

Latitude 3140/Latitude 3140 2-in-1

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.











Chapter 1: Working inside your computer	5
Safety instructions.....	5
Before working inside your computer.....	5
Electrostatic discharge—ESD protection.....	6
ESD field service kit	6
Transporting sensitive components.....	7
Entering Service Mode.....	7
After working inside your computer.....	7
Exiting Service Mode.....	8
BitLocker.....	8
Chapter 2: Removing and installing components	9
Recommended tools.....	9
Screw list.....	9
Major components of Latitude 3140/Latitude 3140 2-in-1.....	10
Disassembly and reassembly	12
Palm-rest and keyboard.....	12
Subscriber Identification Module (SIM) card.....	17
Wireless Wide Area Network (WWAN) card.....	18
M.2 solid-state drive.....	20
Speakers.....	22
Coin-cell battery.....	25
Audio board.....	27
Battery.....	28
Power-adaptor port.....	33
World-facing camera (2-in-1).....	35
Heat sink.....	37
System board.....	39
Display assembly.....	52
Touch-panel assembly (2-in-1).....	60
Display bezel (Laptop).....	65
Display panel.....	69
User-facing camera.....	72
Display cable.....	73
Display hinges.....	75
Display back-cover.....	79
Base-cover assembly.....	80
Chapter 3: Drivers and downloads	82
Chapter 4: System setup	83
Entering BIOS setup program.....	83
Navigation keys.....	83
Boot Sequence.....	83

One time boot menu.....	84
System setup options.....	84
System and setup password.....	100
Assigning a system setup password.....	100
Deleting or changing an existing system setup password.....	101
Clearing BIOS (System Setup) and System passwords.....	101
Updating the BIOS.....	101
Updating the BIOS in Windows.....	101
Updating the BIOS using the USB drive in Windows.....	101
Updating the BIOS in Linux and Ubuntu.....	102
Updating the BIOS from the F12 One Time Boot menu.....	102
Chapter 5: Troubleshooting.....	103
Handling swollen rechargeable Li-ion batteries.....	103
Dell SupportAssist Pre-boot System Performance Check diagnostics.....	103
Running the SupportAssist Pre-Boot System Performance Check.....	104
Built-in self-test (BIST).....	104
M-BIST.....	104
LCD Power rail test (L-BIST).....	105
LCD Built-in Self Test (BIST).....	105
System-diagnostic lights.....	105
Diagnostic error messages.....	107
System error messages.....	110
Recovering the operating system.....	110
Real-Time Clock (RTC Reset).....	111
Updating the BIOS in Windows.....	111
Backup media and recovery options.....	111
Wi-Fi power cycle.....	111
Drain residual flea power (perform hard reset).....	112
Chapter 6: Getting help and contacting Dell.....	113




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 included 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 the Regulatory Compliance home page at www.dell.com/regulatory_compliance.
-  **WARNING:** Disconnect your computer from all power sources before opening the computer cover or panels. After you finish working inside the computer, replace all covers, panels, and screws before connecting your computer to an electrical outlet.
-  **CAUTION:** To avoid damaging the computer, ensure that the work surface is flat, dry, and clean.
-  **CAUTION:** To avoid damaging the components and cards, handle them by their edges, and avoid touching the pins and the contacts.
-  **CAUTION:** You should only perform troubleshooting and repairs as authorized or directed by the Dell technical assistance team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. See the safety instructions that is shipped with the product or at www.dell.com/regulatory_compliance.
-  **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:** 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 ports and the connectors are correctly oriented and aligned.
-  **CAUTION:** Press and eject any installed card from the media-card reader.
-  **CAUTION:** Exercise caution when handling rechargeable Li-ion batteries in laptops. Swollen batteries should not be used and should be replaced and disposed properly.
-  **NOTE:** The color of your computer and certain components may appear differently than shown in this document.

Before working inside your computer

-  **NOTE:** The images in this document may differ from your computer depending on the configuration you ordered.
1. Save and close all open files and exit all open applications.
 2. Shut down your computer. Click **Start** >  **Power** > **Shut down**.
 -  **NOTE:** If you are using a different operating system, see the documentation of your operating system for shut-down instructions.
 3. Disconnect your computer and all attached devices from their electrical outlets.
 4. Disconnect all attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.

 **CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.**

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

Electrostatic discharge—ESD protection

ESD is a major concern when you handle electronic components, especially sensitive components such as expansion cards, processors, memory DIMMs, and system boards. Very slight charges 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.

Due to the increased density of semiconductors used in recent Dell products, the sensitivity to static damage is now higher than in previous Dell products. For this reason, some previously approved methods of handling parts are no longer applicable.

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 DIMM that has received a static shock and immediately generates a "No POST/No Video" symptom with a beep code 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 DIMM receives a static shock, but the tracing is merely weakened and does not immediately produce outward symptoms 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, etc.

The more difficult type of damage to recognize and troubleshoot is the intermittent (also called latent or "walking wounded") failure.

Perform the following steps to prevent ESD damage:

- Use a wired ESD wrist strap that is properly grounded. The use of wireless anti-static straps is no longer allowed; they 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, ensure that you discharge static electricity from your body.
- 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.

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 mat and to any bare metal on the system being worked on. Once deployed properly, service parts can be removed from the ESD bag and placed directly on the mat. ESD-sensitive items are safe in your hand, on the ESD mat, in the system, or inside a bag.
- **Wrist Strap and Bonding Wire** – The wrist strap and bonding wire can be either directly connected between your wrist and bare metal on the hardware if the ESD mat is not required, or connected to the anti-static mat to protect hardware that is temporarily placed on the mat. The physical connection of the wrist strap and bonding wire between your skin, the ESD mat, and the hardware is known as bonding. Use only Field Service kits with a wrist strap, mat, and bonding wire. Never use wireless wrist straps. Always be aware 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 of an ESD strap are prone to damage over time. When using an unmonitored kit, it is a best practice to regularly test the strap prior to each service call, and at a minimum, test once per week. A wrist strap tester is the best method for doing this test. If you do not have your own wrist strap tester, check with your

regional office to find out if they have one. To perform the test, plug the wrist-strap's bonding-wire into the tester while it is strapped to your wrist and push the button to test. A green LED is lit if the test is successful; a red LED is lit and an alarm sounds if the test fails.

- **Insulator Elements** – It is critical to keep ESD sensitive devices, such as plastic heat sink casings, away from internal parts that are insulators and often highly charged.
- **Working Environment** – Before deploying the ESD Field Service kit, assess the situation at the customer location. For example, deploying the kit for a server environment is different than for a desktop or portable environment. Servers are typically installed in a rack within a data center; desktops or portables 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 system 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 part 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 ESD mat, in the system, or inside an anti-static bag.
- **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.

ESD protection summary

It is recommended to use the traditional wired ESD grounding wrist strap and protective anti-static mat at all times when servicing Dell products. In addition, it is critical to keep sensitive parts separate from all insulator parts while performing service and that they use anti-static bags for transporting sensitive components.

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.


Entering Service Mode

Service Mode allows users to immediately cut off electricity from the computer and conduct repairs without disconnecting the battery cable from the system board.

To enter **Service Mode**:

1. Shut down your computer and disconnect the AC adapter.
2. Hold **** key on the keyboard and press the power button for 3 seconds or until the Dell logo appears on the screen.
3. Press any key to continue.


 **NOTE:** If the power adapter has not been disconnected, a message prompting you to remove the AC adapter appears on the screen. Remove the AC adapter and then press any key to continue the **Service Mode** procedure.

 **NOTE:** The **Service Mode** procedure automatically skips the following step if the **Owner Tag** of the computer is not set up in advance by the manufacturer.

4. When the ready-to-proceed message appears on the screen, press any key to proceed. The computer emits three short beeps and shuts down immediately.

Once the computer shuts down, you may perform the replacement procedures without disconnecting the battery cable from the system board.

After working inside your computer

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

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

Exiting Service Mode

Service Mode allows users to immediately cut off electricity from the computer and conduct repairs without disconnecting the battery cable from the system board.

To exit **Service Mode**:

1. Connect the AC adapter to the power-adapter port on your computer.
2. Press the power button to turn on the computer. Your computer will automatically return to normal functioning mode.

BitLocker

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress, and the system will ask for this on each reboot. If the recovery key is not known, this can result in data loss or an unnecessary operating system reinstall. For more information about updating the BIOS with Bitlocker enabled, search in the Knowledge Base at www.dell.com/support.

CAUTION: If BitLocker is not suspended, replacing parts like the system board or storage drives on a system with BitLocker or device-encryption enabled will also trigger the encryption and lock the user out. A recovery key is required to regain access to Windows. The recovery key is automatically saved to the user's Microsoft Account (MSA) when the device is encrypted and can be retrieved from <https://account.microsoft.com/devices/recoverykey>

For more information, refer to Windows Support article: [Finding your BitLocker recovery key in Windows](#)

Removing and installing components

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

Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver #0 and #1
- T6 Torx screwdriver (for 2-in-1s with WWAN support)
- Plastic scribe

Screw list

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

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

NOTE: Screw color may vary with the configuration ordered.

