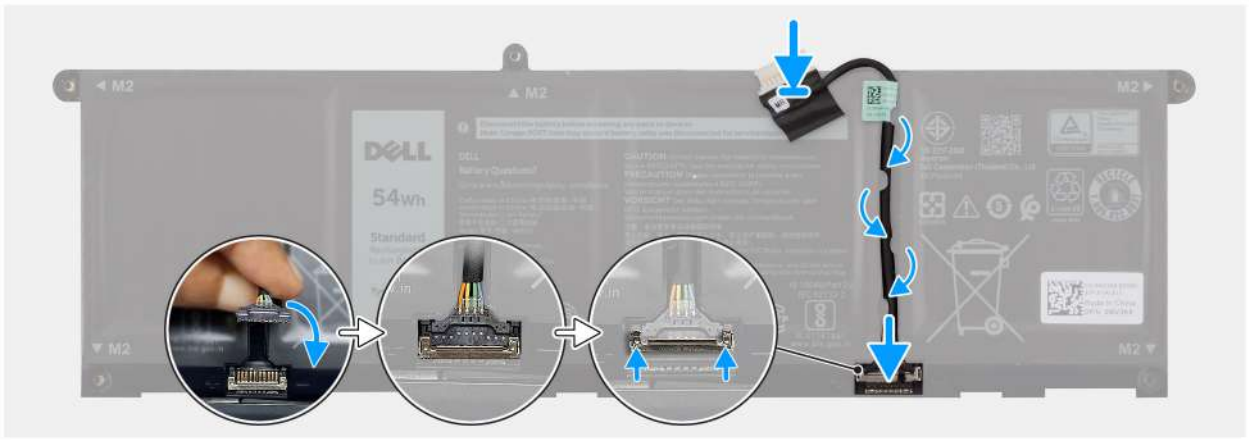


**Figure 20. Connecting the battery cable**

### Steps

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

### Next steps

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

# Memory module

## Removing the memory module

### Prerequisites

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

### About this task

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

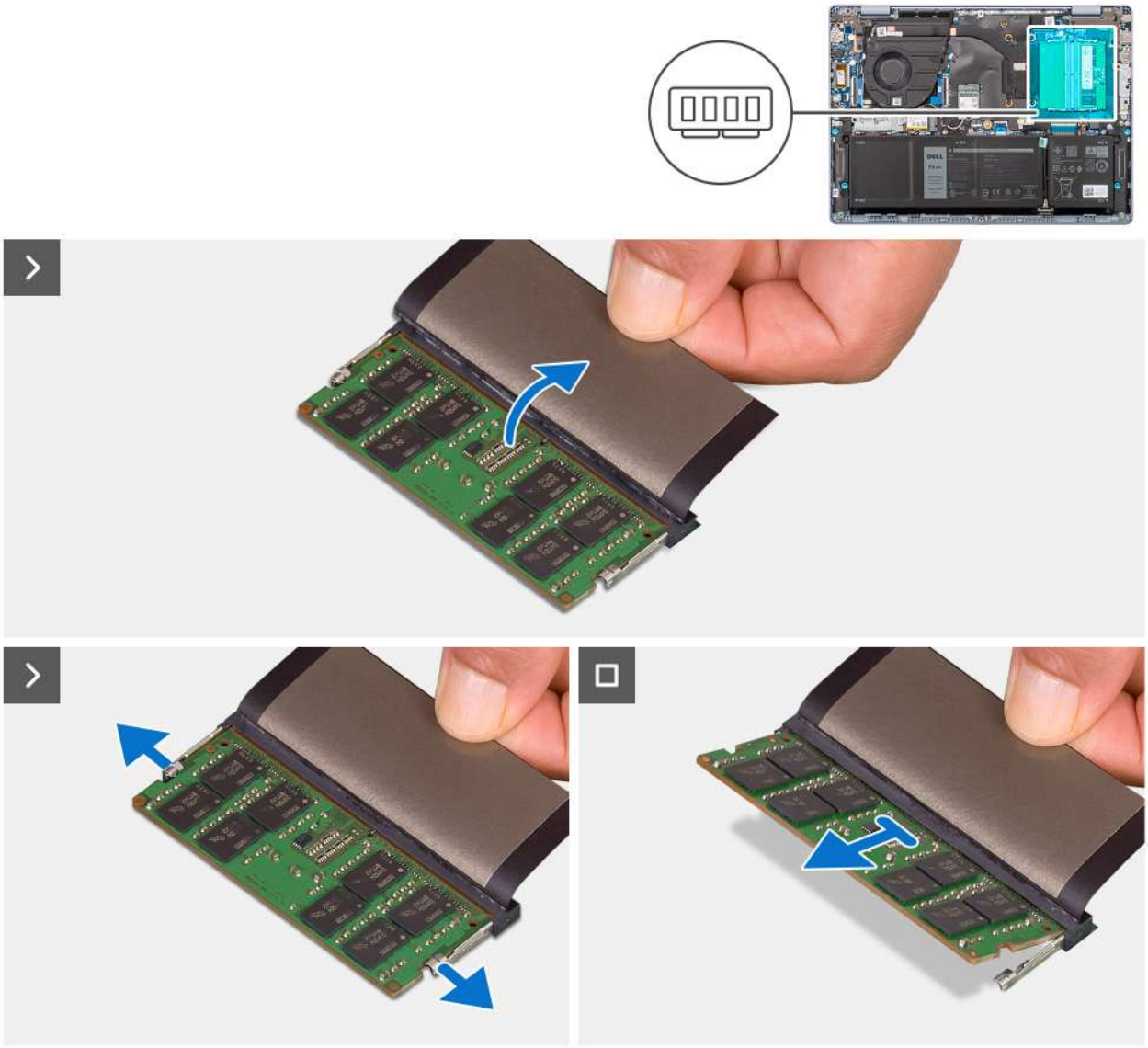

Figure 21. Removing the memory module

### Steps

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

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

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

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

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

## Installing the memory module

### Prerequisites

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

### About this task

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

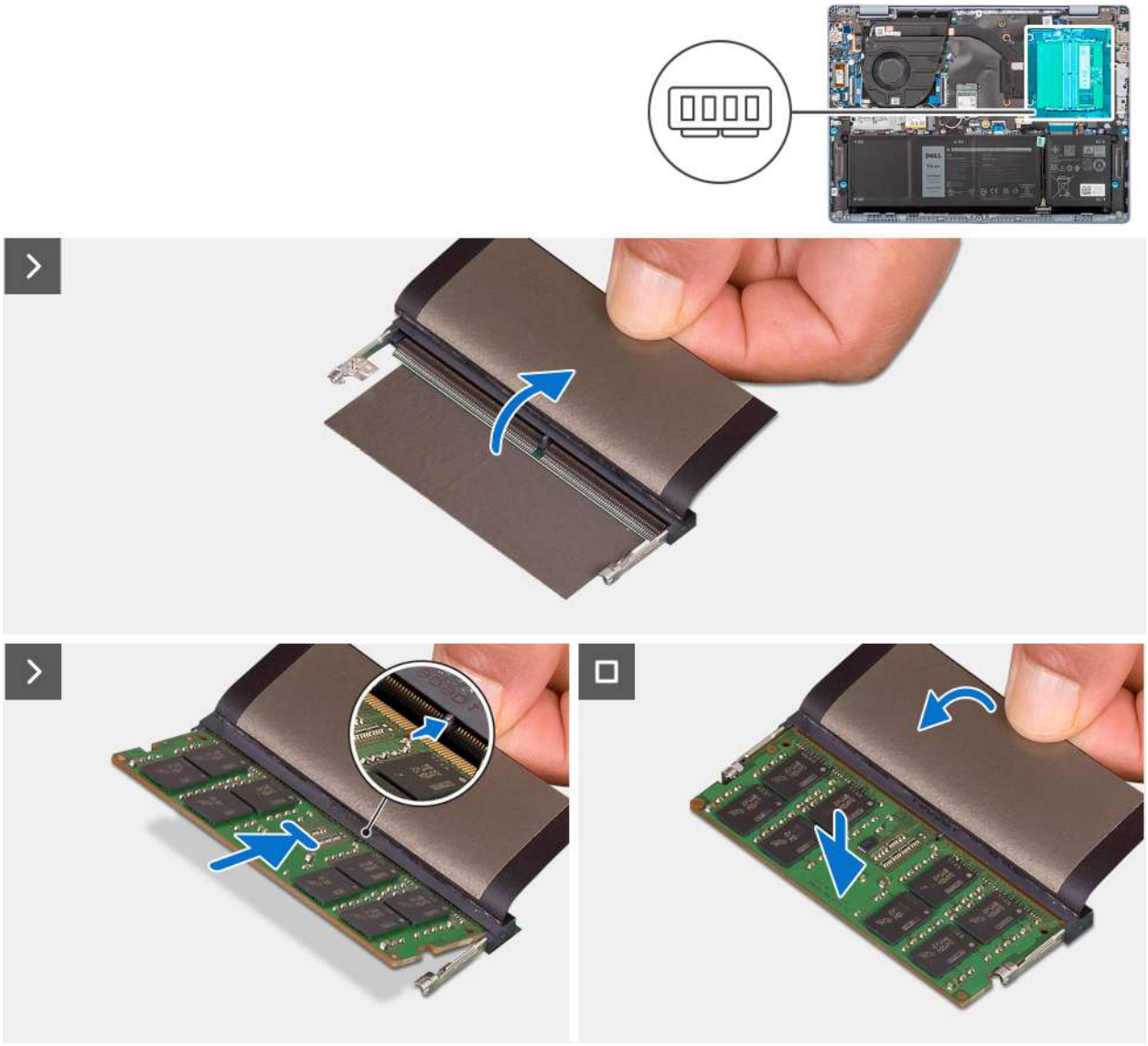

**Figure 22. Installing the memory module**

### Steps

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

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

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

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

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

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

### Next steps

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

# Solid state drive

## Removing the solid state drive

### Prerequisites

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

### About this task

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

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


**Figure 23. Removing the solid state drive**

### Steps

1. Remove the screw (M2x3) that secures the solid state drive bracket to the palm-rest and keyboard assembly.
2. Slide and remove the solid state drive bracket, along with the solid state drive, from the M.2 card slot (SSD1) on the system board.
3. Turn over the solid state drive bracket.
4. Remove the screw (M2x2) that secures the solid state drive to the solid state drive bracket.
5. Lift the solid state drive off the solid state drive bracket.

# Installing the solid state drive

### Prerequisites

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

### About this task

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

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

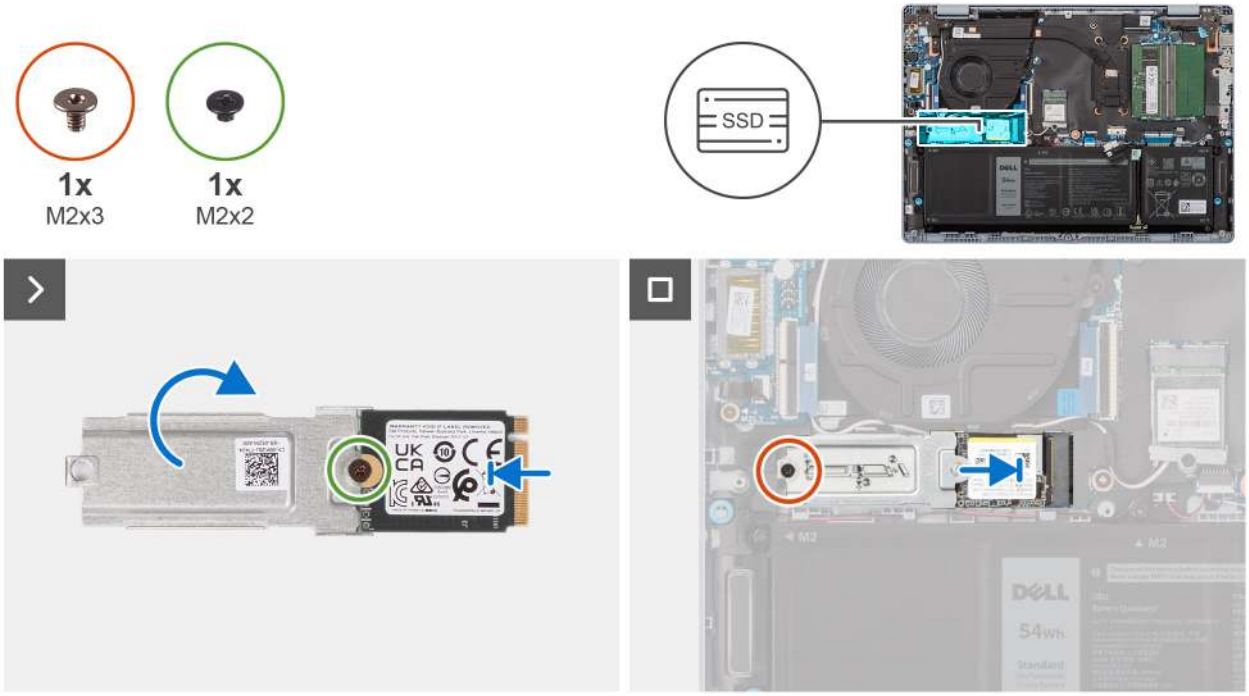


**Figure 24. Installing the solid state drive**

### Steps

1. Align the round notch on the solid state drive with the screw hole on the solid state drive bracket.
2. Replace the screw (M2x2) to secure the solid state drive to the solid state drive bracket.
3. Turn over the solid state drive bracket.
4. Align the notch on the solid state drive with the tab on the M.2 card slot (SSD1) on the system board.
5. At an angle, slide and place the solid state drive bracket, along with the solid state drive, in the M.2 card slot on the system board.
6. Replace the screw (M2x3) to secure the solid state drive bracket to the palm-rest and keyboard assembly.

### Next steps

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

# Wireless card

## Removing the wireless card

### Prerequisites

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

### About this task

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

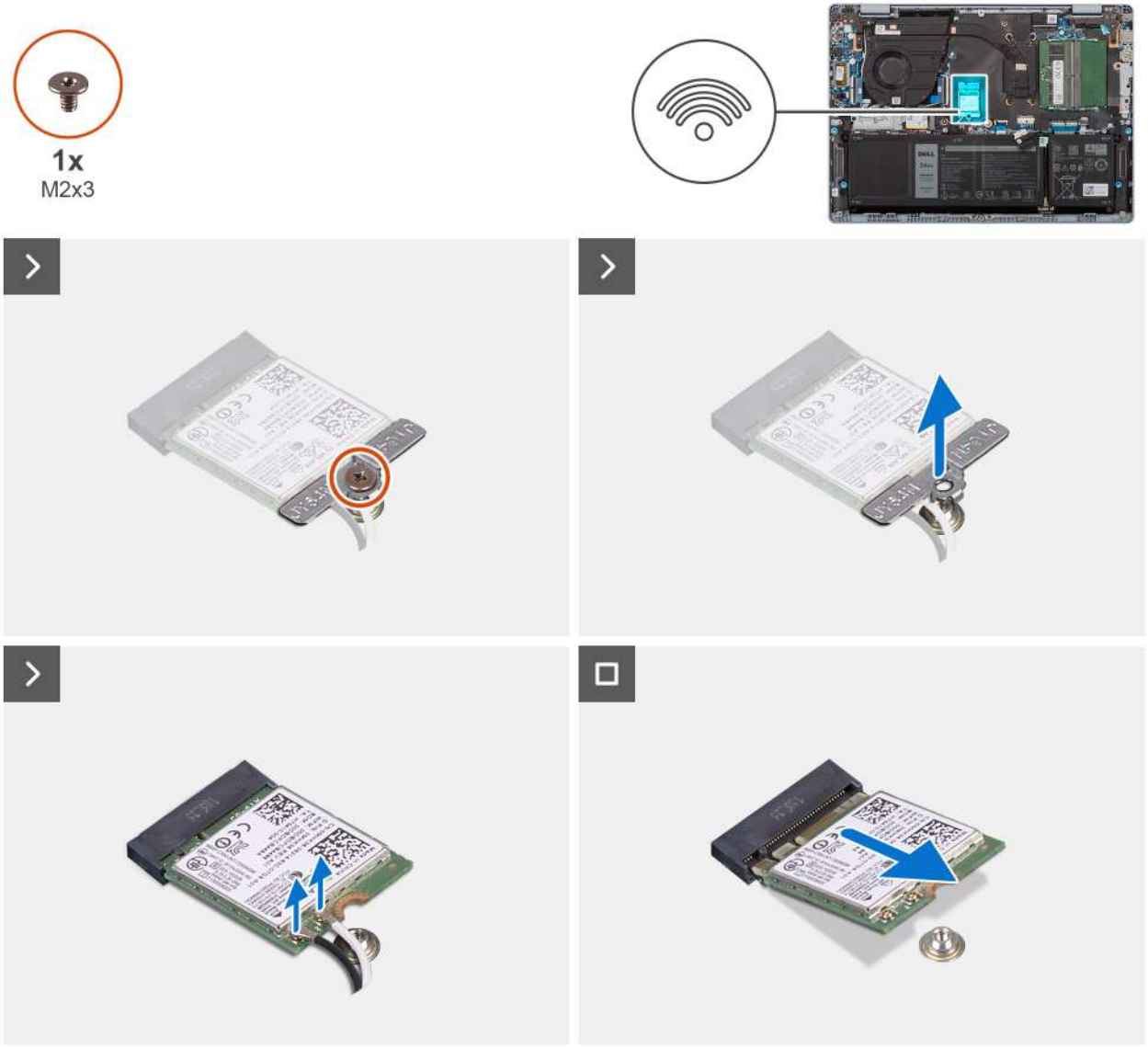


**Figure 25. Removing the wireless card**

### Steps

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

# Installing the wireless card

### Prerequisites

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

### About this task

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

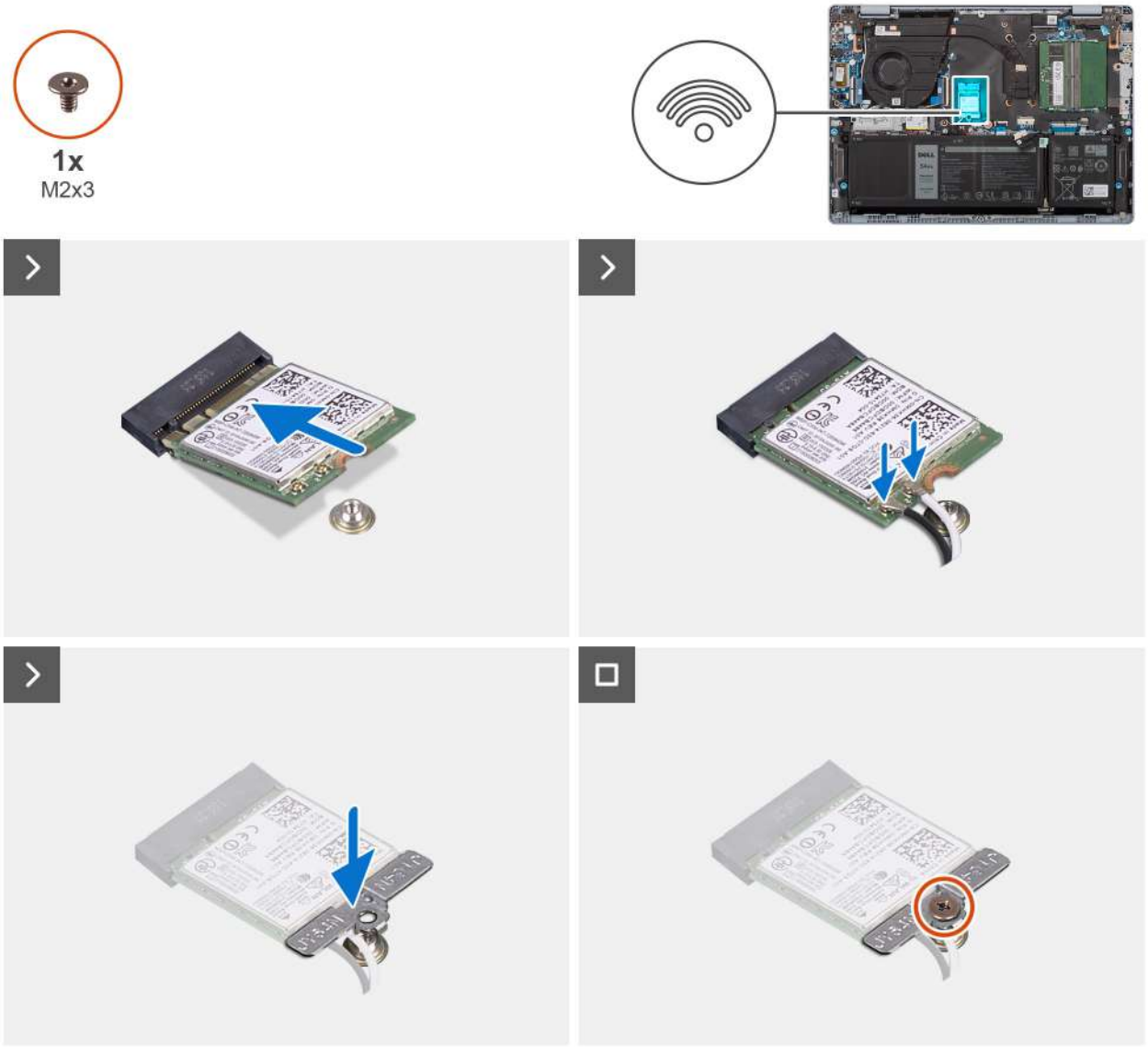


**Figure 26. Installing the wireless card**

### Steps

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

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

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

**Table 3. Antenna-cable color scheme (continued)**

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

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

### Next steps

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

# Fan

## Removing the fan

### Prerequisites

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

### About this task

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

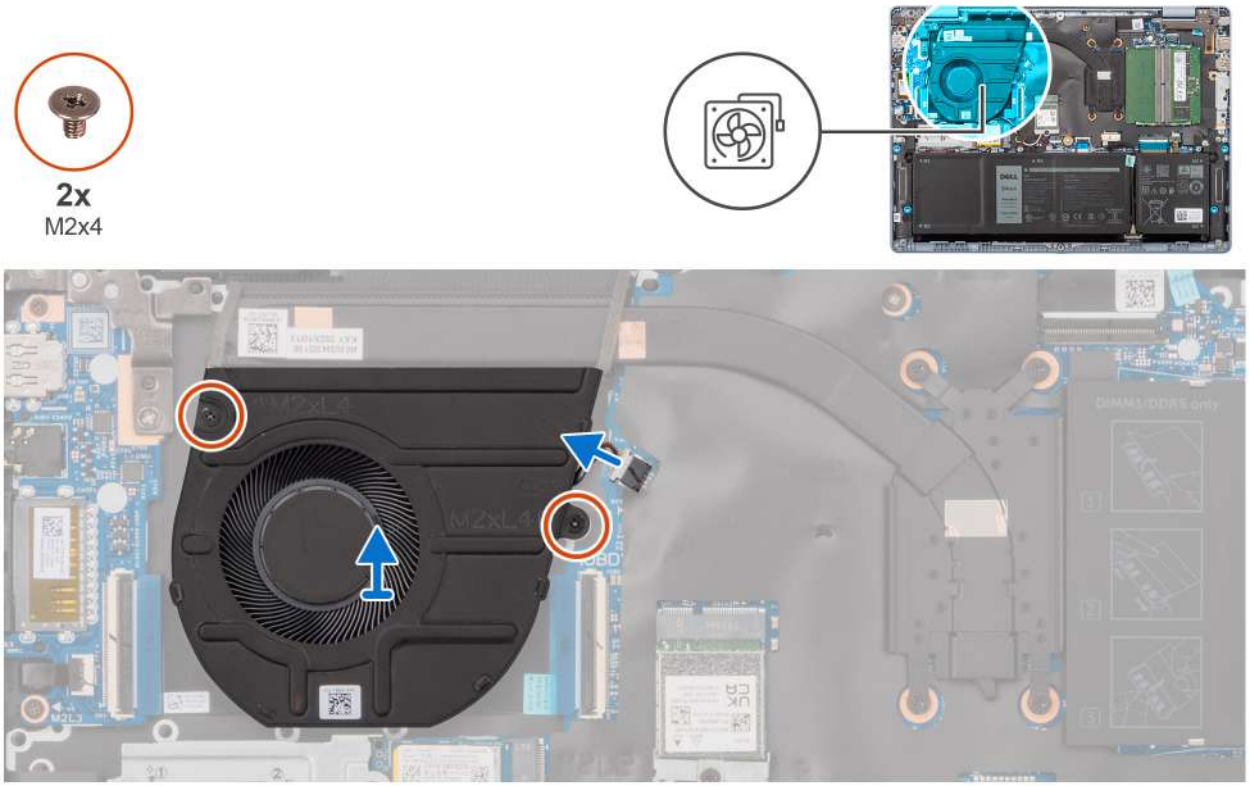


**Figure 27. Removing the fan**

### Steps

1. Disconnect the fan cable from the connector (FAN1) on the system board.

2. Remove the two screws (M2x4) that secure the fan to the palm-rest and keyboard assembly.
3. Lift the fan off the palm-rest and keyboard assembly.

