

Dell Pro Education 11

PE11260

Service Manual

Notes, cautions, and warnings

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

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

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

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Working inside your computer

Safety instructions

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

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

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

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

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

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

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

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

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

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

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

Before working inside your computer

About this task

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

Steps

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

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

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

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

8. Enter the Service Mode.

Service Mode

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

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

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

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

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

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

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.

Working environment

 **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.

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

ESD packaging

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

Components of an ESD Field Service kit

The components of an ESD Field Service kit are:

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

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

Transporting sensitive components

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

After working inside your computer

About this task

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

Steps

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

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

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

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

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

BitLocker

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

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

The installation of the following components triggers BitLocker:

- Hard disk drive or solid state drive
- System board

Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver #0
- Phillips screwdriver #1
- Plastic scribe

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

The replaceable components in Dell Pro Education 11 PE11260 are either Customer Replaceable Units (CRUs) or Field Replaceable Units (FRUs).

 **CAUTION:** To avoid any potential damage to the component or loss of data, ensure that an authorized service technician replaces the Field Replaceable Units (FRUs). Customers can replace only the Customer Replaceable Units (CRUs) following the safety precautions and replacement procedures.

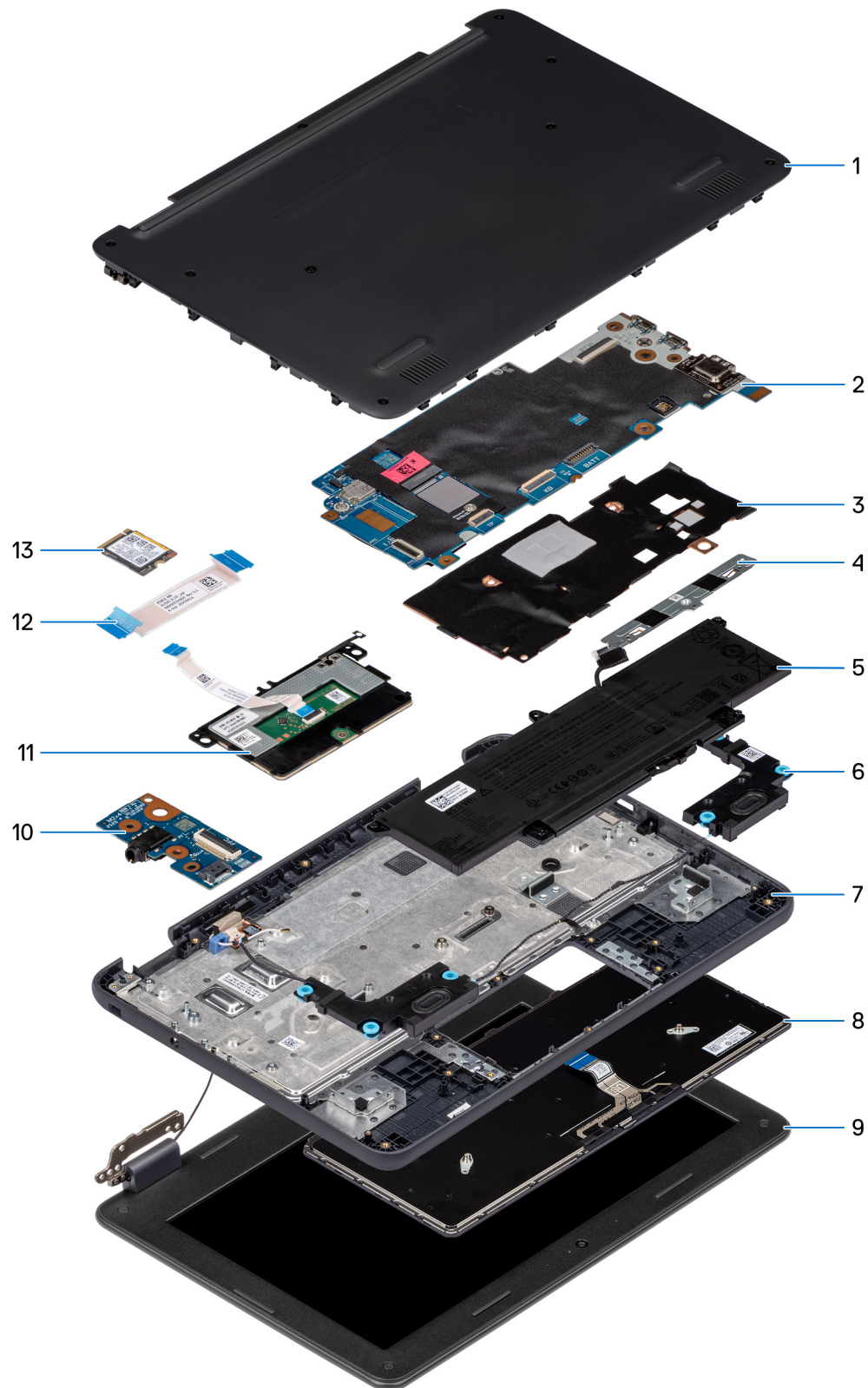
Table 1. CRU and FRU list

Customer Replaceable Unit (CRU)	Field Replaceable Unit (FRU)
Base cover	Keyboard
Battery	System board
Battery cable	Thermal plate
Audio I/O board	Touchpad
I/O board cable	Display assembly
Speaker	Palm-rest assembly
Solid State Drive (SSD)	

Major components of Dell Pro Education 11 PE11260

The following image shows the major components of Dell Pro Education 11 PE11260.

Figure 1. Major components of your



system

1. Base cover
2. System board
3. Thermal plate
4. Touchpad bracket
5. Battery

6. Speaker
7. Palm-rest assembly
8. Keyboard
9. Display assembly
10. Audio I/O board
11. Touchpad
12. I/O board cable
13. WLAN card

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

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

The replaceable components in Dell Pro Education 11 PE11260 are either Customer Replaceable Units (CRUs) or Field Replaceable Units (FRUs).

 **CAUTION:** To avoid any potential damage to the component or loss of data, ensure that an authorized service technician replaces the Field Replaceable Units (FRUs). Customers can replace only the Customer Replaceable Units (CRUs) following the safety precautions and replacement procedures.

Table 2. CRU and FRU list

Customer Replaceable Unit (CRU)	Field Replaceable Unit (FRU)
Base cover	Keyboard
Battery	System board
Battery cable	Thermal plate
Audio I/O board	Touchpad
I/O board cable	Display assembly
Speaker	Palm-rest assembly
Solid State Drive (SSD)	

Removing and installing Customer Replaceable Units (CRUs)

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

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

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

Base cover

Removing the base cover

Prerequisites

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

About this task



Watch video: [Removing the base cover](#)

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



9x



Figure 2. Loosen the base cover screws

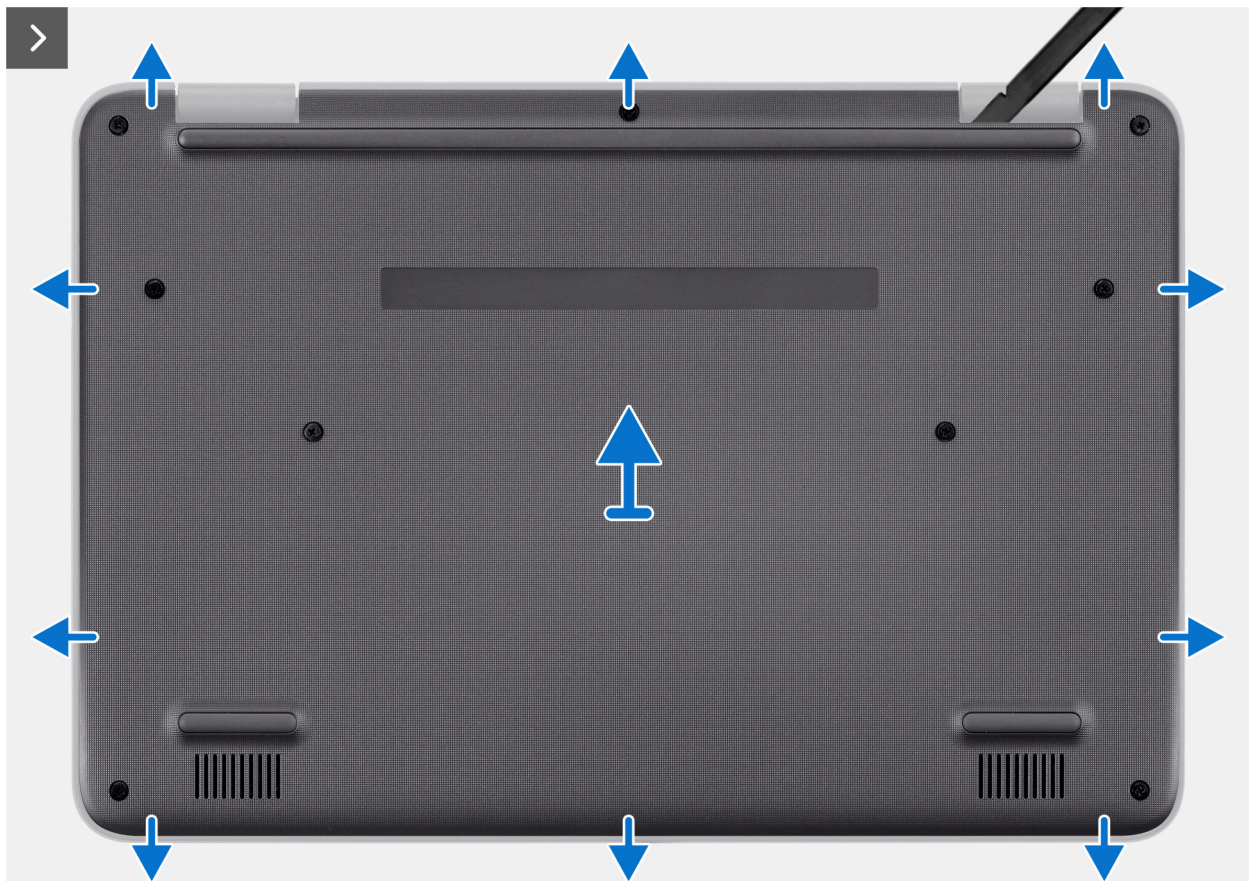


Figure 3. Prying the base cover

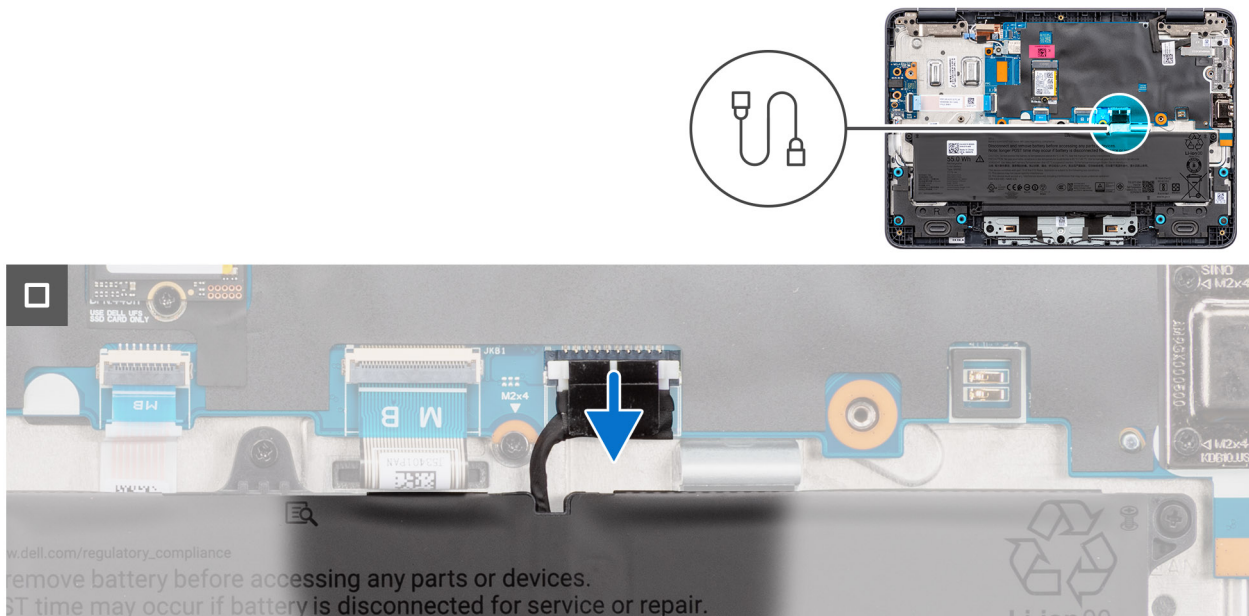


Figure 4. Disconnecting the battery cable

Steps

1. Loosen the nine captive (Phillips #1) screws that secure the base cover to the palm-rest assembly.
2. Using a plastic scribe, pry the base cover from the U-shaped indents at the top and continue working on the sides to open the base cover.

3. Lift and remove the base cover off the palm-rest assembly.
4. Use the pull tab to disconnect the battery cable from the connector (BATT) on the system board.