Table 1. Screw list



















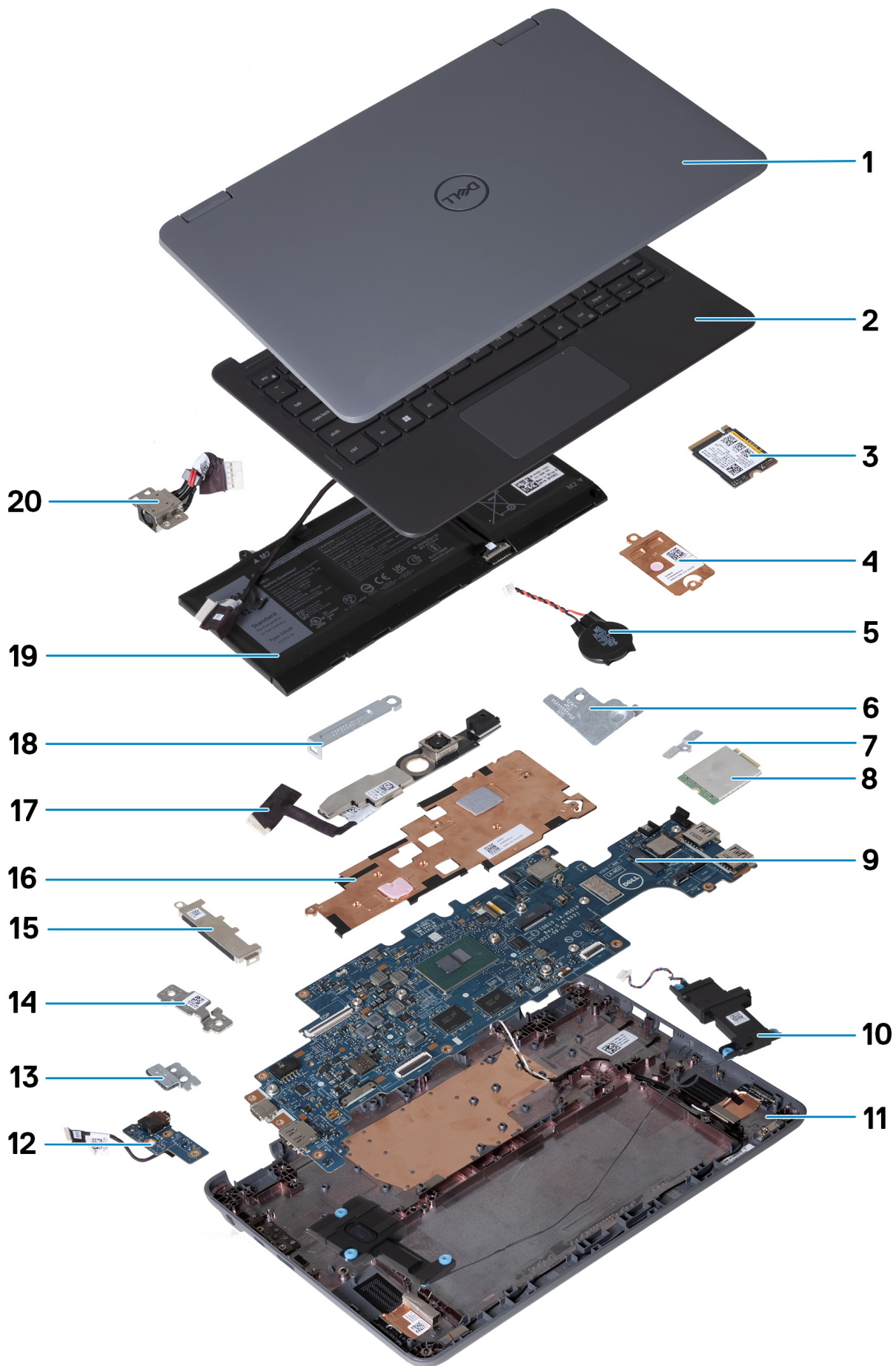
Component	Screw type	Quantity	Image
3-cell battery	M2x3	2	
4-cell battery	M2x3	5	
Audio board	M2x3	2	
WWAN card	M2x3	2	
Solid-State Drive	M2x3	12	
Display assembly	M2.5x5 M2x4	6 1	  
Display bezel (Laptop)	M2.5x3.8	4	
Display-cable bracket	M2x3	1	

Table 1. Screw list (continued)

Component	Screw type	Quantity	Image
Display hinges	M2.5x5	4	
	M2x2	2	
Display panel	M2x2.5	4	
Heat-sink assembly	M2x3	4	
Power-adapter port	M2x4	2	
System board (2-in-1)	M2x3	8	
	M2x4	2	
System board (Laptop)	M2x3	7	
	M2x4	2	
World-facing camera (2-in-1)	M2.5x2.5	1	
WLAN antenna cable bracket	M2x3	1	

Major components of Latitude 3140/Latitude 3140 2-in-1

The following image shows the major components of Latitude 3140/Latitude 3140 2-in-1.



1. Display assembly
2. Palm-rest and keyboard
3. M.2 solid-state drive (Optional)
4. SSD thermal plate (Optional)
5. Coin-cell battery
6. WLAN-antenna cable bracket
7. WWAN-card bracket (2-in-1s only)
8. WWAN card (2-in-1s only)
9. System board
10. Speakers
11. Base-cover assembly
12. Audio board
13. Brackets for 3-cell battery (Optional)
14. USB-C bracket
15. USB-A bracket (Optional)
16. Heat-sink
17. World-facing camera (2-in-1s only)
18. Display-cable connector bracket
19. Battery
20. Power-adaptor port

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

Disassembly and reassembly

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

Palm-rest and keyboard

Removing the palm-rest and keyboard

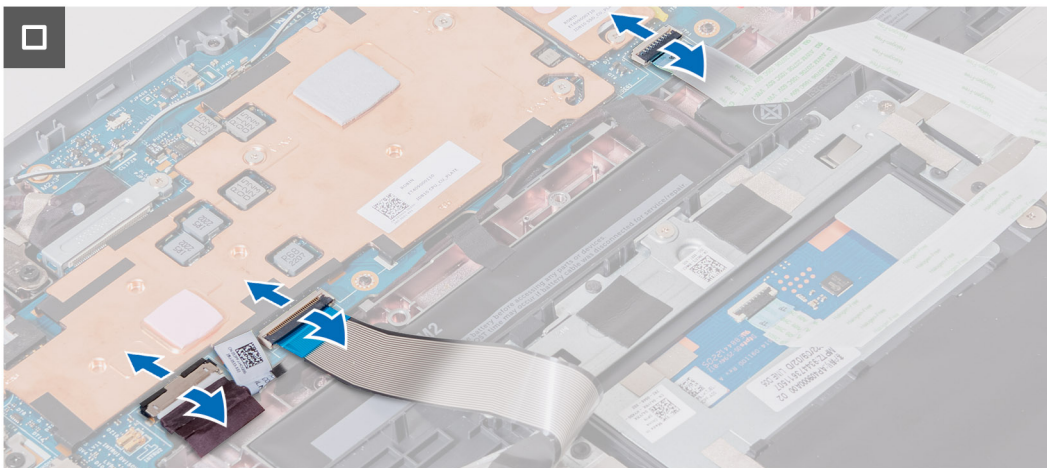
Follow the procedure in [before working inside your computer](#).

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



9x





1. Loosen the nine captive screws that secure the palm-rest assembly to the computer chassis.
 - i** **NOTE:** For laptops without WWAN support, use a Phillips screwdriver to loosen the captive screws. For 2-in-1s with WWAN support, use a T6 Torx screwdriver to loosen the captive screws.
2. Place the computer on a flat surface with the keyboard facing up. Open the system to 180 degrees.
 - i** **NOTE:** The computer may automatically power on when it is opened past 5-degree angle. If so, press the power button to turn off the computer and then proceed with the disassembly process.
3. Use a plastic scribe to pry open the palm-rest assembly, starting from the U-shaped recesses near the hinges at the top edge of the palm-rest.
4. Use the scribe to pry open the top, left, and right sides of the palm-rest.
5. Hold the left and right sides of the palm-rest and open it to 45 degrees to release the palm-rest assembly from the computer chassis.
 - ⚠ CAUTION:** Do not open the palm-rest assembly more than 60 degrees, as it may damage the keyboard Flexible Printed Circuits (FPC) and touchpad Flexible Flat Cable (FFC).
6. Gently flip over the palm-rest assembly with the keyboard facing downward.
 - ⚠ CAUTION:** Do not apply excess force to the palm-rest assembly while flipping it over, as it may damage to the keyboard FPC and touchpad FFC.
7. Disconnect the battery cable, keyboard FPC, and touchpad FFC from the system board.
8. Lift and remove the palm-rest assembly and keyboard from the computer chassis.

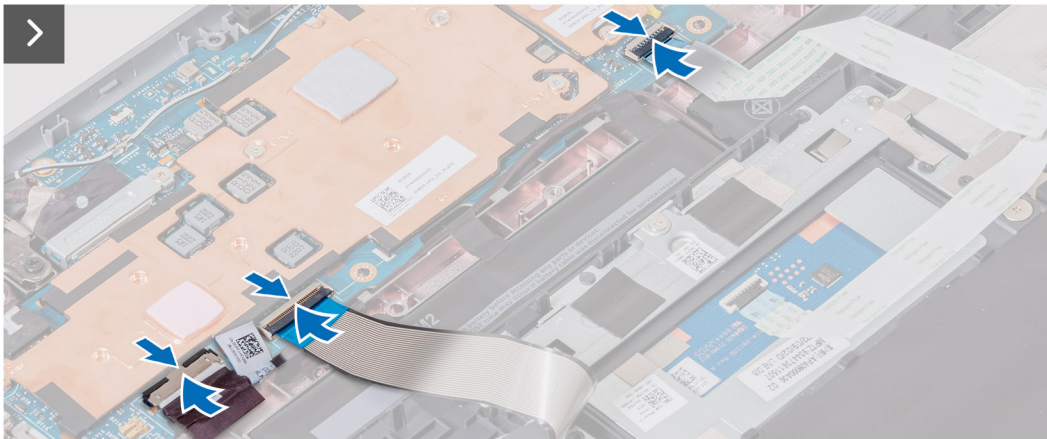
Installing the palm-rest and keyboard

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

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



9x





1. Connect the battery cable, keyboard Flexible Printed Circuits (FPC), and touchpad Flexible Flat Cable (FFC) to the system board.
2. Place the palm-rest assembly and the keyboard on the computer chassis.
3. Align and place the base cover on the computer, and snap the base cover latches into place.
4. Replace the nine captive screws that secure the palm-rest assembly to the computer chassis.
NOTE: For laptops without WWAN support, use a Phillips screwdriver to tighten the captive screws. For 2-in-1s with WWAN support, use a T6 Torx screwdriver to tighten the captive screws.