# Installing the fan

### Prerequisites

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

### About this task

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

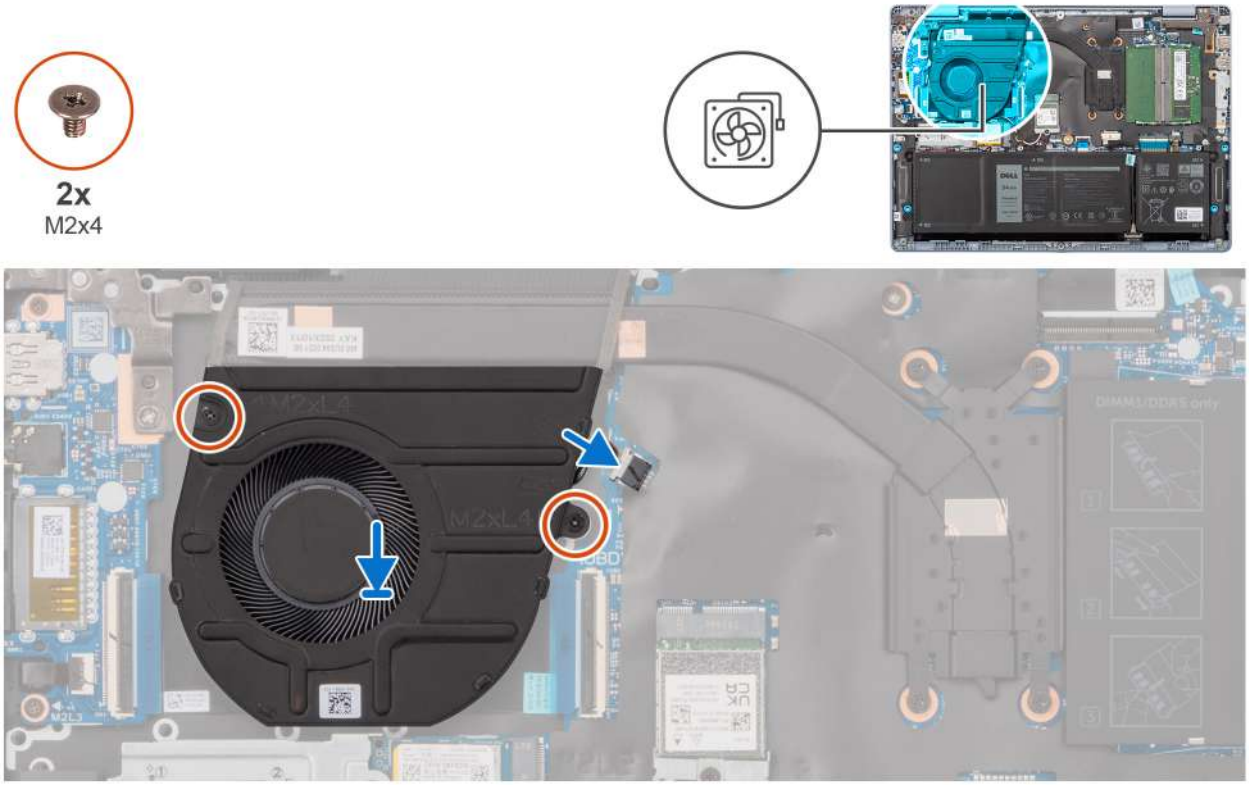


**Figure 28. Installing the fan**

### Steps

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

### Next steps

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

# 3

# 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.

## Heat sink

### Removing the heat sink

#### Prerequisites

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

#### About this task

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

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

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

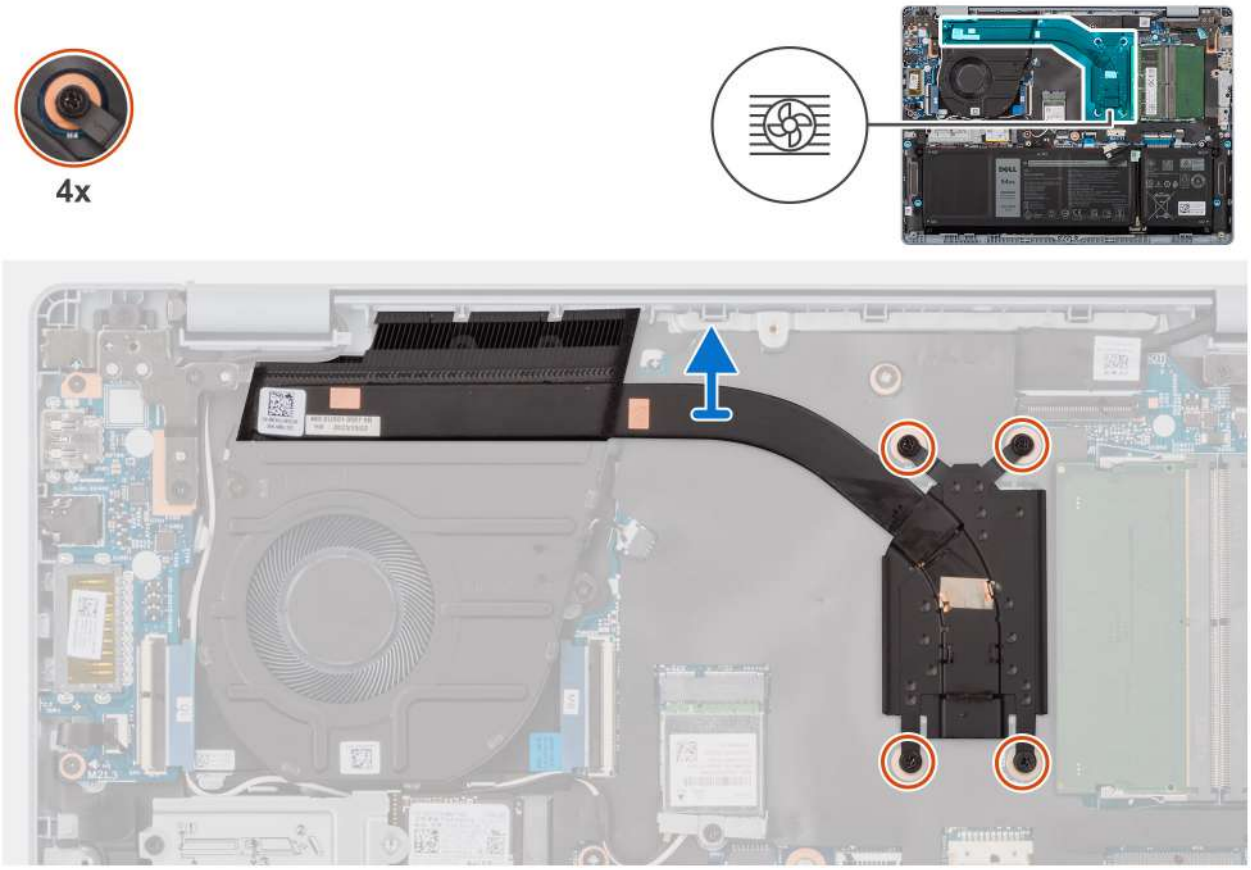


Figure 29. Removing the heat sink

### Steps

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

**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.

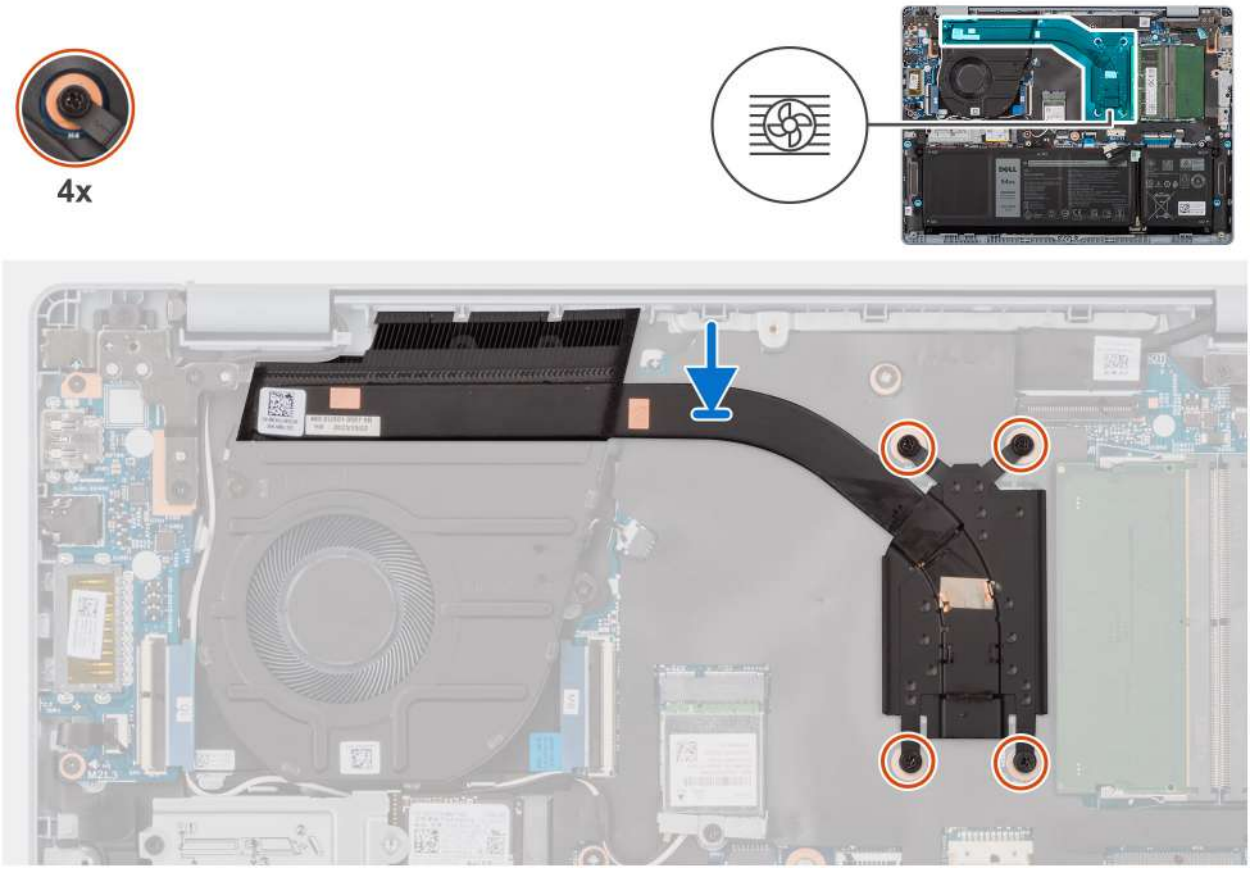


Figure 30. Installing the heat sink

### Steps

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

### Next steps

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

# Speakers

## Removing the speakers

### Prerequisites

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

### About this task

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

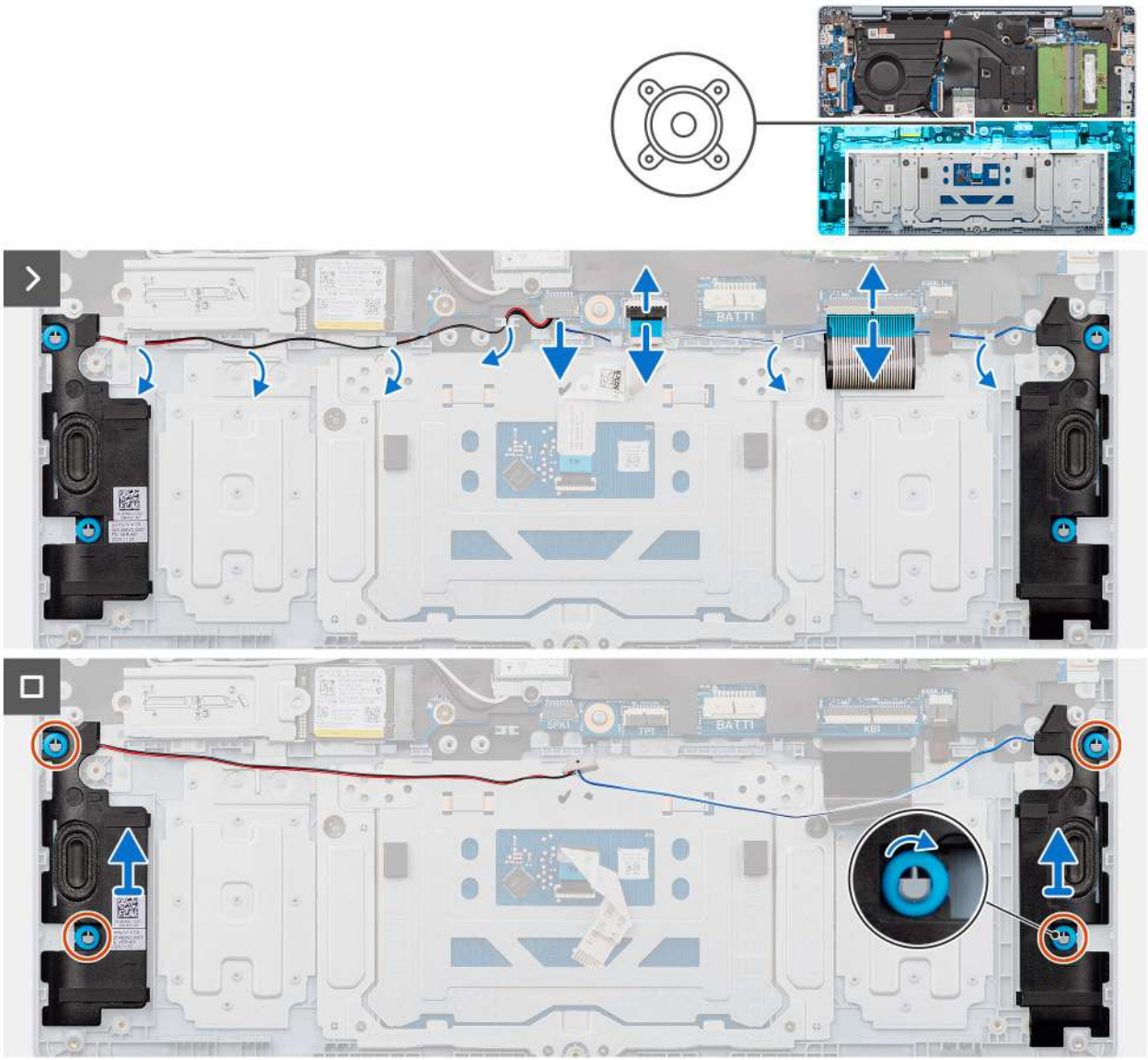

Figure 31. Removing the speakers

### Steps

1. Disconnect the speaker cable from the connector (SPK1) on the system board.
2. Remove the speaker cables from the routing guides on the palm-rest and keyboard assembly.
3. Lift the speakers, along with the cables, off the palm-rest and keyboard assembly.

## Installing the speakers

### Prerequisites

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

### About this task

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

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

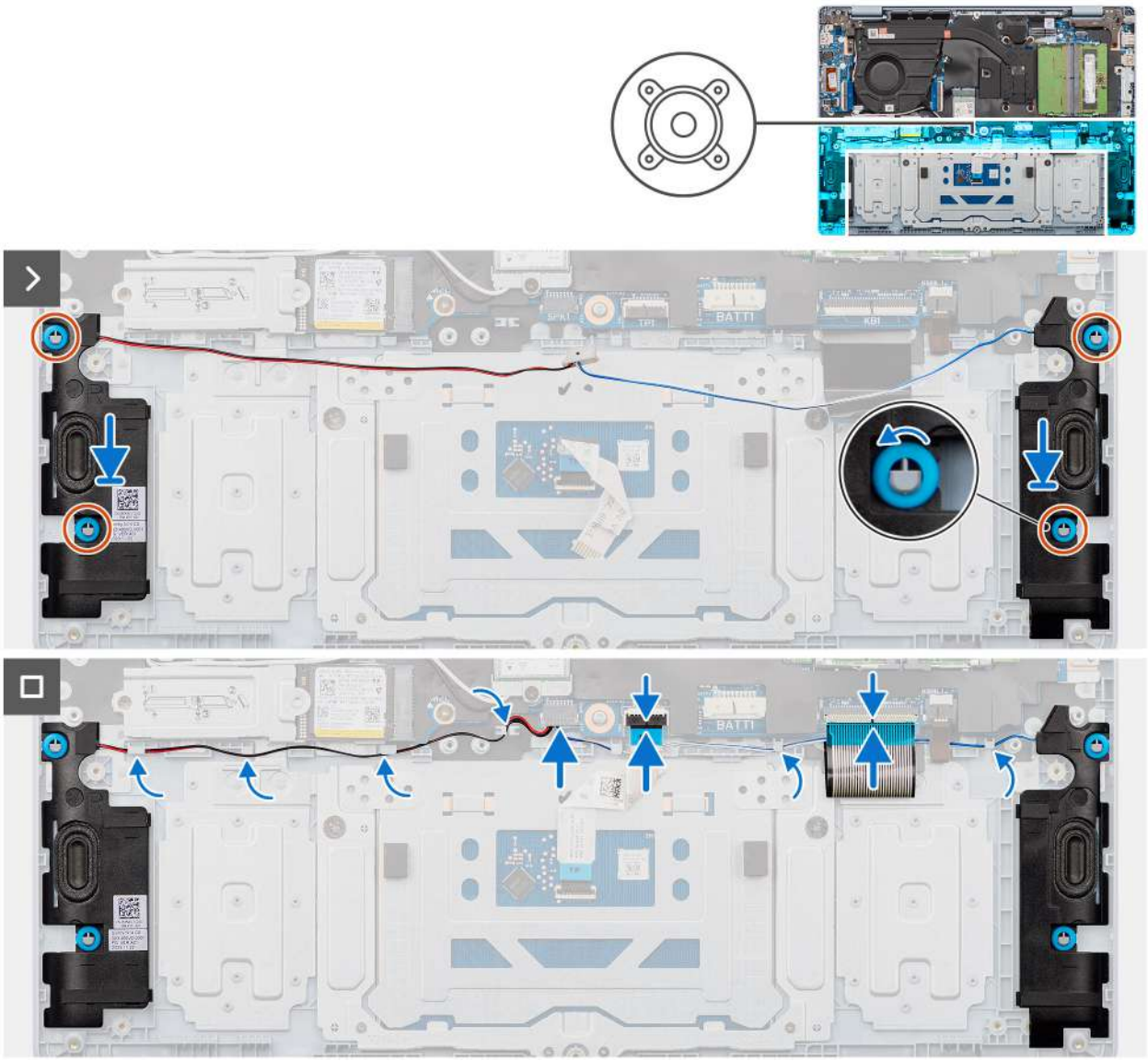

**Figure 32. Installing the speakers**

### Steps

1. Thread the rubber grommets through the alignment posts to place the left and right speakers on the palm-rest and keyboard assembly.

   **NOTE:** Ensure that the rubber grommets on the speakers are threaded through the alignment posts and the four rubber grommets are seated into the slot and installed on the speakers properly.

2. Route the speaker cable through the routing guides on the palm-rest and keyboard assembly.
3. Connect the speaker cable to the connector (SPK1) on the system board.

### Next steps

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

# Touchpad

## Removing the touchpad

### Prerequisites

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

### About this task

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

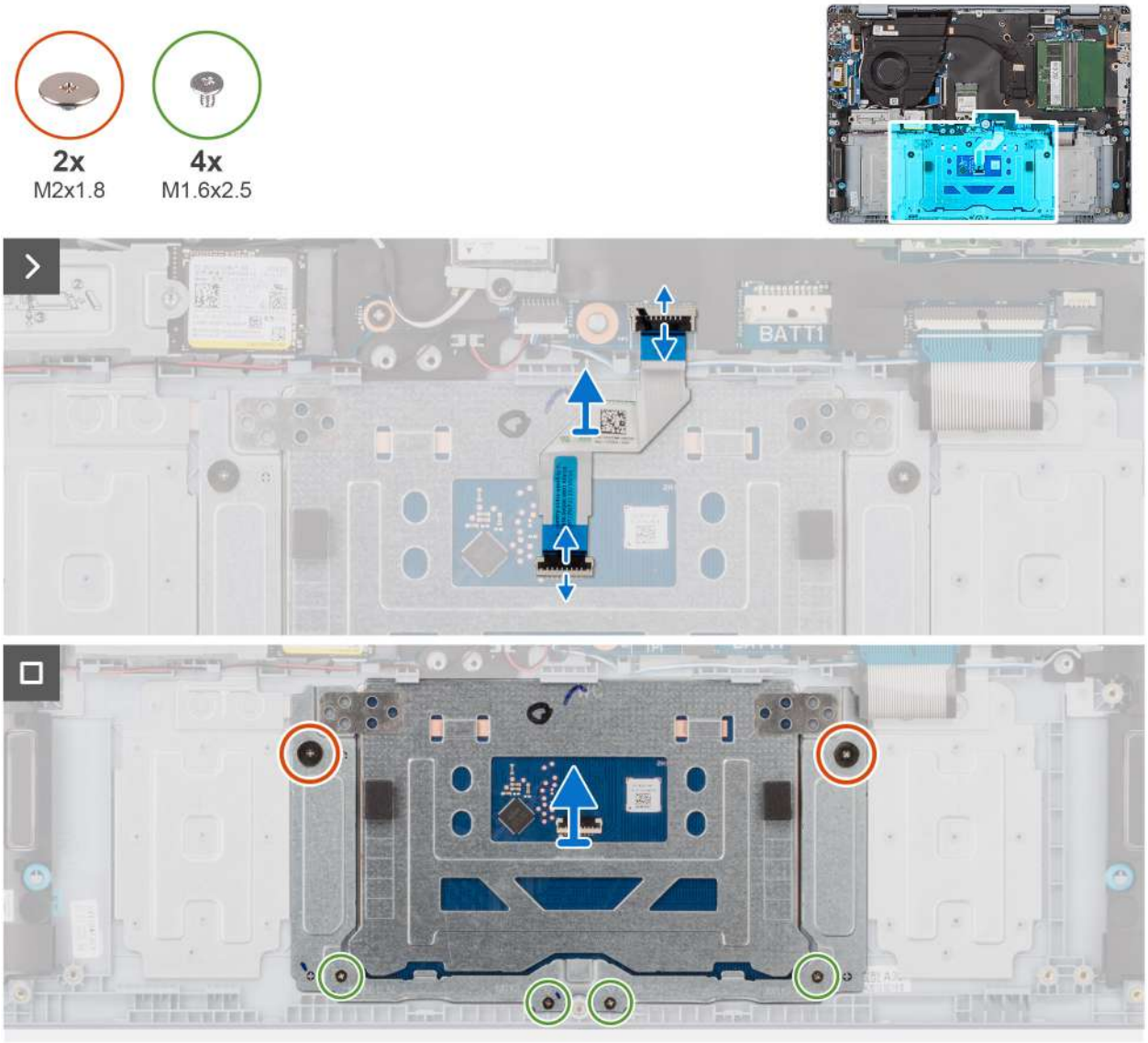


**Figure 33. Removing the touchpad (for computers shipped with a plastic chassis)**

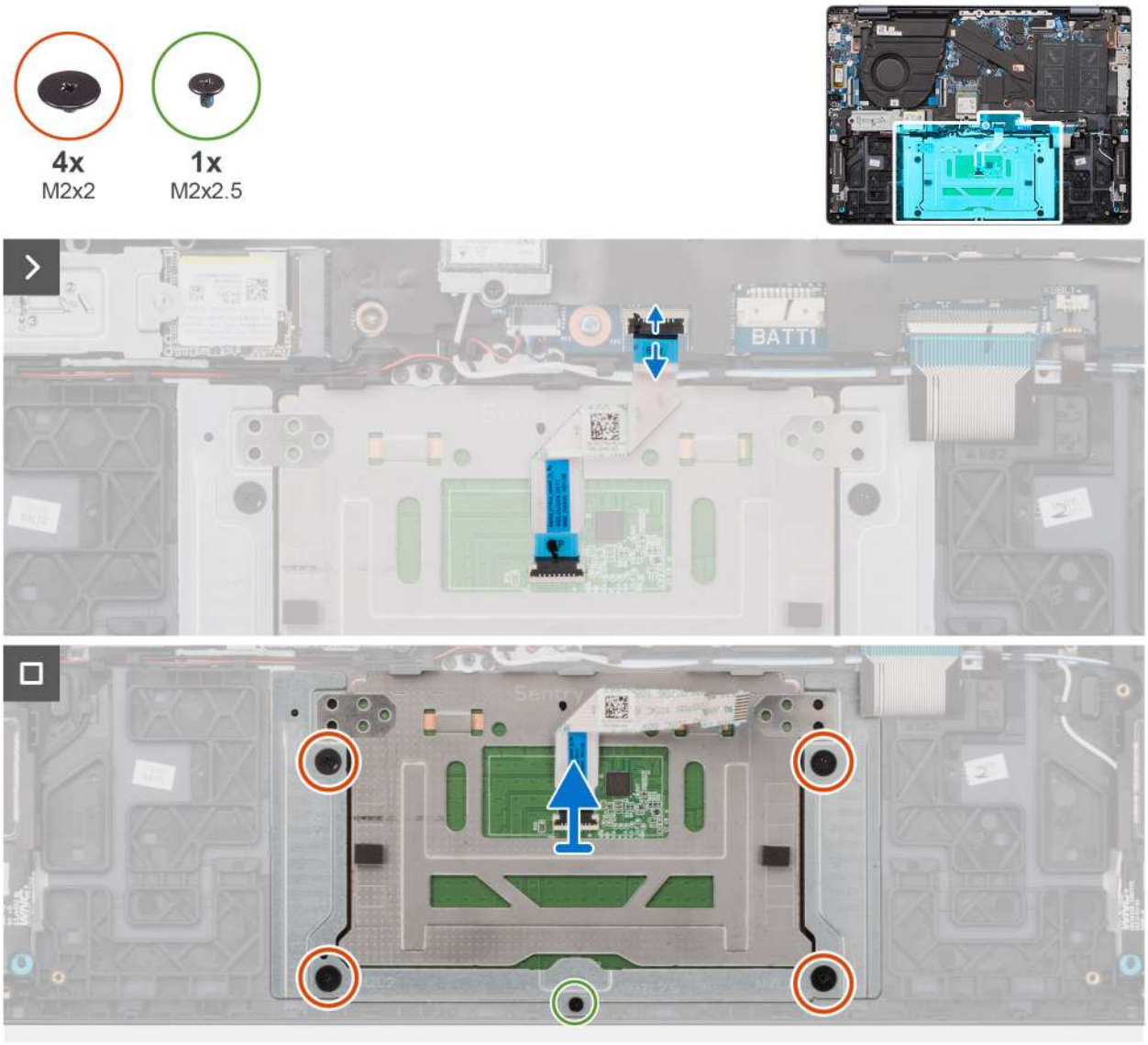


**Figure 34. Removing the touchpad (for computers shipped with an aluminum chassis)**

### Steps

1. Open the latch and disconnect the touchpad cable from the connector (TP1) on the system board.
2. Open the latch and disconnect the touchpad cable from the connector on the touchpad.
3. Remove the four screws (M1.6x2.5) and the two screws (M2x1.8) that secure the touchpad to the palm-rest and keyboard assembly.

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

4. Remove the four screws (M2x2) and the screw (M2x2.5) that secure the touchpad to the palm-rest and keyboard assembly.

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

5. Lift the touchpad off 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 images indicate the location of the touchpad and provide a visual representation of the installation procedure.

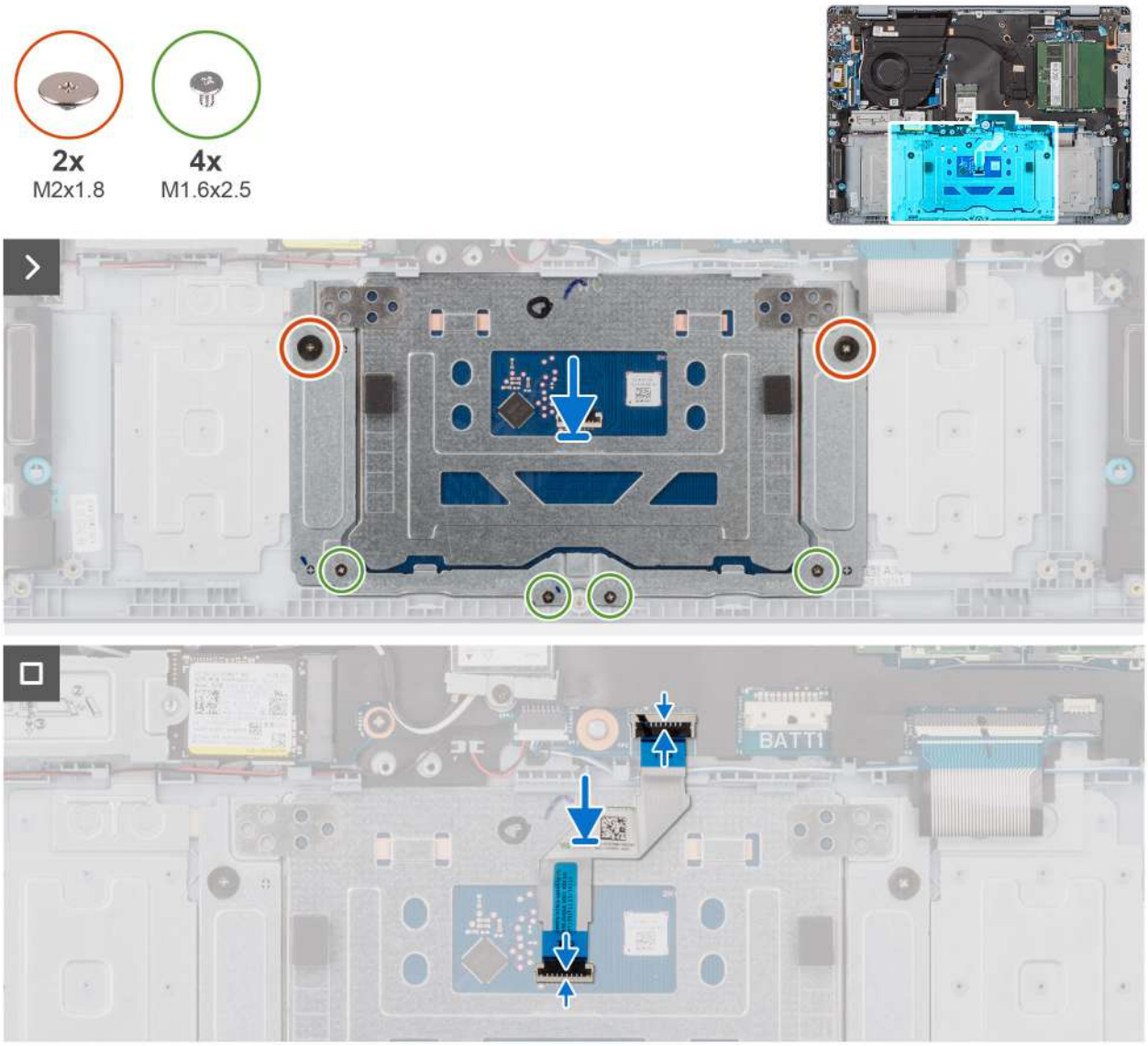


**Figure 35. Installing the touchpad (for computers shipped with a plastic chassis)**

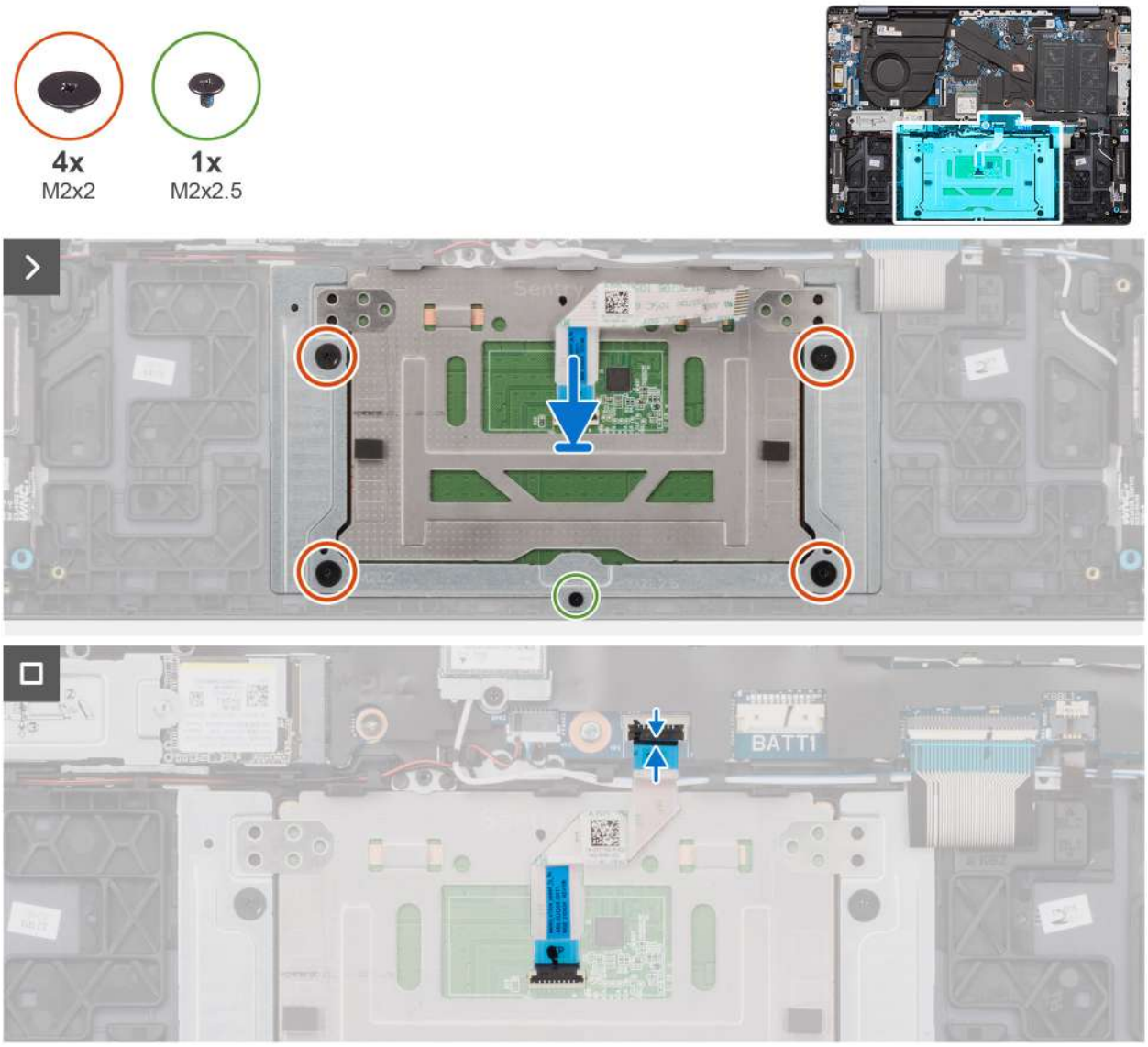


**Figure 36. Installing the touchpad (for computers shipped with an aluminum chassis)**

### Steps

1. Align and place the touchpad in the slot on the palm-rest and keyboard assembly.
2. Align the screw holes on the touchpad with the screw holes on the palm-rest and keyboard assembly.
3. Replace the four screws (M1.6x2.5) and the two screws (M2x1.8) to secure the touchpad to the palm-rest and keyboard assembly.