Installing the base cover

Prerequisites

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

About this task



Watch video: [Installing the base cover](#)

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

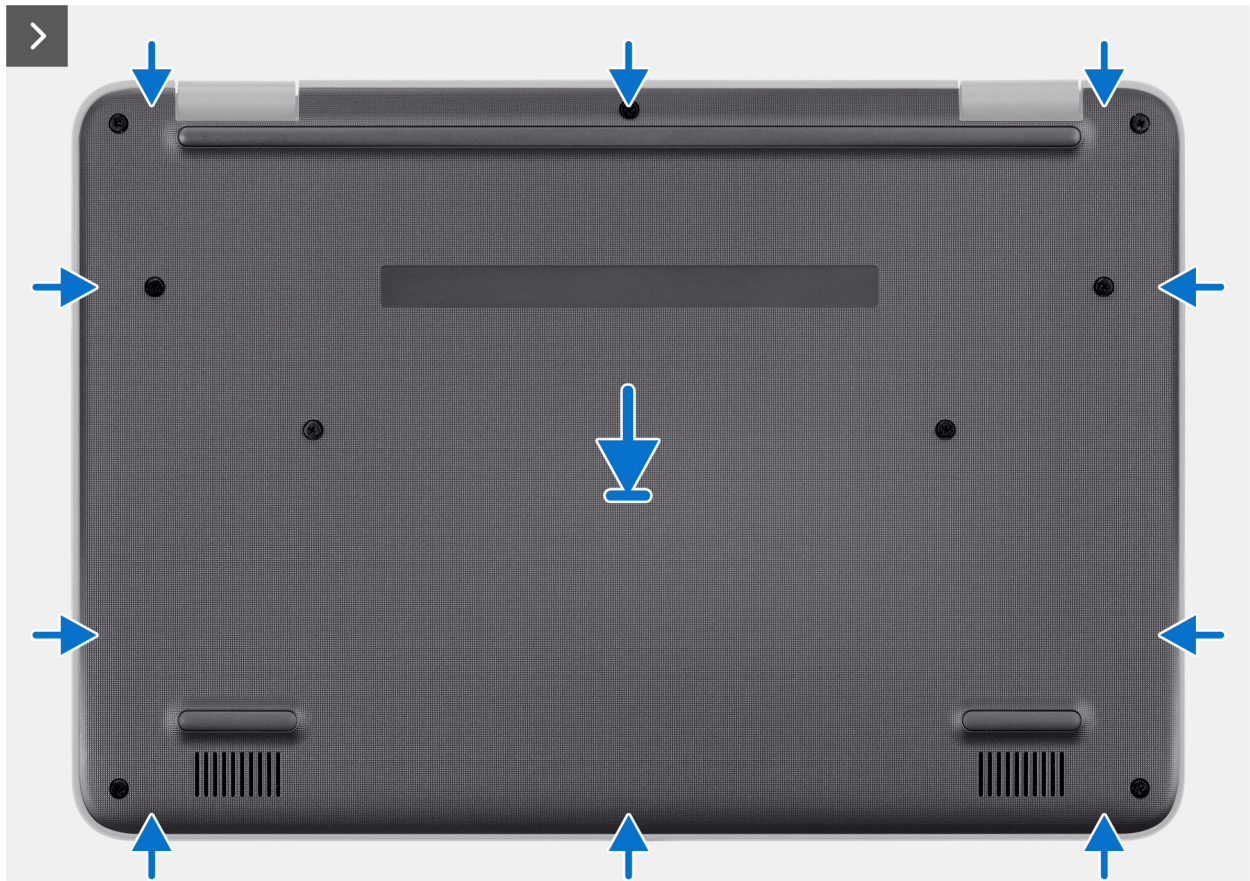


Figure 6. Snapping the base cover into place



Figure 7. Tightening the base cover screws

Steps

1. Connect the battery cable to the connector (BATT) on the system board.
2. Place the base cover on top of the palm-rest assembly.
3. Align the screw holes on the base cover with the screw holes on the palm-rest assembly, and snap the base cover into place.
4. Tighten the nine captive (Phillips #1) screws to secure the base cover to the palm-rest assembly.

Next steps

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

Battery

Removing the battery

Prerequisites

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

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

About this task



Watch video: [Removing the battery](#)

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

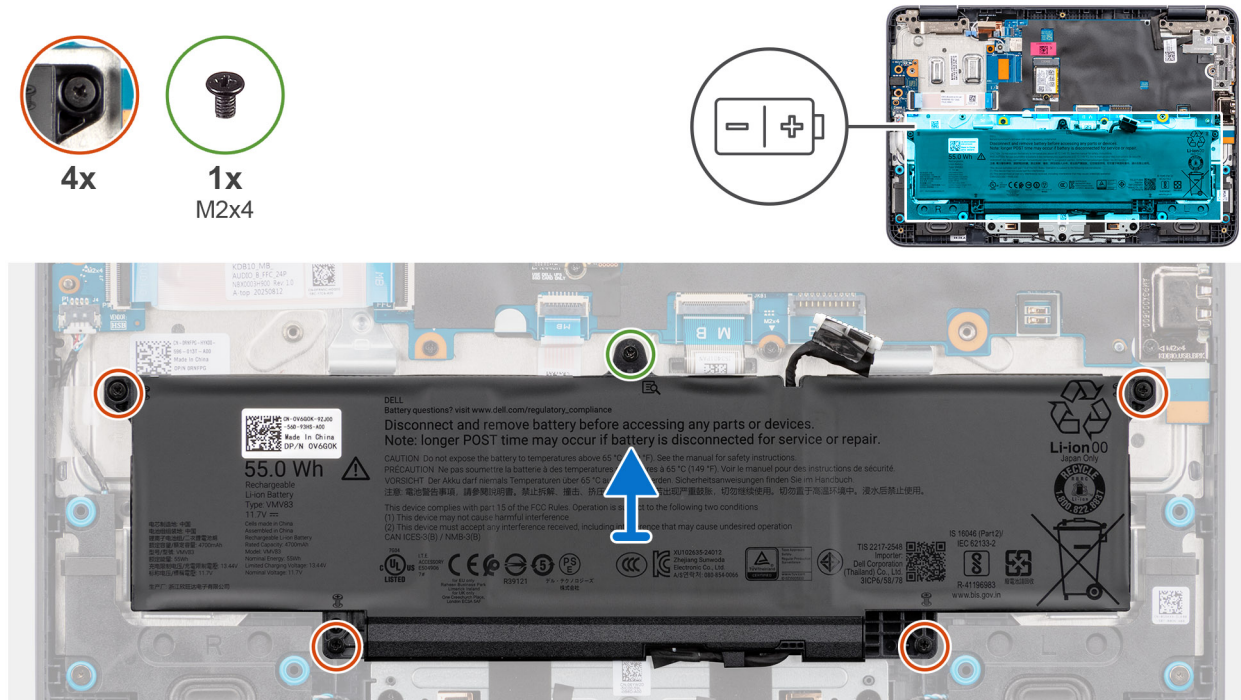


Figure 8. Removing the battery

Steps

1. Loosen the four captive screws and remove the single screw (M2x4) that secures the battery to the palm-rest assembly.
2. Lift the battery off the palm-rest assembly.

Installing the battery

Prerequisites

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

About this task



Watch video: [Installing the battery](#)

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

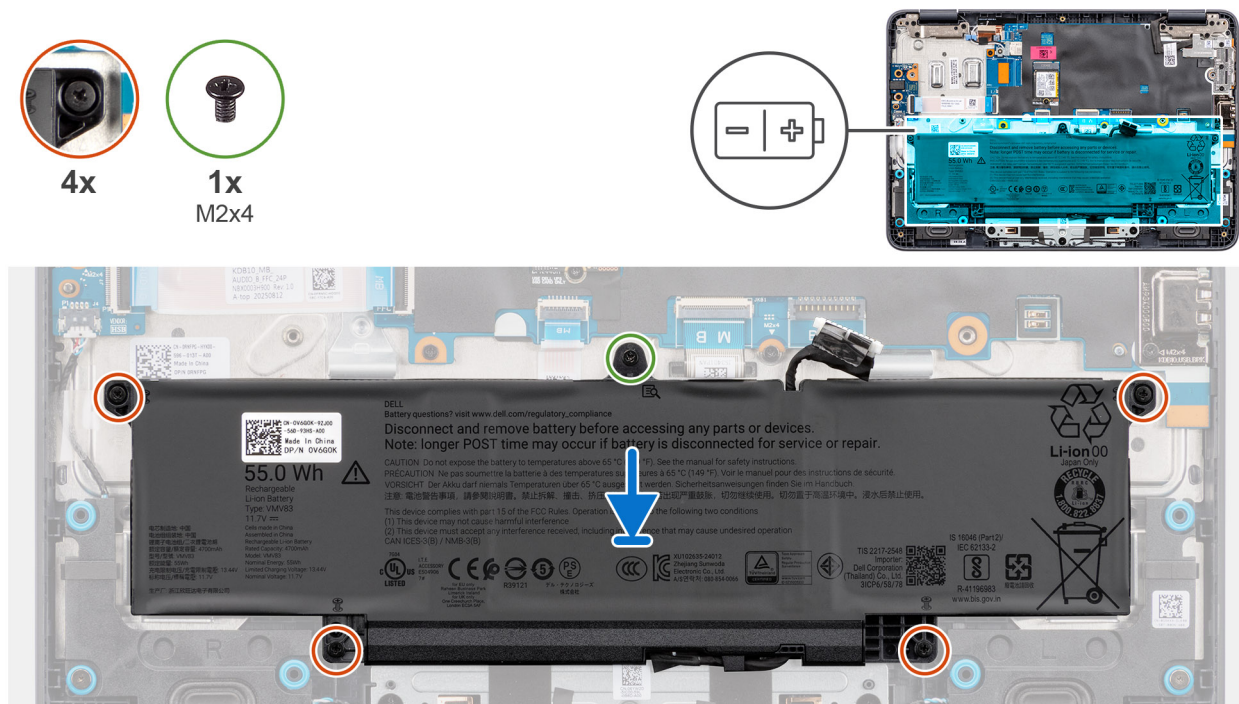


Figure 9. Installing the battery

Steps

1. Align and place the battery in the slot on the palm-rest assembly.
2. Replace the single screw (M2x4) and tighten the four captive screws to secure the battery to the palm-rest assembly.

Next steps

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

Battery cable

Removing the battery cable

Prerequisites

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

About this task



Watch video: [Removing the battery cable](#)

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

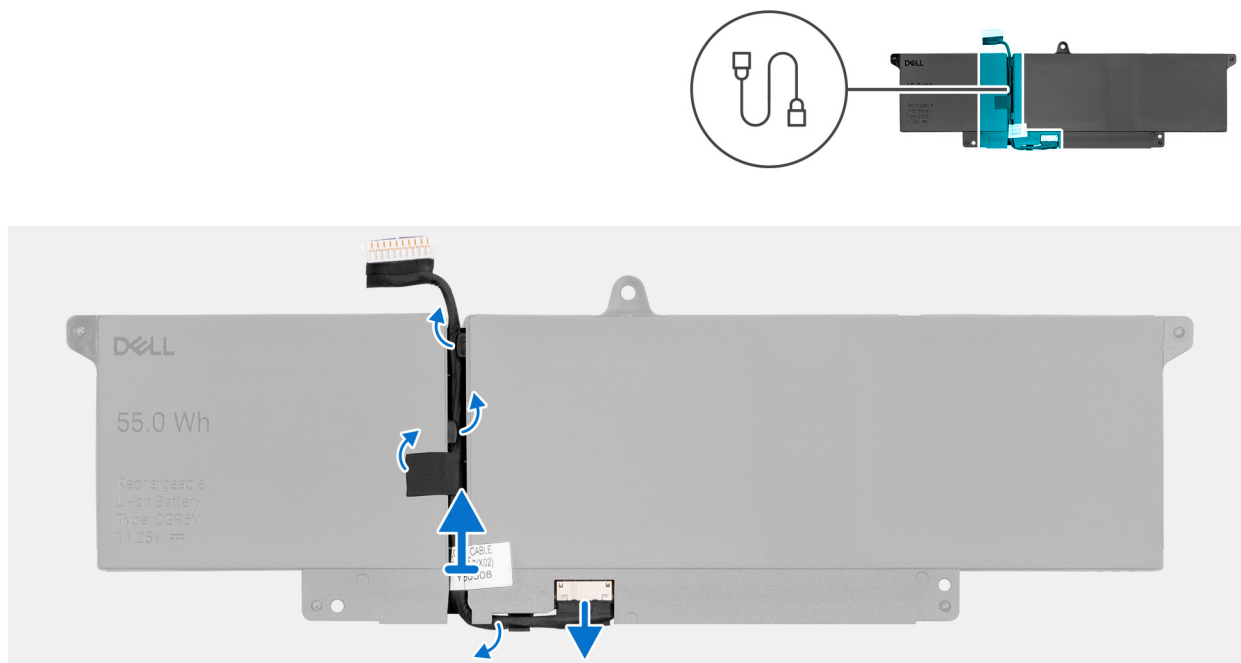


Figure 10. Removing the battery cable

Steps

1. Unroute the battery cable from the battery.
2. Disconnect the battery cable from the connector on the battery.

Installing the battery cable

Prerequisites

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

About this task



Watch video: [Installing the battery cable](#)

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

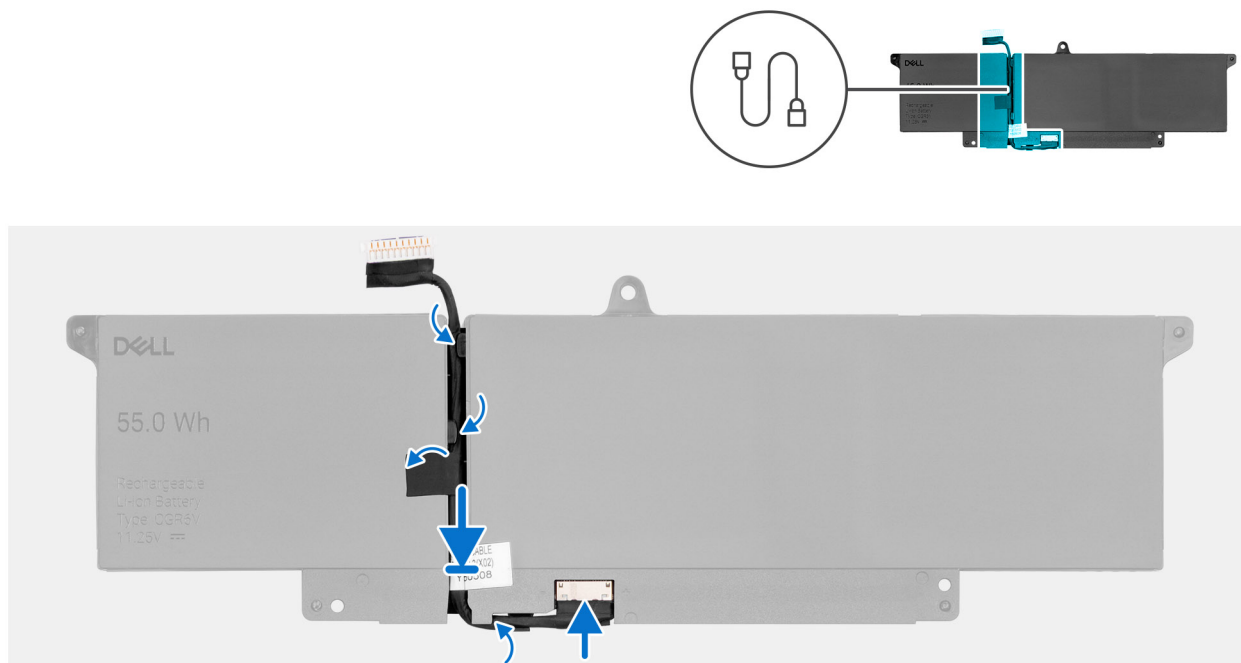


Figure 11. Installing the battery cable

Steps

1. Connect the battery cable to the connector on the battery.
2. Route the battery cable through the routing channels on the battery.