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

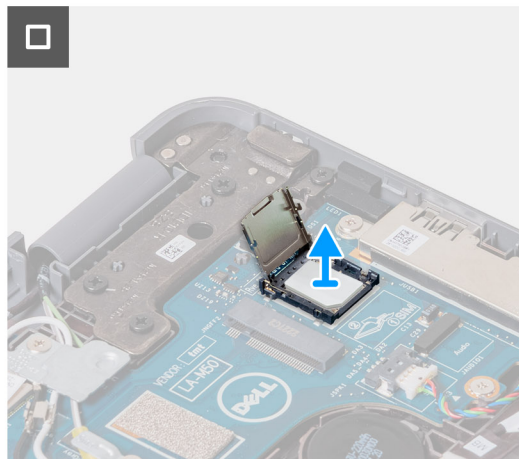
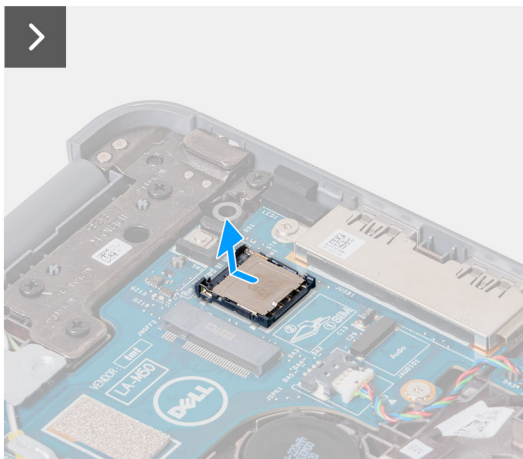
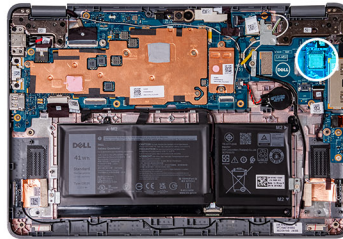
Subscriber Identification Module (SIM) card

Removing a SIM-card (2-in-1)

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).

i **NOTE:** The following steps are for computers with WWAN support. The WWAN card must be installed for WWAN support.

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



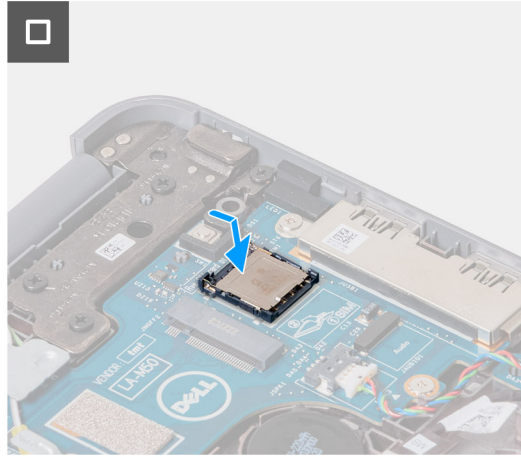
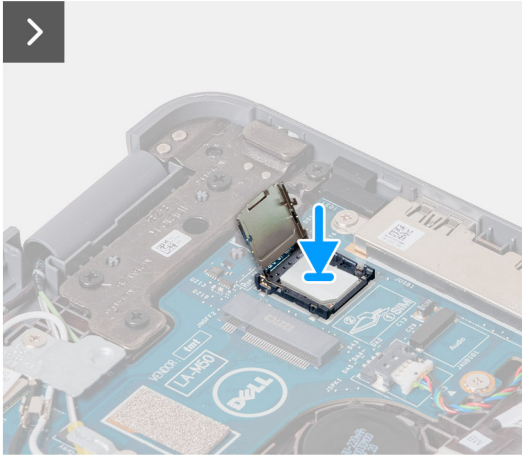
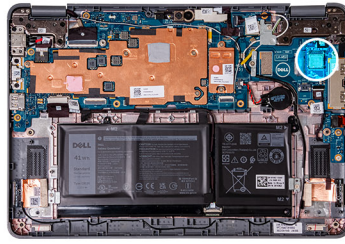
1. Lift open the cover of the SIM-card slot.
2. Remove the SIM card.

Installing a SIM card (2-in-1)

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

i **NOTE:** The following steps are for computers with WWAN support. The WWAN card must be installed for WWAN support.

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




1. Lift open the cover of the SIM-card slot, then place the SIM-card in the slot.
2. Close the cover of the SIM-card slot, making sure that it is locked into position.
1. Install the [palmrest and keyboard assembly](#).
2. Follow the procedure in [after working inside your computer](#).

Wireless Wide Area Network (WWAN) card

Removing the WWAN card (2-in-1)

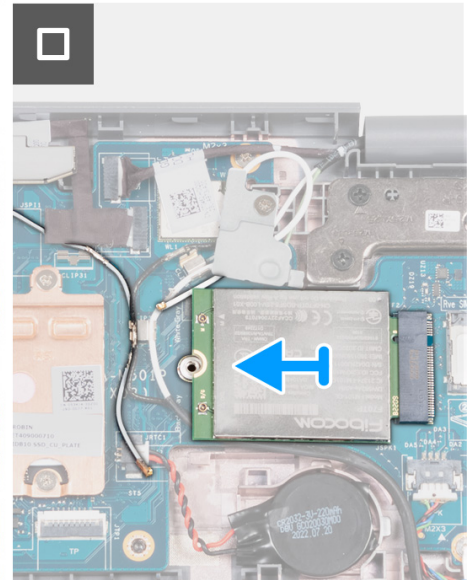
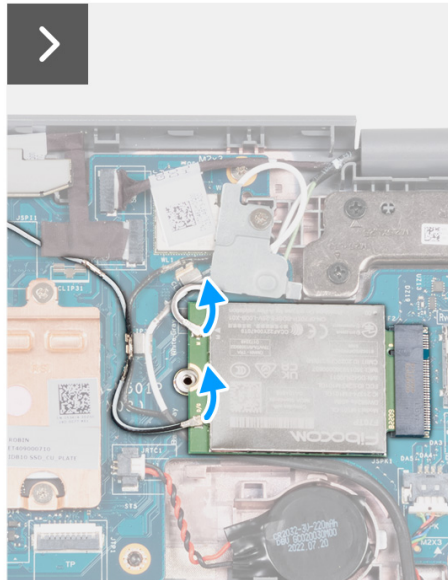
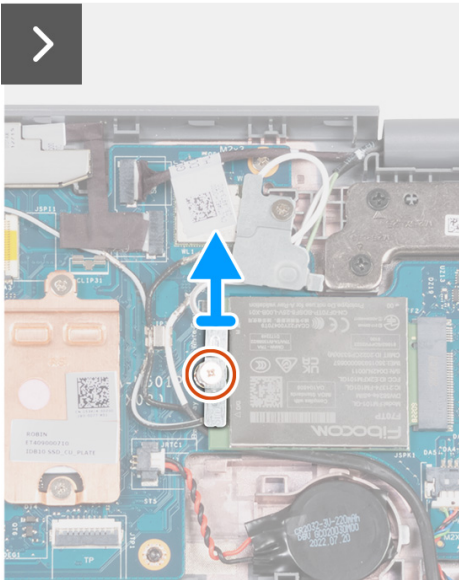
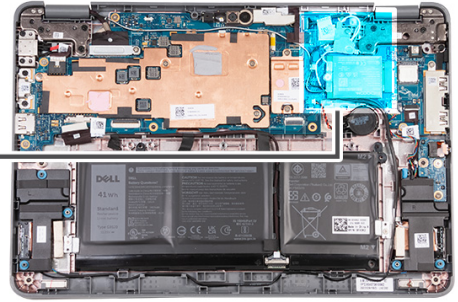
1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).

 **NOTE:** The following steps are for computers with WWAN support.

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



1x
M2x3



1. Remove the single screw (M2x3) that secures the WWAN-card bracket to the system board.
2. Remove the WWAN-card bracket and disconnect the black and white antenna cables from the WWAN card.
3. Slide and remove the WWAN card from the WWAN-card slot on the system board.