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

4. Replace the four screws (M2x2) and the screw (M2x2.5) to secure the touchpad to the palm-rest and keyboard assembly.

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

5. Connect the touchpad cable to the connector on the touchpad and close the latch.
6. Connect the touchpad cable to the connector (TP1) on the system board and close the latch.

### Next steps

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

# Power-adapter port

## Removing the power-adapter port

### Prerequisites

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

### About this task

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

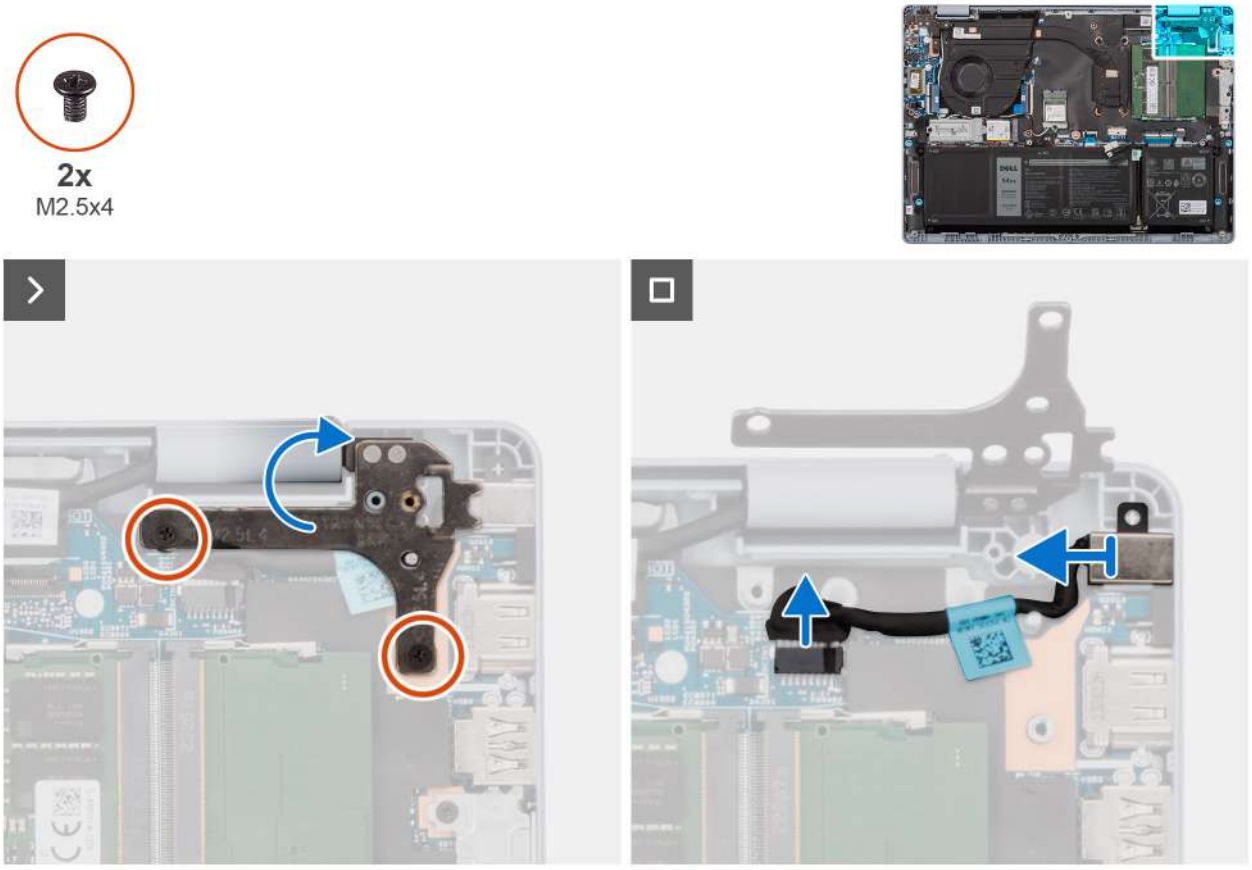


**Figure 37. Removing the power-adapter port (for computers shipped with a plastic chassis)**


**Figure 38. Removing the power-adapter port (for computers shipped with an aluminum chassis)**

### Steps

1. Remove the two screws (M2.5x4) that secure the right display hinge to the system board and the palm-rest and keyboard assembly.

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

2. Remove the two screws (M2.5x4.5) that secure the right display hinge to the system board and the palm-rest and keyboard assembly.

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

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

## Installing the power-adapter port

### Prerequisites

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

### About this task

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

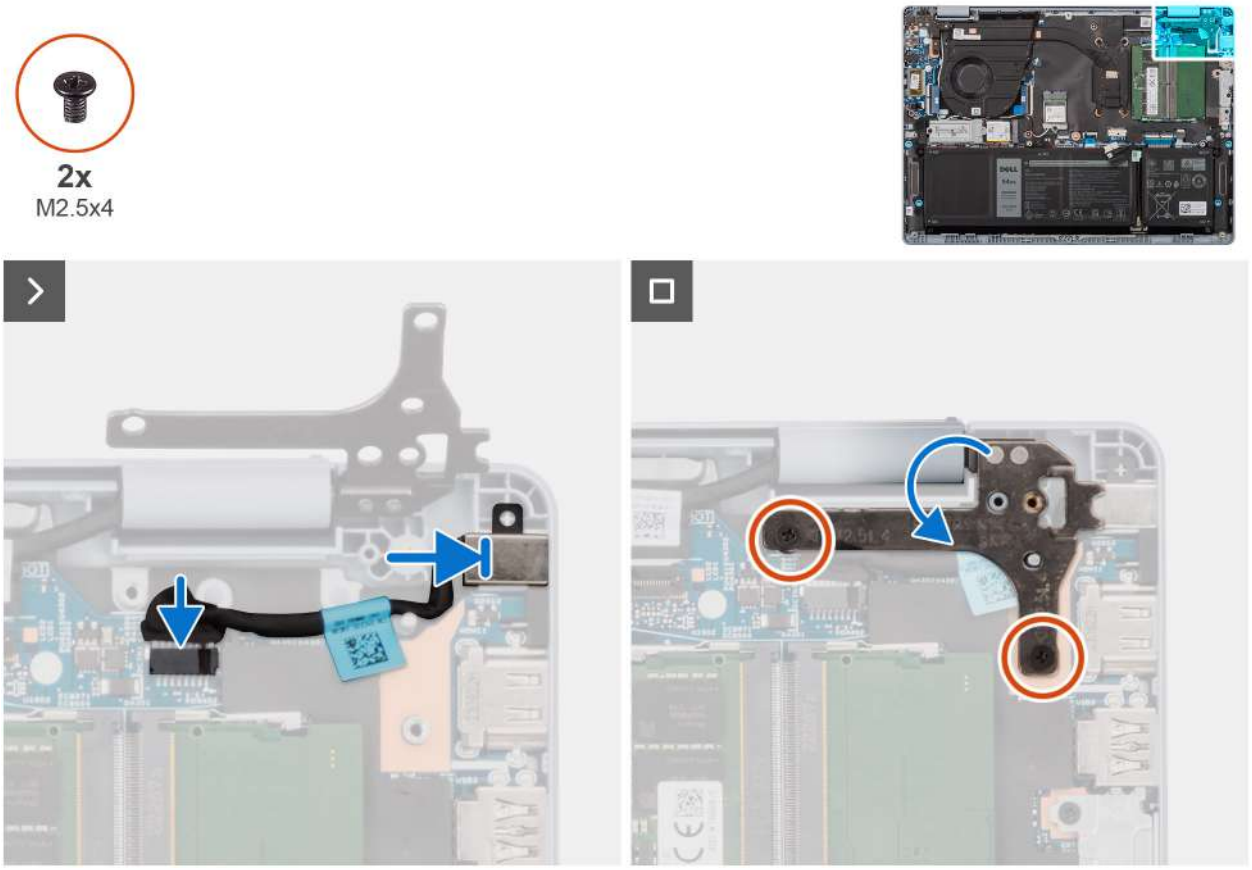


Figure 39. Installing the power-adapter port (for computers shipped with a plastic chassis)

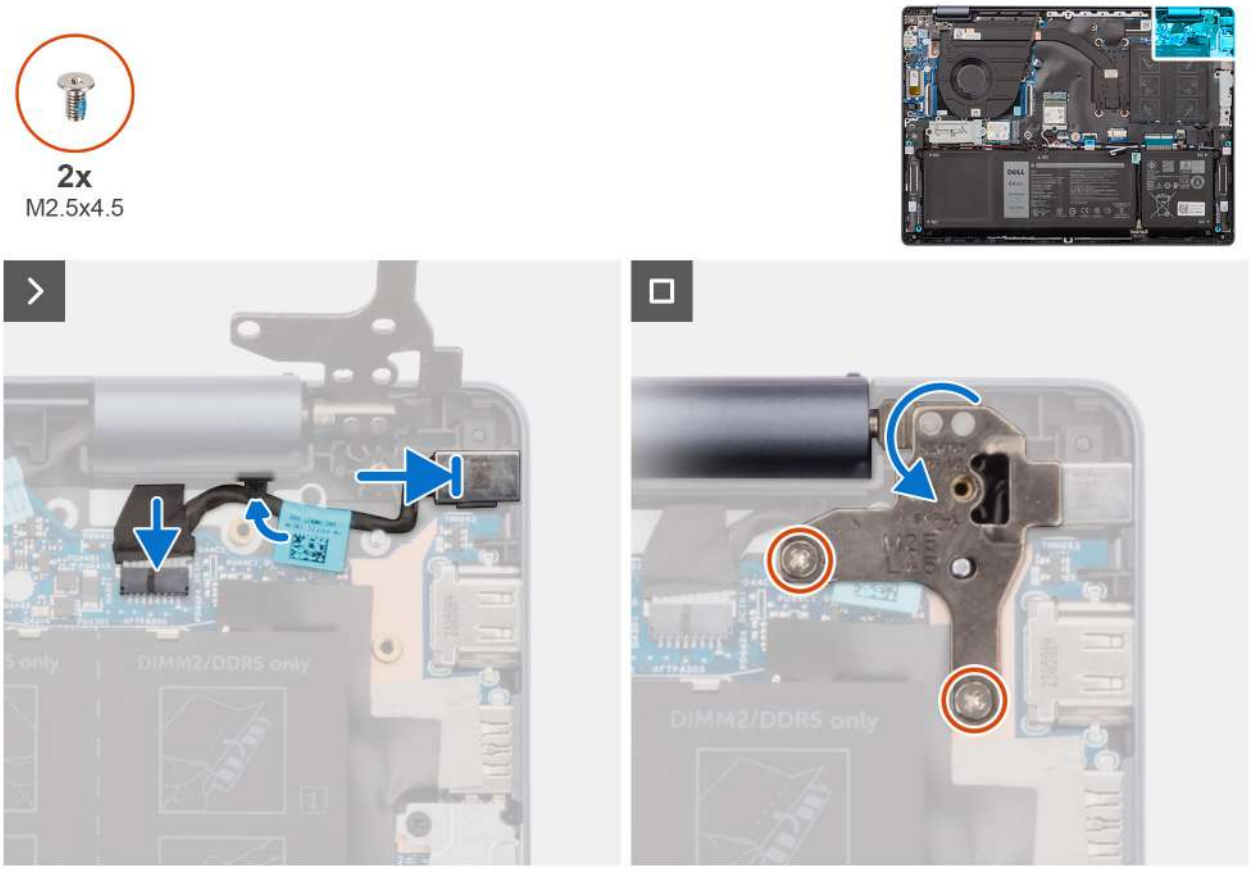


**Figure 40. Installing the power-adapter port (for computers shipped with an aluminum chassis)**

### Steps

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

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

6. Replace the two screws (M2.5x4.5) to secure the right display hinge to the system board and the palm-rest and keyboard assembly.

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

### Next steps

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

# I/O-board cable

## Removing the I/O-board cable

### Prerequisites

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

### About this task

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

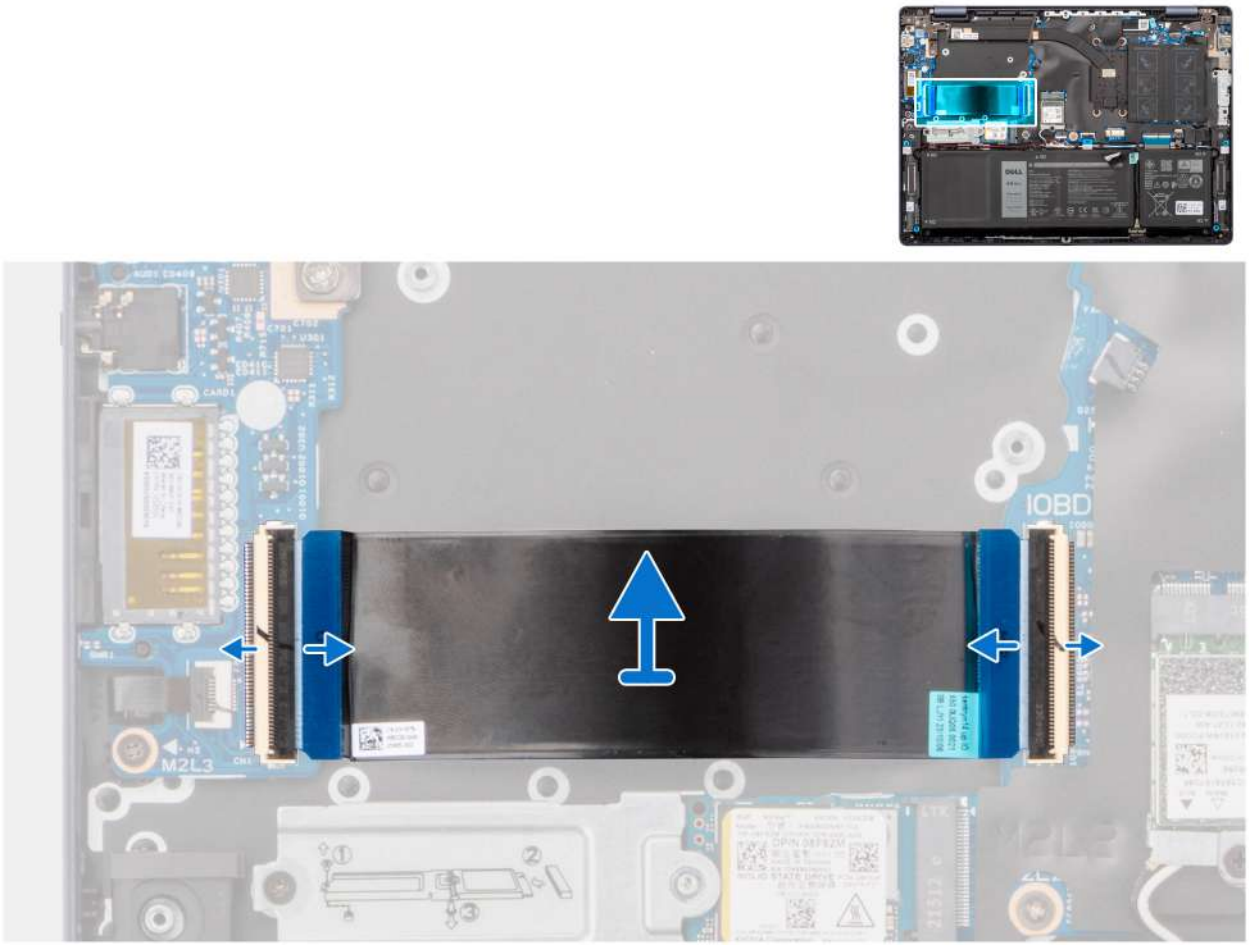


**Figure 41. Removing the I/O-board cable**

### Steps

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

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

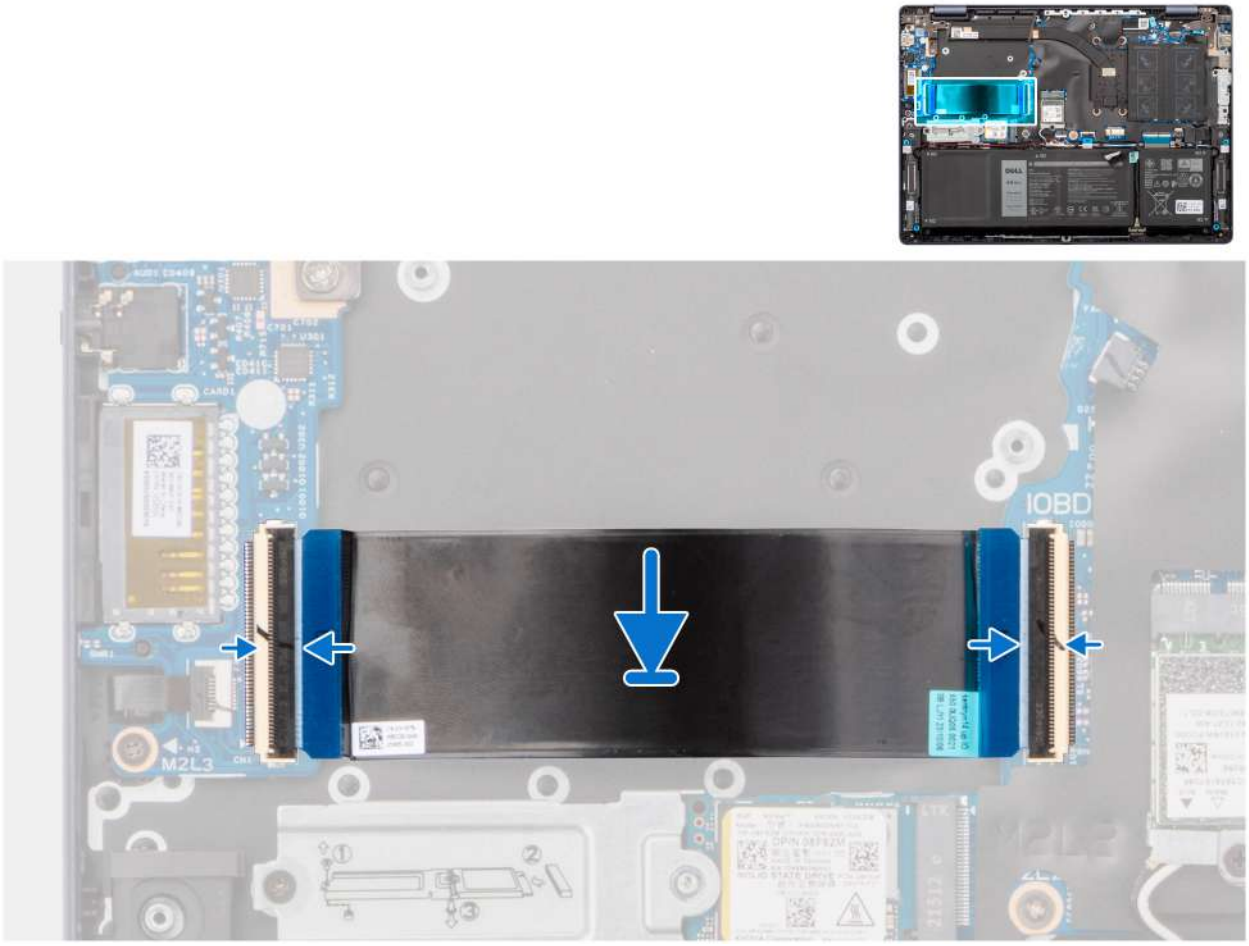


**Figure 42. Installing the I/O-board cable**

### Steps

1. Place the I/O-board cable on the palm-rest and keyboard assembly.
2. Connect the I/O-board cable to the connector on the I/O board and close the latch.
3. Connect the I/O-board cable to the connector (IOBD1) on the system board and close the latch.

### Next steps

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

# I/O board

## Removing the I/O board

### Prerequisites

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

**About this task**

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

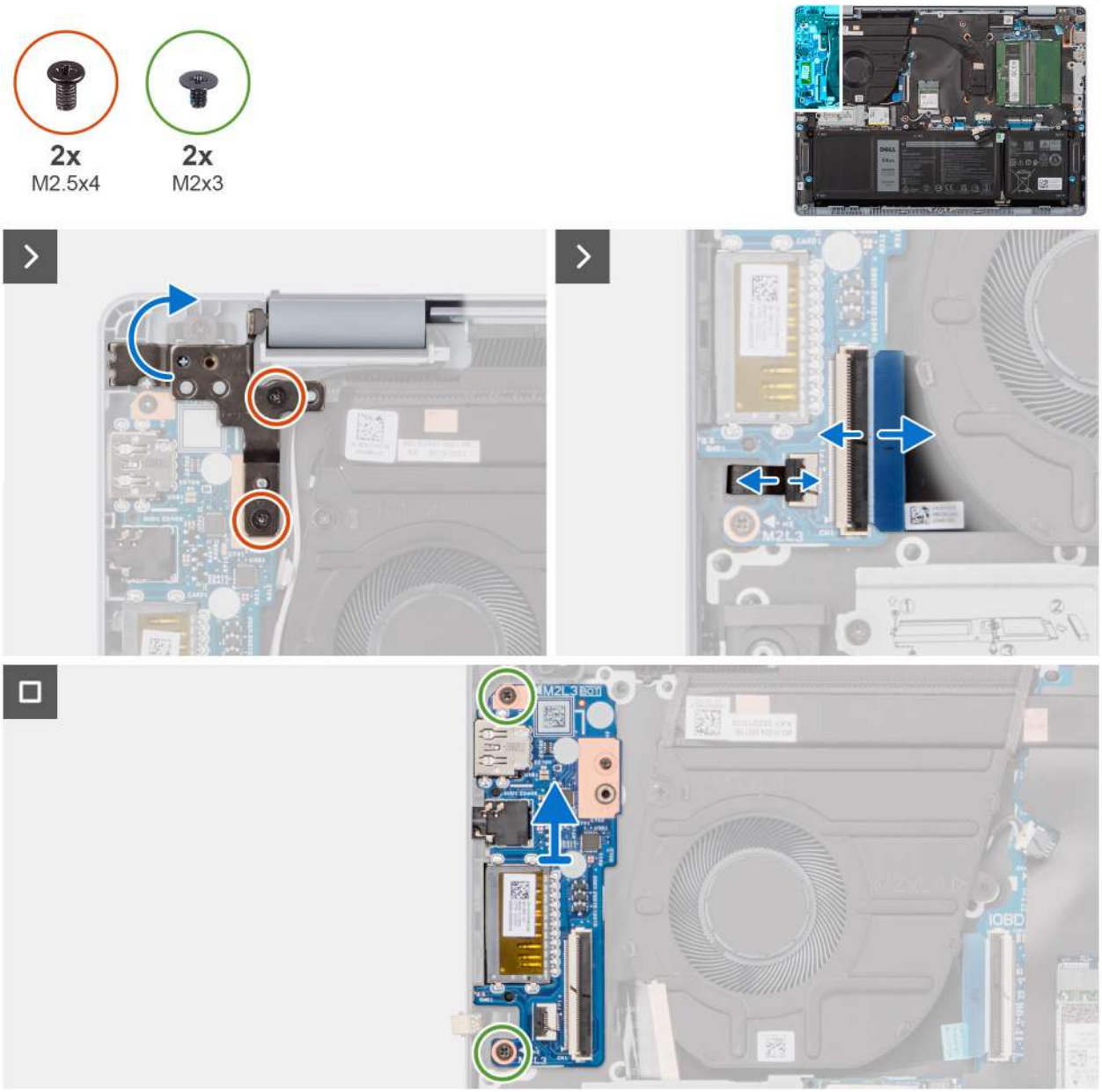


**Figure 43. Removing the I/O board (for computers shipped with a plastic chassis)**

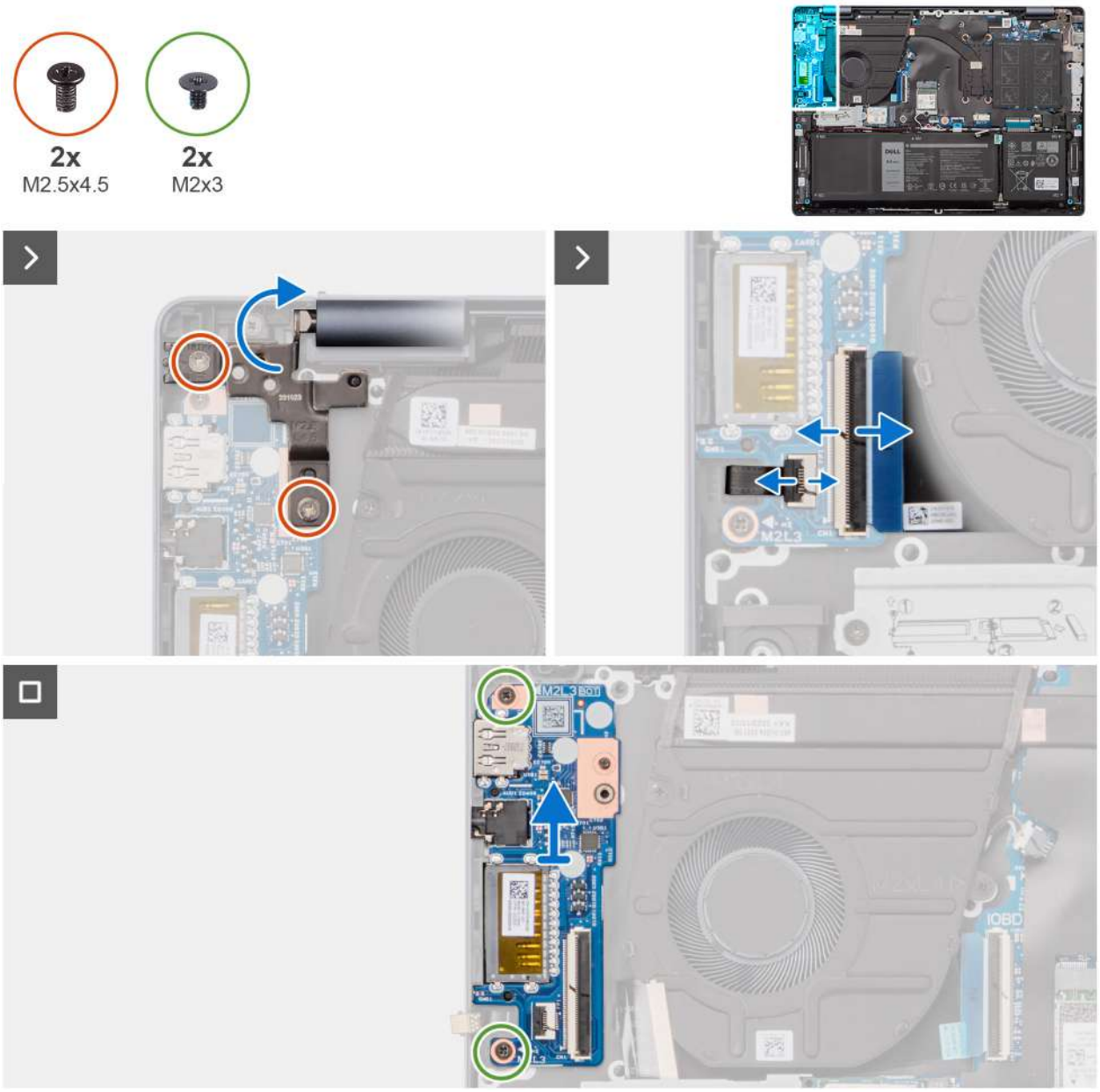


**Figure 44. Removing the I/O board (for computers shipped with an aluminum chassis)**

### Steps

1. Remove the two screws (M2.5x4) that secure the left display hinge to the I/O board and the palm-rest and keyboard assembly.

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

2. Remove the two screws (M2.5x4.5) that secure the left display hinge to the I/O board and the palm-rest and keyboard assembly.

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

3. Using a plastic scribe, lift the left display hinge to an angle of 90 degrees from the palm-rest and keyboard assembly to access the I/O board.
4. Open the latch and disconnect the I/O-board cable from the connector on the I/O board.
5. Open the latch and disconnect the fingerprint-reader cable from the connector on the I/O board.