Next steps

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

I/O-board cable

Removing the I/O board cable

Prerequisites

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

About this task



[Watch video: Removing the I/O board cable](#)

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

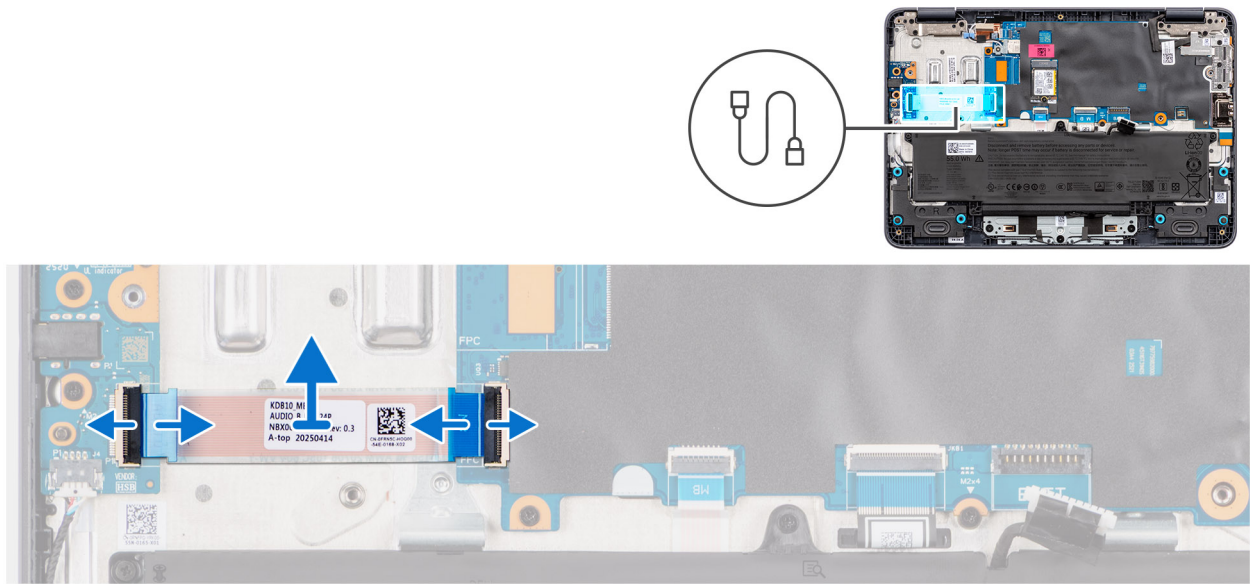


Figure 12. Removing the I/O board cable

Steps

1. Disconnect the I/O board cable from the connectors on the I/O board and system board.
2. Gently peel and remove the I/O board cable from the computer.

Installing the I/O board cable

Prerequisites

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

About this task



Watch video: [Installing the I/O board cable](#)

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



Figure 13. Installing the I/O board cable

Steps

1. Carefully align and adhere the I/O board cable onto its place.
2. Plug the ends of the I/O board cable into the corresponding connectors on the I/O board and the system board, ensuring secure connections.

Next steps

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

Audio I/O board

Removing the audio I/O board

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

Prerequisites

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

About this task



[Watch video: Removing the audio I/O board](#)

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



2x
M2x4

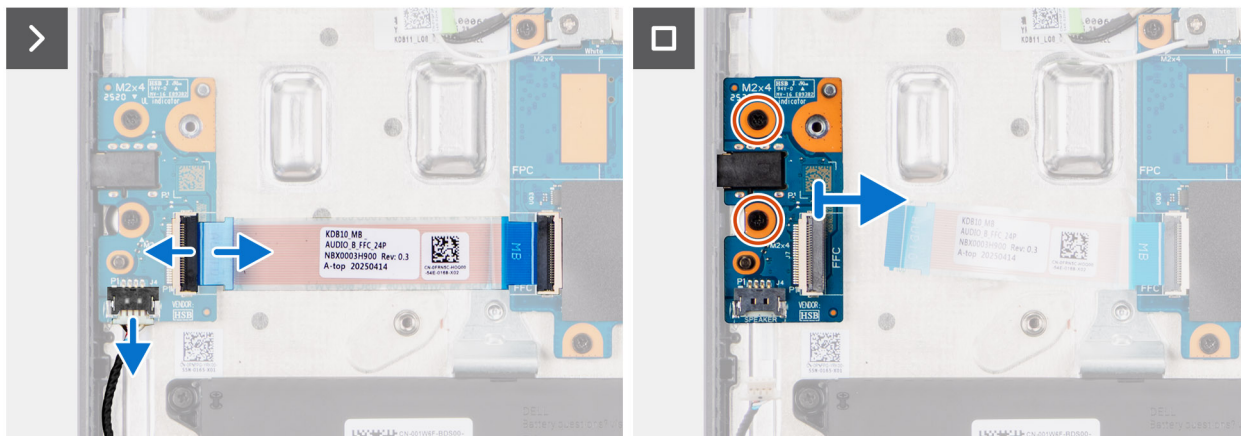
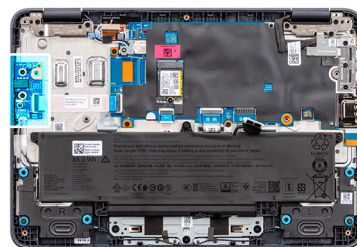


Figure 14. Removing the audio I/O board

Steps

1. Disconnect the speaker cable and audio I/O board cable from the audio I/O board.
2. Remove the two screws (M2x4) securing the audio I/O board in place.
3. Remove the audio I/O board from the computer.

Installing the audio I/O board

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

Prerequisites

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

About this task



[Watch video: Installing the audio I/O board](#)

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



2x
M2x4

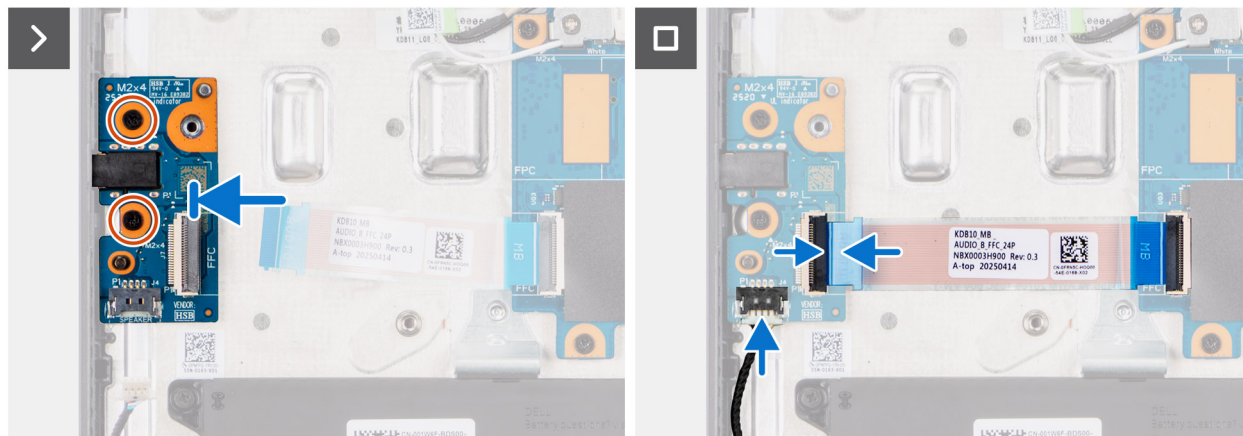
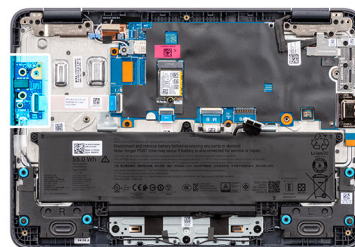


Figure 15. Installing the audio I/O board

Steps

1. Carefully align and place the audio I/O board onto the computer.
2. Replace the two screws (M2x4) to secure the audio I/O board in place.
3. Connect the audio I/O board cable and speaker cable to the connector on the audio I/O board.

Next steps

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

Speaker

Removing the speakers

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

Prerequisites

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

About this task



Watch video: [Removing the speakers](#)

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

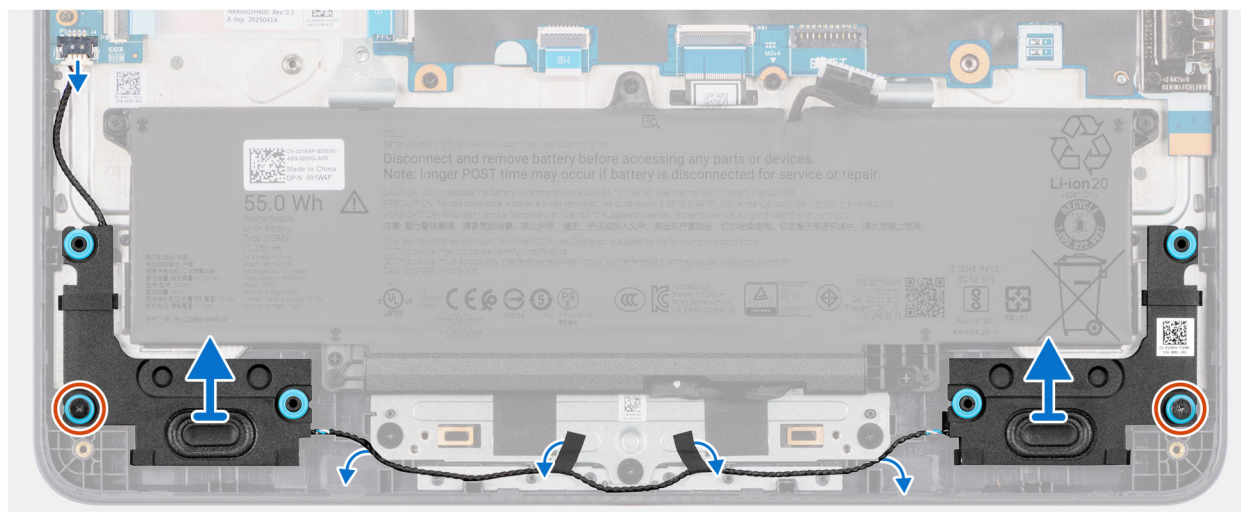
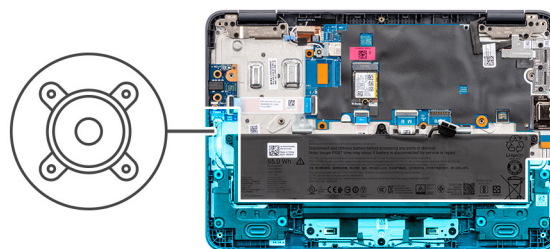


Figure 16. Removing the speakers

Steps

1. Disconnect the speaker cable from the connector (SPEAKER) on the I/O board.
2. Remove the two screws (M1.6x1.5) that secure the speakers to the palm-rest assembly.
3. Peel the tapes securing the speaker cable onto the palm-rest assembly.
4. Remove the speaker cable from the routing guides on the palm-rest assembly.
5. Release the speakers from the rubber grommets and lift the speakers off the palm-rest assembly.

Installing the speakers

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

Prerequisites

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

About this task



Watch video: [Installing the speakers](#)

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

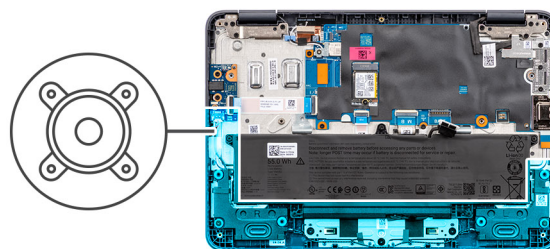


Figure 17. Installing the speakers

Steps

1. Using the alignment posts, place the left and right speakers into their slots on the palm-rest assembly.
NOTE: Ensure that the 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 assembly.
3. Adhere the tapes securing the speaker cable onto the palm-rest assembly.
4. Replace the two screws (M1.6x1.5) that secure the speakers to the palm-rest assembly.
5. Connect the speaker cable to the connector on the I/O board.

Next steps

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

Solid State Drive (SSD)

Removing the solid state drive

Prerequisites

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

About this task



Watch video: [Removing the solid state drive](#)

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



Figure 18. Removing the SSD

Steps

1. Remove the screw (M2x2.5) that secures the SSD to the palm-rest assembly.
2. Slide and remove the SSD off the SSD slot.

Installing the solid state drive

Prerequisites

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

About this task



[Watch video: Installing the solid state drive](#)

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

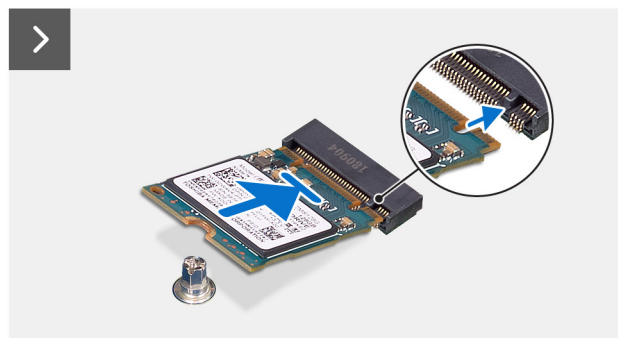
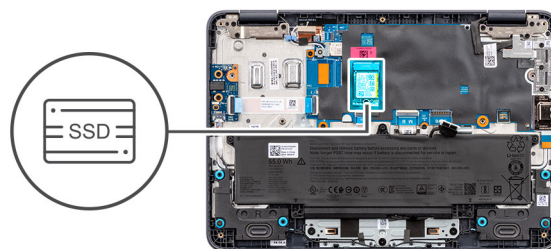


Figure 19. Installing the SSD

Steps

1. Align the notch on the SSD with the tab on the SSD slot.
2. Replace the screw (M2x2.5) to secure the SSD to the palm-rest assembly.