Installing the WWAN card (2-in-1)

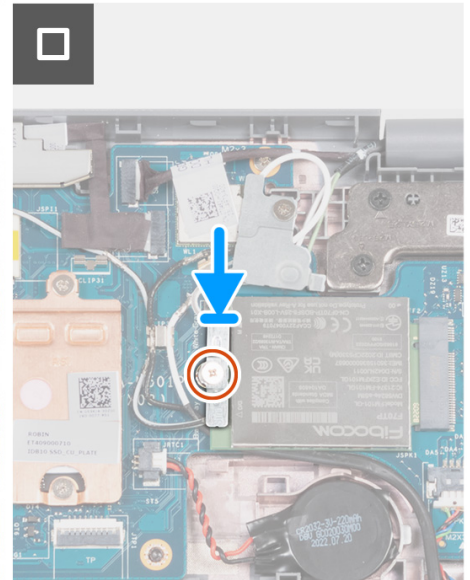
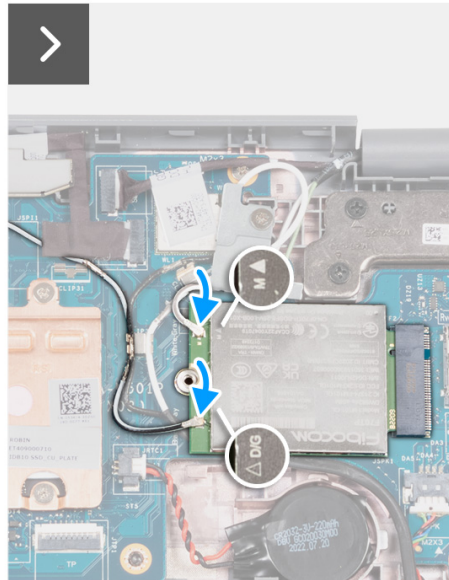
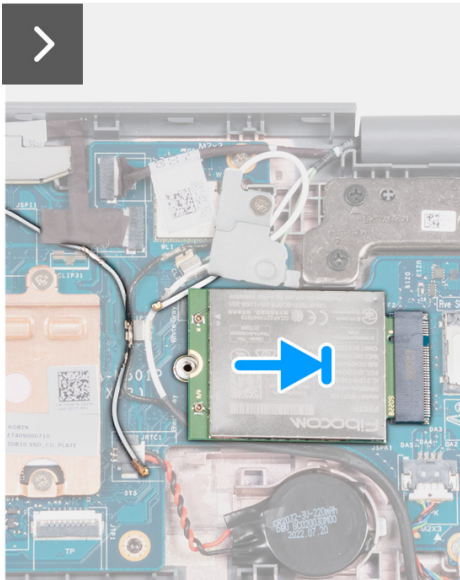
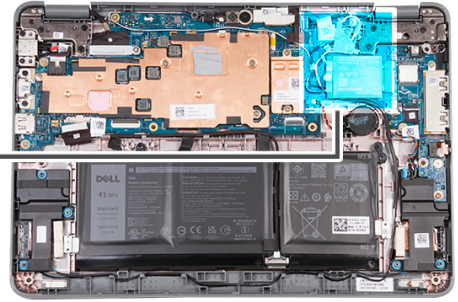
If you are replacing a component, remove the existing component before performing the installation procedure.

NOTE: The following steps are for computers with WWAN support.

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



1x
M2x3



1. Align the notch on the WWAN card with the tab on the WWAN-card slot, then slide the card into the slot.
2. Connect the gray and white antenna cable to the M connector on the WWAN card, then connect the gray and black antenna cable to the D/G connector on the WWAN card.

Table 2. Antenna-cable color scheme

Connectors on the WWAN card	Antenna-cable color
M	Gray and white
D/G	Gray and black

3. Place the WWAN-card bracket over the card as illustrated.
 4. Insert and tighten the single screw (M2x3) to secure the WWAN-card to the system board.
1. Install the [palmrest and keyboard assembly](#).
 2. Follow the procedure in [after working inside your computer](#).

M.2 solid-state drive

Removing the solid-state drive

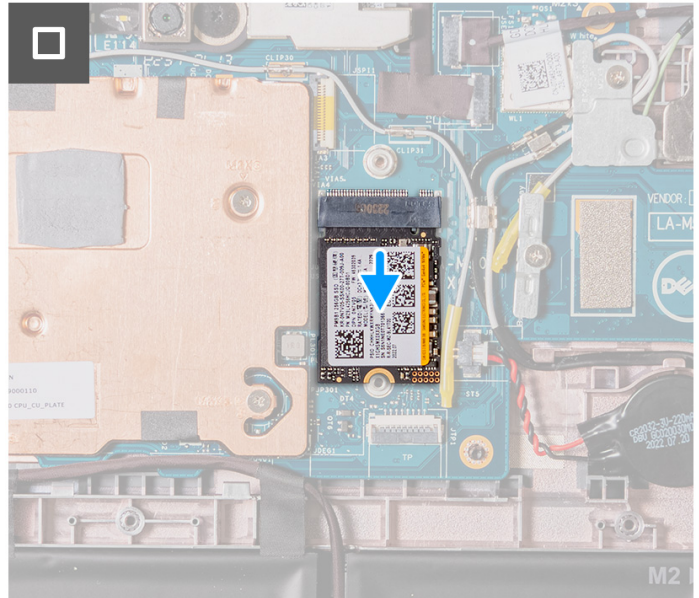
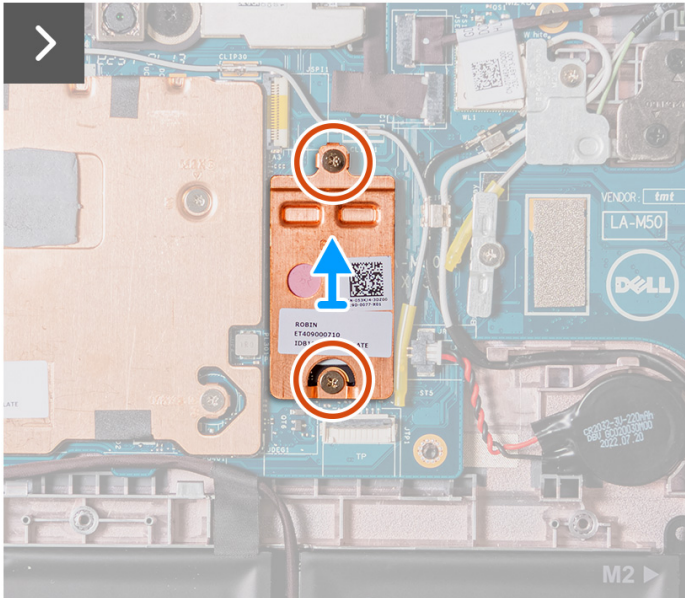
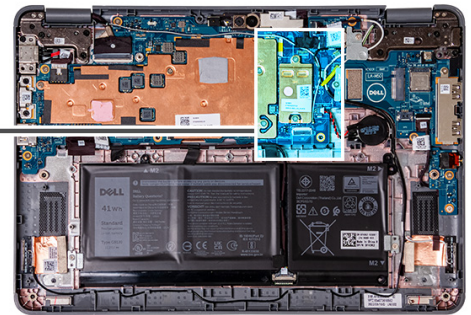
1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).

i **NOTE:** The following steps are for computers that are shipped with an M.2 solid-state drive (SSD).

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



2x
M2x3



1. Remove the two screws (M2x3) that secure the SSD thermal plate then remove the thermal plate from the SSD.
2. Slide and remove the SSD from the M.2 card slot on the system board.

Installing the solid-state drive

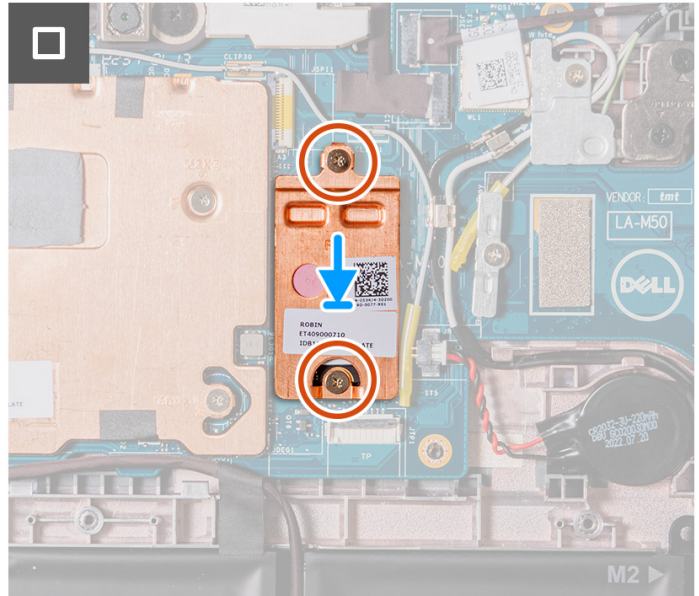
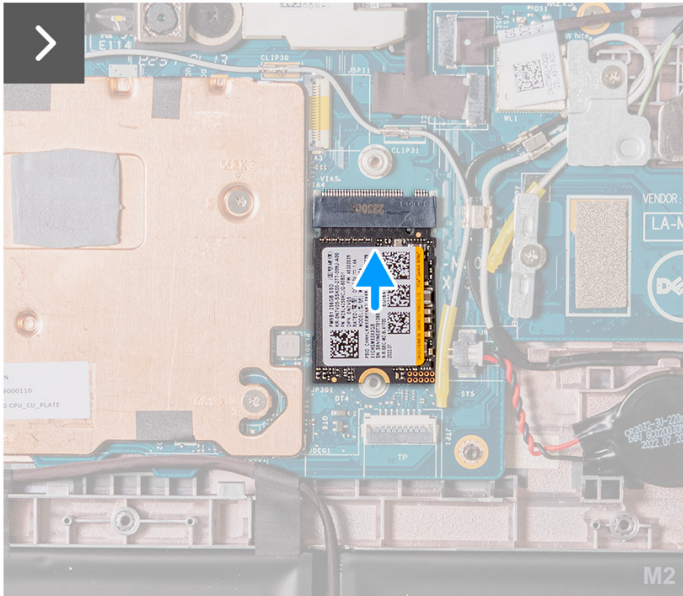
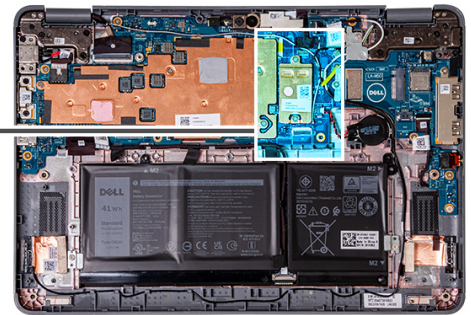
If you are replacing a component, remove the existing component before performing the installation procedure.

NOTE: The following steps are for computers that are shipped with an M.2 solid-state drive (SSD).