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

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

# Installing the I/O board

### 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.

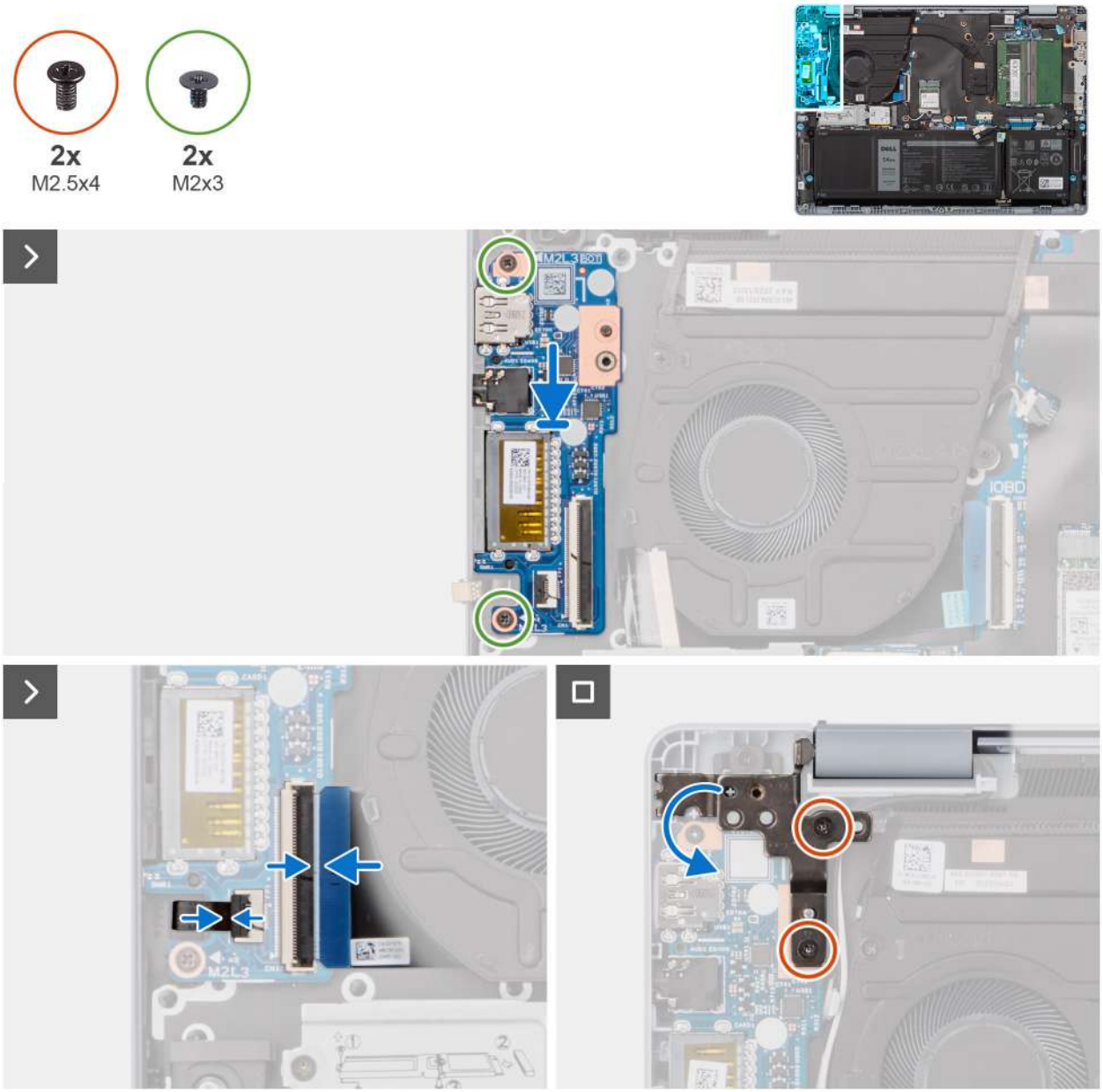


**Figure 45. Installing the I/O board (for computers shipped with a plastic chassis)**

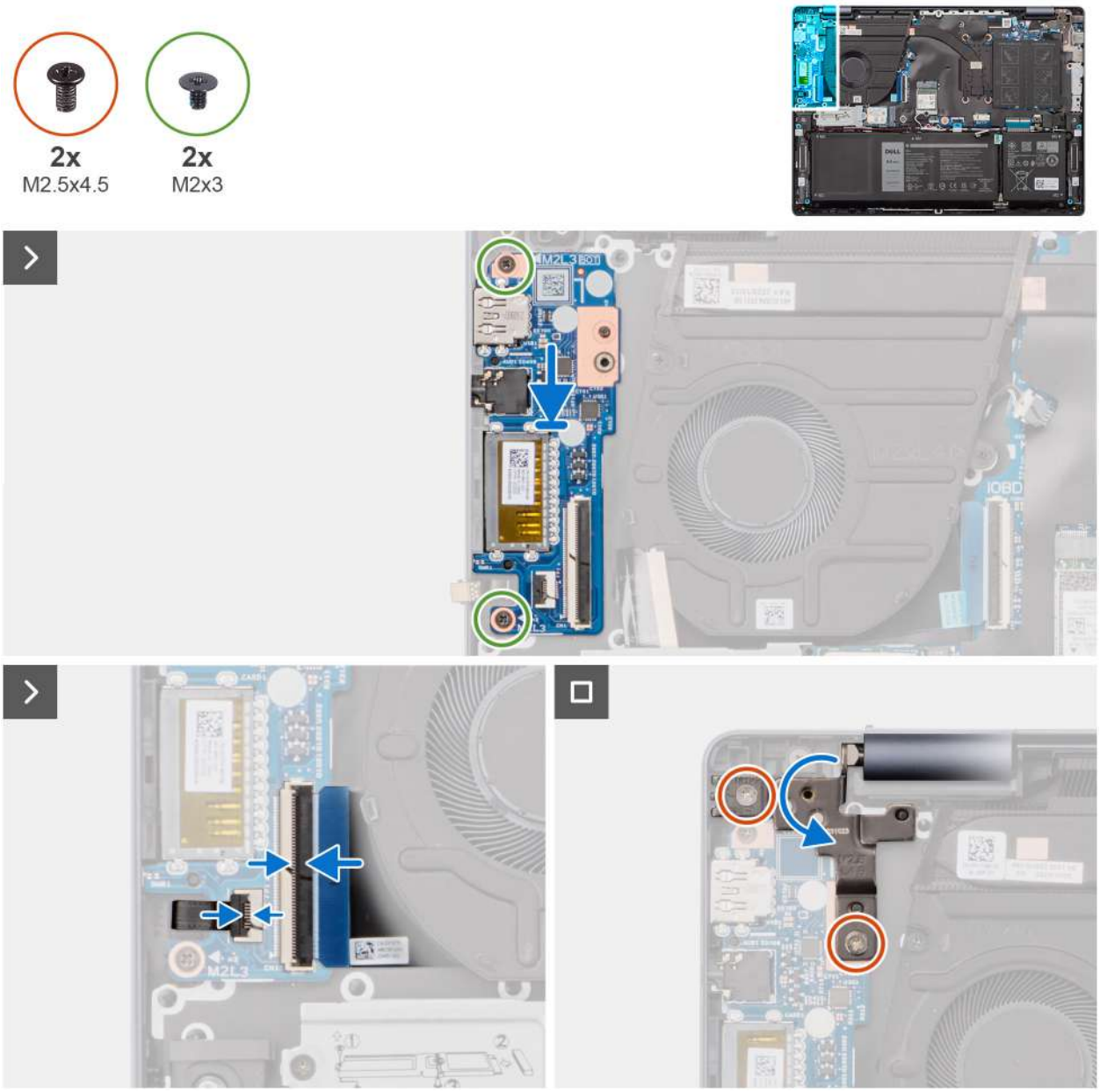


**Figure 46. Installing the I/O board (for computers shipped with an aluminum chassis)**

### Steps

1. Align the ports on the I/O board with the port slots and place the I/O board on the palm-rest and keyboard assembly.
2. Align the screw holes on the I/O board with the screw holes on the palm-rest and keyboard assembly.
3. Replace the two screws (M2x3) to secure the I/O board to the palm-rest and keyboard assembly.
4. Connect the fingerprint-reader cable to the connector on the I/O board and close the latch.

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

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

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

8. Replace the two screws (M2.5x4.5) to secure the left display hinge to the I/O board and the palm-rest and keyboard assembly.

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

### Next steps

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

# Power button

## Removing the power button

### Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover (plastic chassis) or the base cover (aluminum chassis), whichever is applicable.
3. Remove the fan.
4. Remove the I/O board.

### About this task

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

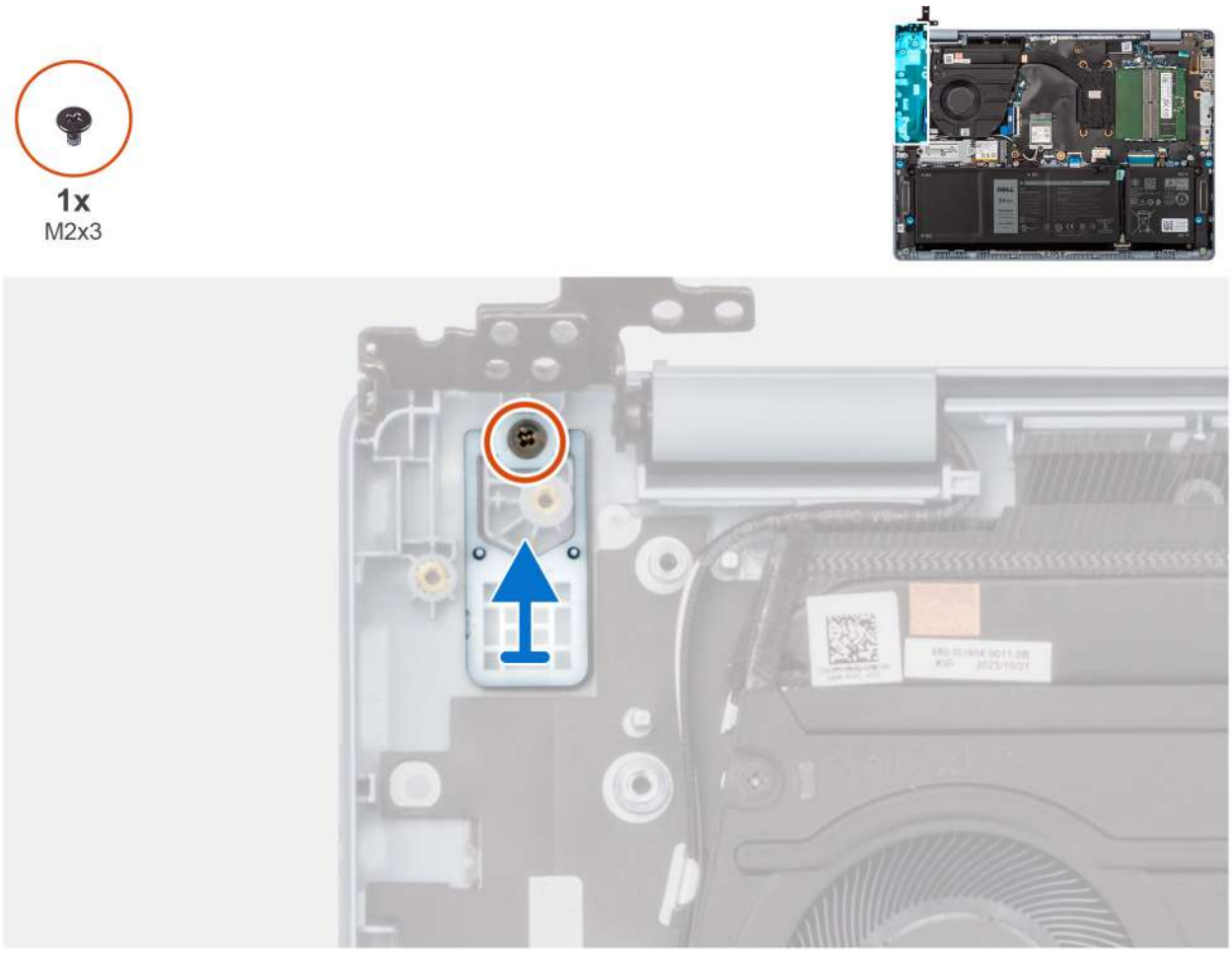


**Figure 47. Removing the power button**

### Steps

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

## Installing the power button

### Prerequisites

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

### About this task

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

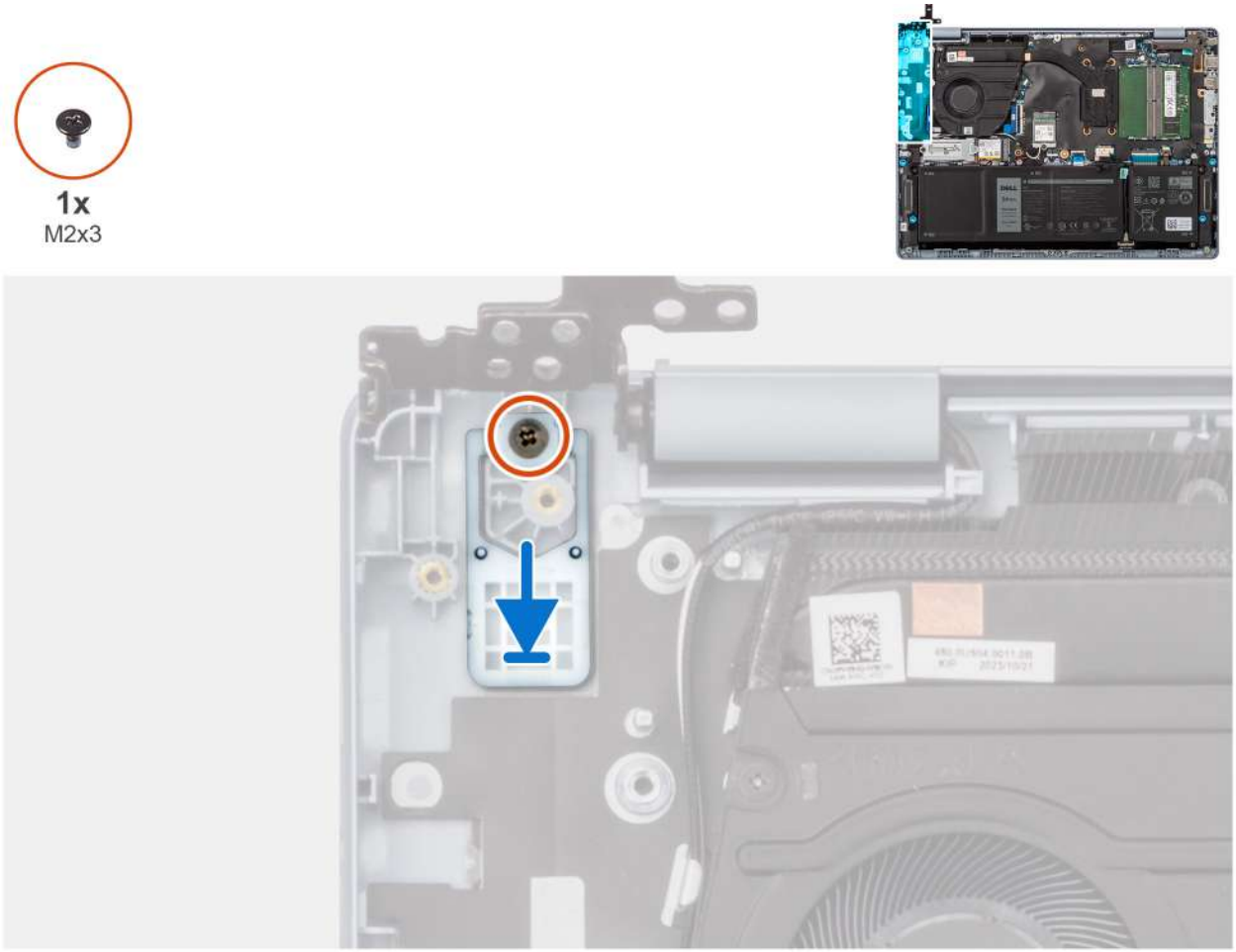


**Figure 48. Installing the power button**

### Steps

1. Place the power button in the slot on the palm-rest and keyboard assembly.
2. Align the screw hole on the power button with the screw hole on the palm-rest and keyboard assembly.
3. Replace the screw (M2x3) to secure the power button to the palm-rest and keyboard assembly.

### Next steps

1. Install the I/O board.
2. Install the fan.
3. Install the base cover (plastic chassis) or the base cover (aluminum chassis), whichever is applicable.

4. Follow the procedure in After working inside your computer.

# Power button with optional fingerprint reader

## Removing the power button with the optional fingerprint reader

### Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover (plastic chassis) or the base cover (aluminum chassis), whichever is applicable.
3. Remove the fan.
4. Remove the I/O board.

### About this task

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

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


**Figure 49. Removing the power button with the optional fingerprint reader**

### Steps

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

# Installing the power button with the optional fingerprint reader

### Prerequisites

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

### About this task

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


**Figure 50. Installing the power button with the optional fingerprint reader**

### Steps

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

### Next steps

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

# Display assembly

## Removing the display assembly

### Prerequisites

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

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

### About this task

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

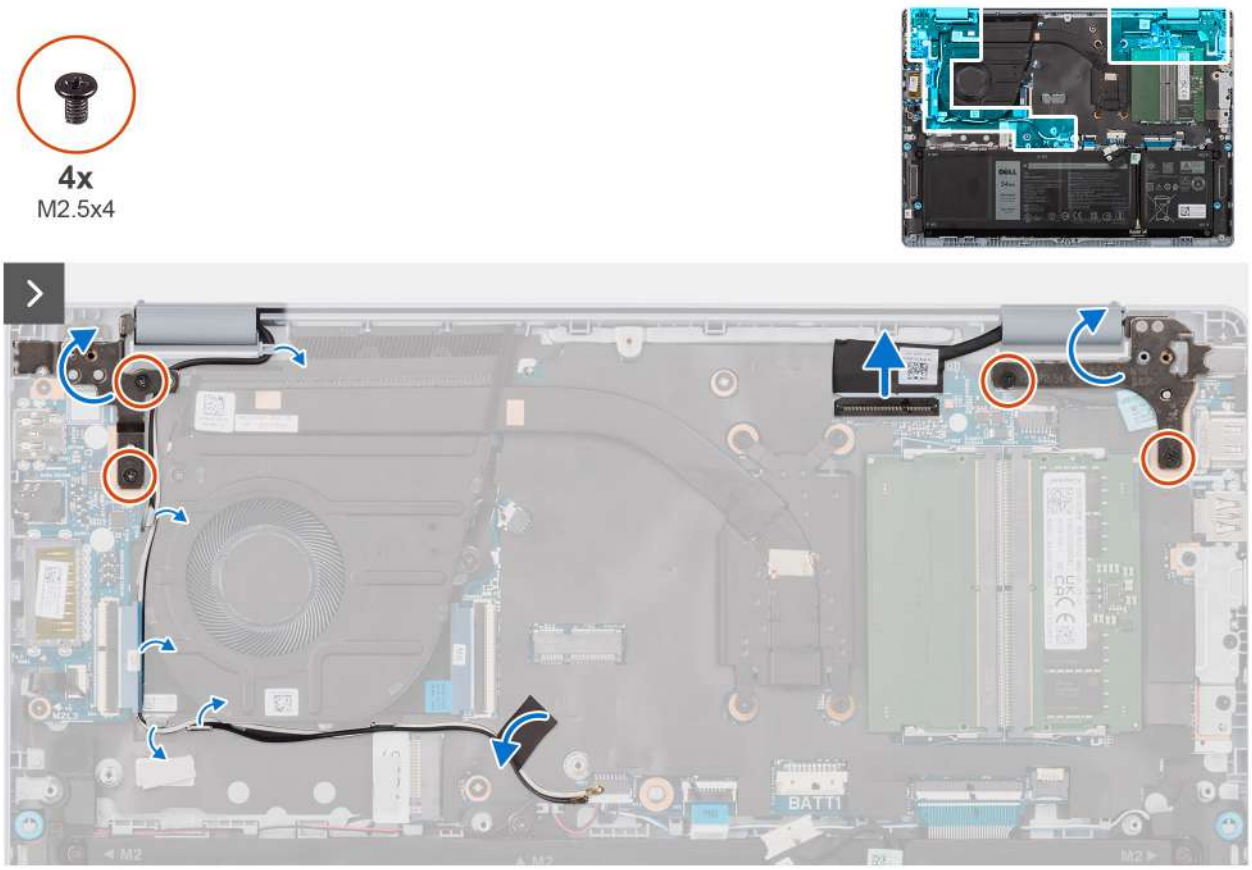


**Figure 51. Removing the display assembly**

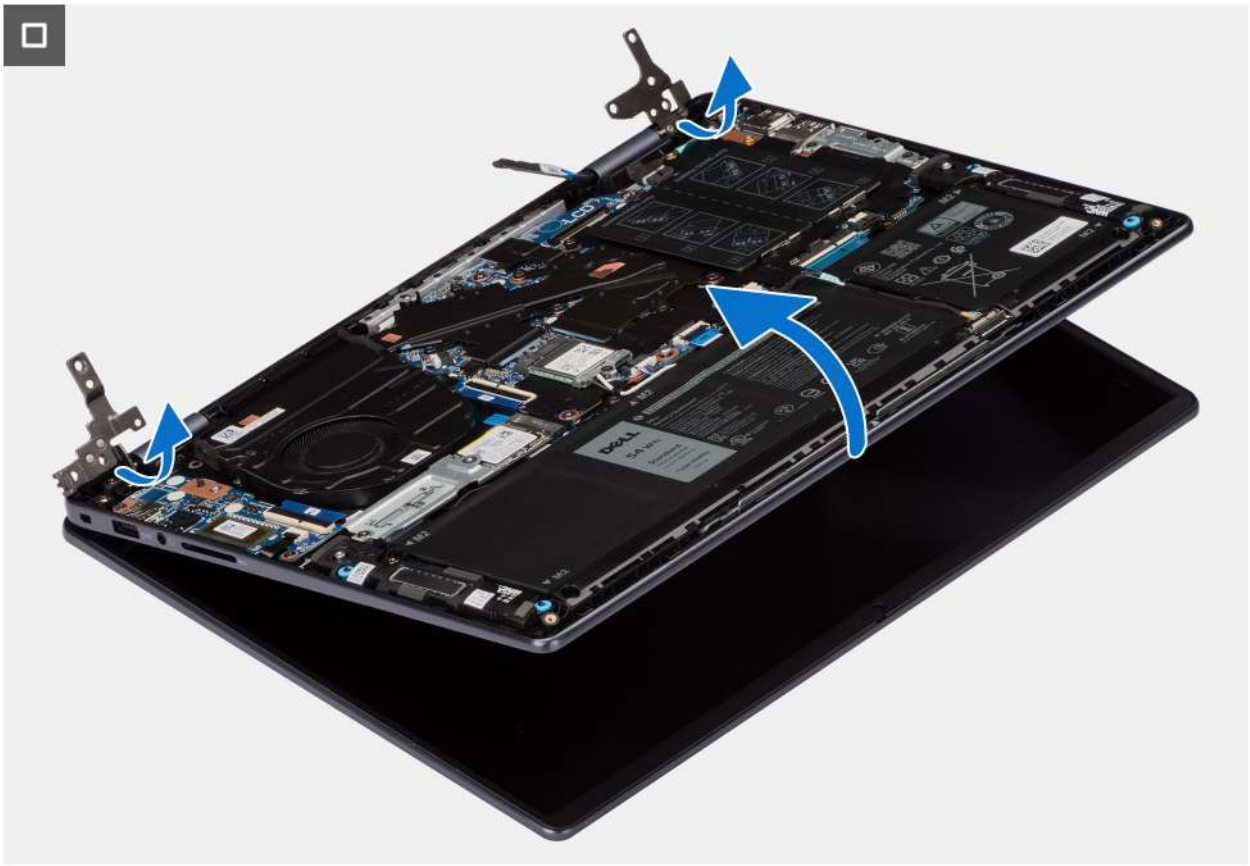

Figure 52. Removing the display assembly

**Figure 53. Display assembly (for computers shipped with a plastic chassis)**

**Figure 54. Display assembly (for computers shipped with an aluminum chassis)**

### Steps

1. Open the latch and disconnect the display cable from the connector (LCD) on the system board.
2. Remove the two screws (M2.5x4) that secure the right display hinge to the I/O daughter-board and palm-rest and keyboard assembly.

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

3. Using a plastic scribe, lift the right hinge to an angle of 90 degrees from the palm-rest and keyboard assembly.
4. Remove the two screws (M2.5x4) that secure the left display hinge to the system board and palm-rest and keyboard assembly.

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

5. Using a plastic scribe, lift the left hinge to an angle of 90 degrees from the palm-rest and keyboard assembly.
6. Remove the two screws (M2.5x4.5) that secure the right display hinge to the I/O daughter-board and palm-rest and keyboard assembly.

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

7. Using a plastic scribe, lift the right hinge to an angle of 90 degrees from the palm-rest and keyboard assembly.
8. Remove the two screws (M2.5x4.5) that secure the left display hinge to the system board and palm-rest and keyboard assembly.

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

9. Using a plastic scribe, lift the left hinge to an angle of 90 degrees from the palm-rest and keyboard assembly.

10. Peel back the tape that secures the wireless-antenna cables to the system board.

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

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

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

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

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

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

# Installing the display assembly

### Prerequisites

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

### About this task

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

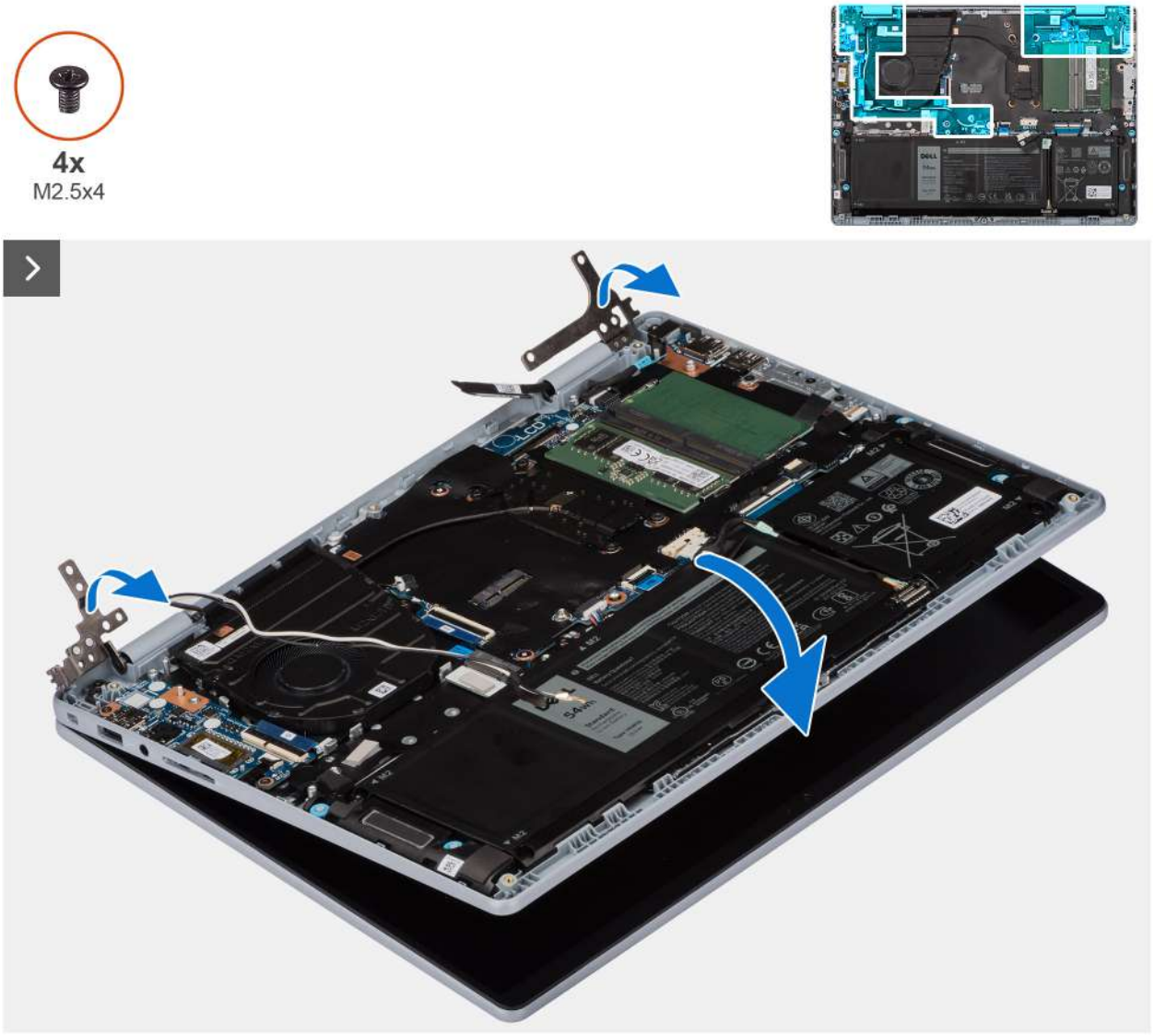


Figure 55. Installing the display assembly

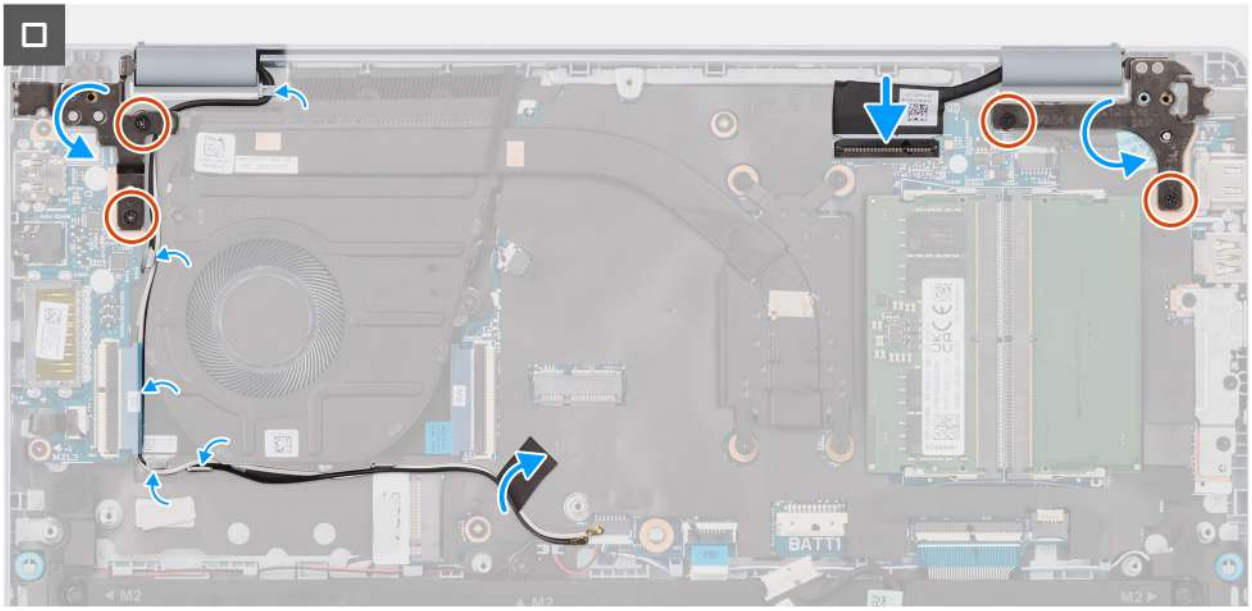

**Figure 56. Installing the display assembly**

### Steps

1. Place the display assembly on a clean and flat surface with the display panel facing up.
2. Hold the palm-rest and keyboard assembly at an angle and slide the palm-rest and keyboard assembly under the display hinges.