Next steps

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

Removing and installing Field Replaceable Units (FRUs)

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

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

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

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

Keyboard

Removing the keyboard

Prerequisites

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

About this task



Watch video: [Removing the keyboard](#)

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



Figure 20. Disconnecting the keyboard cable



Figure 21. Releasing the keyboard with a scribe



Figure 22. Removing the keyboard

Steps

1. Disconnect the keyboard cable from the connector (KB) on the system board and push the KB release tabs with a scribe.
2. Turn the computer and open the display to an angle of 180 degrees with the keyboard facing up.
3. Using the scribe, carefully pry the keyboard from the latches in the palm-rest assembly to release the keyboard from the palm-rest assembly.
4. Lift the keyboard off the palm-rest assembly while carefully pulling the keyboard cable through the opening on the palm-rest assembly.

Installing the keyboard

Prerequisites

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

About this task



[Watch video: Installing the keyboard](#)

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



Figure 23. Inserting the keyboard cable through the opening on the palm-rest assembly and placing the keyboard on it



Figure 24. Installing the keyboard

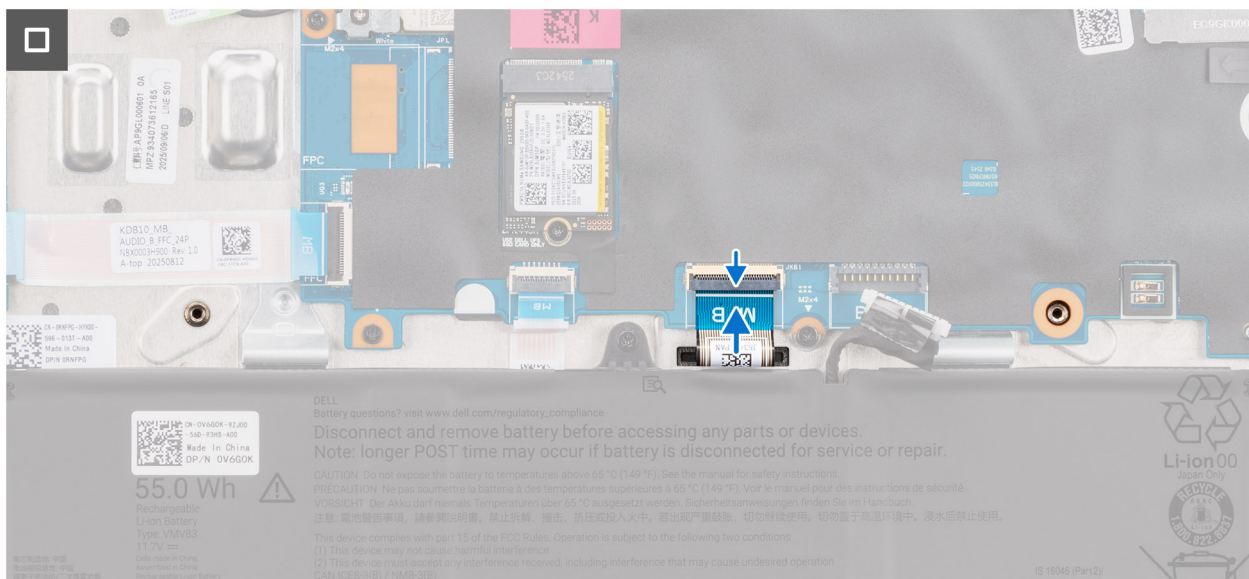


Figure 25. Connecting the keyboard cable

Steps

1. Carefully insert the keyboard cable through the opening on the palm-rest assembly.
2. Align and place the keyboard on the palm-rest assembly.
3. Lower the keyboard into position and press gently until it snaps into the latches on the palm-rest assembly.
4. Gently close the display and turn your computer.
5. Carefully connect the keyboard cable to the system board.

Next steps

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

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

Touchpad

Removing the touchpad

Prerequisites

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

About this task



Watch video: [Removing the touchpad](#)

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

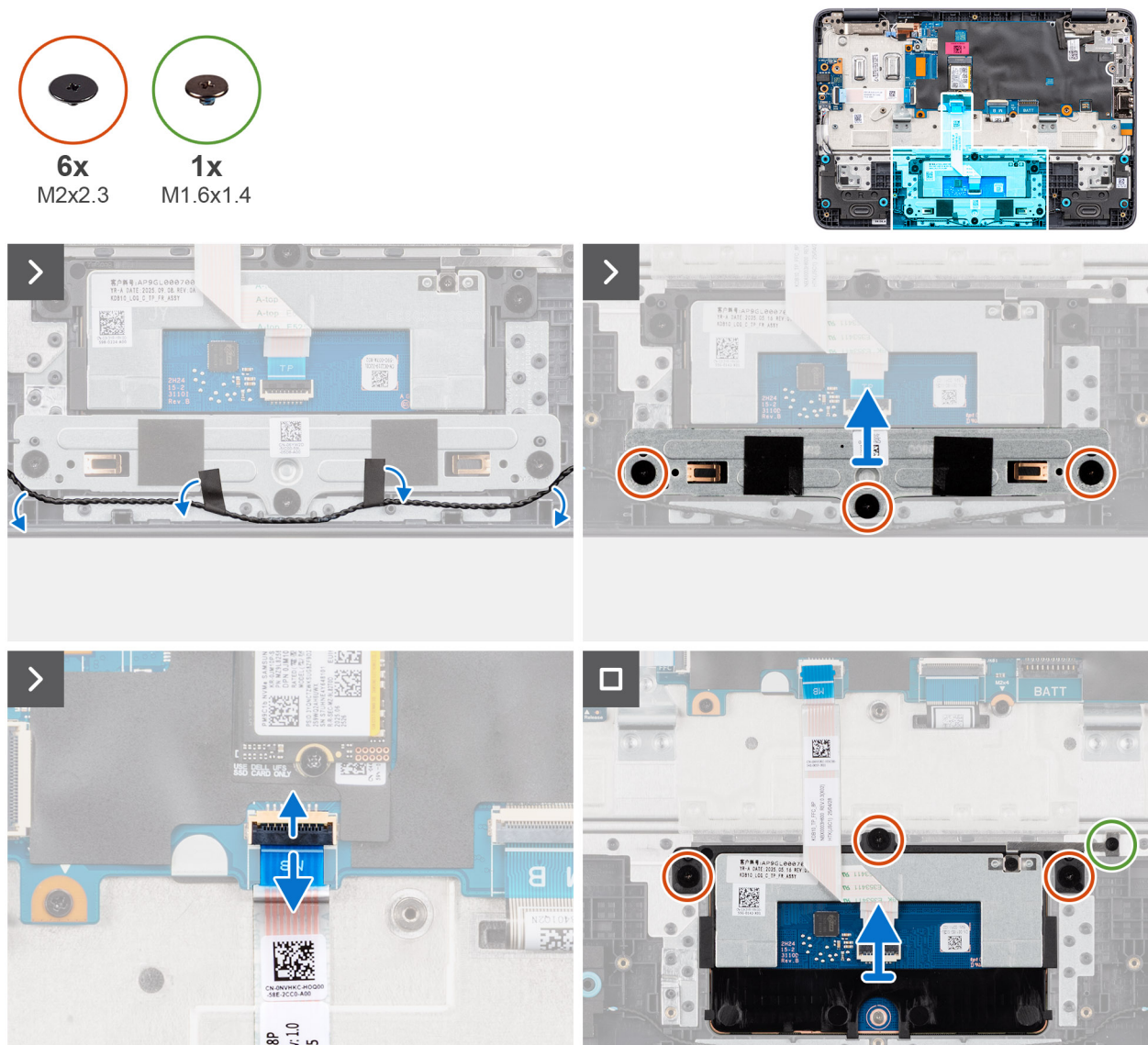


Figure 26. Removing the touchpad

Steps

1. Peel the tape and unroute the speaker cable from your computer.
2. Remove the three screws (M2x2.3) that secure the touchpad bracket in place.
3. Remove the touchpad bracket from the computer.
4. Disconnect the touchpad cable from the connector on the system board.
5. Remove the three screws (M2x2.3) and single screw (M1.6x1.4) that secure the touchpad in place.
6. Remove the touchpad from the computer.

Installing the touchpad

Prerequisites

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

About this task



[Watch video: Installing the touchpad](#)

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

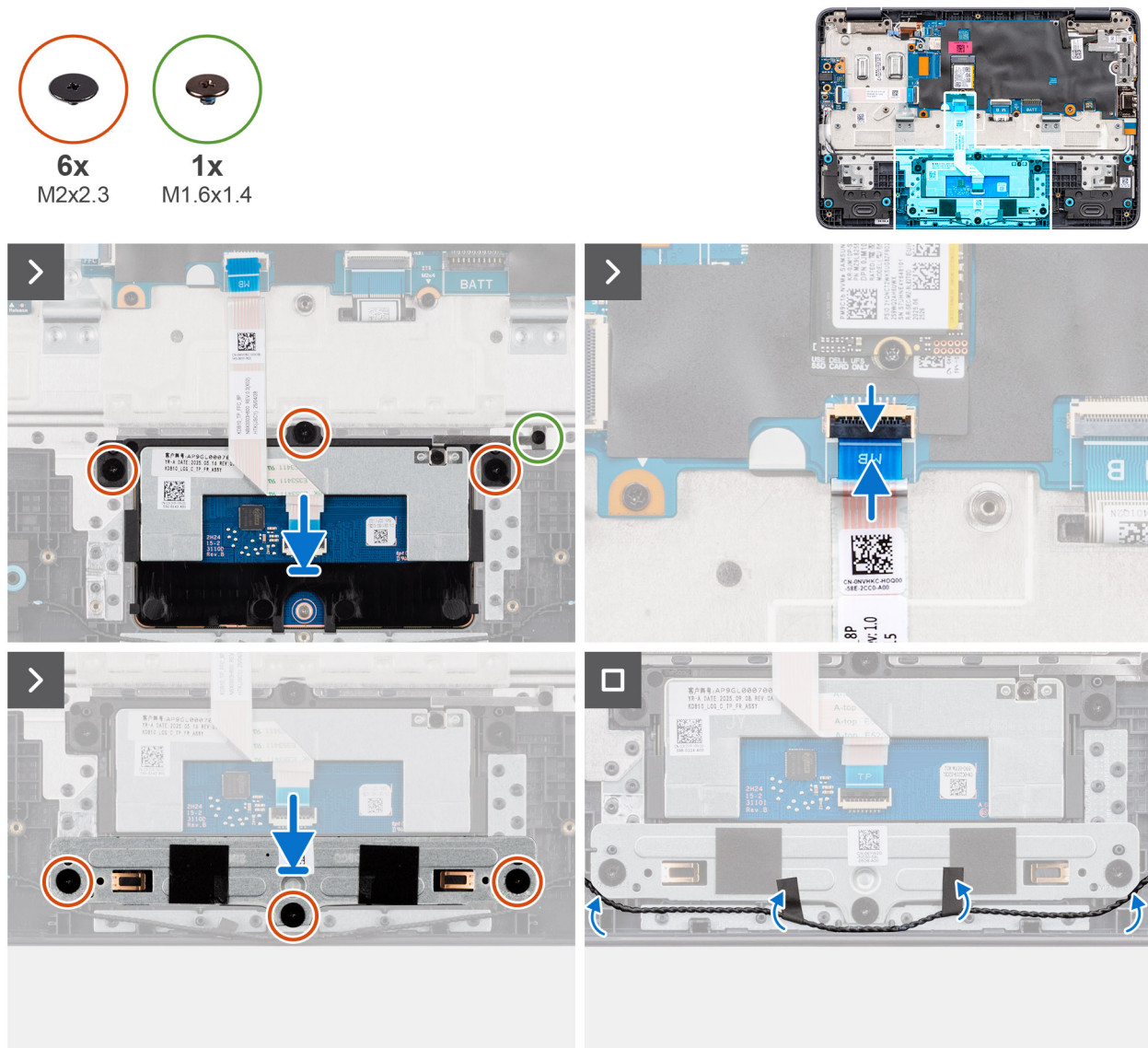


Figure 27. Installing the touchpad

Steps

1. Align and place the touchpad onto the system.
2. Replace the three screws (M2x2.3) and single screw (M1.6x1.4) to secure the touchpad in place.
3. Place the touchpad bracket above the touchpad and align the screw holes in the bracket with the screw holes in the computer.
4. Replace the three screws (M2x2.3) to secure the touchpad bracket in place.
5. Connect the touchpad cable to the connector on the system board.
6. Route the speaker cable and adhere the tapes in the touchpad bracket.

Next steps

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

System board

Removing the system board

NOTE: Do not remove the USB Type-A bracket from the system board. The USB Type-A bracket is assembled together with the replacement system board.