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



2x
M2x3



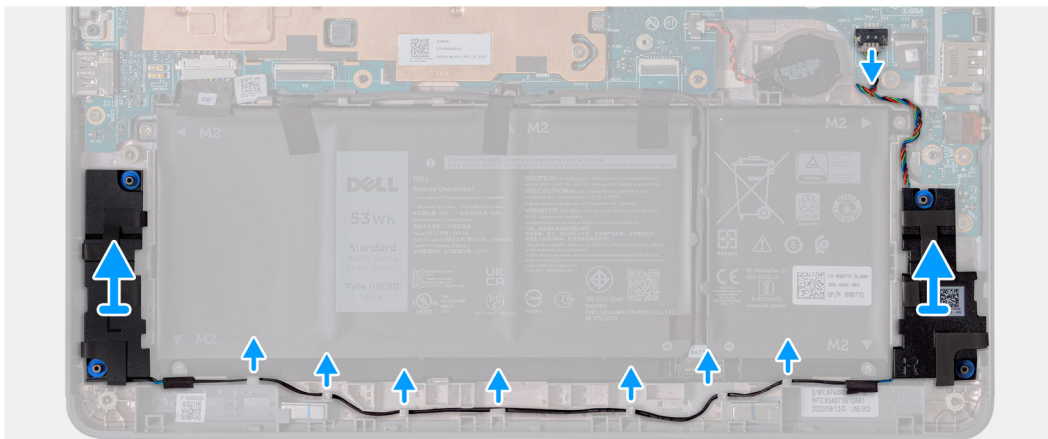
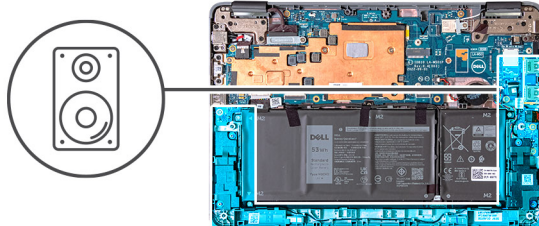
1. Align the notch on the SSD with the tab on the M.2 card slot and slide the SSD into the slot on the system board.
 2. Replace the SSD thermal plate, press to fit it firmly to cover the SSD.
 3. Replace the two screws (M2x3) to secure the SSD to the M.2 card slot on system board.
1. Install the [palmrest and keyboard assembly](#).
 2. Follow the procedure in [after working inside your computer](#).

Speakers

Removing the speakers (Laptop)

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).

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

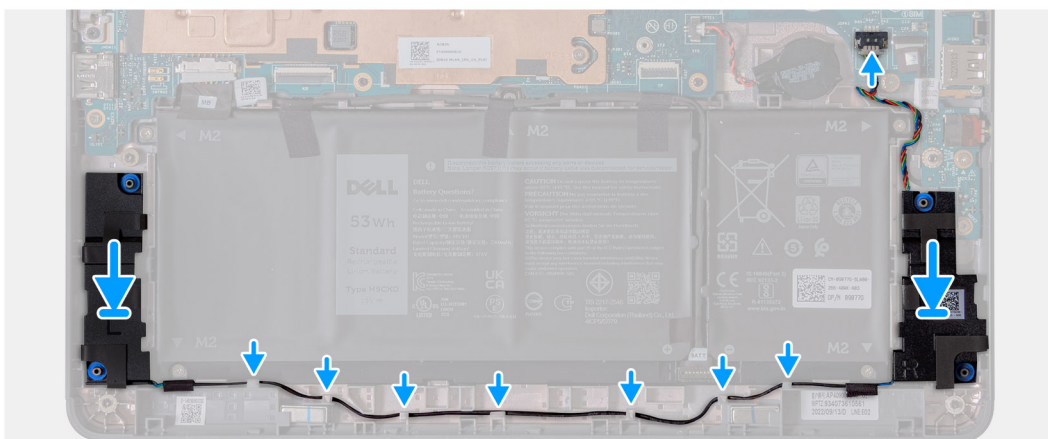
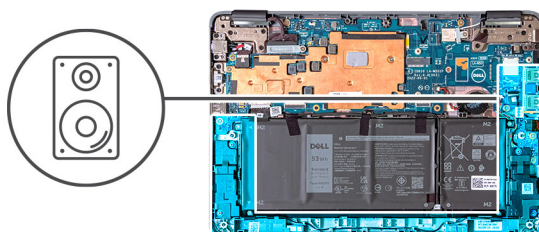


1. Disconnect the speaker cable from the connector on the system board.
2. Remove the adhesive tapes that secure the speaker cable to the system board.
3. Unroute the speaker cable from the routing channel.
4. Lift and remove the speakers from their slots on the computer chassis.

Installing the speaker (Laptop)

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

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



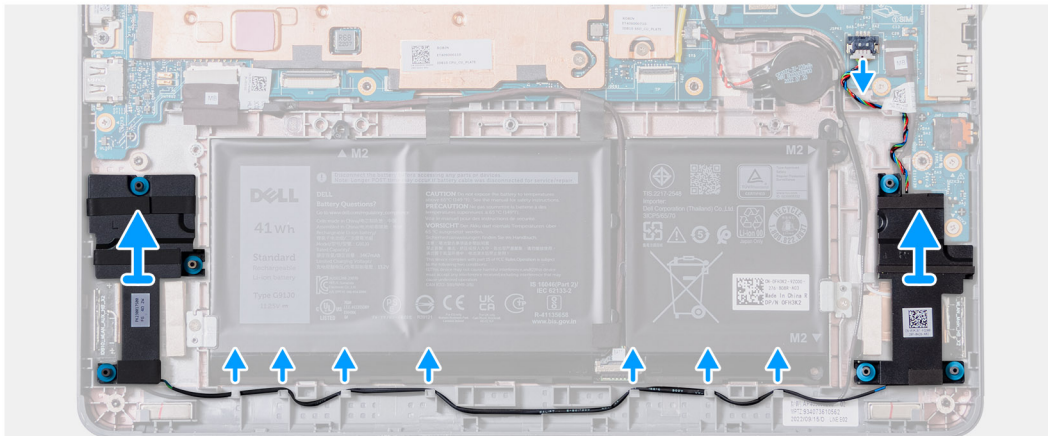
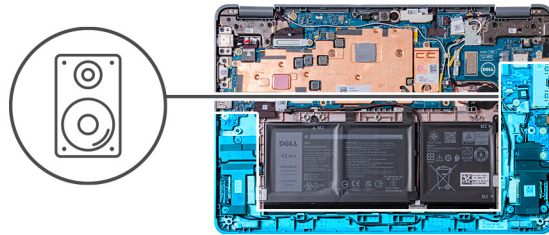
1. Using the alignment posts and rubber grommets, replace the speaker into the slots on the computer chassis.

2. Route the speaker cable through the routing channel.
 3. Affix the adhesive tapes to secure the speaker cable on the system board.
 4. Connect the speaker cable to the connector on the system board.
1. Install the [palmrest and keyboard assembly](#).
 2. Follow the procedure in [after working inside your computer](#).

Removing the speakers (2-in-1)

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).

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

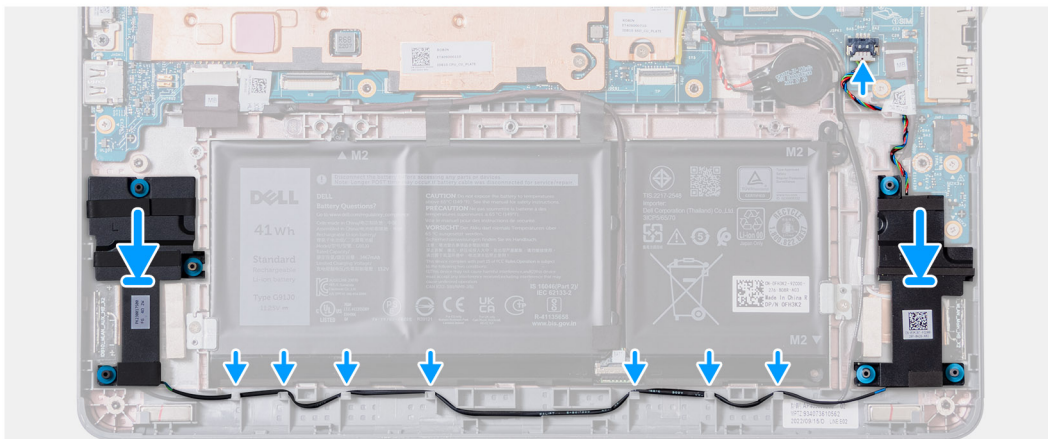
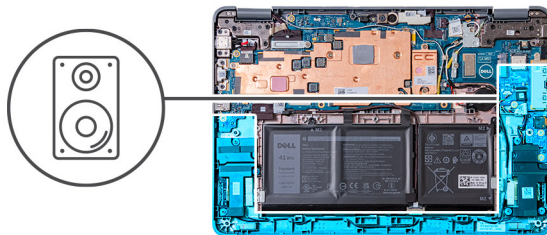


1. Disconnect the speaker cable from the connector on the system board.
2. Remove the adhesive tapes that secure the speaker cable to the system board.
3. Unroute the speaker cable from the routing channel.
4. Lift and remove the speakers from their slots on the computer chassis.

Installing the speaker (2-in-1)

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

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



1. Using the alignment posts and rubber grommets, replace the speaker into the slots on the computer chassis.
2. Route the speaker cable through the routing channel.
3. Affix the adhesive tapes to secure the speaker cable on the system board.
4. Connect the speaker cable to the connector on the system board.