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

3. Route the wireless-antenna cables through the routing guides on the palm-rest and keyboard assembly.

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

4. Adhere the tape to secure the wireless-antenna cables to the system board.

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

5. Gently close the left display hinge and align the screw holes on the left display hinge with the screw holes on the I/O daughter-board and the palm-rest and keyboard assembly.
6. Replace the two screws (M2.5x4) to secure the left display hinge to the I/O daughter-board and the palm-rest and keyboard assembly.

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

7. Replace the two screws (M2.5x4.5) to secure the left display hinge to the I/O daughter-board and the palm-rest and keyboard assembly.

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

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

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

10. Replace the two screws (M2.5x4.5) to secure the right display hinge to the system board and the palm-rest and keyboard assembly.

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

11. Connect the display cable to the connector (LCD) on the system board and close the latch.

### Next steps

1. Install the wireless card.

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

2. Install the solid state drive.
3. Install the base cover (plastic chassis) or the base cover (aluminum chassis), whichever is applicable.
4. Follow the procedure in After working inside your computer.

# Display bezel

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

### Prerequisites

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

### About this task

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

Figure 57. Removing the display bezel

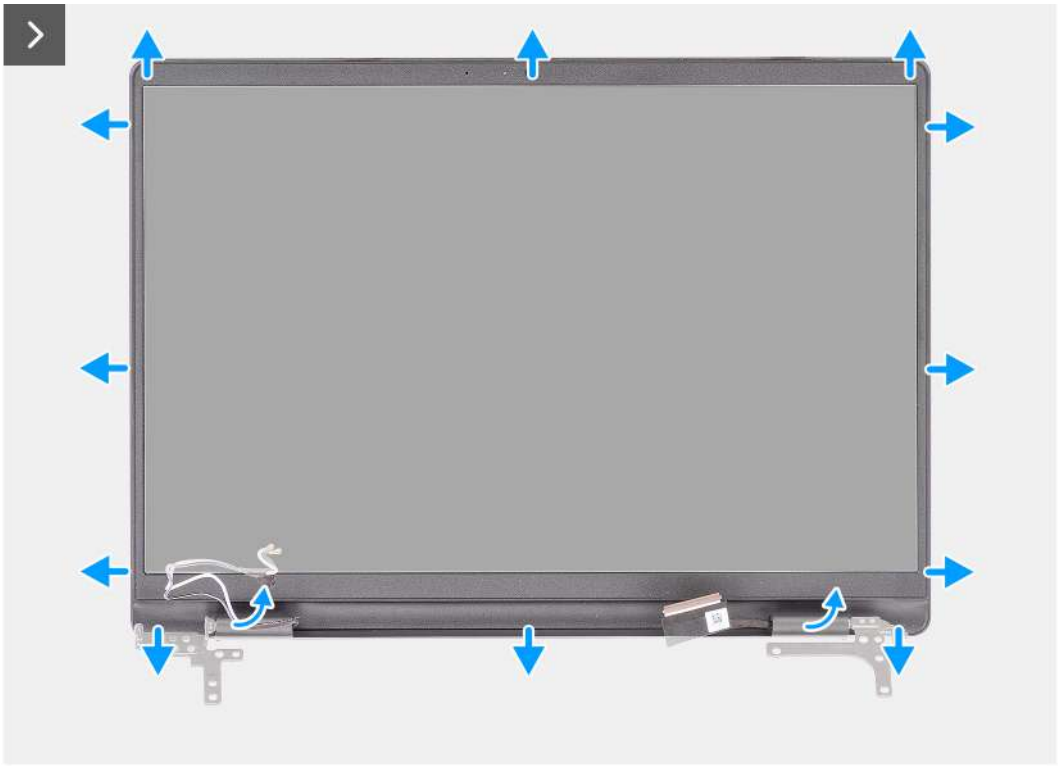

Figure 58. Removing the display bezel

Figure 59. Removing the display bezel

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

### Steps

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

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

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

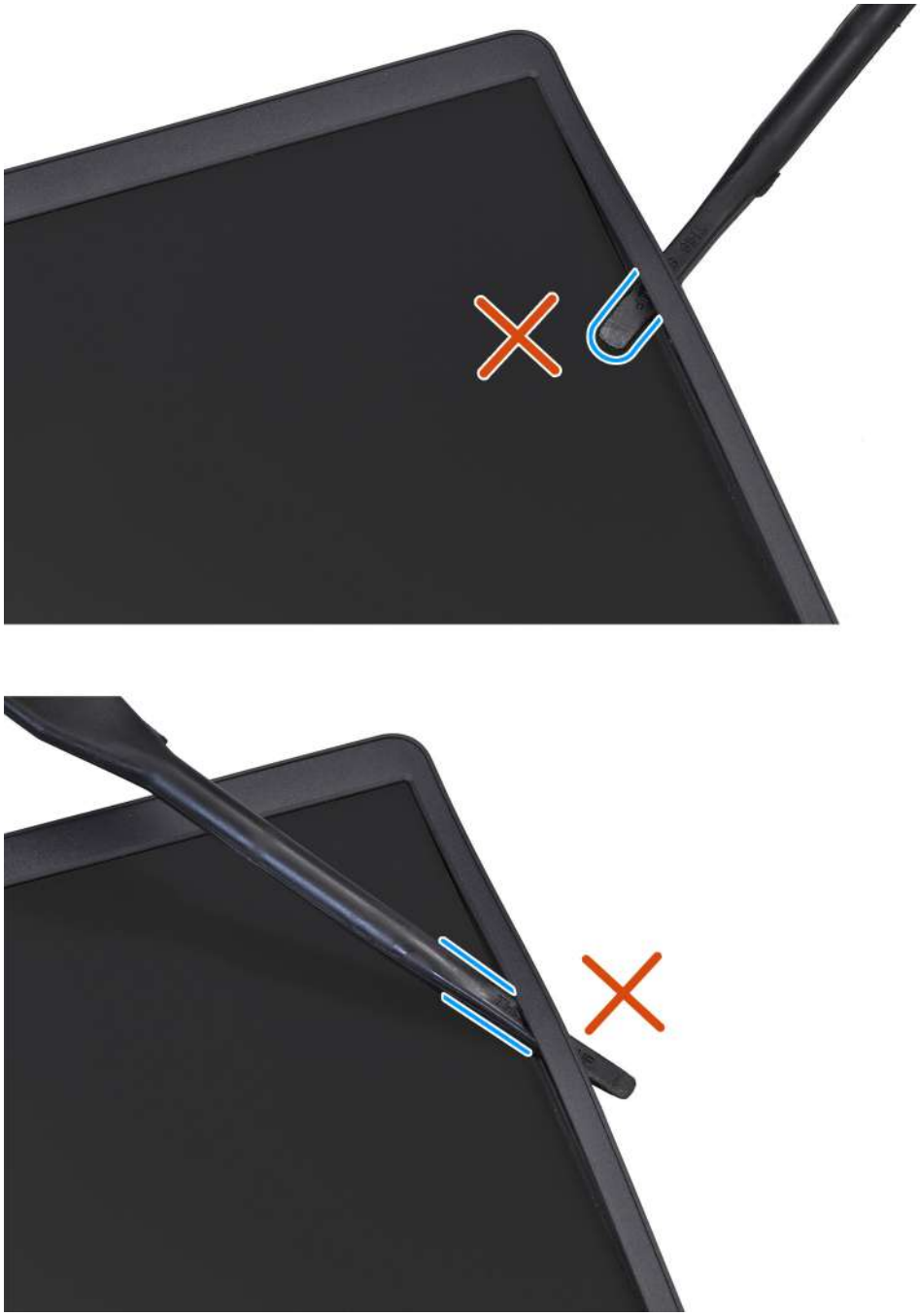

**Figure 60. Removing the display bezel**

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

### Prerequisites

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

### About this task

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

**Figure 61. Installing the display bezel**

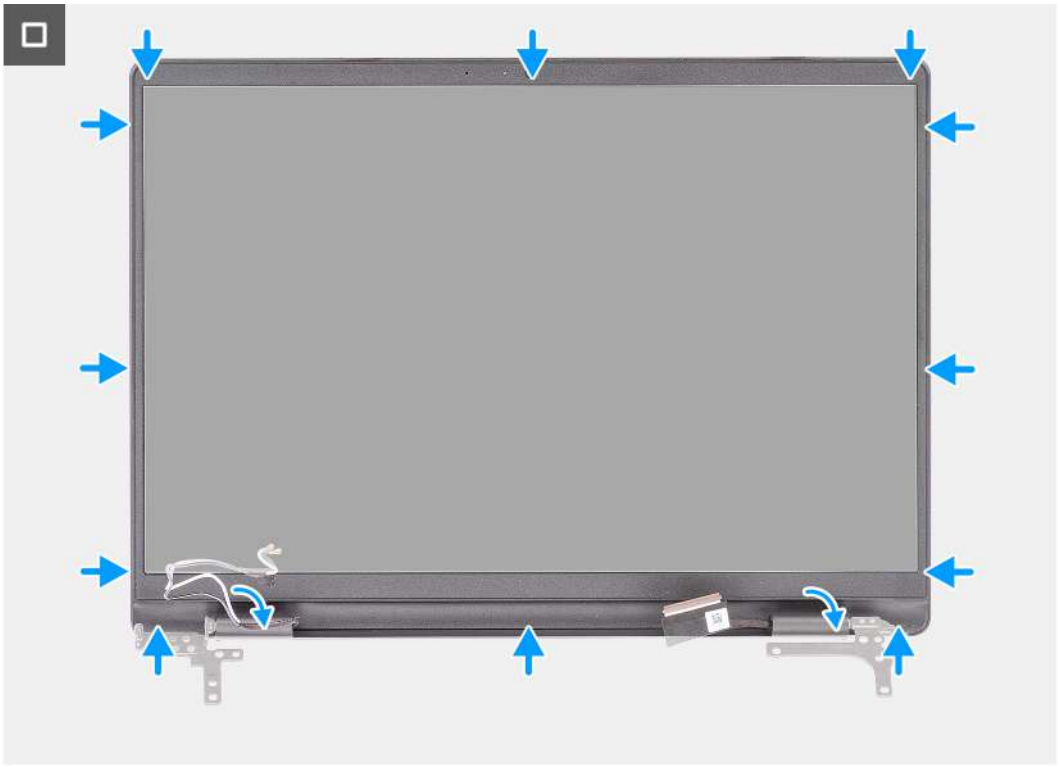

**Figure 62. Installing the display bezel**

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

### Steps

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

### Next steps

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

# Display panel

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

### Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover (plastic chassis).
3. Remove the solid state drive.
4. Remove the wireless card.

5. Remove the display assembly.
6. Remove the display bezel.

### About this task

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

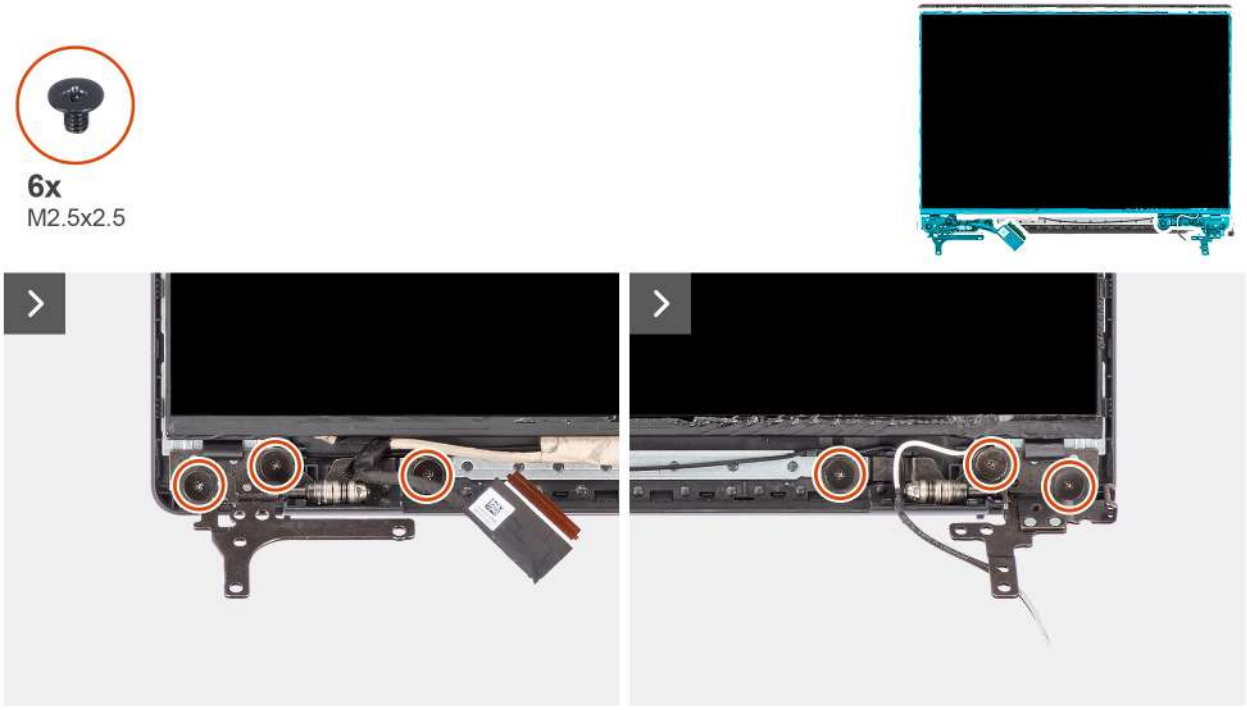


**Figure 63. Removing the display panel**

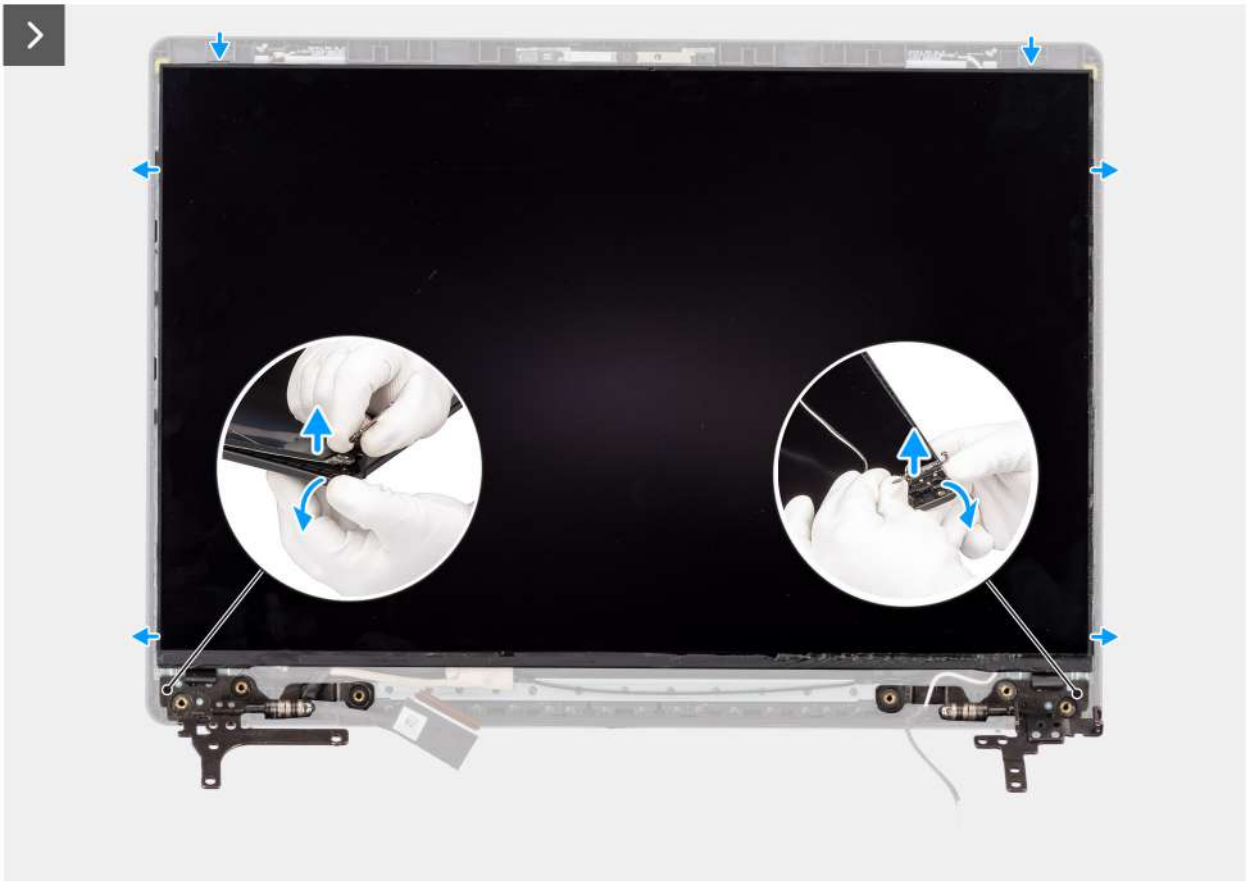

Figure 64. Removing the display panel

Figure 65. Removing the display panel

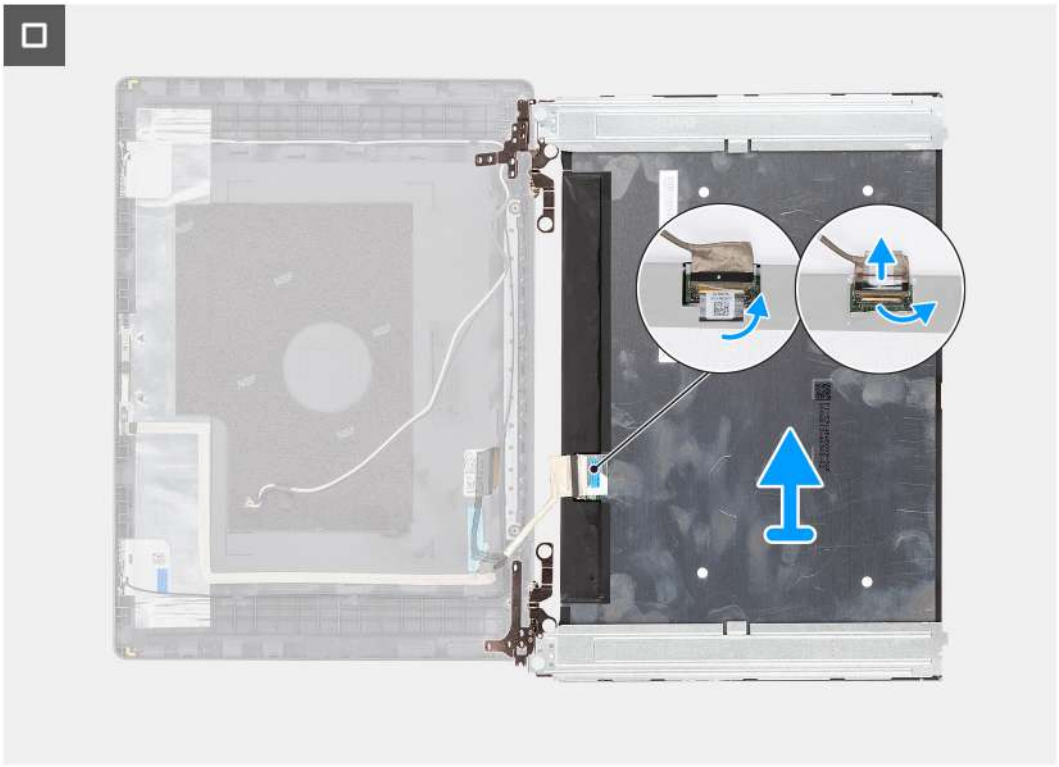

**Figure 66. Removing the display panel**

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

### Steps

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

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

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

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

Figure 67. Removing the display panel

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

### Prerequisites

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

### About this task

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

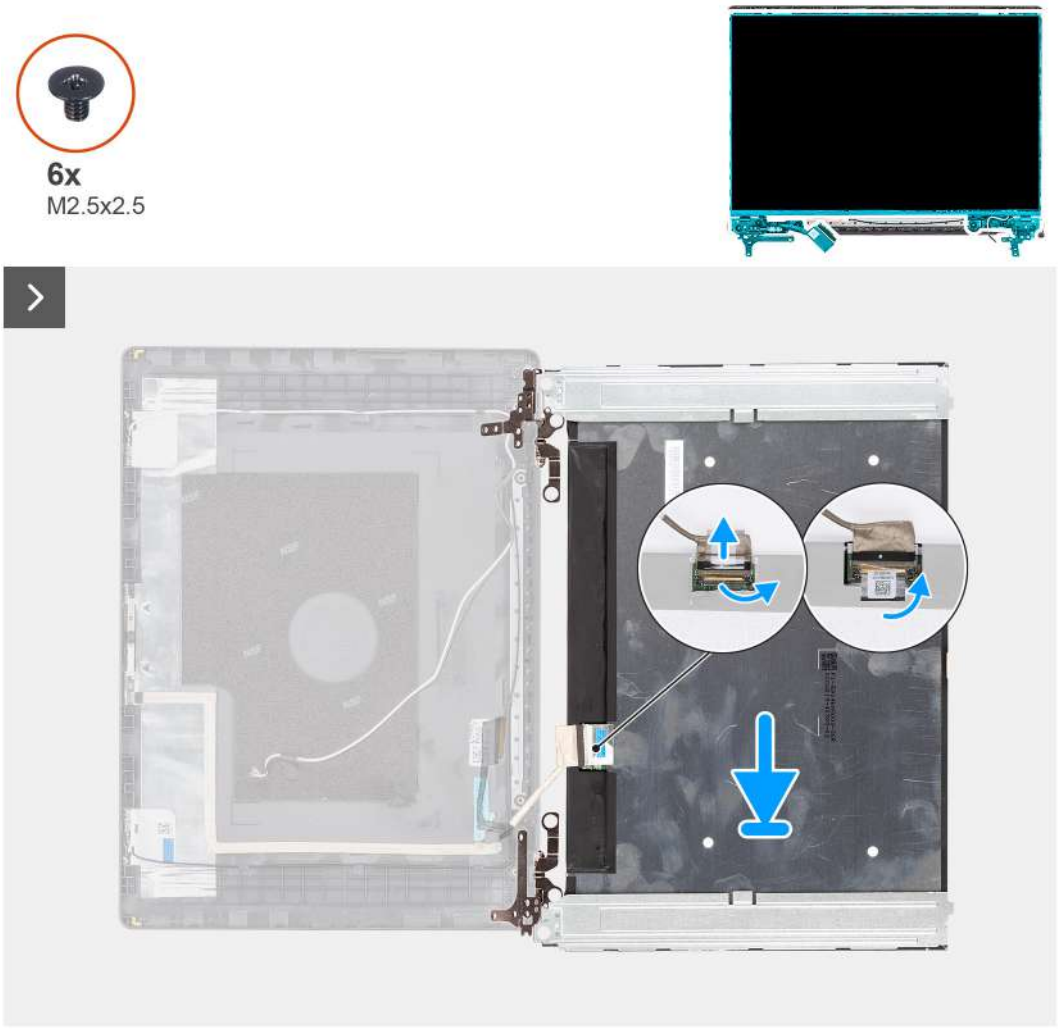


Figure 68. Installing the display panel

Figure 69. Installing the display panel

Figure 70. Installing the display panel

**Figure 71. Installing the display panel**

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

### Steps

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

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

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

### Next steps

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

# Display cable

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

### Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover (plastic chassis).
3. Remove the solid state drive.
4. Remove the wireless card.