Prerequisites

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

About this task



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

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

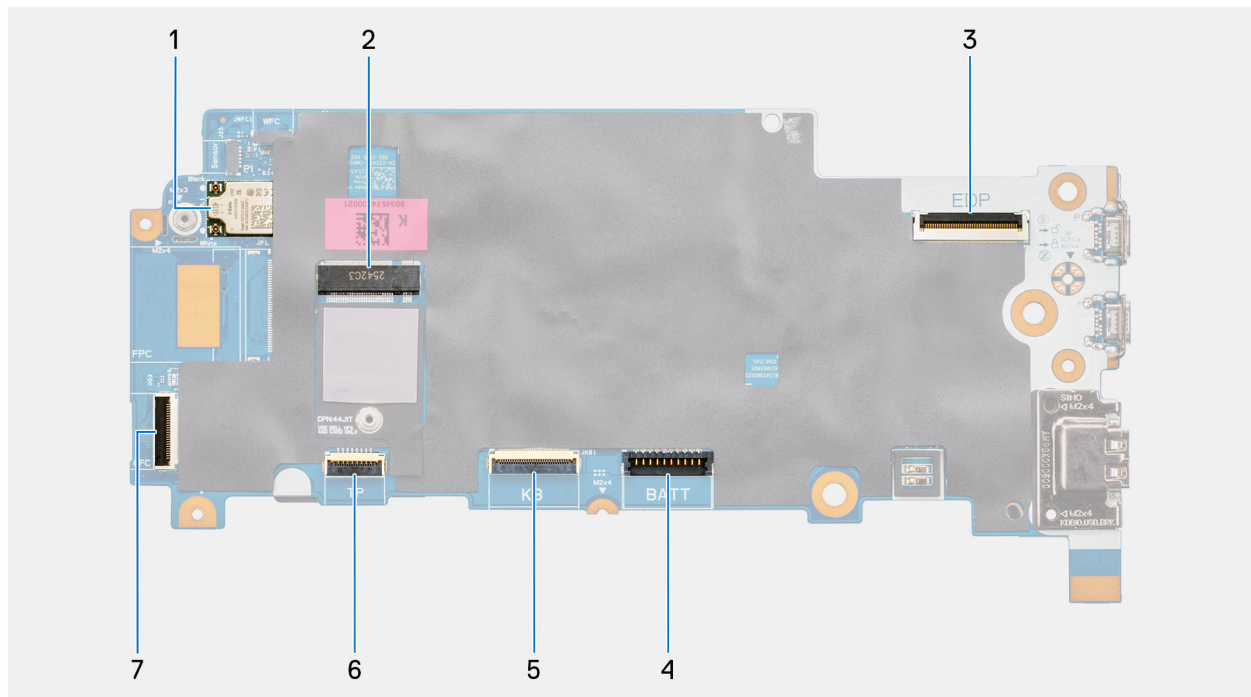


Figure 28. System-board connectors

- | | |
|----------------------------------|-----------------------------------|
| 1. WLAN card (WL1) connector | 2. SSD connector |
| 3. Display cable (EDP) connector | 4. Battery cable (BATT) connector |
| 5. Keyboard cable (KB) connector | 6. Touchpad cable (TP) connector |
| 7. I/O-board connector | |

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

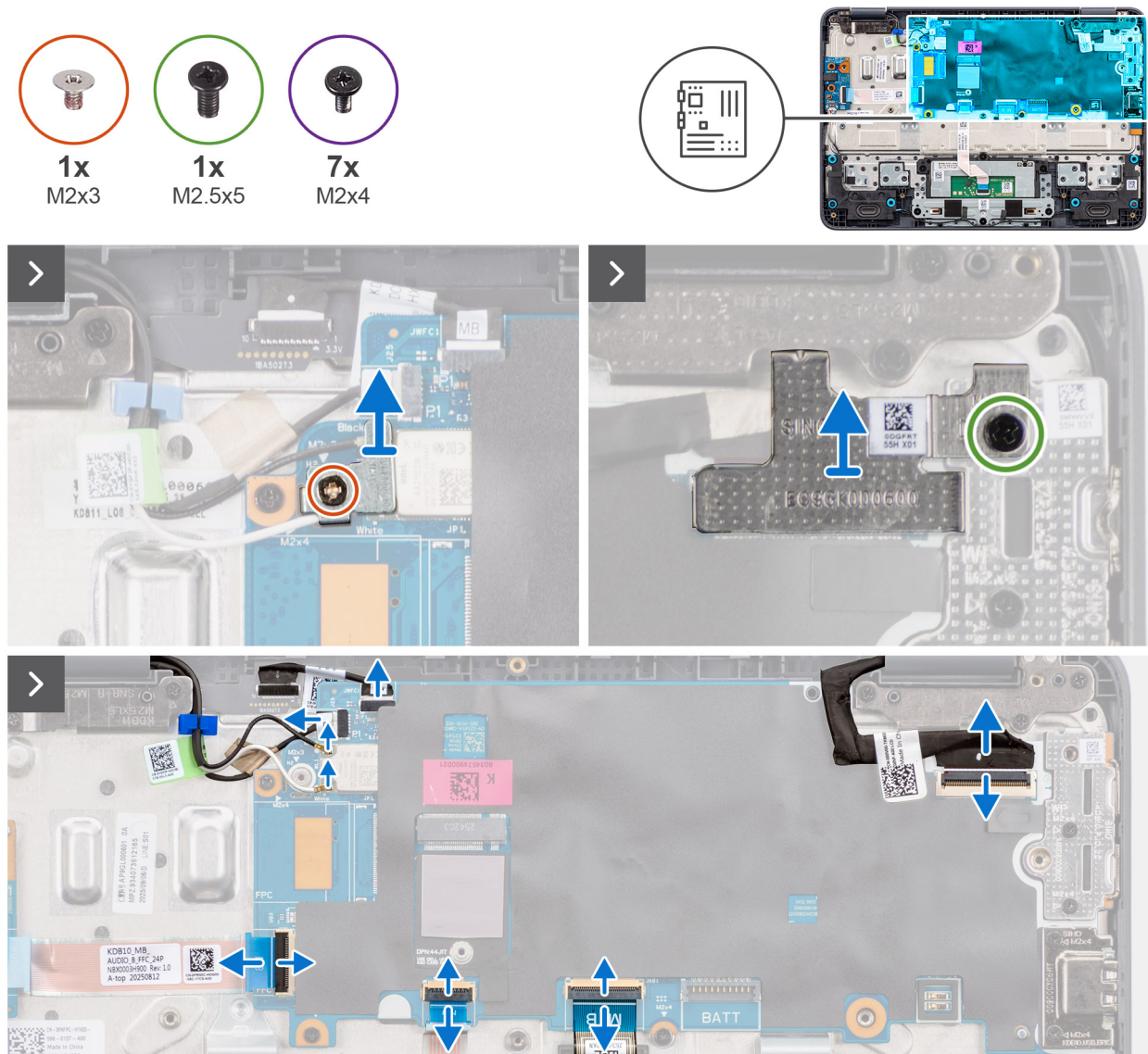


Figure 29. Removing the system board



Figure 30. Removing the system board

Steps

1. Remove the screw (M2x3) that secures the WLAN bracket to the palm-rest assembly.
2. Remove the WLAN bracket off the palm-rest assembly.
3. Disconnect the WLAN antenna cables from the WLAN module on the system board.
4. Remove the screw (M2.5x5) that secures the display-cable bracket to the palm-rest assembly.
5. Lift the display-cable bracket off the palm-rest assembly.
6. Disconnect the display cable, world-facing camera cable (for models shipped with a world-facing camera), touchpad cable, and I/O-board cable from the connectors on the system board.
7. Peel back the display cable from the computer.
8. Remove the two screws (M2x4) securing the Type-C bracket in place and remove the two screws (M2x4) securing the Type-A bracket in place.
9. Remove the Type-C bracket from the system.
10. Remove the three screws (M2x4) securing the system board in place.
11. Carefully lift the system board off the palm-rest assembly.

Installing the system board

Prerequisites

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

About this task



Watch video: Installing the system board

Diagram illustrating the back of the iPhone 12, showing the internal components and their locations:

1. Camera Module
2. A14 Bionic chip
3. EDP connector
4. Battery
5. Logic Board
6. Taptic Engine
7. SIM card tray

1. WLAN card (WL1) connector
2. SSD connector
3. Display cable (EDP) connector
4. Battery cable (BATT) connector
5. Keyboard cable (KB) connector
6. Touchpad cable (TP) connector
7. I/O-board connector

42 Removing and installing Field Replaceable Units (FRUs)



Figure 32. Installing the system board



Figure 33. Installing the system board

Steps

1. Carefully align and place the system board into its slot on the palm-rest assembly.
2. Fasten the three screws (M2x4) to secure the system board in place.
3. Secure the Type-C bracket with two screws (M2x4) and secure the Type-A bracket with two screws (M2x4).
4. Carefully position and press the display cable onto the computer.
5. Attach the following cables to their respective connectors on the system board: display cable, world-facing camera cable (for models shipped with a world-facing camera), touchpad cable, and I/O-board cable.
6. Place the display-cable bracket onto the palm-rest assembly and secure it with the screw (M2.5x5).
7. Attach the WLAN antenna cables to the WLAN module on the system board.
8. Position the WLAN bracket on the palm-rest assembly and secure it with the screw (M2x3).

Next steps

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

Thermal plate

Removing the thermal plate

Prerequisites

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

3. Remove the [battery](#).
4. Remove the [system board](#).

About this task



Watch video: [Removing the thermal plate](#)

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

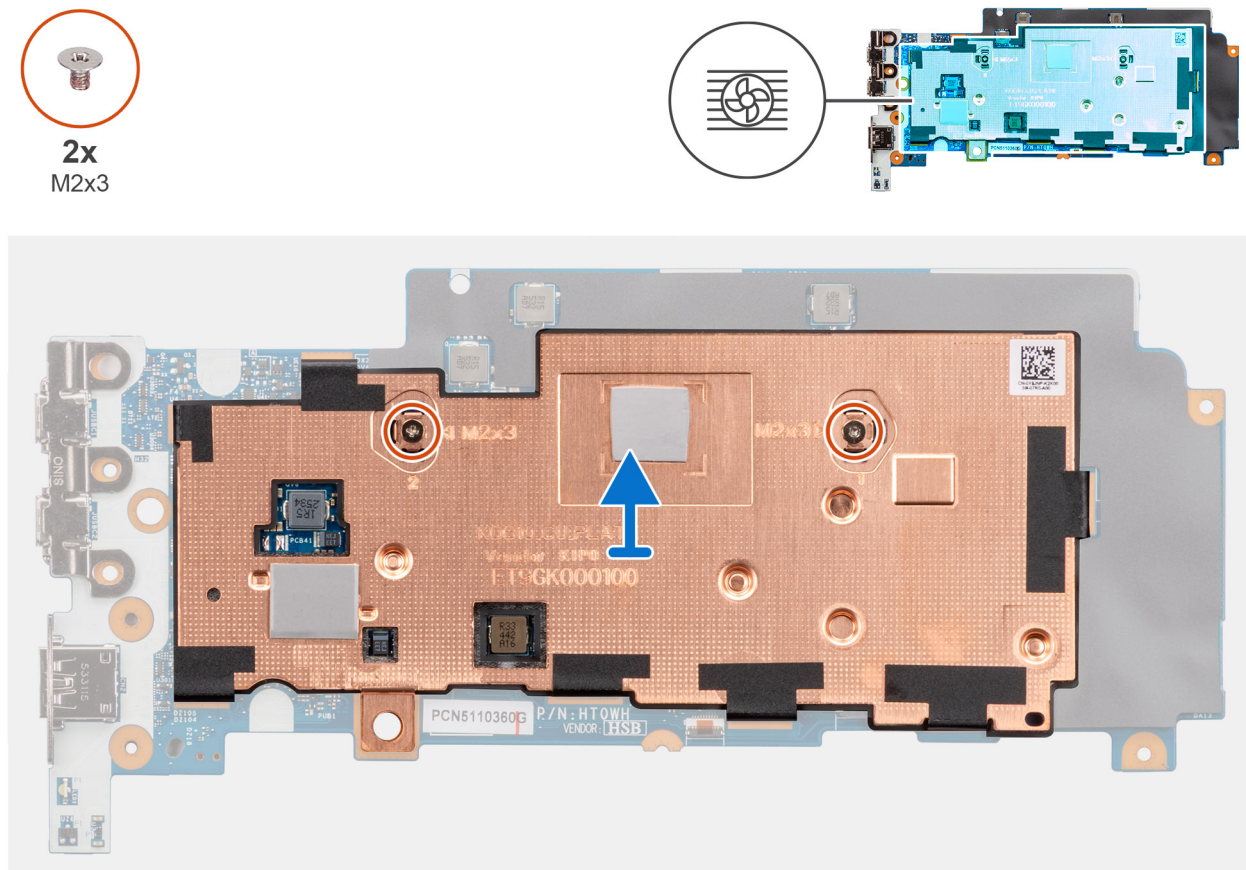


Figure 34. Removing the thermal plate

Steps

1. Remove the two screws (M2x3) that secure the thermal plate in place.
2. Remove the thermal plate from the system board.

Installing the thermal plate

Prerequisites

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

About this task



Watch video: [Installing the thermal plate](#)

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

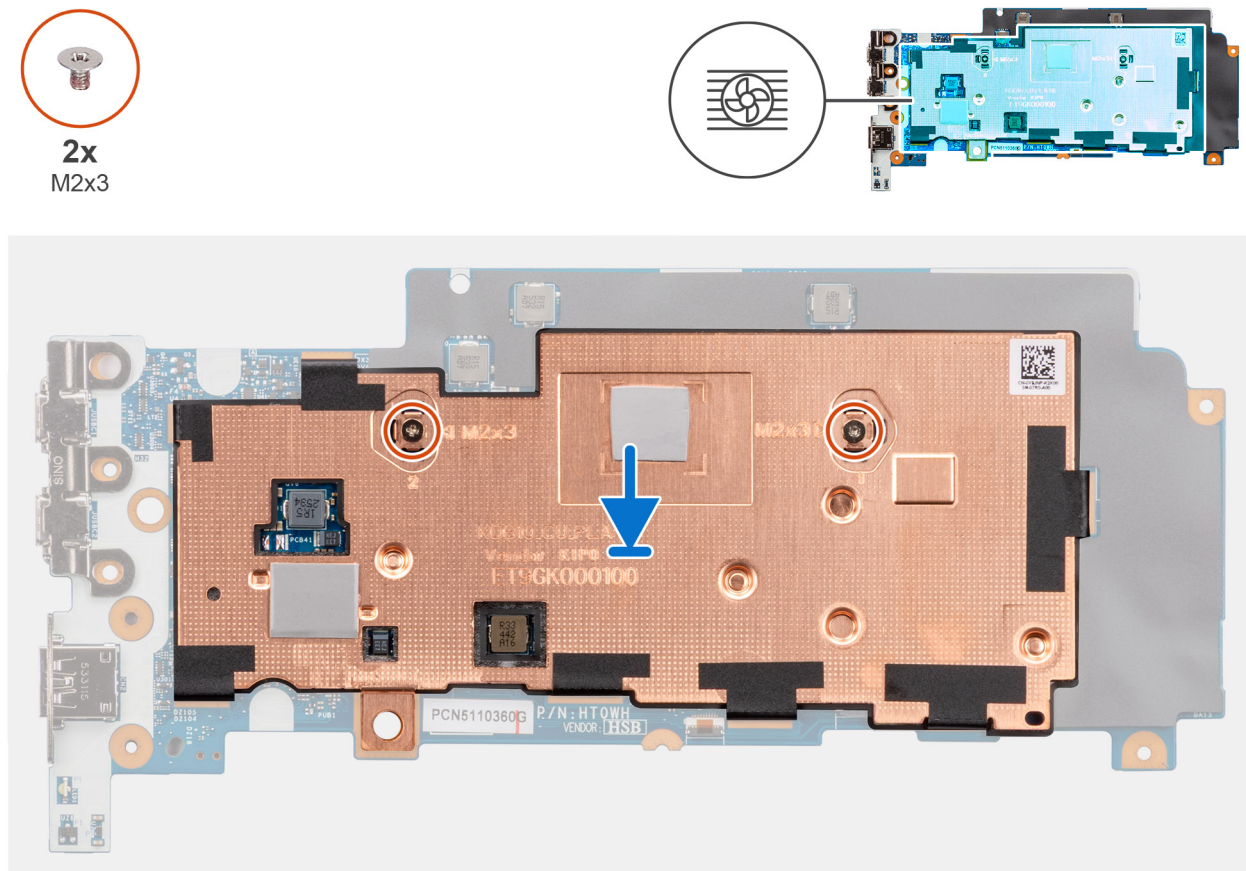


Figure 35. Installing the thermal plate

Steps

1. If the thermal pads are damaged during the removal process, re-adhere them to the corresponding location on the plate.
2. Carefully align and place the thermal plate onto the system board.

i NOTE: If the thermal pads are damaged during the removal process, re-adhere them to the corresponding location on the plate.