1. Install the [palmrest and keyboard assembly](#).
2. Follow the procedure in [after working inside your computer](#).

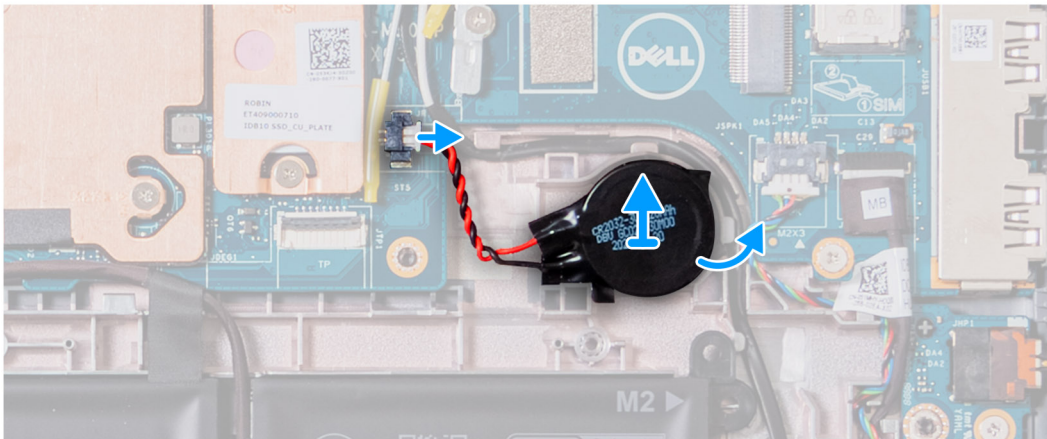
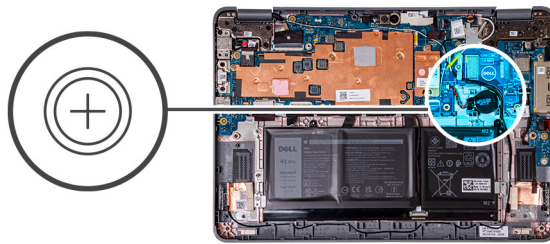
Coin-cell battery

Removing the coin-cell battery

NOTE: Removing the coin-cell battery resets the BIOS setup program's settings to default. It is recommended that you note the BIOS setup program's settings before removing the coin-cell battery.

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).

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



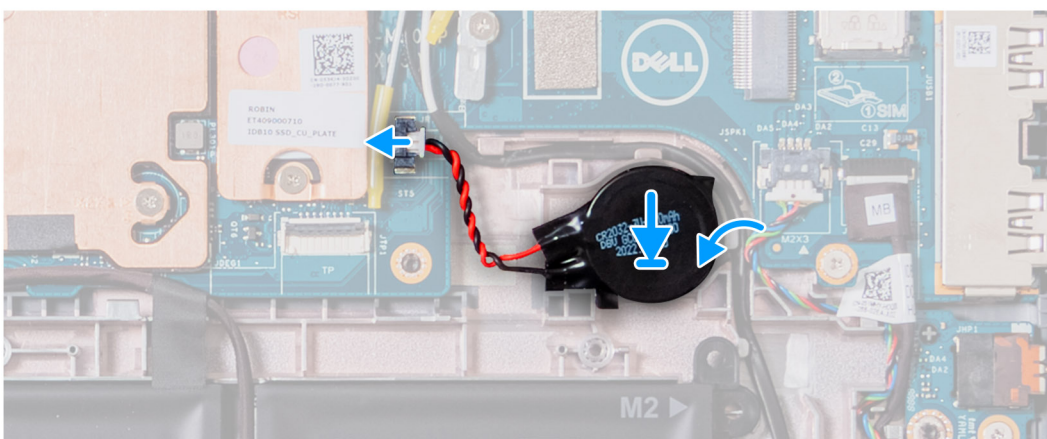
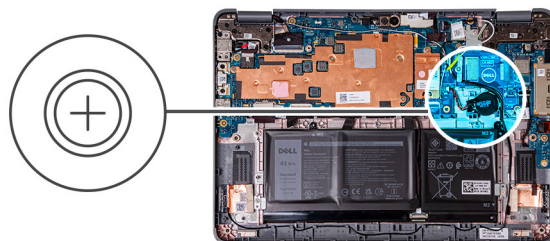
1. Disconnect the coin cell battery cable from the connector on the system board.
2. Pry the coin cell battery to release it from the adhesive.
3. Lift and remove it from the computer chassis.

Installing the coin-cell battery

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

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

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



1. Place the coin cell battery into the slot on the computer chassis.
2. Connect the coin cell battery cable to the connector on the system board.
1. Install the [palmrest and keyboard assembly](#).
2. Follow the procedure in [after working inside your computer](#).

Audio board

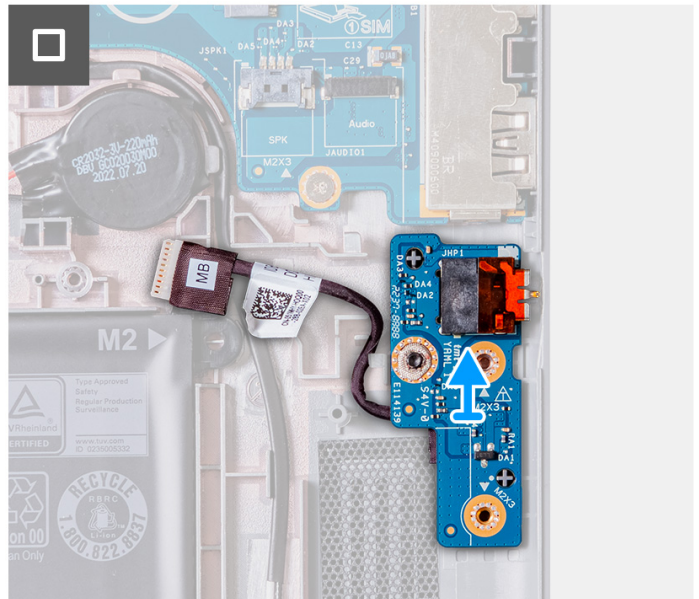
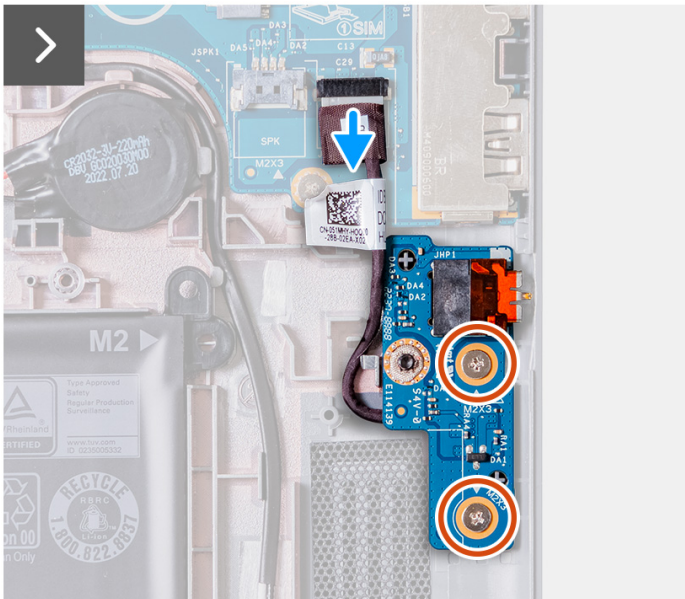
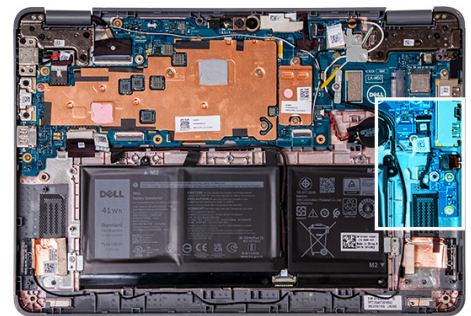
Removing the audio board

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).
3. Remove the [speakers](#) for laptops, or [speakers](#) for 2-in-1s.

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



2x
M2x3



1. Disconnect the audio-board cable from the connector on the system board.
2. Remove the two screws (M2x3) that secure the audio board to the computer chassis.
3. Lift and remove the audio board from the computer chassis.

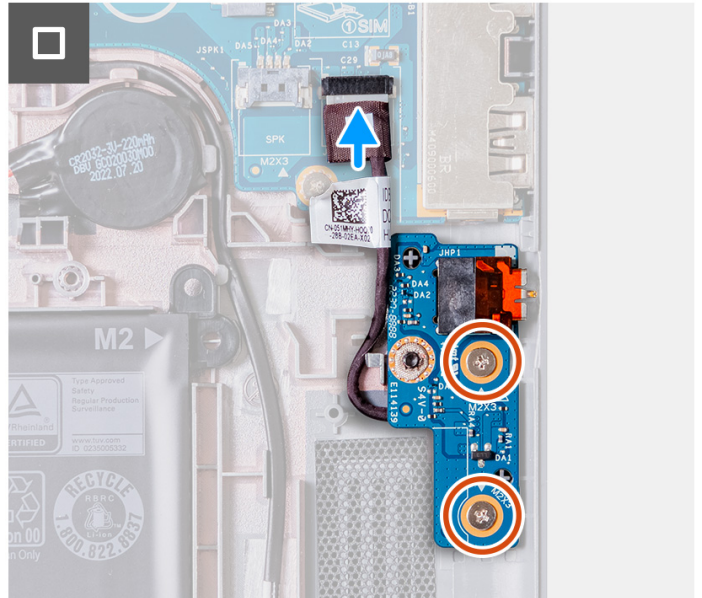
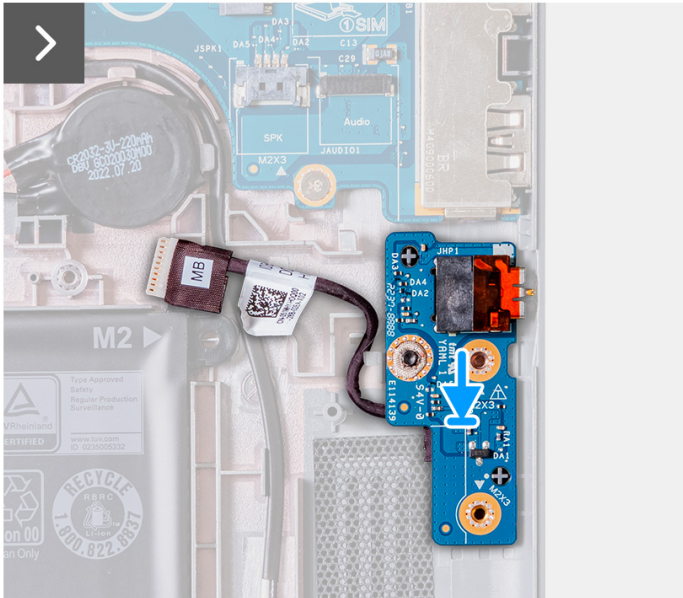
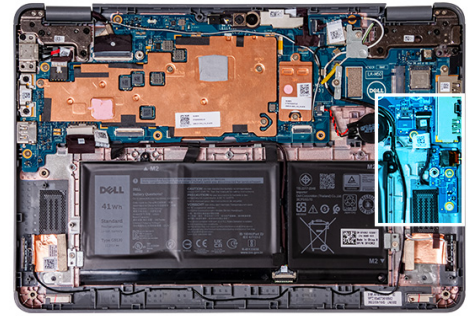
Installing the audio board