5. Remove the display assembly.
6. Remove the display bezel.
7. Remove the display panel.

### About this task

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

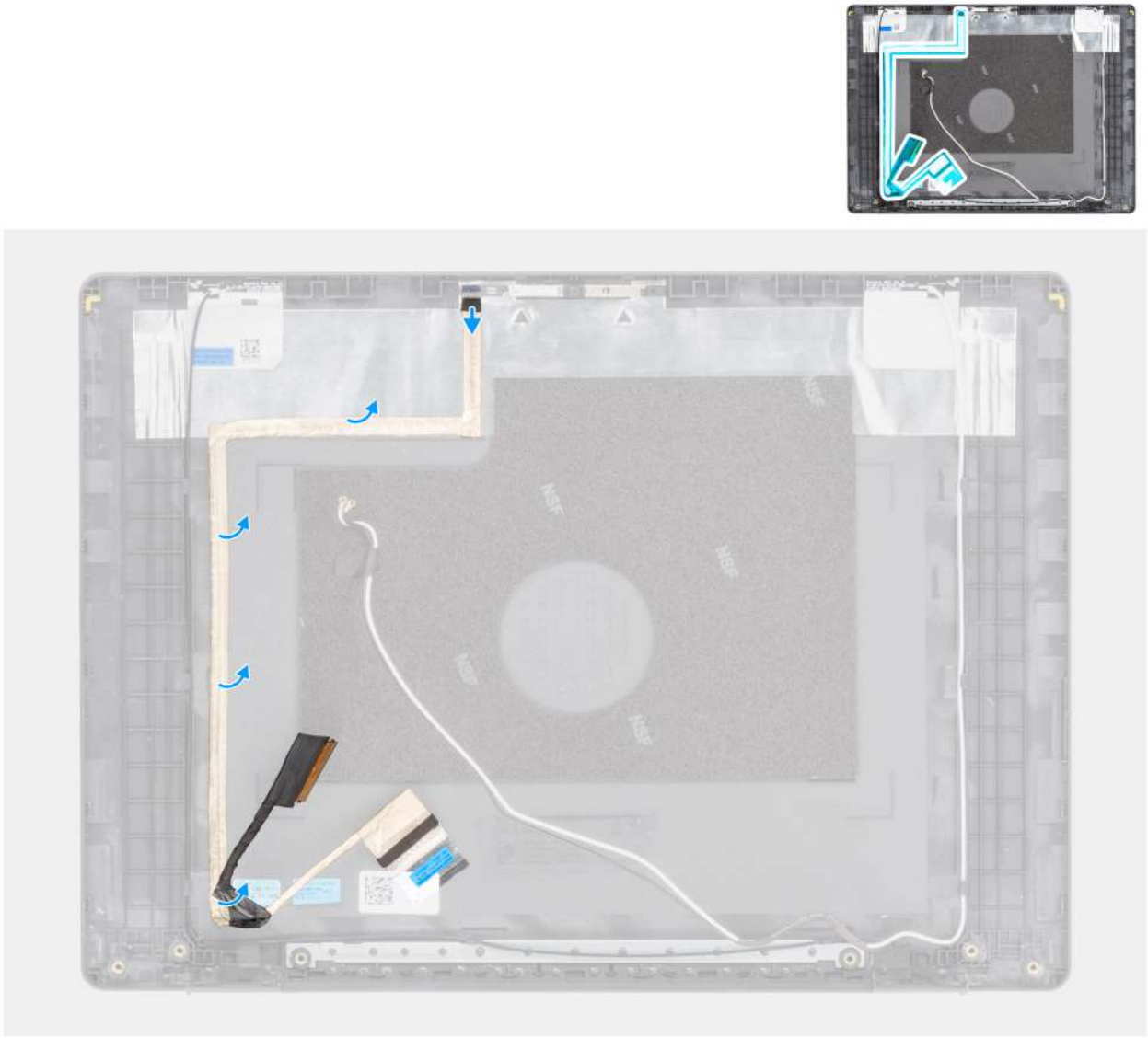

**Figure 72. Removing the display cable**

### Steps

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

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

### Prerequisites

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

### About this task

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

**Figure 73. Installing the display cable**

### Steps

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

### Next steps

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

# Camera

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

### Prerequisites

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

### About this task

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

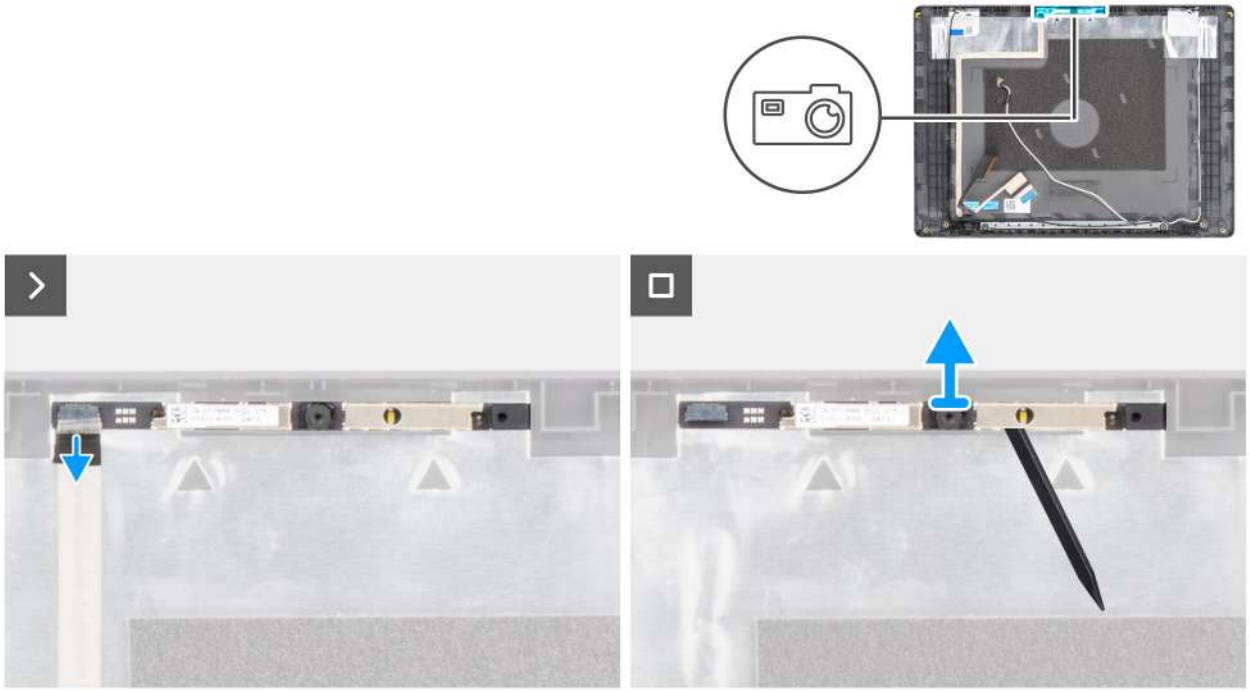

Figure 74. Removing the camera

### Steps

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

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

### Prerequisites

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

### About this task

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

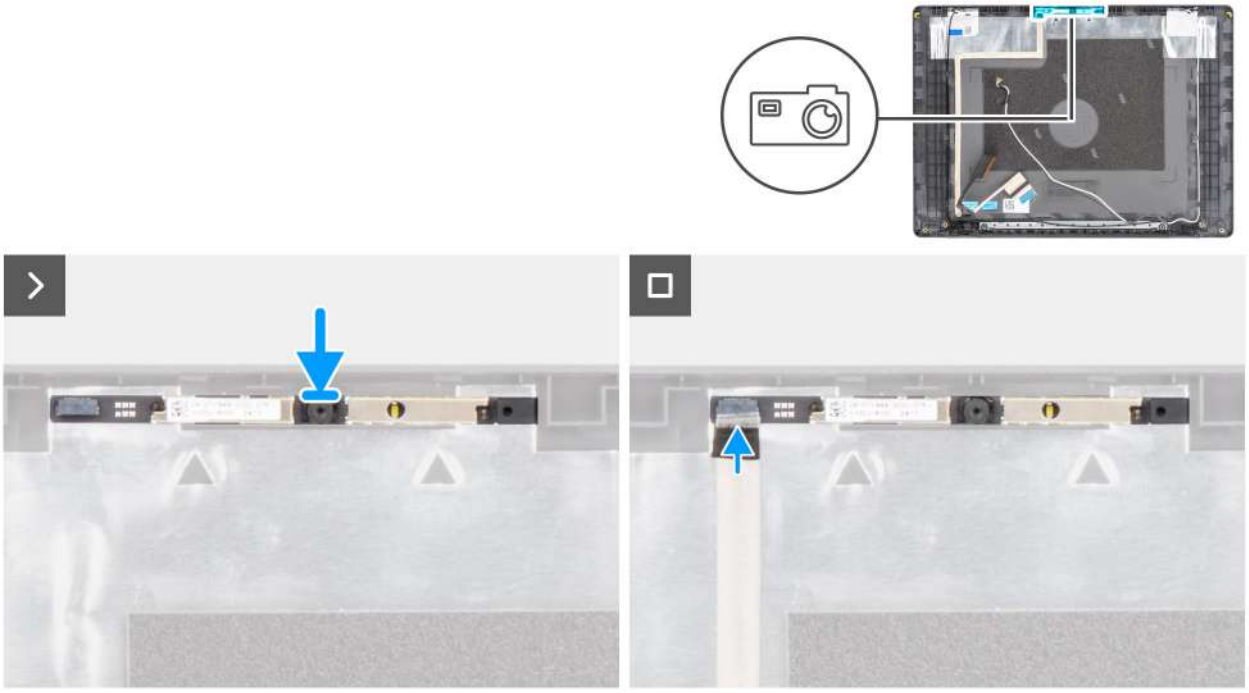

**Figure 75. Installing the camera**

### Steps

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

### Next steps

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

# Display back-cover and antenna assembly

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

### Prerequisites

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

7. Remove the display panel.
8. Remove the display cable.
9. Remove the camera.

### About this task

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

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

**Figure 76. Display back-cover and antenna assembly**

### Steps

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

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

### Prerequisites

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

### About this task

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

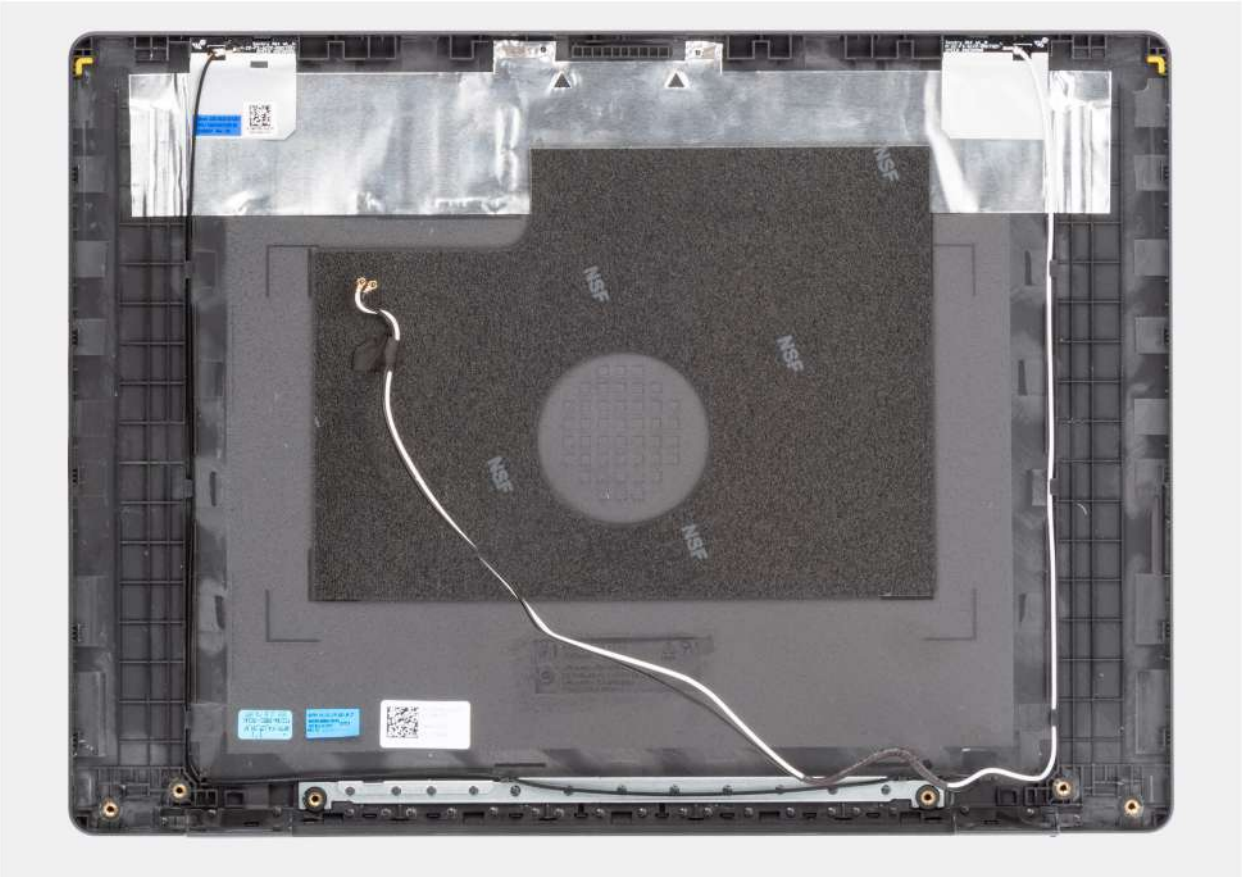

Figure 77. Display back-cover and antenna assembly

### Steps

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

### Next steps

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

# System board

## Removing the system board (for computers shipped with a plastic chassis)

### Prerequisites

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

3. Remove the memory module.
4. Remove the solid state drive.
5. Remove the wireless card.
6. Remove the fan.
7. Remove the 3-cell battery or the 4-cell battery, whichever is applicable.
8. Remove the heat sink.

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

### About this task

The following image indicates the connectors on your system board.

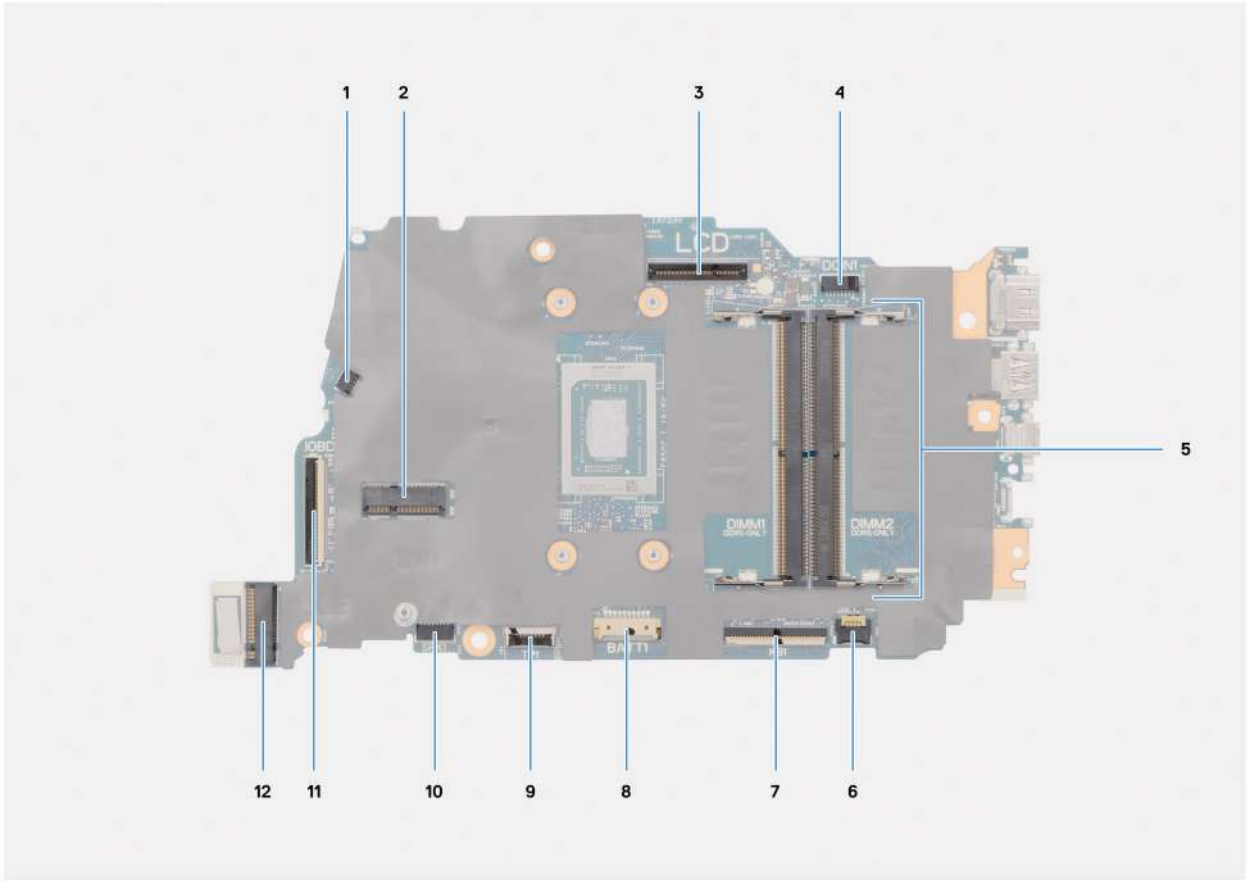


**Figure 78. System board connectors**

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

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

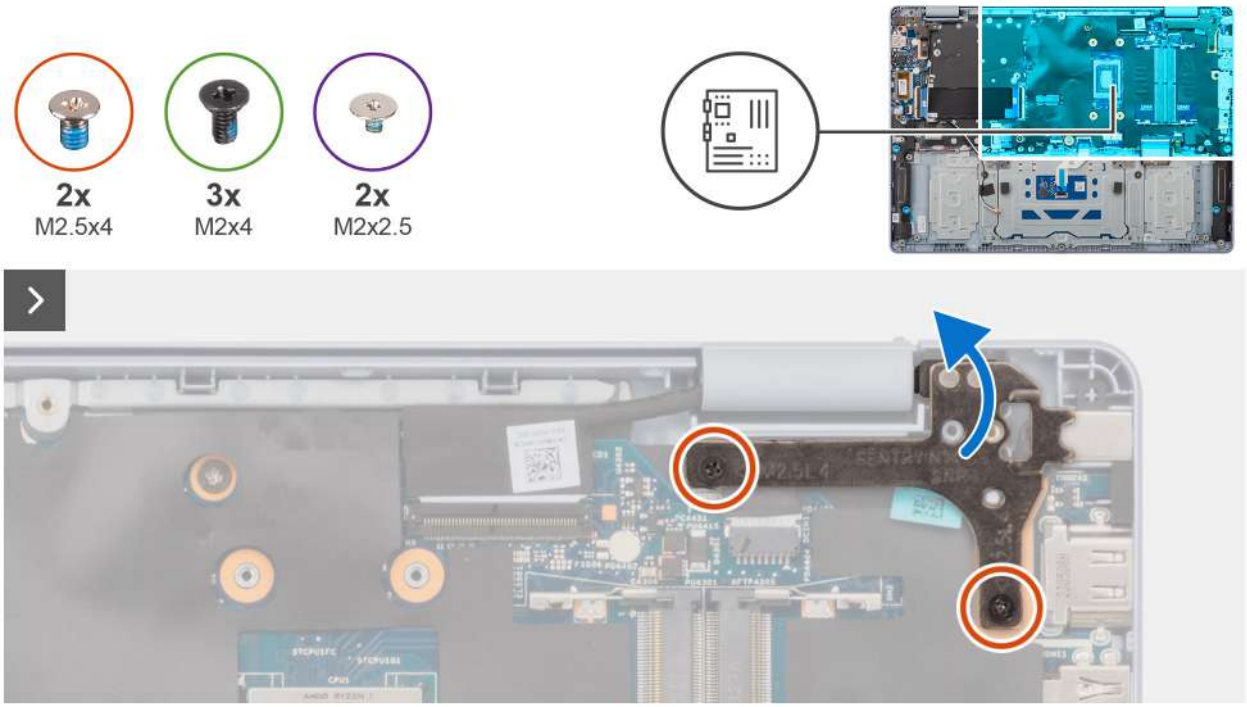


**Figure 79. Removing the system board (for computers shipped with a plastic chassis)**

### Steps

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

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

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

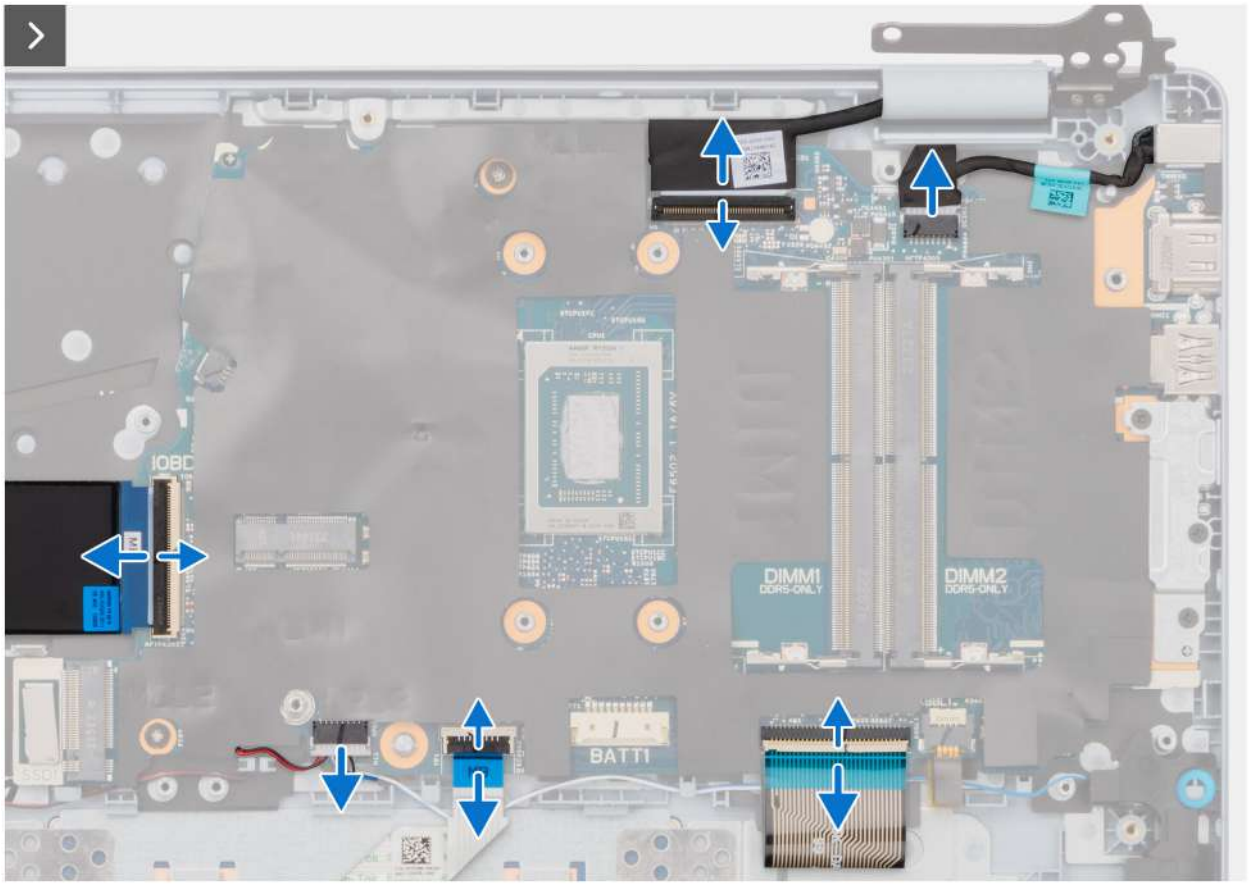


**Figure 80. Removing the system board (for computers shipped with a plastic chassis)**

4. Remove the three screws (M2x4) that secure the USB Type-C port bracket to the system board. Then, remove the two screws (M2x2.5) that secure the system board to the palm-rest and keyboard assembly.

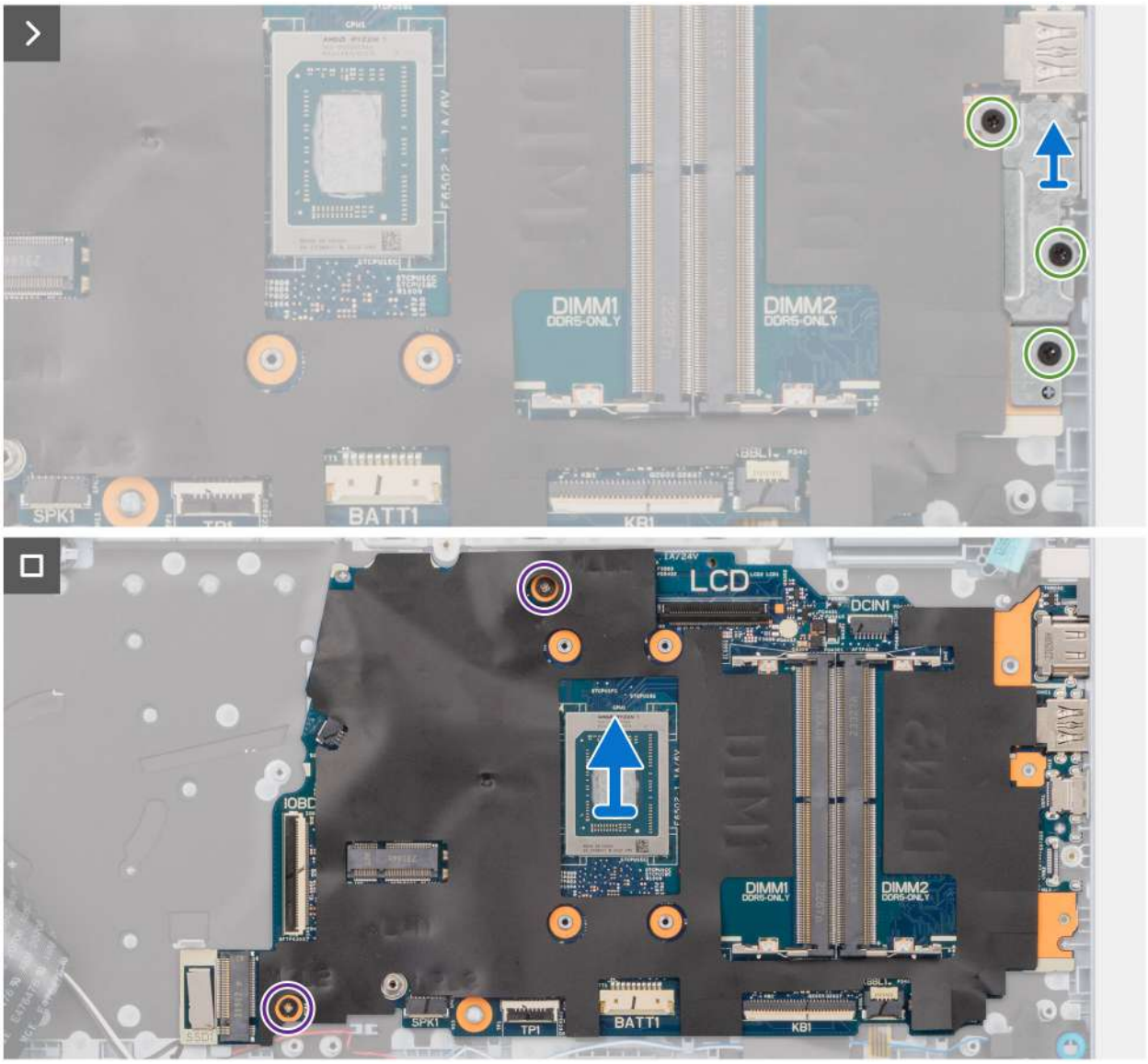


**Figure 81. Removing the system board (for computers shipped with a plastic chassis)**

5. Lift and remove the USB Type-C port bracket from the system board.
6. Carefully lift and remove the system board at angle, from the palm-rest and keyboard assembly, to clear the ports from the port slots.

# Installing the system board (for computers shipped with a plastic chassis)

### Prerequisites

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

### About this task

The following image indicates the connectors on your system board.

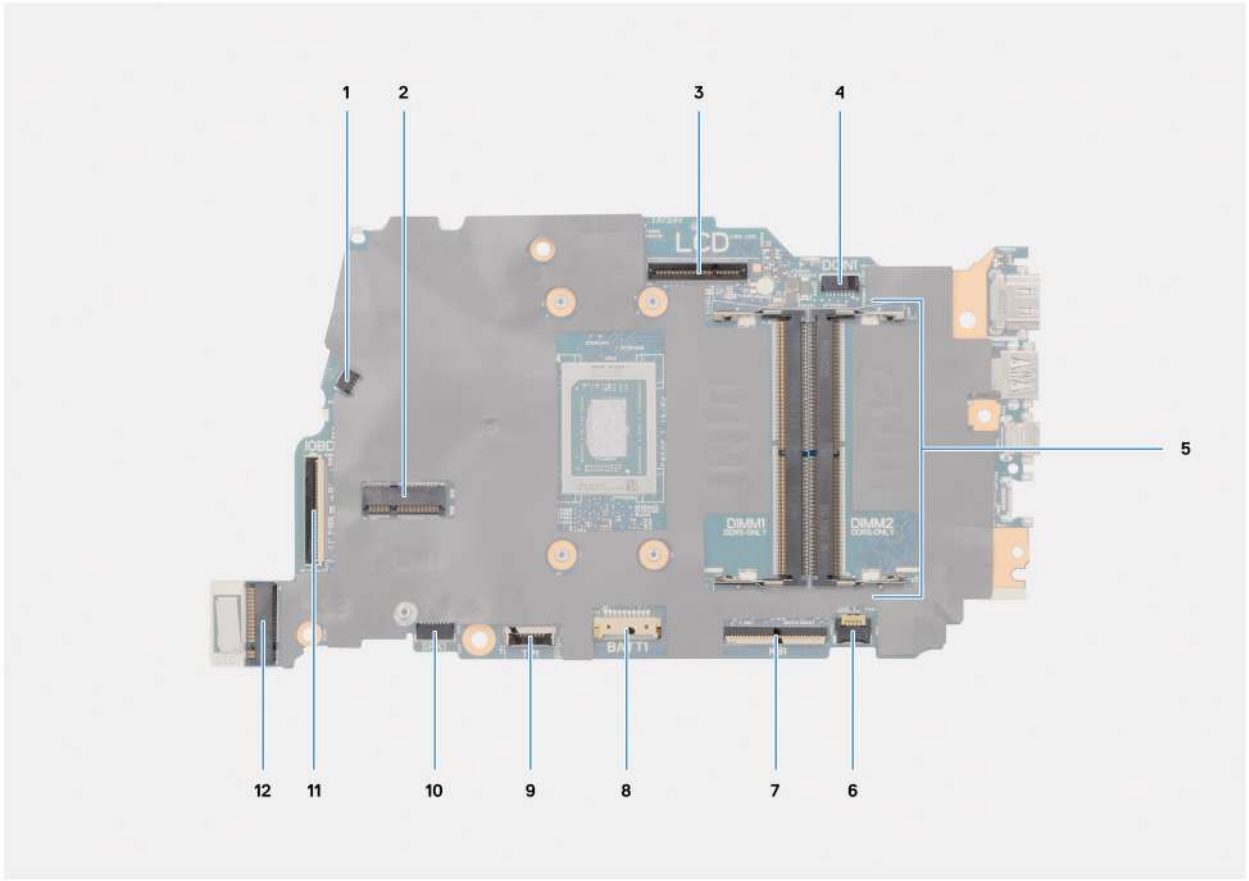


**Figure 82. System board connectors**

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

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

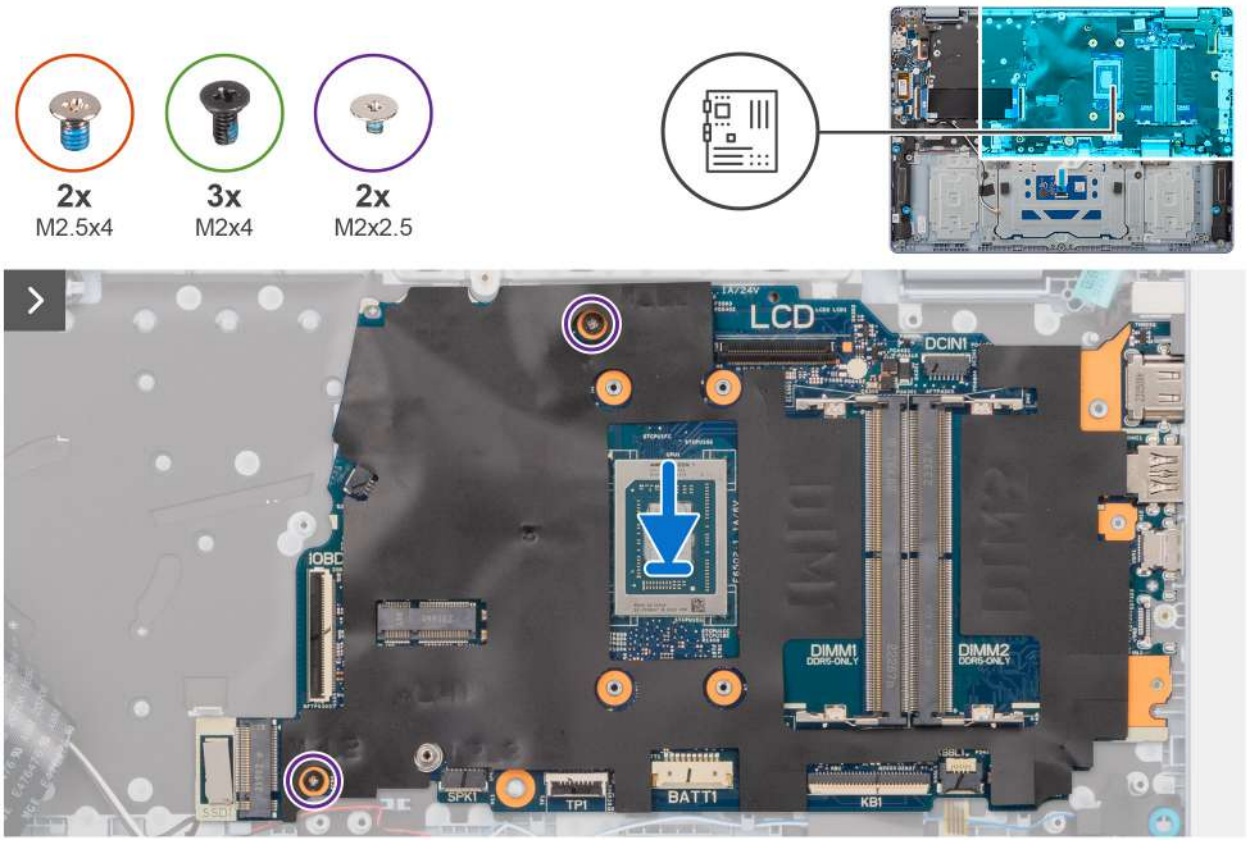


**Figure 83. Installing the system board (for computers shipped with a plastic chassis)**

### Steps

1. Align the ports on the system board with the port slots and place the system board on the palm-rest and keyboard assembly.
2. Align the screw holes on the system board with the screw holes on the palm-rest and keyboard assembly.
3. Replace the two screws (M2x2.5) to secure the system board to the palm-rest and keyboard assembly.
4. Place the USB Type-C port bracket in the slot on the system board.
5. Align the screw holes on the USB Type-C port bracket with the screw holes on the system board.
6. Replace the three screws (M2x4) to secure the USB Type-C port bracket to the system board.