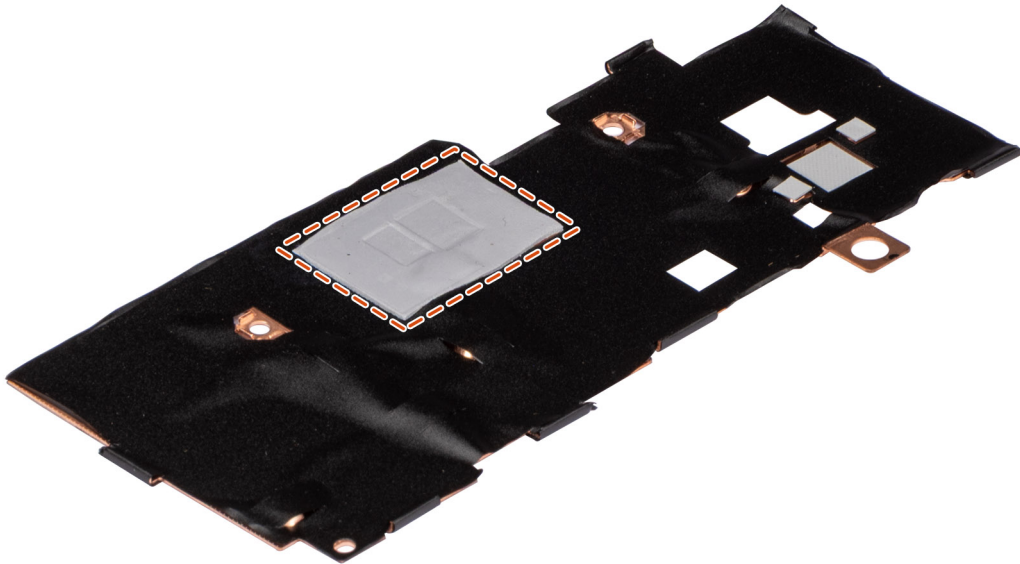


Figure 36. Installing the thermal plate

3. Replace the two screws (M2x3) to secure the thermal plate in place.

Next steps

1. Install the [system board](#).
2. Install the [battery](#).
3. Install the [base cover](#).
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](#).

About this task



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

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

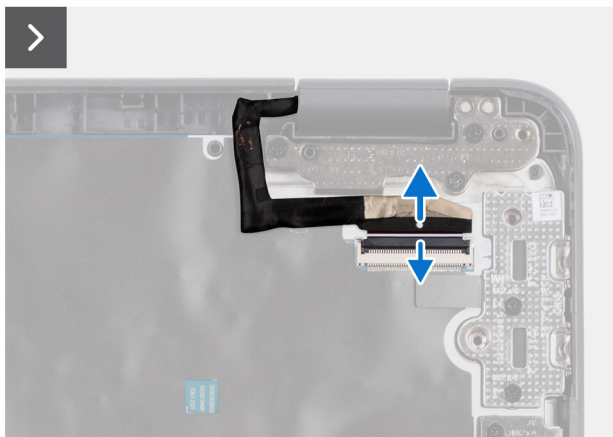
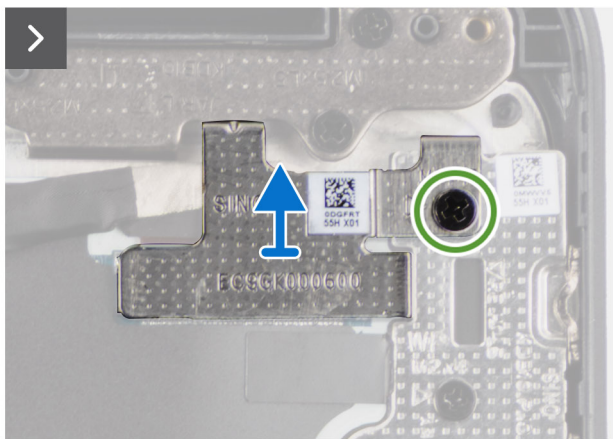
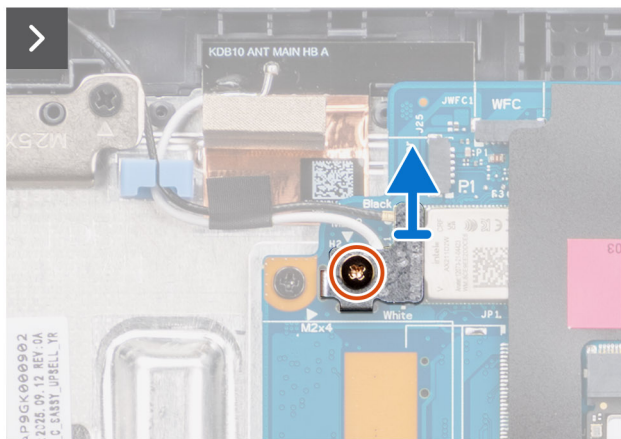
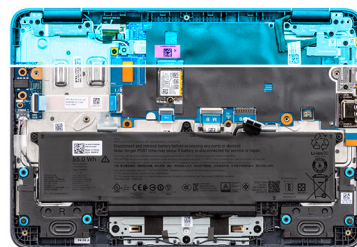


Figure 37. Removing the display assembly



Figure 38. Removing the display assembly

Steps

1. Remove the screw (M2x3) that secures the WLAN bracket to the palm-rest assembly.
2. Remove the WLAN bracket off the palm-rest assembly.
3. Disconnect the WLAN antenna cables from the WLAN module on the system board.
4. Remove the screw(M2.5x5) that secure the display-cable bracket to the palm-rest assembly.
5. Lift the display-cable bracket off the palm-rest assembly.
6. Lift the display-cable bracket off the palm-rest assembly, and disconnect and peel back the display cable from the system board.
7. Open the display to a 270-degree angle and place the computer at the edge of a flat table.
8. Remove the six screws (M2.5x5) that secure the left and right hinges of the display assembly to the system board and palm-rest assembly.
9. Lift the display assembly off the palm-rest assembly.
10. After performing all the above steps, you are left with the display assembly.

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



Figure 39. Display assembly

Installing the display assembly

Prerequisites

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

About this task



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

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

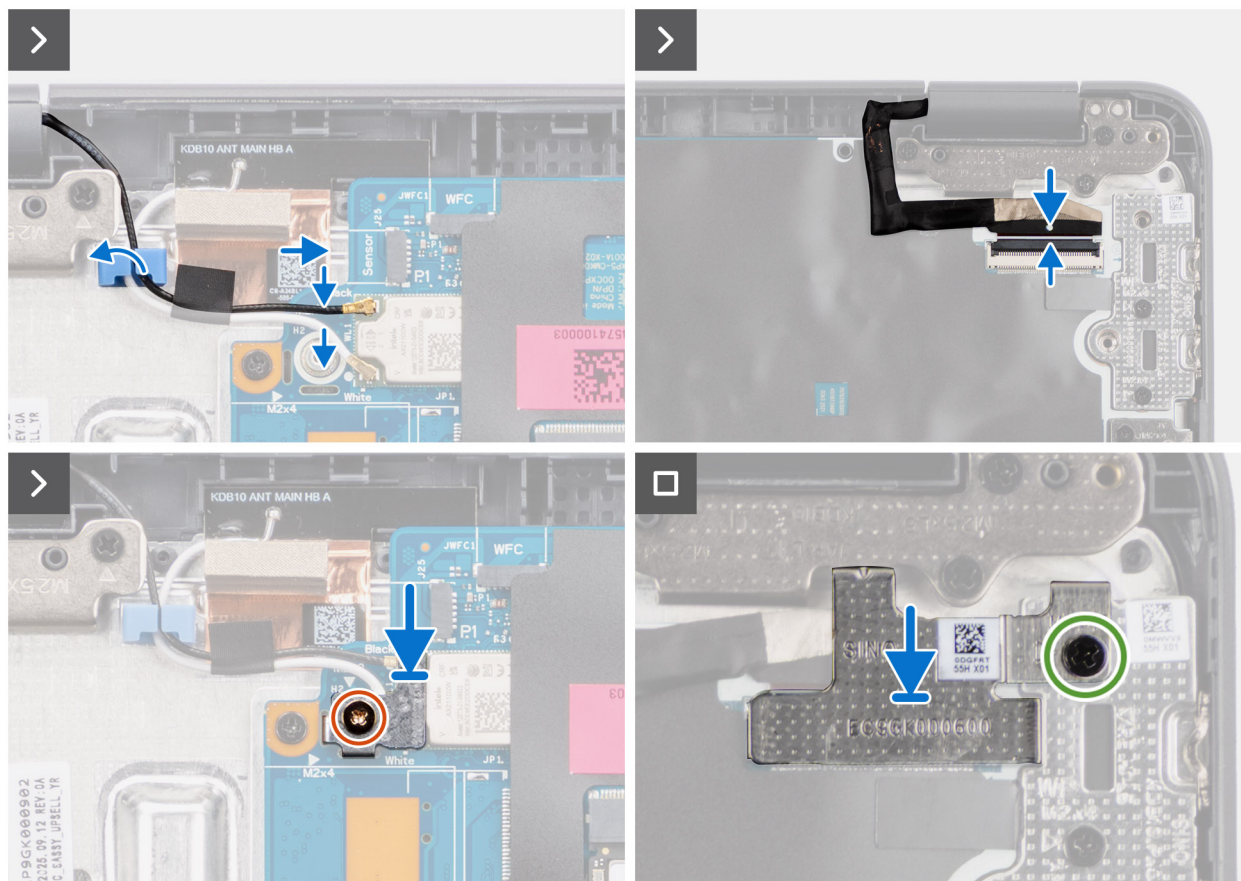


Figure 41. Installing the display assembly

Steps

1. Place the palm-rest assembly at the edge of a flat table.
2. Align the screw holes of the palm-rest assembly with the screw holes on the hinges of the display assembly.
3. Replace the six screws (M2.5x5) that secure the left and right hinges of the display assembly to the system board and palm-rest assembly.
4. Close the display assembly, turn the computer over, and place it on the flat surface.
5. Carefully position the display cable and connect it to the system board.
6. Place the display-cable bracket onto the palm-rest assembly. Secure it with the screw (M2.5x5).
7. Connect the WLAN antenna cables to the WLAN module on the system board.
8. Position the WLAN bracket on the palm-rest assembly, and secure it with the screw (M2x3).
9. Replace the single screw (M2x3) to secure the WLAN bracket to the palm-rest assembly.

Next steps

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

Palm-rest assembly

Removing the palm-rest assembly

Prerequisites

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

3. Remove the [battery](#).
4. Remove the [battery cable](#).
5. Remove the [SSD](#).
6. Remove the [keyboard](#).
7. Remove the [I/O-board cable](#).
8. Remove the [audio I/O board](#).
9. Remove the [touchpad](#).
10. Remove the [display assembly](#).
11. Remove the [system board](#).

NOTE: The system board can be removed and installed along with the thermal plate, when you replace the palm-rest assembly. This simplifies the removal and installation procedure and prevents damage to the thermal bond between the system board and thermal plate.

12. Remove the [speakers](#).

About this task

The following image shows the palm-rest assembly after all the components in the prerequisite steps have been removed.

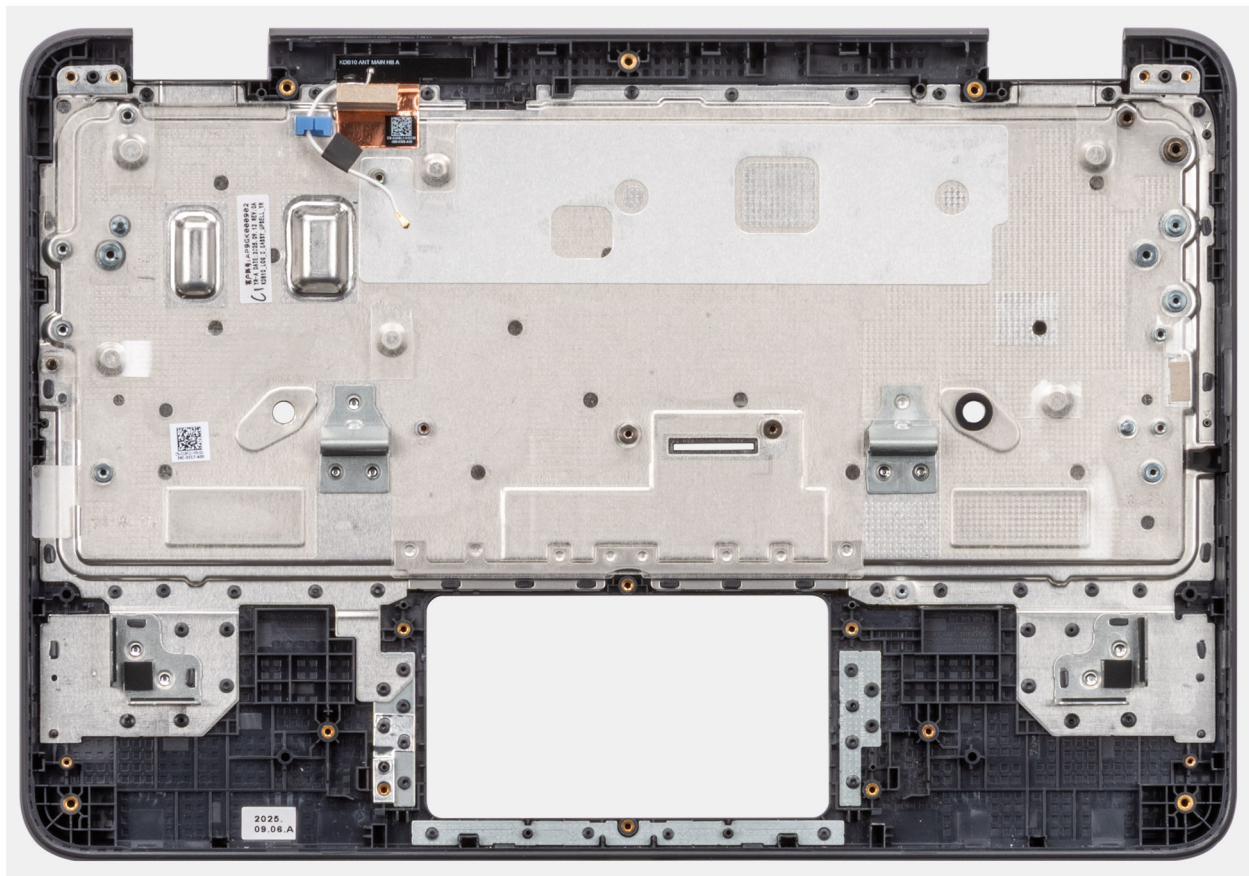


Figure 42. Palm-rest assembly

NOTE: The palm-rest assembly cannot be further disassembled once all the pre-removal parts procedures are completed. If the touchpad frame, touchpad support bracket, touchpad mylar, touchpad module, touchpad cable, conductive tape, or thermal pad are malfunctioning and requires to be replaced, replace the entire palm-rest assembly.