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

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



2x
M2x3



1. Using the alignment posts, replace the audio board into the slots on the computer chassis.
 2. Replace the two screws (M2x3) that secure the audio board to the computer chassis.
 3. Connect the audio cable to the connector on the system board.
1. Install the [speakers](#) for laptops, or [speakers](#) for 2-in-1s.
 2. Install the [palmrest and keyboard assembly](#).
 3. Follow the procedure in [after working inside your computer](#).

Battery

Rechargeable Li-ion battery precautions

⚠ CAUTION:

- Exercise caution when handling rechargeable Li-ion batteries.
- Discharge the battery completely before removing it. Disconnect the AC power adapter from the system 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.
- Ensure any screws during the servicing of this product are not lost or misplaced, to prevent accidental puncture or damage to the battery and other system components.

- If the battery gets stuck inside your computer as a result of swelling, do not try to release it as puncturing, bending, or crushing a rechargeable Li-ion battery can be dangerous. In such an instance, contact Dell technical support for assistance. See www.dell.com/contactdell.
- Always purchase genuine batteries from www.dell.com or authorized Dell partners and resellers.
- Swollen batteries should not be used and should be replaced and disposed properly. For guidelines on how to handle and replace swollen rechargeable Li-ion batteries, see [Handling swollen rechargeable Li-ion batteries](#).

Removing the 3-cell battery

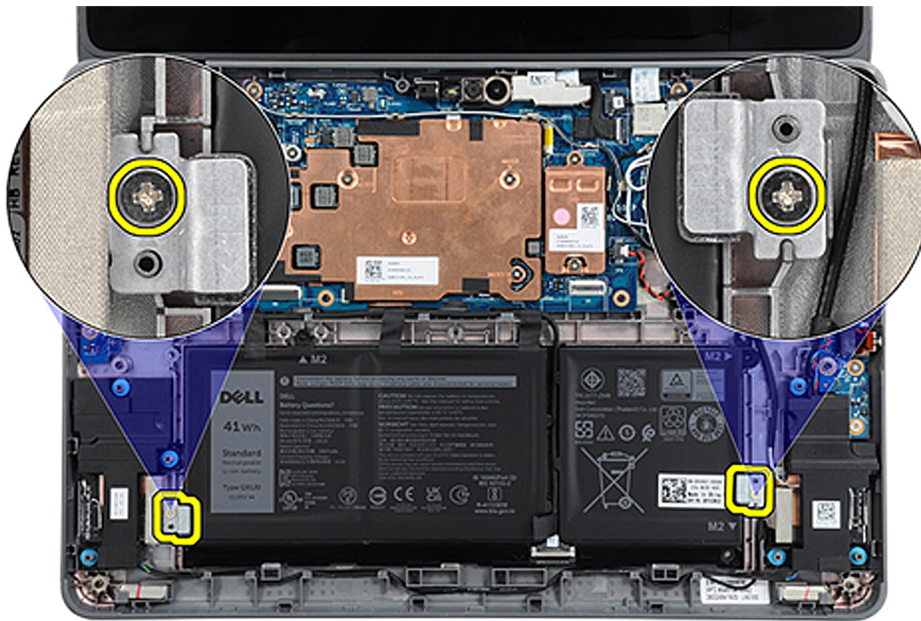
1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).

NOTE: The following steps are for the computers that are shipped with a 3-cell battery.

NOTE: If the battery is disconnected from system board, there is delay during computer boot as the computer undergoes Real Time Clock (RTC) reset.

NOTE: The double-sided adhesive tapes are reusable.

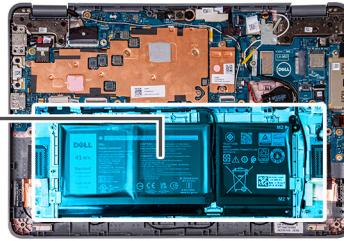
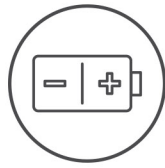
NOTE: There are two brackets that secure the 3-cell battery in place. These are secured in position by two M2x3 screws:



The following images indicate the location of the 3-cell battery and provide a visual representation of the removal procedure.



2x
M2x3



1. Peel off the adhesive tapes that secure the 3-cell battery to the computer chassis.
2. Unroute the battery cable from the routing channels between the system board and 3-cell battery.
3. Remove the two screws (M2x3) that secure the two battery brackets to the computer chassis.
4. If not already disconnected, disconnect the battery cable from the system board.
5. Lift and remove the 3-cell battery from the computer chassis.

Installing the 3-cell battery

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

i **NOTE:** The following steps are for computers that are shipped with a 3-cell battery.

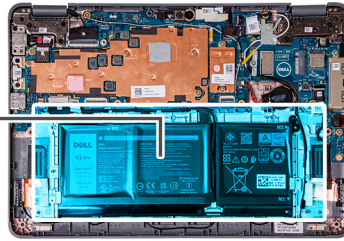
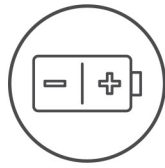
i **NOTE:** If the battery is disconnected from system board, there is delay during computer boot as the computer undergoes Real Time Clock (RTC) reset.

i **NOTE:** The double-sided adhesive tapes are reusable.

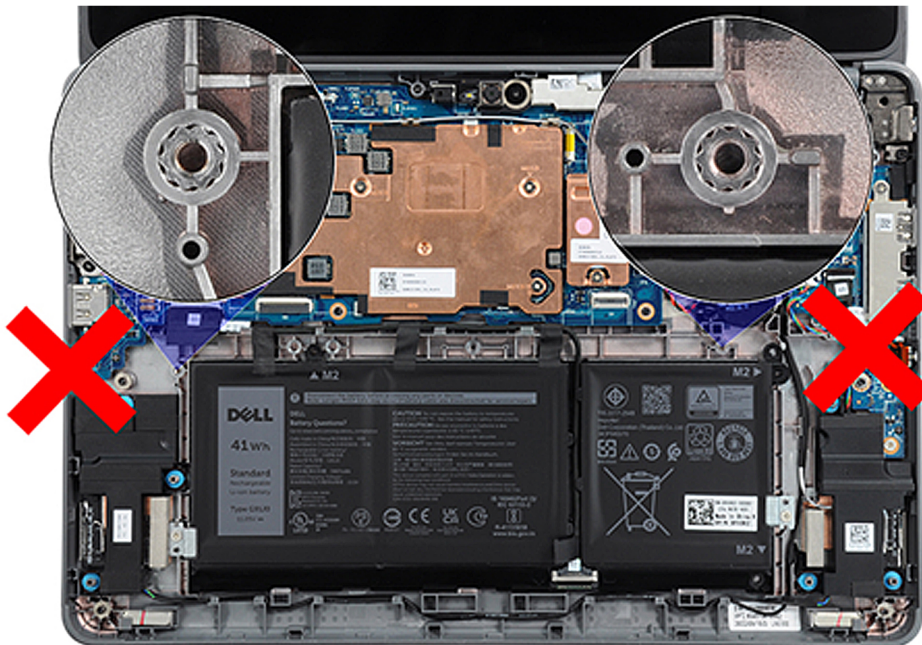
The following image indicates the location of the 3-cell battery and provides a visual representation of the installation procedure.