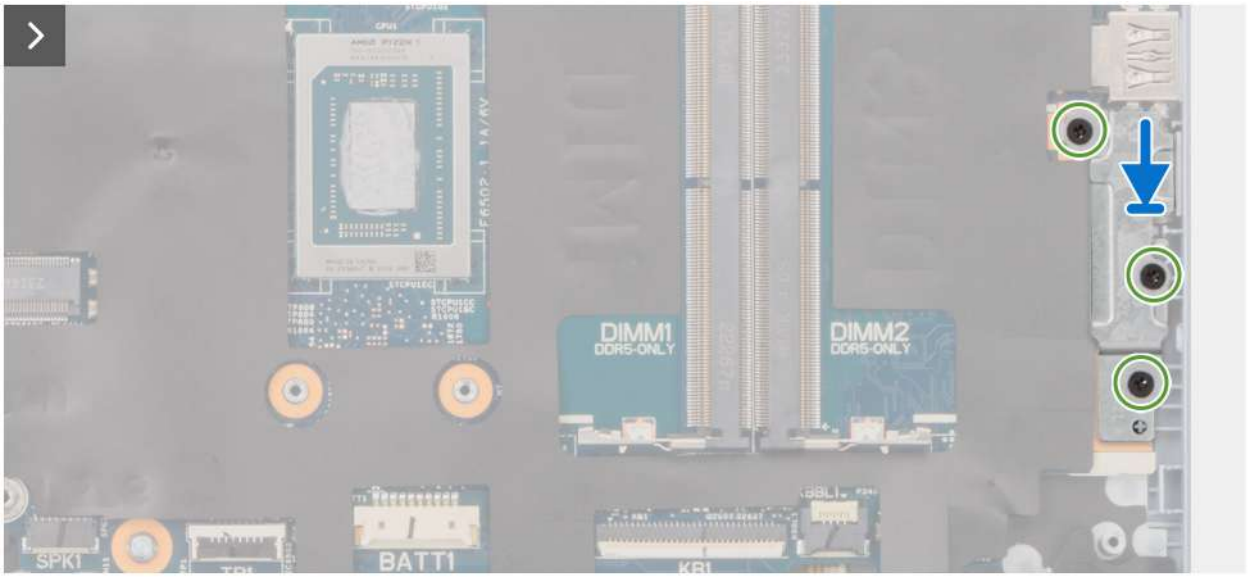


**Figure 84. Installing the system board (for computers shipped with a plastic chassis)**

7. Connect the following cables to the connectors on the system board:
   a. I/O-board cable (IOBD1)
   b. eDP cable (LCD)
   c. Power-adapter port cable (DCIN1)
   d. Keyboard-backlight cable (KBBL1)

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

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

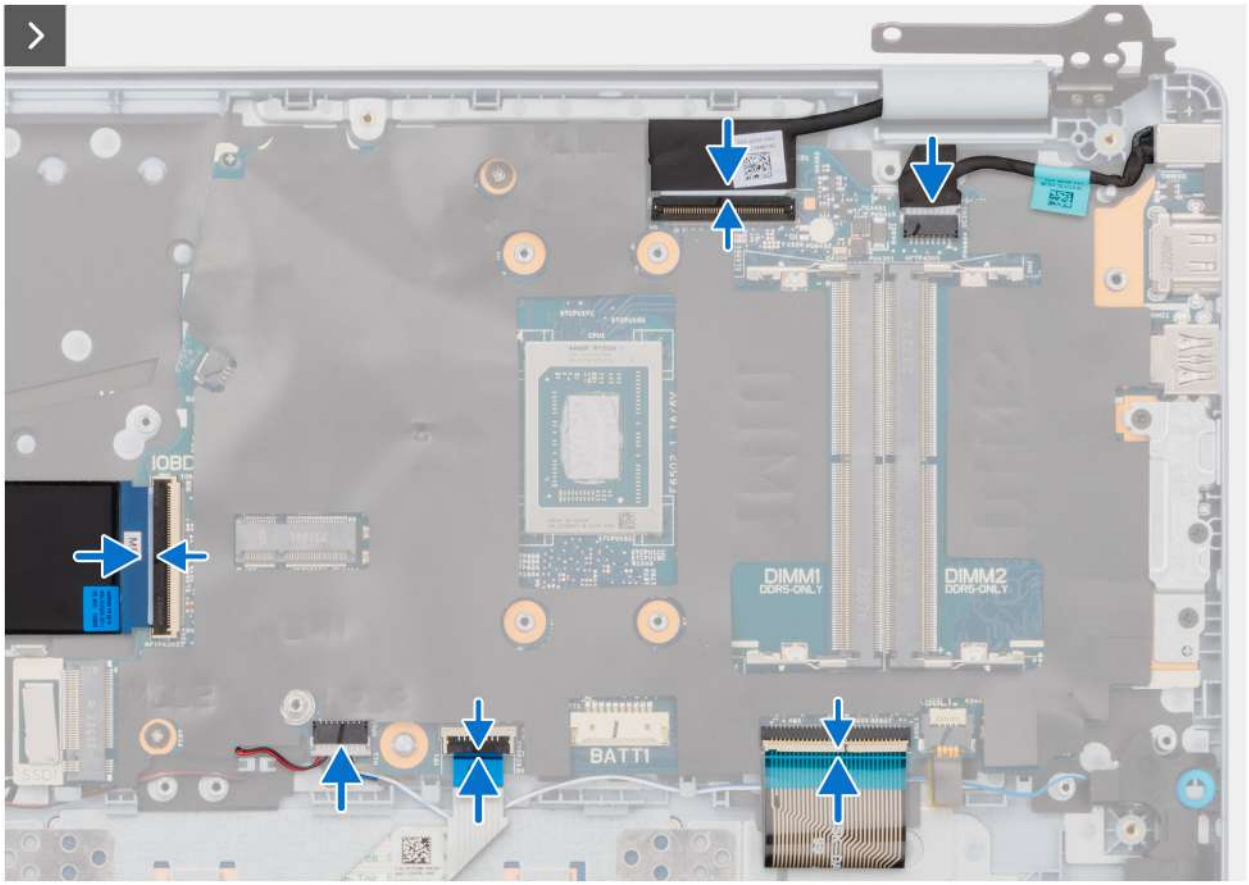


**Figure 85. Installing the system board (for computers shipped with a plastic chassis**

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

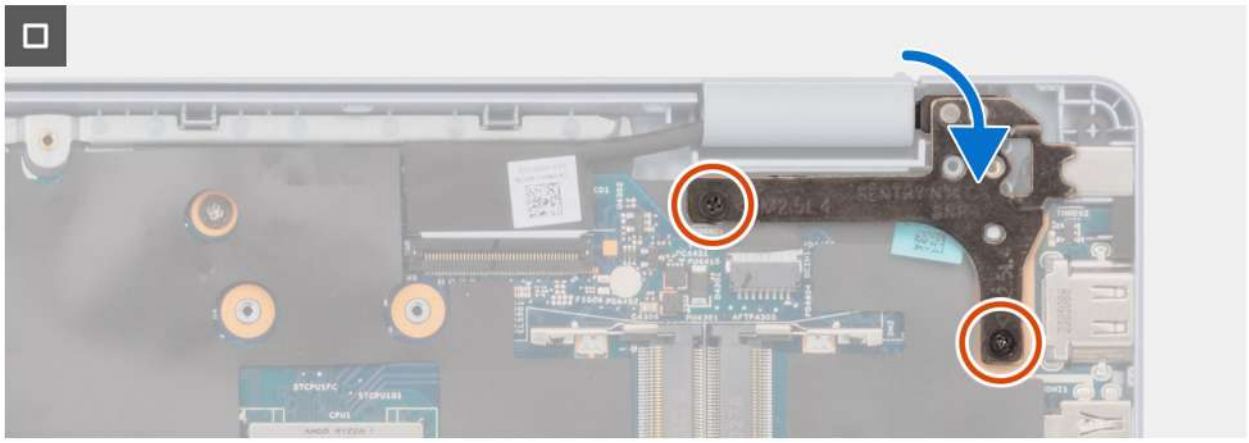

**Figure 86. Installing the system board**

### Next steps

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

5. Install the solid state drive.
6. Install the memory module.
7. Install the base cover (plastic chassis).
8. Follow the procedure in After working inside your computer.

# Removing the system board (for computers shipped with an aluminum chassis)

### Prerequisites

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

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

### About this task

The following image indicates the connectors on your system board.

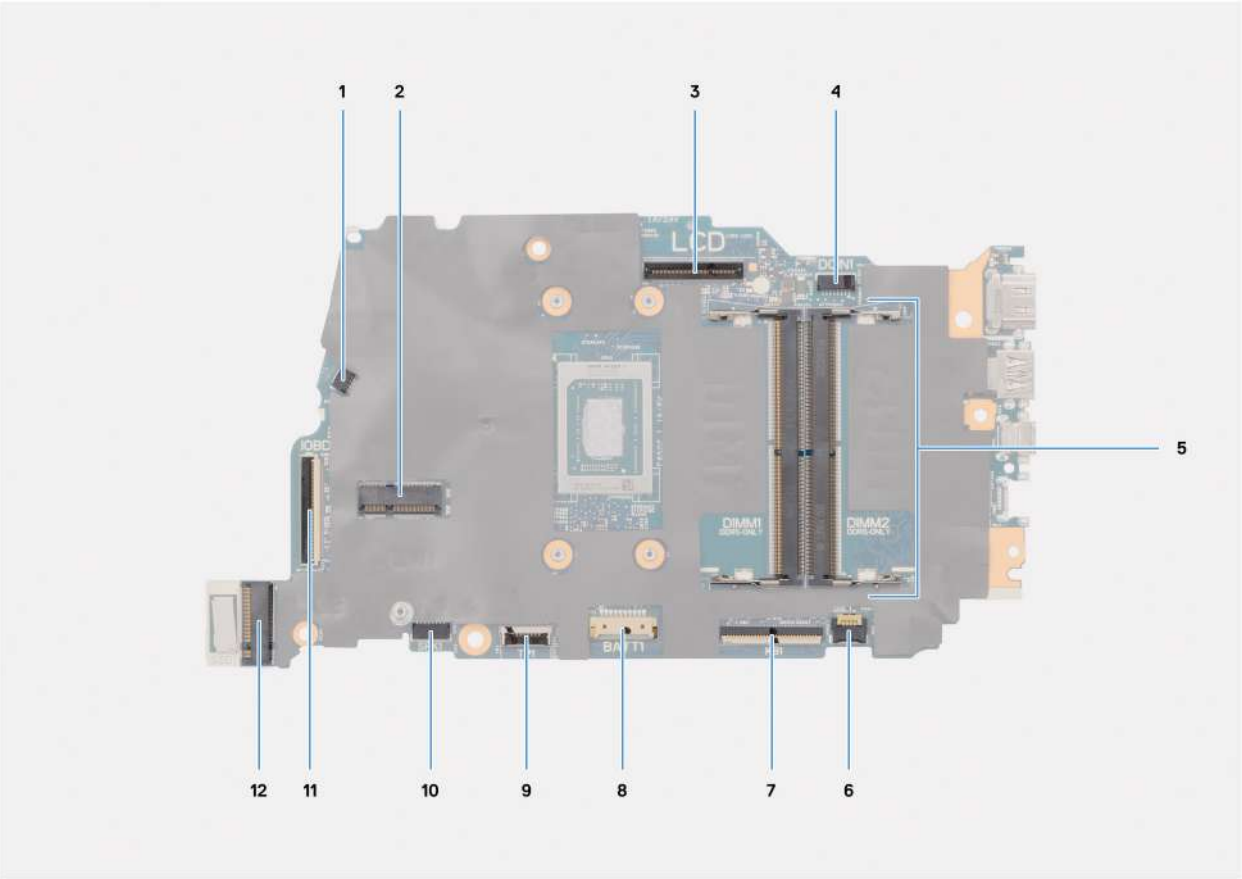


**Figure 87. System board connectors**

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

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

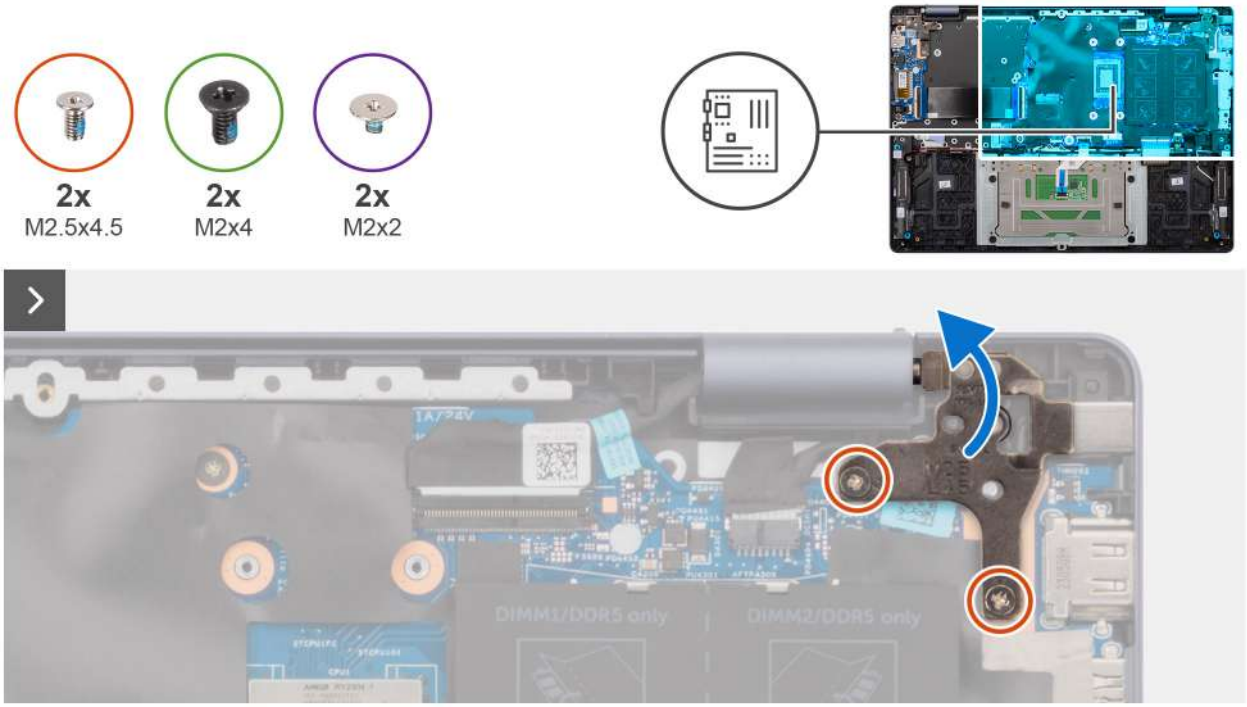


**Figure 88. Removing the system board (for computers shipped with an aluminum chassis)**

### Steps

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

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

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

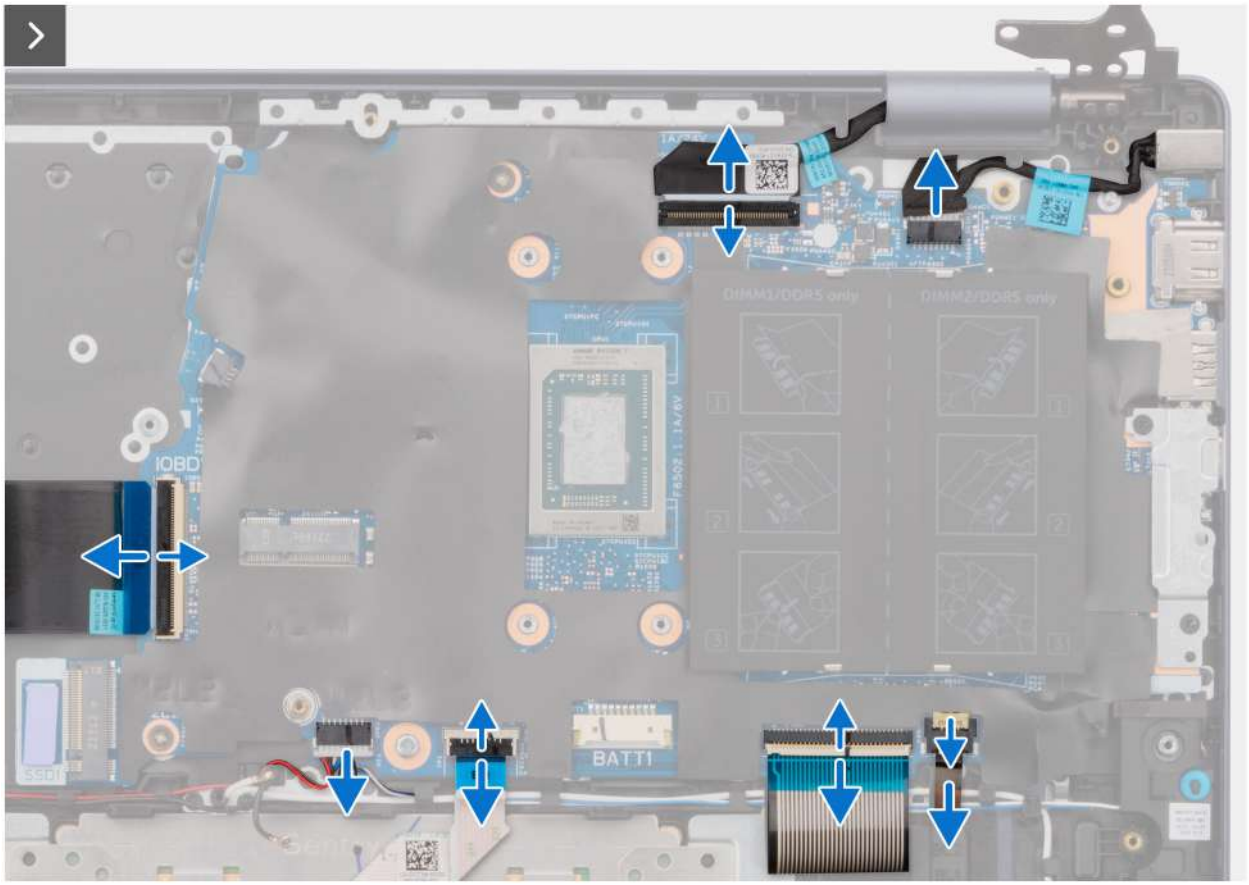


**Figure 89. Removing the system board (for computers shipped with an aluminum chassis)**

4. Remove the two screws (M2x4) that secure the USB Type-C port bracket to the system board. Then, remove the two screws (M2x2) that secure the system board to the palm-rest and keyboard assembly.

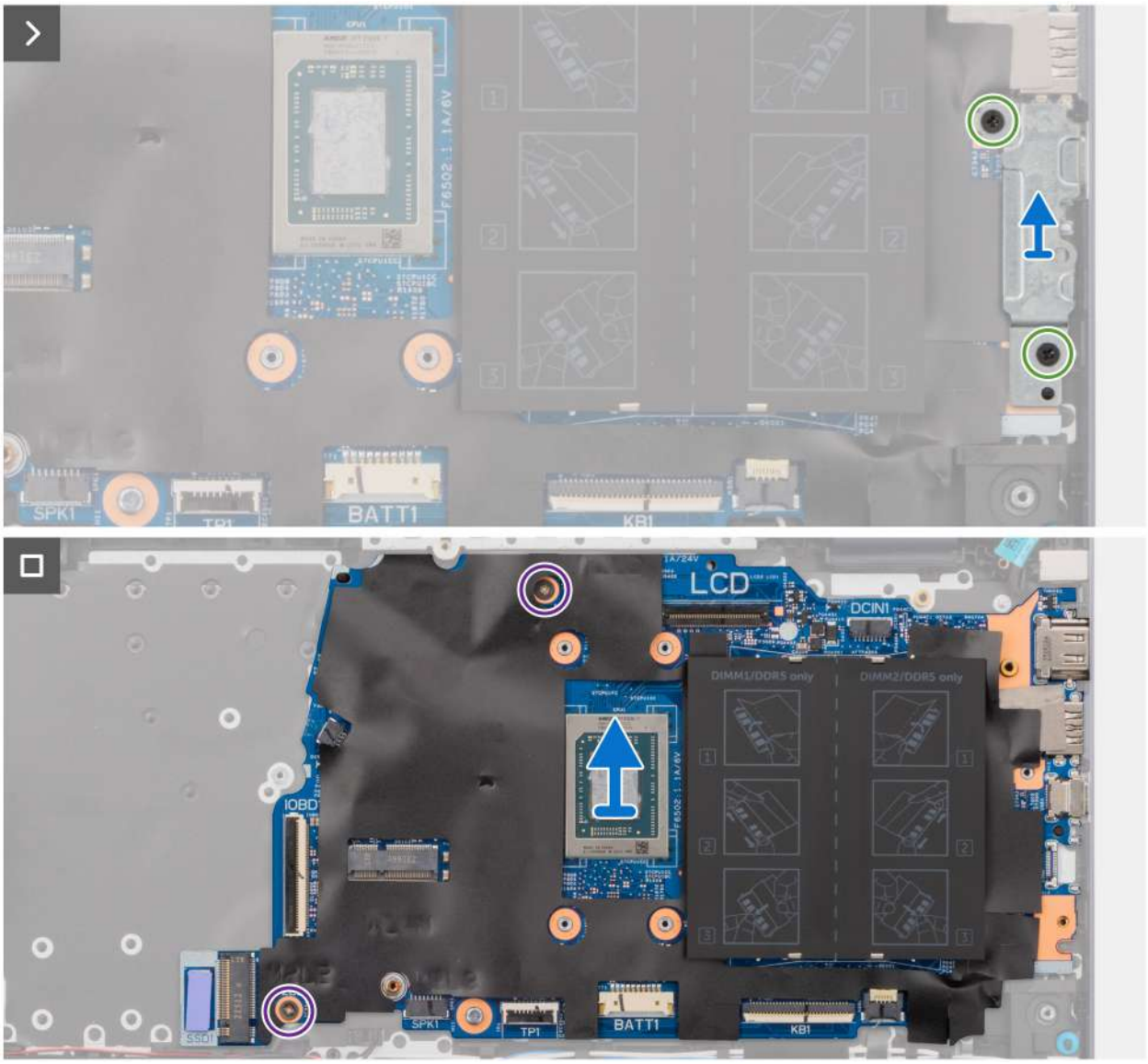


**Figure 90. Removing the system board (for computers shipped with an aluminum chassis)**

5. Lift and remove the USB Type-C port bracket from the system board.
6. Carefully lift and remove the system board at angle, from the palm-rest and keyboard assembly, to clear the ports from the port slots.

# Installing the system board (for computers shipped with an aluminum chassis)

### Prerequisites

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

### About this task

The following image indicates the connectors on your system board.

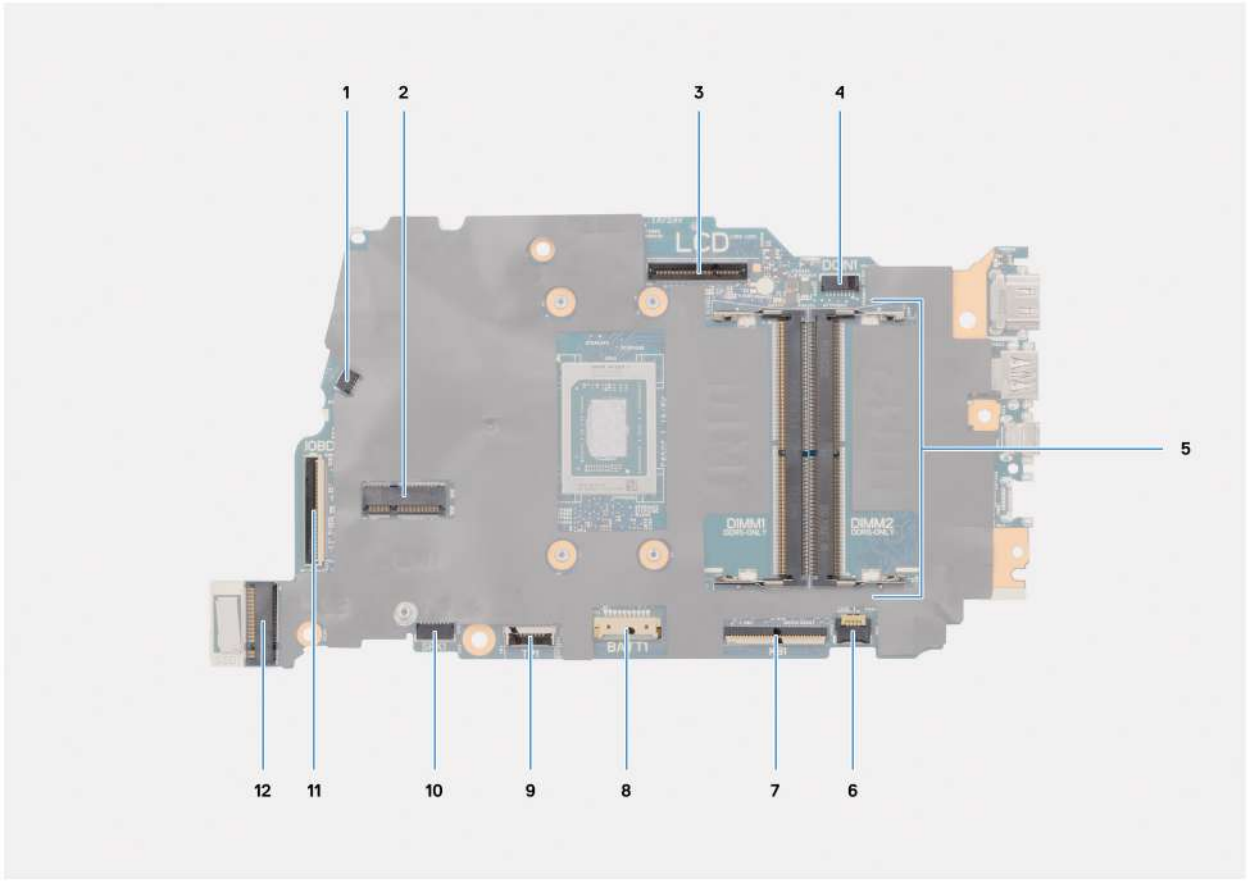


**Figure 91. System board connectors**

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

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

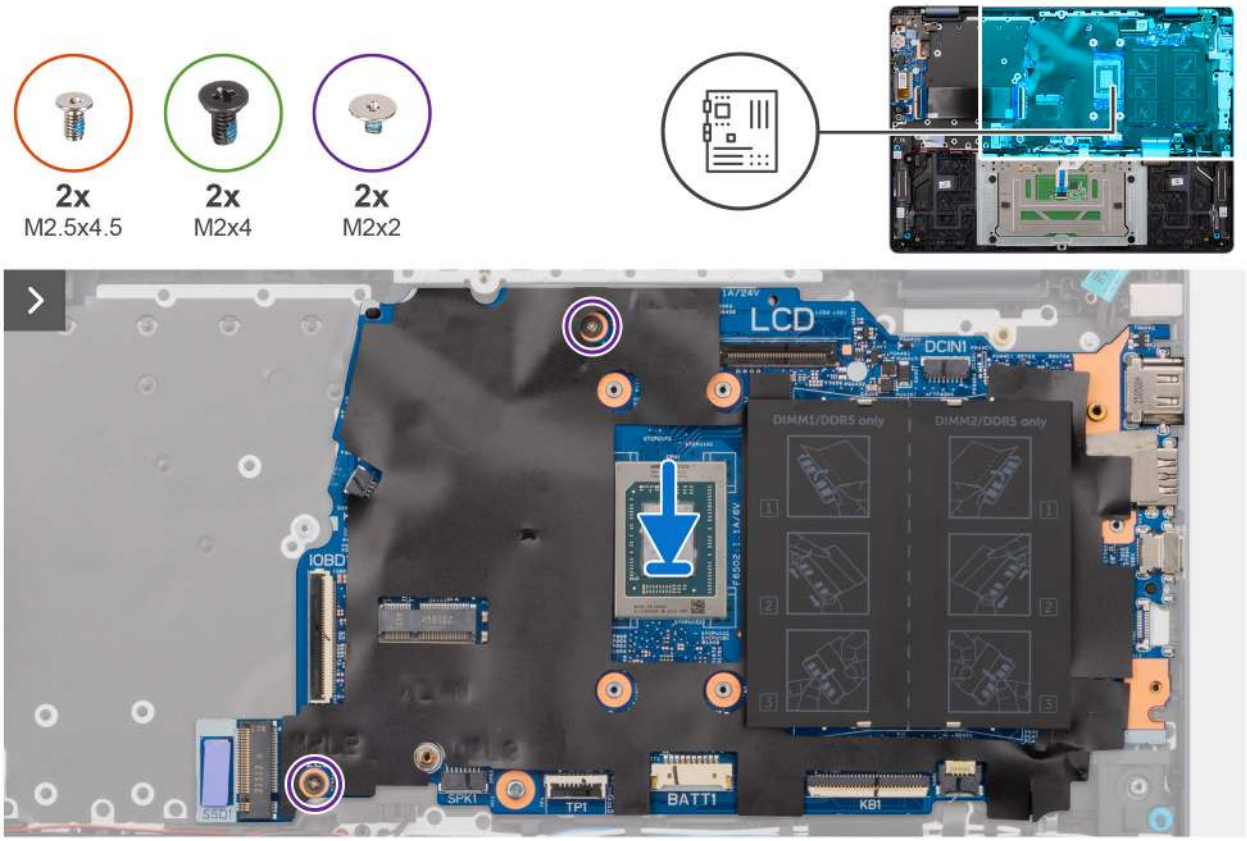


**Figure 92. Installing the system board (for computers shipped with an aluminum chassis)**

### Steps

1. Align the ports on the system board with the port slots and place the system board on the palm-rest and keyboard assembly.
2. Align the screw holes on the system board with the screw holes on the palm-rest and keyboard assembly.
3. Replace the two screws (M2x2) to secure the system board to the palm-rest and keyboard assembly.
4. Place the USB Type-C port bracket in the slot on the system board.
5. Align the screw holes on the USB Type-C port bracket with the screw holes on the system board.
6. Replace the two screws (M2x4) to secure the USB Type-C port bracket to the system board.