Steps

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

Installing the palm-rest 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 assembly.

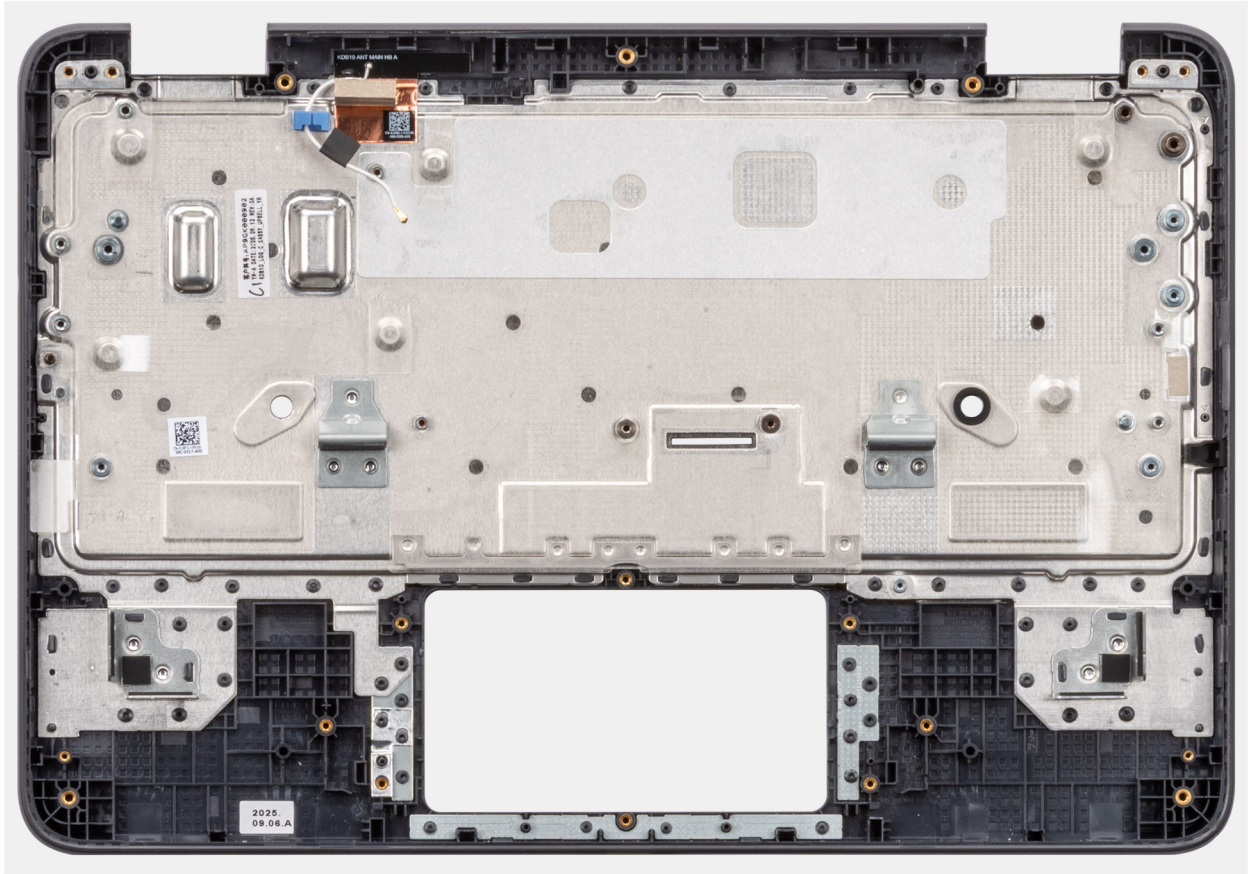


Figure 43. Palm-rest assembly

Steps

Place the palm-rest assembly on a flat surface and install the components that are listed in **Next steps** to complete the palm-rest installation.

Next steps

1. Install the [speakers](#).
2. Install the [system board](#).
3. Install the [display assembly](#).
4. Install the [touchpad](#).
5. Install the [audio I/O board](#).
6. Install the [I/O-board cable](#).
7. Install the [keyboard](#).
8. Install the [SSD](#).
9. Install the [battery cable](#).
10. Install the [battery](#).
11. Install the [base cover](#).
12. Follow the procedure in [After working inside your computer](#).

Software

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

Operating system

Your Dell Pro Education 11 PE11260 supports the following operating systems:

- Windows 11 Home
- Windows 11 Professional

Drivers and downloads

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

BIOS Setup

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

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

Use BIOS Setup for the following purposes:

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

Entering BIOS Setup program

Turn on or restart your computer and press F2 immediately.

Navigation keys

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

Table 3. Navigation keys

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

F12 One Time Boot menu

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

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

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

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

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

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

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

View Advanced Setup options

About this task

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

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

To enable Advanced Setup:

Steps

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

View Service options

About this task

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

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

To view Service options:

Steps

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

BIOS Setup options

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

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

Table 4. System Setup options—Overview menu

Overview	
Dell Pro Education 11 PE11260	
BIOS Version	Displays the BIOS version number.
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Displays the Asset Tag of the computer.

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

Overview	
Manufacture Date	Displays the manufacture date of the computer.
Ownership Date	Displays the ownership date of the computer.
Express Service Code	Displays the Express Service Code of the computer.
Ownership Tag	Displays the Ownership Tag of the computer.
System UUID	Displays whether the Signed Firmware Update is enabled on your computer. By default, the Signed Firmware Update option is enabled.  NOTE: To view this option, enable Service options as described in View Service options.
BATTERY Information	
Primary	Displays the primary battery of the computer.
Battery Level	Displays the battery level of the computer.
Battery State	Displays the battery state of the computer.
Health	Displays the battery health of the computer.
AC Adapter	Displays whether an AC adapter is connected. If connected, displays the type of AC adapter that is connected.
Battery Life Type	Displays the battery life type of the computer.
PROCESSOR Information	
Processor Type	Displays the processor type.
Maximum Clock Speed	Displays the maximum processor clock speed.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Core Count	Displays the number of cores on the processor.
Processor ID	Displays the processor identification code.
Microcode Version	Displays the microcode version.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Processor L2 Cache	Displays the L2 Cache.
Processor L3 Cache	Displays the L3 Cache.
Intel Hyper-Threading Capable	Displays whether the processor is Hyper-Threading (HT) capable.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
MEMORY Information	
Memory Installed	Displays the total memory installed on the computer.
Memory Available	Displays the total memory available on the computer.
Memory Speed	Displays the memory speed.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Memory Technology	Displays the technology that is used for the memory.
DEVICES Information	
Panel Type	Displays the type of display panel available on the computer.

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

Overview	
Panel Revision	
Video Controller	Displays the type of video controller available on the computer.
Video Memory	Displays the video memory information of the computer.
Wi-Fi Device	Displays the wireless device information of the computer.
Native Resolution	Displays the native resolution of the computer.
Video BIOS Version	Displays the video BIOS version of the computer.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Audio Controller	Displays the audio controller information of the computer.
Bluetooth Device	Displays the Bluetooth device information of the computer.
Pass Through MAC Address	Displays the MAC address of the video pass-through.

Table 5. System Setup options—Boot Configuration menu

Boot Configuration	
Boot Sequence	
Boot Mode: UEFI only	Displays the boot mode of the computer.  NOTE: To view this option, enable Service options as described in View Service options .
Boot Sequence	Displays the boot sequence.
PXE Boot Priority	When enabled, any new PXE boot option that is detected by the computer is added to the top of the Boot Sequence. By default, the Enable PXE Boot Priority option is disabled.
Secure Boot	
	Secure Boot is a method of guaranteeing the integrity of the boot path by performing additional validation of the operating system and PCI add-in cards. The computer stops booting to the operating system when a component is not authenticated during the boot process. Secure Boot can be enabled in BIOS setup or using management interfaces like Dell Command Configure, but can only be disabled from BIOS setup.
Enable Secure Boot	Enables the computer to boot using only validated boot software. By default, this Enable Secure Boot option is disabled. For additional security, Dell Technologies recommends keeping the Secure Boot option enabled to ensure that the UEFI firmware validates the operating system during the boot process.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .  NOTE: To enable Secure Boot, the computer must be in UEFI boot mode and the Enable Legacy Option ROMs option must be turned off.
Enable Microsoft UEFI CA	When disabled, the UEFI CA is removed from the BIOS UEFI Secure Boot database.  CAUTION: If you disable Microsoft UEFI CA, the computer may not boot, computer graphics may not function, some devices may not function properly, and the computer could become unrecoverable. By default, the Enable Microsoft UEFI CA option is enabled.

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

Boot Configuration	
	For additional security, Dell Technologies recommends keeping the Enable Microsoft UEFI CA option enabled to ensure the broadest compatibility with devices and operating systems.
Secure Boot Mode	Enables or disables the Secure Boot operation mode. By default, the Deployed Mode is selected. Deployed Mode should be selected for normal operation of Secure Boot.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Legacy Microsoft Third Party UEFI CA	
Expert Key Management	
Enable Custom Mode	Enables or disables the keys in the PK, KEK, db, and dbx security key databases to be modified. By default, the Enable Custom Mode option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Custom Mode Key Management	Selects the custom values for expert key management. By default, the PK option is selected.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 6. System Setup options—Integrated Devices menu

Integrated Devices	
Date/Time	
Date	Sets the computer date in MM/DD/YYYY format. Changes to the date format take effect immediately.
Time	Sets the computer time in HH/MM/SS 24-hour format. You can select between a 12-hour or 24-hour clock. Changes to the time format take effect immediately.
Camera	
Enable Camera	Enables the camera. By default, the Enable Camera option is enabled.  NOTE: Depending on the configuration ordered, the camera setup option may not be available.
Audio	
Enable Audio	Enables all integrated audio controller. By default, all the options are enabled.
Enable Microphone	Enables the microphone. By default, the Enable Microphone option is enabled.  NOTE: Depending on the configuration ordered, the microphone setup option may not be available.
Enable Internal Speaker	Enables the internal speaker. By default, the Enable Internal Speaker option is enabled.

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

Integrated Devices	
Serial Port	
USB Configuration	
Enable USB Boot Support	Enables booting from USB mass storage devices that are connected to external USB ports. By default, the Enable USB Boot Support option is enabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable External USB Ports	Enables the external USB ports. By default, the Enable External USB Ports option is enabled. NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 7. System Setup options—Storage menu

Storage	
SATA/NVMe Operation	
SATA/NVMe Operation	Sets the operating mode of the integrated SATA hard drive controller. By default, the Raid On option is selected.
Storage Interface	
Port Enablement	Enables or disables the M.2 PCIe SSD option. By default, the M.2 PCIe SSD option is enabled.
Drive Information	Displays the information of onboard drives.

Table 8. System Setup options—Display menu

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

Table 9. System Setup options—Connection menu

Connection	
Wireless Device Enable	
WLAN	Enables or disables the internal WLAN device. By default, the WLAN option is enabled.
Bluetooth	Enables or disables the internal Bluetooth device.

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

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

Table 10. System Setup options—Power menu

Power	
Battery Configuration	Enables or disables the computer to run on battery during peak power usage hours. Use the table Custom Charge Start and Custom Charge Stop, to prevent AC power usage between certain times of each day. By default, the Adaptive option is selected. Battery settings are adaptively optimized based on your typical battery usage pattern.
Advanced Configuration	
Enable Advanced Battery Charge Configuration	Enables Advanced Battery Charge Configuration from the beginning of the day to a specified work period. When enabled, Advanced Battery Charged maximizes battery health while still supporting heavy use during the work day. By default, the Enable Advanced Battery Charge Configuration option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Peak Shift	
Enable Peak Shift	Enables the computer to switch to battery power automatically during peak energy usage hours. By default, the Enable Peak Shift option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
USB Wake Support	

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

Power	
Wake on Dell USB-C Dock	When enabled, connecting a Dell USB-C Dock wakes the computer from Standby, Hibernate, and Power Off. By default, the Wake on Dell USB-C Dock option is enabled. i NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Lid Switch	
Enable Lid Switch	Enables or disables the Lid Switch. By default, the Enable Lid Switch option is enabled.
Power On Lid Open	When enabled, allows the computer to turn on from the off state whenever the lid is opened. By default, the Power On Lid Open option is enabled.

Table 11. System Setup options—Security menu

Security	
Intel Platform Trust Technology (PTT)	
PTT/Firmware TPM On	This option lets you control whether the Intel Platform Trust Technology feature (PTT) is visible to the operating system. i NOTE: Disabling this option does not change any settings you have made to the PTT, nor does it delete or change any information or keys you may have stored in the PTT. Changes to this setting take effect immediately.
Physical Presence Interface (PPI) Bypass for Clear Commands	The PPI Bypass for Clear Commands option allows the operating system to manage certain aspects of PTT. When enabled, this setting will allow the operating system to skip BIOS PPI user prompts when issuing the Clear command. When disabled, this setting will require user physical presence interaction to follow instruction from BIOS. By default, the PPI Bypass for Clear Commands option is disabled. For additional security, Dell Technologies recommends keeping the PPI Bypass for Clear Commands option disabled.
Clear	When enabled, the Clear option clears the PTT owner information, and returns the PTT to the default state. Changes to this setting will be latched in the BIOS after clicking Apply, but will not take effect in the PTT until after exiting the BIOS setup menu. i NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Intel Total Memory Encryption	Enables or disables the processor's memory encryption feature. By default, the Intel Total Memory Encryption option is disabled. i NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Chassis Intrusion	
Chassis Intrusion	Enables or disables the detection of chassis intrusion events. This feature notifies the user when the base cover has been removed from the computer. When set to Enabled, a notification is displayed on the next boot and the event is logged in the BIOS Events log. When set to Disabled, no notification is displayed and no event is logged in the BIOS Events log.