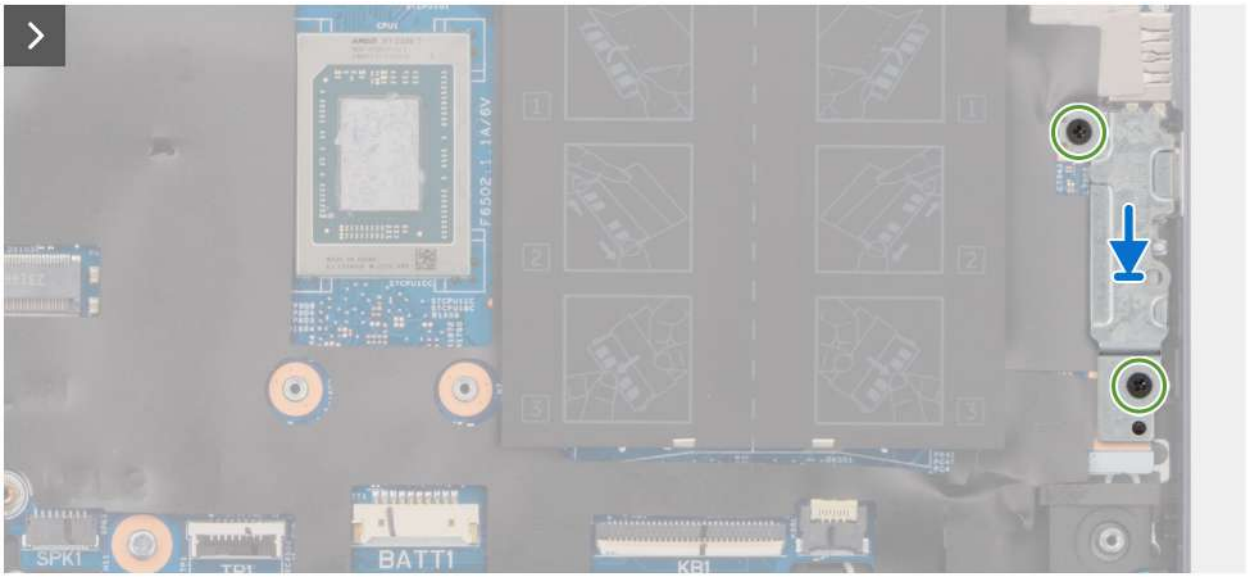


**Figure 93. Installing the system board (for computers shipped with an aluminum chassis)**

7. Connect the following cables to the connectors on the system board:
   a. I/O-board cable (IOBD1)
   b. eDP cable (LCD)
   c. Power-adapter port cable (DCIN1)
   d. Keyboard-backlight cable (KBBL1)

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

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

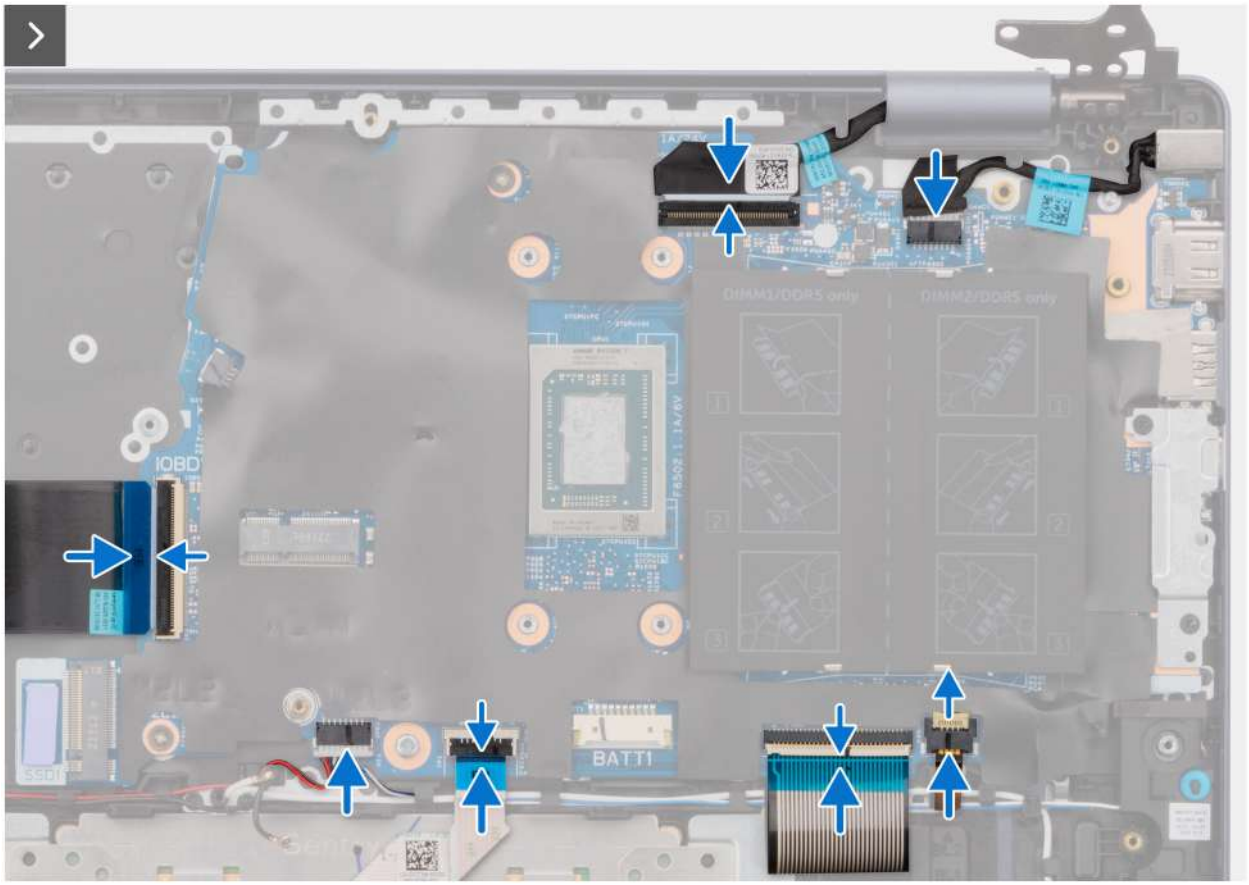


**Figure 94. Installing the system board (for computers shipped with an aluminum chassis**

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

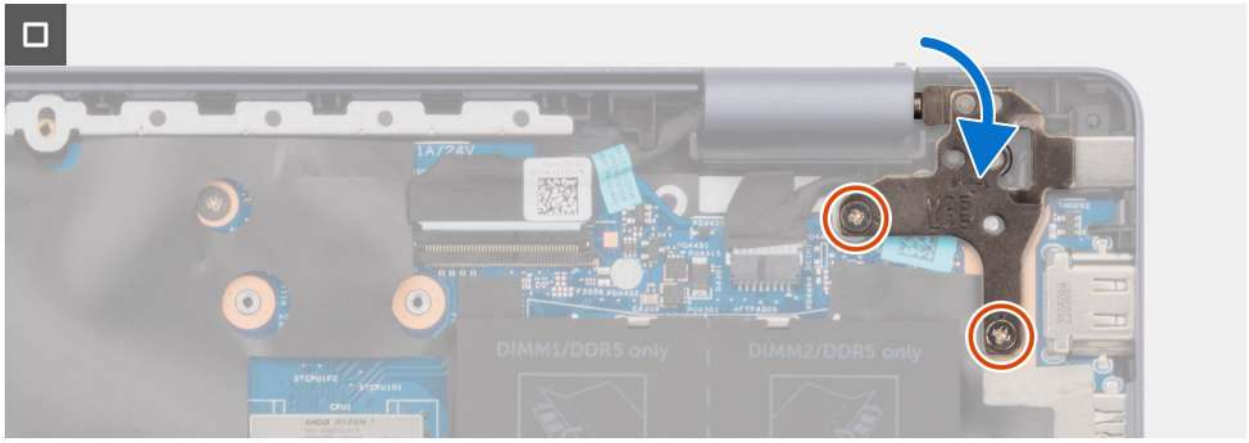

**Figure 95. Installing the system board**

### Next steps

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

5. Install the solid state drive.
6. Install the memory module.
7. Install the base cover (aluminum chassis).
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 (plastic chassis) or the base cover (aluminum chassis), whichever is applicable.
3. Remove the memory module.
4. Remove the solid state drive.
5. Remove the wireless card.
6. Remove the fan.
7. Remove the 3-cell battery or the 4-cell battery, whichever is applicable.
8. Remove the heat sink.

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

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

### About this task

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

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

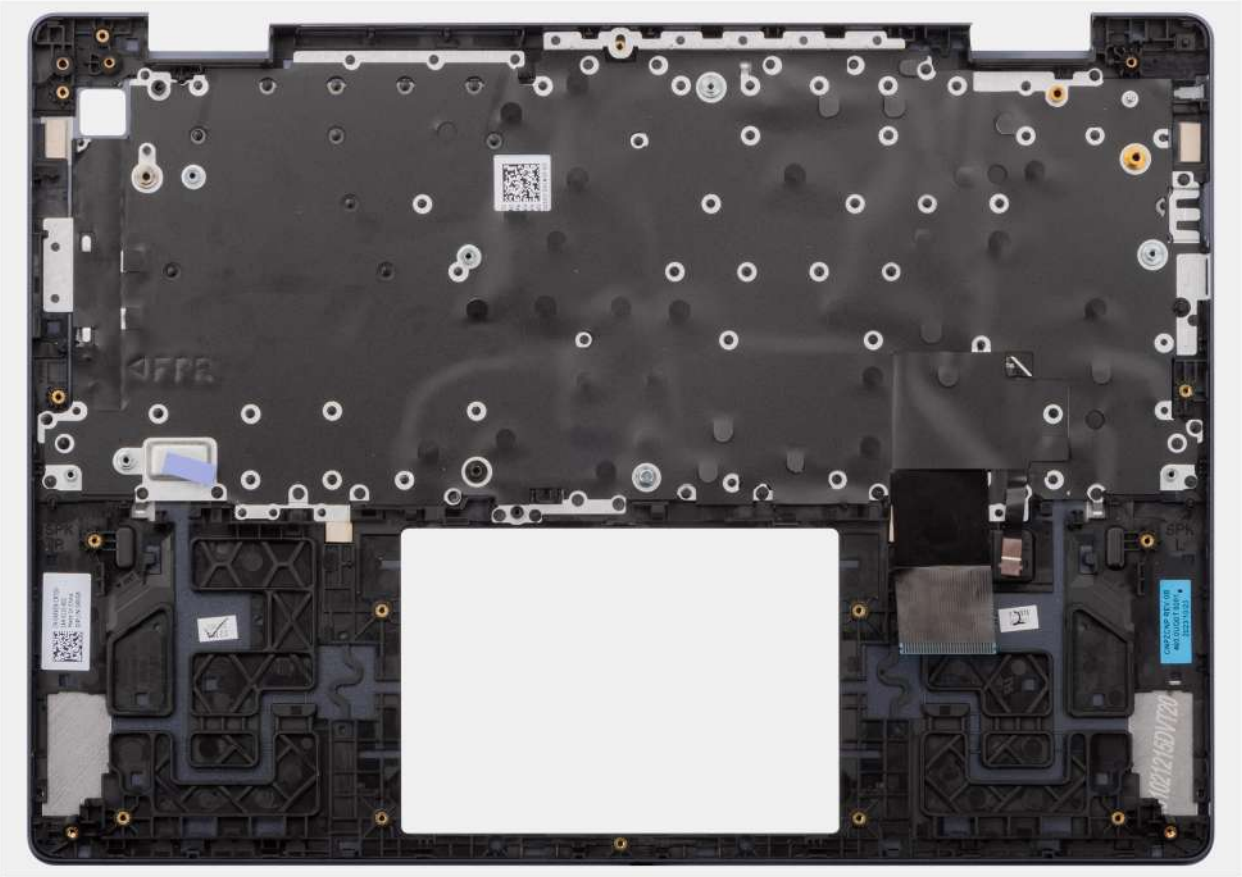

Figure 96. Palm-rest and keyboard assembly

### Steps

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

## Installing the palm-rest and keyboard assembly

### Prerequisites

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

### About this task

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

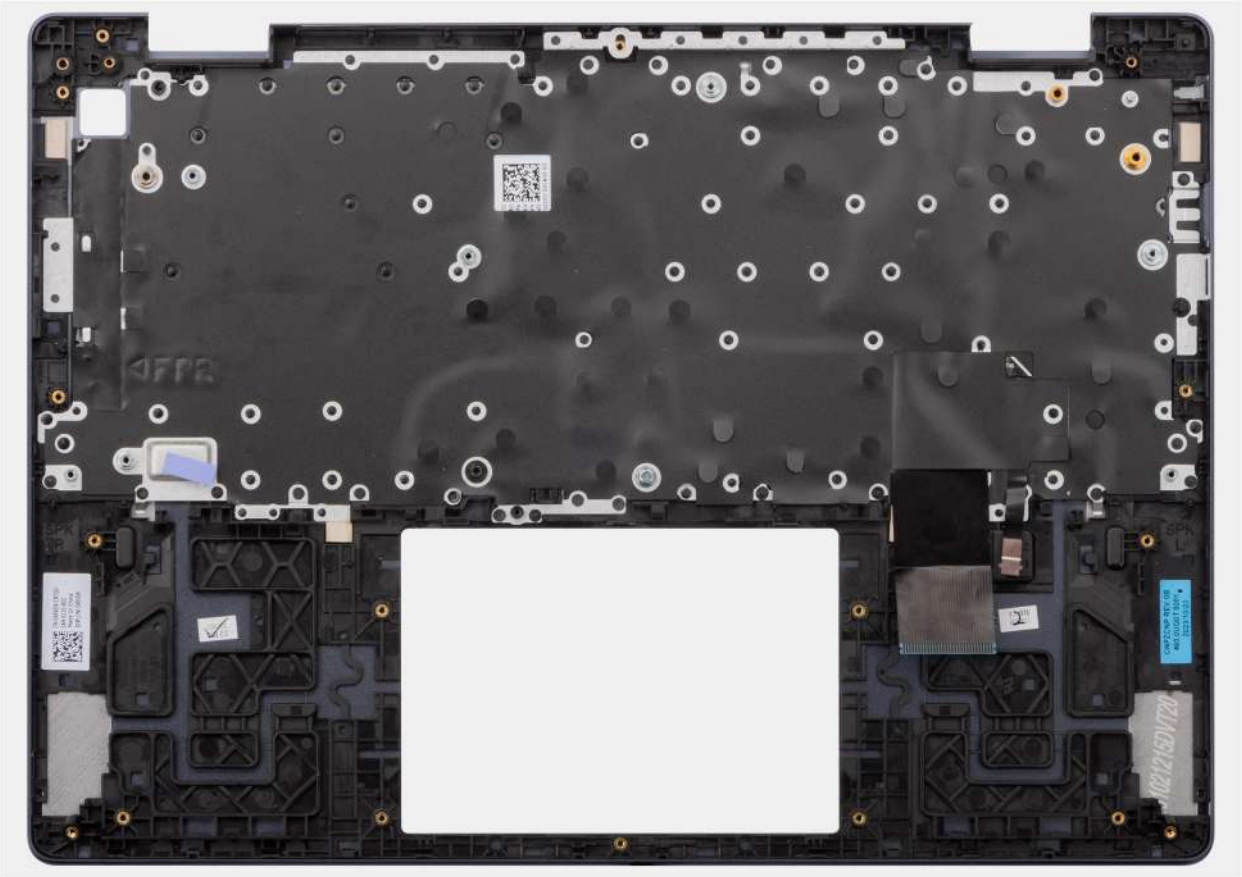

**Figure 97. Palm-rest and keyboard assembly**

### Steps

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

### Next steps

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

# 4

# Software

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

## Operating system

Your Dell 14 DC14255 supports the following operating systems:

1. For 220/250 processors
   - Windows 11 Home
   - Windows 11 Pro
   - Windows 11 Education – National Academic
   - Ubuntu Linux 24.04.2 LTS
2. For AI 330/350 processors
   - Windows 11 Home NextGen
   - Windows 11 Pro NextGen
   - Ubuntu Linux 24.04.2 LTS

## Drivers and downloads

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

# 5

# BIOS Setup

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

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

Use BIOS Setup for the following purposes:

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

## Entering BIOS Setup program

Turn on or restart your computer and press F2 immediately.

## Navigation keys

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

### Table 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)
- STXXXX Drive (if available)

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

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

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

# BIOS Setup options

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

### Table 5. BIOS Setup options—Main menu

| **Main** | |
|---|---|
| **Dell 14 DC 14255** | |
| System Time | Displays the system time. |
| System Date | Displays the system date. |
| BIOS Version | Displays the BIOS version number. |
| Product Name | Displays the product name. |
| Service Tag | Displays the Service Tag of the computer. |
| Asset Tag | Displays the Asset Tag of the computer. |
| CPU Type | Displays the processor type. |
| CPU Speed | Displays the CPU speed. |
| CPU ID | Displays the CPU ID. |
| CPU Cache | Displays the CPU cache. |
| L1 Cache | Displays the L1 cache of your CPU. |
| L2 Cache | Displays the L2 cache of your CPU. |
| L3 Cache | Displays the L3 cache of your CPU. |
| M.2 PCIe SSD | Displays the solid state drive installed on your computer. |
| System Memory | Displays the system memory. |
| Memory Speed | Displays the memory speed. |
| Keyboard Type | Displays the keyboard type. |

### Table 6. BIOS Setup options— Advance Configuration menu

| **Advance** | |
|---|---|
| USB Emulation | Enables or disables the BIOS support for USB devices.<br>By default, the **USB Emulation** option is enabled. |
| Adapter Warnings | Enables or disables the power adapter warnings.<br>By default, the **Adapter Warnings** option is enabled. |
| Function Key Behavior | Controls the behavior of the Function Keys.<br>By default, the **Multimedia Key** option is selected. |
| Keyboard Illumination | Controls the keyboard illumination. |

### Table 6. BIOS Setup options— Advance Configuration menu (continued)

| **Advance** | |
|---|---|
| | By default, the **Bright** option is selected. |
| Keyboard Backlit with AC | |
| Keyboard Backlit with Battery | |
| Battery Health | Displays the battery healthn of the battery. |
| External USB Ports | Enable the disable the USB ports.<br>By default, the **Enabled** option is selected. |
| Enable Audio | Enable the disable the audio.<br>By default, the **Enabled** option is selected. |
| Microphone | Enable the disable the microphone.<br>By default, the **Enabled** option is selected. |
| Camera | Enable the disable the camera.<br>By default, the **Enabled** option is selected. |
| Secure Digital (SD) card | Enable the disable the SD card.<br>By default, the **Enabled** option is selected. |
| Battery Charge Configuration | |
| Advanced Battery Charge Configuration | |
| IPv4 HTTP Support | Enables or disables IPv4 HTTP support. |
| IPv6 HTTP Support | Enables or disables IPv6 HTTP support. |
| **Maintenance** | |
| Data Wipe on Next Boot | Enables or disables Data Wipe on next start up. |
| BIOS Recovery from Hard Drive | Enables or disables BIOS recovery from hard drive. |
| BIOS Auto Recovery | Enables or disables BIOS Auto Recovery. |
| **SupportAssist System Resolution** | |
| Auto OS Recovery Threshold | Configure Auto OS Recovery Threshold. |
| SupportAssist OS Recovery | Enables or disables SupportAssist operating system recovery. |

### Table 7. BIOS Setup options—Security menu

| **Security** | |
|---|---|
| Admin Password | Displays if an admin password has been set. |
| System Password | Displays if a system password has been set. |
| **Asset Tag** | Creates a computer Asset Tag that can be used by an IT administrator to uniquely identify a particular computer.<br>**NOTE:** Once set in BIOS, the Asset Tag cannot be changed. |
| Admin Password | Manage Admin Password. |
| System Password | Manage System Password. |
| Password Change | Sets permissions for password changes. |
| Absolute | Absolute Software provides various cyber security solutions, some requiring software preloaded on Dell computers and integrated into the BIOS. To use these |

**Table 7. BIOS Setup options—Security menu (continued)**

| Security | |
|---|---|
| | features, you must enable the Absolute BIOS setting and contact Absolute for configuration and activation.<br>By default, the **Absolute** option is enabled.<br>For additional security, Dell Technologies recommends keeping the **Absolute** option enabled.<br>**NOTE:** When the Absolute features are activated, the Absolute integration cannot be disabled from the BIOS setup screen. |
| Absolute Status | Displays if Absolute features are activated. |
| WINDOWS SMM SECURITY MITIGATIONS TABLE (WMST) | Enables or disables Windows SMM security mitigations table. |
| Firmware TPM | Allows you to enable or disable Firmware TPM.<br>By default, the **Disabled** option is selected.<br>For additional security, Dell Technologies recommends keeping **Firmware TPM** enabled to allow these security technologies to fully function. |
| Physical Presence Interface (PPI) Bypass for Clear Commands | The Physical Presence Interface (PPI) Bypass options can be used to allow the operating system to manage certain aspects of the TPM. If these options are enabled, you are not prompted to confirm certain changes to the TPM configuration.<br>By default, the **PPI Bypass for Clear Commands** option is disabled.<br>For additional security, Dell Technologies recommends keeping the **PPI Bypass for Enable Commands** option enabled. |
| Enable Master Password Lockout | The Master Password Lockout setting allows you to disable the Recovery Password feature. If the computer, administrator, or hard drive password is forgotten, the computer becomes unusable.<br>**NOTE:** When the owner password is set, the Master Password Lockout option is not available.<br>**NOTE:** When an internal hard drive password is set, it must first be cleared before Master Password Lockout can be changed.<br>By default, the **Enable Master Password Lockout** option is disabled.<br>Dell does not recommend enabling the **Master Password Lockout** unless you have implemented your own password recovery computer. |
| **TPM Security** | |
| TPM On | Allows you to enable or disable TPM.<br>By default, the **On** option is selected.<br>For additional security, Dell Technologies recommends keeping **On** selected to allow these security technologies to fully function. |
| Physical Presence Interface (PPI) Bypass for Enable Commands | The Physical Presence Interface (PPI) Bypass options can be used to allow the operating system to manage certain aspects of the TPM. If these options are enabled, you are not prompted to confirm certain changes to the TPM configuration.<br>By default, the **PPI Bypass for Enable Commands** option is disabled.<br>For additional security, Dell Technologies recommends keeping the **PPI Bypass for Enable Commands** option enabled. |
| Physical Presence Interface (PPI) Bypass for Disable Commands | The Physical Presence Interface (PPI) Bypass options can be used to allow the operating system to manage certain aspects of the TPM. If these options |

### Table 7. BIOS Setup options—Security menu (continued)

| Security | |
|---|---|
| | are enabled, you are not prompted to confirm certain changes to the TPM configuration.<br>By default, the **PPI Bypass for Enable Commands** option is disabled.<br>For additional security, Dell Technologies recommends keeping the **PPI Bypass for Enable Commands** option enabled. |
| Attestation Enable | The **Attestation Enable** option controls the endorsement hierarchy of TPM. Disabling the **Attestation Enable** option prevents TPM from being used to digitally sign certificates.<br>By default, the **Attestation Enable** option is enabled.<br>For additional security, Dell Technologies recommends keeping the **Attestation Enable** option enabled.<br>**NOTE:** When disabled, this feature may cause compatibility issues or loss of functionality in some operating systems. |
| Key Storage Enable | Enables or disables the key storage. |
| SHA-256 | Enables or disables the SHA-256. |
| Clear | Allows to clear the TPM State.<br>By default, the **Clear** option is disabled. |
| TPM State | Enables or disables the TPM State. |
| Enable Pre-Boot DMA Support | Enables or disables pre-boot DMA support. |
| Enable OS Kernel DMA Support | Enables or disables OS Kernel DMA support. |
| Internal Port DMA Compatibility Mode | Enables or disables internal port DMA compatibility. |
| UEFI Firmware Capsule Updates | Enables or disables UEFI firmware capsule updates. |
| **Secure Boot** | Manage Secure Boot options. |

### Table 8. BIOS Setup options—Boot menu

| Boot | |
|---|---|
| **File Browser Add Boot Option** | Add boot option. |
| **File Browser Del Boot Option** | Delete boot option. |
| **UEFI BOOT:** | Displays the UEFI BOOT options. |

### Table 9. BIOS Setup options—Exit menu

| Performance | |
|---|---|
| Exit Saving Changes | Exit and save changes to BIOS settings. |
| Save Change Without Exit | Save changes to BIOS settings without exiting the BIOS. |
| Exit Discarding Changes | Exit without saving changes to BIOS settings. |
| Load Optimal Default | Sets the recommended default BIOS settings. |
| Discard Charges | Discard all changes made to BIOS settings in this session. |

# 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..

## Updating the BIOS in Linux and Ubuntu

To update the system BIOS on a computer that is installed with Linux or Ubuntu, see How to Update the Dell BIOS in the Ubuntu or Linux Environment 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 10. 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.

# 6

# Troubleshooting

## Handling swollen rechargeable Li-ion batteries

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

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

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

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

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

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

## Dell SupportAssist Pre-boot System Performance Check diagnostics

**About this task**

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

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

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

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

For more information, see How to Run Dell Preboot Diagnostics and Hardware Tests on Your Dell Computer.

## Running the SupportAssist Pre-Boot System Performance Check

**Steps**

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

# Built-in self-test (BIST)

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

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

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

### How to run M-BIST

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

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

**Table 11. LED error codes**

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

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

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

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

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

## How to invoke the L-BIST

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

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

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

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

## How to invoke the LCD-BIST

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

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

# System-diagnostic lights

This section lists the system-diagnostic lights of your Dell 14 DC14255.

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

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

### Table 12. Diagnostic light codes

| Diagnostic light codes (Amber, White) | Problem description |
|---|---|
| **1,1** | TPM Detection Failure |
| **1,2** | Unrecoverable SPI Flash Failure |
| **1,5** | EC unable to program i-Fuse |
| **1,6** | Generic catch-all for ungraceful EC code flow errors |
| **1,7** | Non-RPMC Flash on Boot Guard fused system |
| **1,8** | Chipset “Catastrophic Error” signal has tripped |
| **2,1** | CPU configuration or CPU failure |
| **2,2** | System board: BIOS or Read-Only Memory (ROM) failure |
| **2,3** | No memory or Random-Access Memory (RAM) detected |
| **2,4** | Memory or Random-Access Memory (RAM) failure |
| **2,5** | Invalid memory installed |
| **2,6** | System board/Chipset Error |
| **2,7** | LCD failure SBIOS message |
| **2,8** | Display power-rail failure on the system board |
| **3,1** | CMOS battery failure |
| **3,2** | PCI of Video card/chip failure |
| **3,3** | Recovery image not found |
| **3,4** | Recovery image found but invalid |
| **3,5** | EC power-rail error |
| **3,6** | Flash corruption detected by SBIOS |
| **3,7** | Timeout waiting on ME to reply to HECI message |
| **4,1** | Memory DIMM power rail failure |
| **4,2** | CPU Power cable connection issue |

# Recovering the operating system

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

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

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

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

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

# Real-Time Clock (RTC Reset)

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

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

# Backup media and recovery options

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

# Network power cycle

### About this task

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

### Steps

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

# Drain flea power (perform hard reset)

### About this task

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

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

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

Perform the following steps to drain the flea power:

### Steps

1. Turn off the computer.
2. Disconnect the power adapter from the computer.
3. Remove the 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.

# 7

# Getting help and contacting Dell

## Self-help resources

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

**Table 13. Self-help resources**

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

## Contacting Dell

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

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

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

# 8

# 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 14. Revision history**

| Revision | Date | Description |
|---|---|---|
| A02 | 03-2026 | Updated the BIOS Setup options. |
| A01 | 11-2025 | Updated the BIOS Setup options. |
| A00 | 08-2025 | Original publish date. |