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

Security	
	When set to On-Silent, the event is logged in the BIOS Events log, but no notification is displayed. By default, the Chassis Intrusion Detection option is disabled. For additional security, Dell Technologies recommends keeping the Chassis Intrusion option enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Data Wipe on Next Boot	
Start Data Wipe	Data Wipe is a secure wipe operation that deletes information from a storage device.  CAUTION: The secure Data Wipe operation deletes information in a way that it cannot be reconstructed. Commands such as delete and format in the operating system may remove files from showing up in the file system. However, they can be reconstructed through forensic means as they are still represented on the physical media. Data Wipe prevents this reconstruction and the data can no longer be recovered. When enabled, the data wipe option provides prompts to wipe any storage devices that are connected to the computer on the next boot. By default, the Start Data Wipe option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Absolute	Absolute Software provides various cyber security solutions, some requiring software preloaded on Dell computers and integrated into the BIOS. To use these features, you must enable the Absolute BIOS setting and contact Absolute for configuration and activation. By default, the Absolute option is enabled. For additional security, Dell Technologies recommends keeping the Absolute option enabled.  WARNING: The Permanently Disabled option can only be selected once. When Permanently Disabled is selected, Absolute Persistence cannot be reenabled. No further changes to the Enable/Disable states are allowed.  NOTE: The Enable/Disable options are unavailable while the computer is in the activated state.  NOTE: When the Absolute features are activated, the Absolute integration cannot be disabled from the BIOS Setup screen.
UEFI Boot Path Security	Enables or disables the computer to prompt the user to enter the Administrator password (if set) when booting to a UEFI boot path device from the F12 boot menu. By default, the Always Except Internal HDD option is enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Authenticated BIOS Interface	
Enable Authenticated BIOS Interface	Allows the administrator to control access to BIOS configuration through an authenticated interface. When enabled, this option ensures that BIOS configuration changes are secured by authentication.

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

Security	
	By default, the Enable Authenticated BIOS Interface option is disabled.
Legacy Manageability Interface Access	Allows the administrator to control the access to BIOS configuration through the Legacy Manageability Interface option. When enabled, this prevents the BIOS Administrator password-based manageability tools from running, prevents some Dell software applications from reading configuration settings, and/or prevents changes to the BIOS configuration settings. When enabled, this option only supports the Authenticated BIOS Manageability Interface (ABI) for managing the BIOS configuration changes. To support this feature, ABI must be enabled and provisioned. When set to Enabled, the Legacy Manageability Interface can be used to read and change BIOS configuration settings. When set to Read-Only, BIOS configuration settings can be read, but cannot be changed through the Legacy Manageability Interface. When set to Disabled, the Legacy Manageability Interface is disabled. BIOS configuration reads and writes are blocked.
Firmware Device Tamper Detection	Allows you to control the firmware device tamper detection feature. This feature notifies the user when the firmware device is tampered. When enabled, a screen warning message is displayed on the computer and a tamper detection event is logged in the BIOS Events log. The computer fails to reboot until the event is cleared. By default, the Firmware Device Tamper Detection option is enabled. For additional security, Dell Technologies recommends keeping the Firmware Device Tamper Detection option enabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Clear Firmware Device Tamper Detection	Allows you to clear the events that are logged when tampering of firmware device is detected. By default, the Clear Firmware Device Tamper Detection option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 12. System Setup options—Passwords menu

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

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

Passwords	
	The following rules and dependencies apply when the System Password is used - • The computer shuts down when idle for approximately 10 minutes at the system password prompt. • The computer shuts down after three incorrect attempts to enter the system password. • The computer shuts down when the Esc key is pressed at the System Password prompt. • The system password is not prompted when the computer resumes from standby mode. Dell Technologies recommends using the system password in situations where it is likely that a computer may be lost or stolen.
Password Configuration	The Password configuration page includes several options for changing the requirements of BIOS passwords. You can modify the minimum and maximum length of the passwords as well as require passwords to contain certain character classes (upper case, lower case, digit, special character). When the Lower Case Letter option is enabled, the password requires at least one lower case letter. When the Upper Case Letter option is enabled, the password requires at least one upper case letter. When the Digit option is enabled, the password requires at least one numeric digit. When the Special Character option is enabled, the password requires at least one special character from the set: !"#%&'()*+,-./:;<=>?@[\\]^_`{ }~. When setting Minimum Characters for password length, Dell Technologies recommends setting the minimum password length to at least eight characters.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable Master Password Lockout	The Master Password Lockout option allows you to disable the Recovery Password feature. If the system, administrator, or hard drive password is forgotten, the computer becomes unusable.  NOTE: When the owner password is set, the Master Password Lockout option is not available.  NOTE: When an internal hard drive password is set, it must first be cleared before Master Password Lockout can be changed. By default, the Enable Master Password Lockout option is disabled. Dell Technologies does not recommend enabling the Master Password Lockout unless you have implemented your own password recovery system.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 13. System Setup options—Update, Recovery menu

Update, Recovery	
BIOS Downgrade	
Allow BIOS Downgrade	Allows downgrading of the system firmware to previous revisions. By default, the Allow BIOS Downgrade option is enabled.

Table 13. System Setup options—Update, Recovery menu (continued)

Update, Recovery	
SupportAssist OS Recovery	Enables or disables the boot flow for SupportAssist OS Recovery tool if certain system errors occur. By default, the SupportAssist OS Recovery option is enabled.
BIOSConnect	Enables or disables cloud service operating system recovery if the main operating system fails to boot with the number of failures equal to or greater than the value specified by the Auto OS Recovery Threshold setup option and local service operating system does not boot or is not installed. By default, the BIOSConnect option is enabled.
Dell Auto OS Recovery Threshold	Allows the control of the automatic boot flow for the SupportAssist System Resolution Console and the Dell OS Recovery Tool. By default, the Dell Auto OS Recovery Threshold value is set to 2.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 14. System Setup options—System Management menu

System Management	
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Creates a computer Asset Tag that an IT administrator can use to uniquely identify a particular computer.  NOTE: Once set in the BIOS, the Asset Tag cannot be changed.
AC Behaviour	
Wake on AC	Enables or disables the computer to turn on and go to boot when AC power is supplied to the computer. By default, the Wake on AC option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Wake on LAN	Enables or disables the computer to turn on by a special LAN signal. By default, the Wake on LAN option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Auto On Time	Enable to set the computer to turn on automatically every day or on a preselected date and time. This option can be configured only if the Auto On Time is set to Everyday, Weekdays, or Selected Days. By default, the Auto On Time option is disabled.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Table 15. System Setup options—Keyboard menu

Keyboard	
Fn Lock Options	Enables or disables the Fn Lock option. By default, the Fn Lock option is enabled.
Lock Mode	By default, the Lock Mode Secondary option is enabled. With this option, the F1-F12 keys scan the code for their secondary functions.

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

Keyboard	
Device Configuration HotKey Access	Allows you to control whether you can access device configuration screens through hotkeys during system startup. By default, the Device Configuration HotKey Access option is enabled. i NOTE: This setting controls only the Intel RAID (CTRL+I), MEBX (CTRL+P), and LSI RAID (CTRL+C) Option ROMs. Other preboot Option ROMs, which support entry using a key sequence, are not affected by this setting. i NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

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

Pre-boot Behavior	
Adapter Warnings	
Enable Warning Messages	Enables the warning messages during boot when the adapters with less power capacity are detected. By default, the Enable Warning Messages option is enabled. i NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Warnings and Errors	Enables or disables the action to be taken when a warning or error is encountered. By default, the Prompt on Warnings and Errors option is selected. i NOTE: Errors deemed critical to the operation of the computer hardware stop the functioning of the computer. i NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Extend BIOS POST Time	Sets the BIOS POST (Power-On Self-Test) load time. By default, the 0 seconds option is selected. i NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
MAC Address Pass-Through	Replaces the external NIC MAC address (in a supported dock or dongle) with the selected MAC address from the computer. By default, the System Unique MAC Address option is selected.

Table 17. System Setup options—Virtualization menu

Virtualization Support	
DMA Protection	
Enable Pre-Boot DMA Support	Allows you to control the Pre-Boot DMA protection for both internal and external ports. This option does not directly enable DMA protection in the operating system. i NOTE: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi). By default, the Enable Pre-Boot DMA Support option is enabled. For additional security, Dell Technologies recommends keeping the Enable Pre-Boot DMA Support option enabled. i NOTE: This option is provided only for compatibility purposes, since some older hardware is not DMA capable.

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

Virtualization Support	
	 NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable OS Kernel DMA Support	Allows you to control the Kernel DMA protection for both internal and external ports. This option does not directly enable DMA protection in the operating system. For operating systems that support DMA protection, this setting indicates to the operating system that the BIOS supports the feature.  NOTE: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi). By default, the Enable OS Kernel DMA Support option is enabled.  NOTE: This option is provided only for compatibility purposes, since some older hardware is not DMA capable.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Internal Port DMA Compatibility Mode	Allows you to control the boot compatibility for integrated PCIe peripherals by disabling PCIe DMA protection on internal PCIe ports. When enabled, BIOS will notify the operating system that the internal ports are not DMA capable. This option is to help with devices that have operating system DMA compatibility issues. This option does not directly enable DMA protection in the operating system.  NOTE: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi). By default, the Internal Port DMA Compatibility Mode option is enabled.  NOTE: This option is provided only for compatibility purposes, since some older hardware is not DMA capable.

Table 18. System Setup options—Performance menu

Performance	
Intel SpeedStep	
Enable Intel SpeedStep Technology	Enables the computer to dynamically adjust processor voltage and core frequency, decreasing average power consumption and heat production. By default, the Enable Intel SpeedStep Technology option is enabled.

Table 19. System Setup options—System Logs menu

System Logs	
BIOS Event Log	
Clear BIOS Event Log	Select the option to keep or clear BIOS events logs. By default, the Keep Log option is selected.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Thermal Event Log	
Clear Thermal Event Log	Select the option to keep or clear thermal events logs. By default, the Keep Log option is selected.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Power Event Log	

Table 19. System Setup options—System Logs menu (continued)

System Logs	
Clear Power Event Log	Select the option to keep or clear power events logs. By default, the Keep Log option is selected.  NOTE: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

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

- Go to [Dell Support Site](#).
- 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.
- Click **Drivers & Downloads**.
- Select the operating system installed on your computer.
- In the **Category** drop-down list, select **BIOS**.
- Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
- After the download is complete, navigate to the folder where the BIOS update file has been saved.
- 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

- 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 20. 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.

Clearing CMOS settings

About this task

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

Steps

1. Remove the base cover.
2. Disconnect the battery cable from the system board.
3. Remove the coin-cell battery.
4. Wait for one minute.
5. Replace the coin-cell battery.
6. Connect the battery cable to the system board.
7. Replace the base cover.

Troubleshooting

Rechargeable Li-ion battery precautions

CAUTION:

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

Dell SupportAssist Pre-boot System Performance Check diagnostics

About this task

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

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

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

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

Running the SupportAssist Pre-Boot System Performance Check

Steps

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

The quick diagnostic test begins.

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

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

Built-in self-test (BIST)

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

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

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

How to run M-BIST

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

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

Table 21. LED error codes

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

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

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

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

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

How to invoke the LCD-BIST

1. Turn off your computer.
2. Disconnect any peripherals that are connected to the computer. Connect only the AC adapter (charger) to the computer.
3. Ensure that the LCD (screen) is clean (no dust particles on the surface of the screen).
4. Press and hold the **D** key and press the power button to enter LCD-BIST mode. Continue to hold the **D** key until the computer boots up.
5. The screen displays solid colors and changes colors on the entire screen to white, black, red, green, and blue twice.

6. Then it displays the colors white, black, and red.
7. Carefully inspect the screen for abnormalities (any lines, fuzzy color, or distortion on the screen).
8. At the end of the last solid color (red), the computer shuts down.

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

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

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

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

How to invoke the L-BIST

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

System-diagnostic lights

This section lists the system-diagnostic lights of your Dell Pro Education 11 PE11260.

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

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

Table 22. Diagnostic light codes

Diagnostic light codes (Amber, White)	Problem description
1,1	TPM Detection Failure
1,2	Unrecoverable SPI Flash Failure
1,3	The camera-cable overcurrent protection (OCP1) was triggered. The camera module along with its cable may be damaged.
1,4	The hinge-cable overcurrent protection (OCP) was triggered. The hinge cable may be damaged.
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

Table 22. Diagnostic light codes (continued)

Diagnostic light codes (Amber, White)	Problem description
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 module
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
4,3	LCD panel failure
4,4	Cable and power-rail failure
4,5	LCD power rail, cable and LCD panel failure
4,6	LCD cable failure
5,2	EC detects an invalid platform ID
6,1	The power adapter is not detected, and the battery-charge level is at 2% or less
6,2	The Dell power adapter is underpowered and unable to turn on the computer
6,3	The non-Dell power adapter is underpowered and is unable to turn on the computer

Recovering the operating system

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

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

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

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

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

Real-Time Clock (RTC Reset)

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

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

Backup media and recovery options

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

Network power cycle

About this task

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

Steps

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

Drain flea power (perform hard reset)

About this task

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

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

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

Perform the following steps to drain the flea power:

Steps

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

6. Install the battery.
7. Install the base cover.
8. Connect the power adapter to the computer.
9. Turn on the computer.

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

Getting help and contacting Dell

Self-help resources

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

Table 23. Self-help resources

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

Contacting Dell

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

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

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

Revision history

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

Table 24. Revision history

Revision	Date	Description
A02	October 2026	• Updated system-diagnostic lights topic. • Updated support site video links in all CRU and FRU removal and installation topics.
A01	May 2026	• Updated system diagnostic lights topic. • Updated BIOS setup options topic.
A00	February 2026	Original publish date.