2x
M2x3



1. Align and replace the 3-cell battery into the computer chassis.
2. Route the battery cable through the routing channels between the system board and 3-cell battery.
3. Affix the adhesive tapes to secure the 3-cell battery to the computer chassis.
4. Place the two battery brackets into position at the bottom left and bottom right of the battery, ensuring they keep the 3-cell battery secured into position.
5. Secure the two battery brackets into position with the two screws (M2x3). Be careful not to install the screws into the screw holes at the top left and right sides of the battery:



6. Connect the battery cable to the system board.
1. Install the [palmrest and keyboard assembly](#).

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

Removing the 4-cell battery

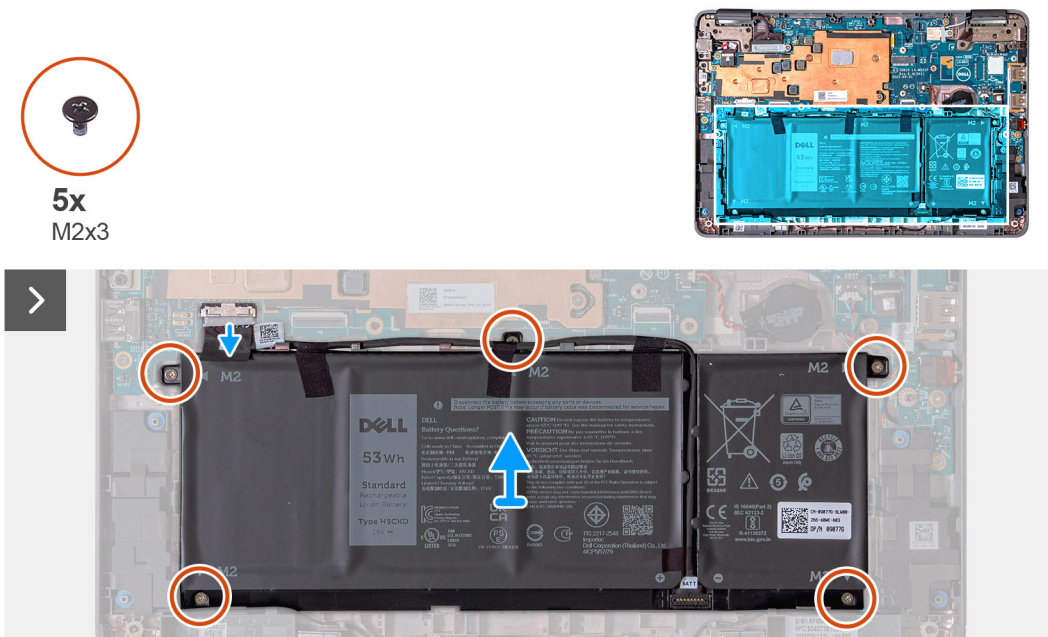
1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).

i **NOTE:** The following steps are for computers that are shipped with a 4-cell battery.

i **NOTE:** If the battery is disconnected from system board, there is delay during computer boot as the computer undergoes Real Time Clock (RTC) reset.

i **NOTE:** The double sided adhesive tapes are reusable.

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



1. Peel off the adhesive tapes that secure the 4-cell battery to the computer chassis.
2. Unroute the battery cable from the routing channels between the system board and 4-cell battery.
3. Remove the five screws (M2x3) that secure the 4-cell battery to the computer chassis.
4. If not already disconnected, disconnect the battery cable from the system board.
5. Lift and remove the 4-cell battery from the computer chassis.

Installing the 4-cell battery

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

i **NOTE:** The following steps are for computers that are shipped with a 4-cell battery.

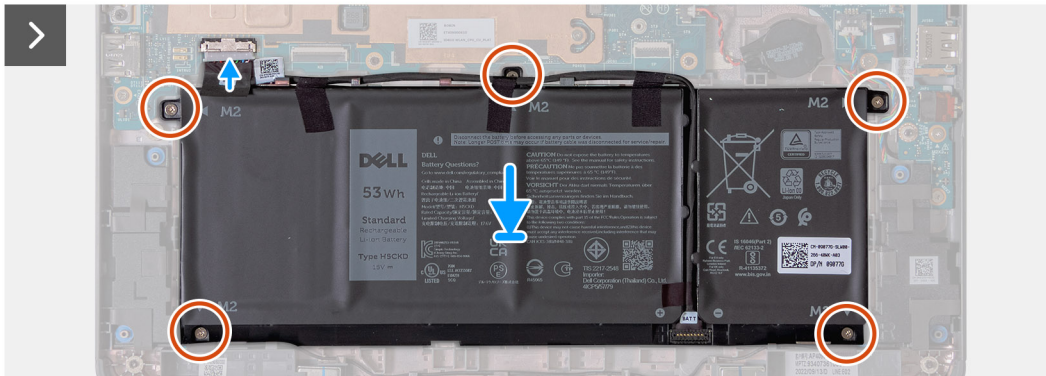
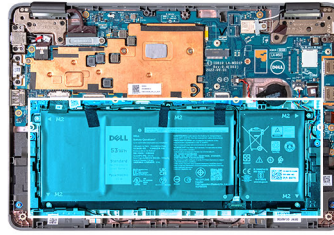
i **NOTE:** If the battery is disconnected from system board, there is delay during computer boot as the computer undergoes Real Time Clock (RTC) reset.

i **NOTE:** The double sided adhesive tapes are reusable.

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



5x
M2x3



1. Align and replace the 4-cell battery into the computer chassis.
 2. Route the battery cable through the routing channels between the system board and 4-cell battery.
 3. Affix the adhesive tapes to secure the 4-cell battery to the computer chassis.
 4. Replace the five screws (M2x3) to secure the 4-cell battery in place.
 5. Connect the battery cable to the system board.
1. Install the [palmrest and keyboard assembly](#).
 2. Follow the procedure in [after working inside your computer](#).

Power-adapter port

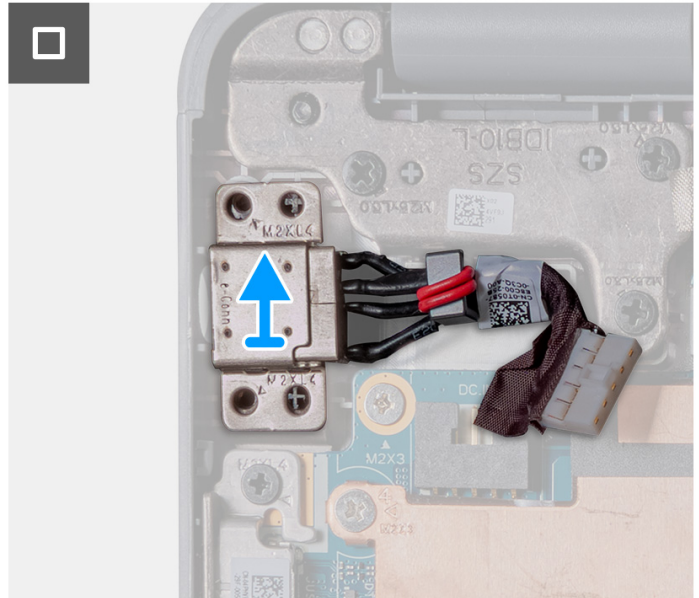
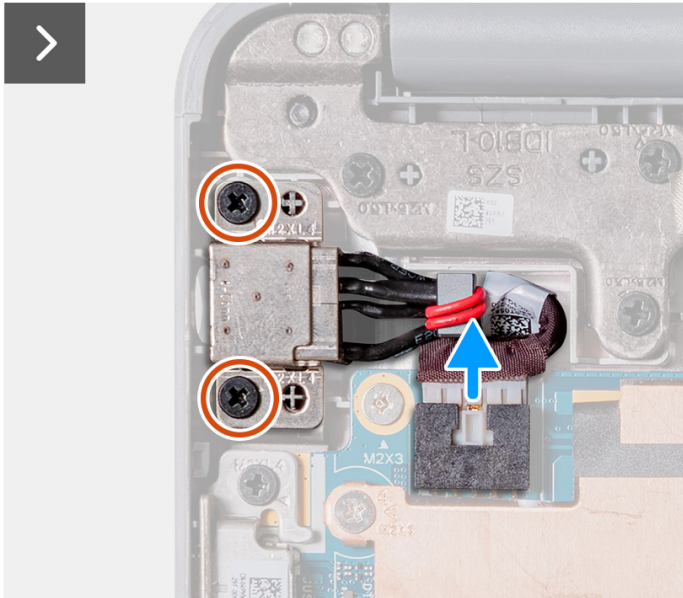
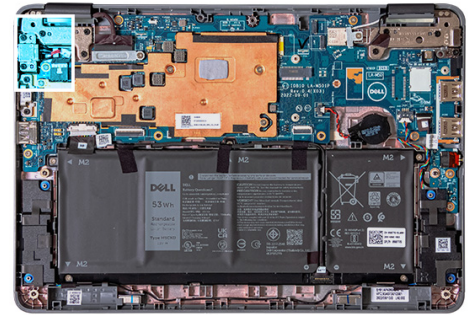
Removing the power-adapter port

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).

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



2x
M2x4



1. Disconnect the power-adapter port cable from the system board.
2. Remove the two screws (M2x4) that secure the power-adapter port to the computer chassis.
3. Lift and remove the power-adapter port from the computer chassis.

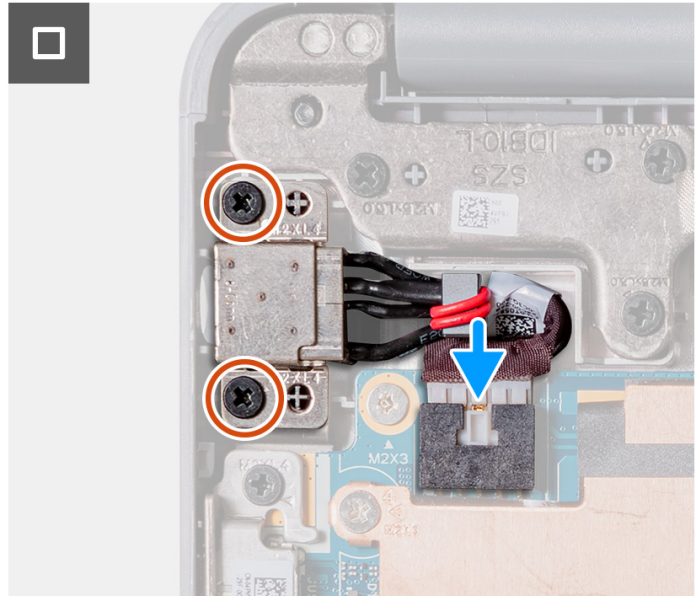
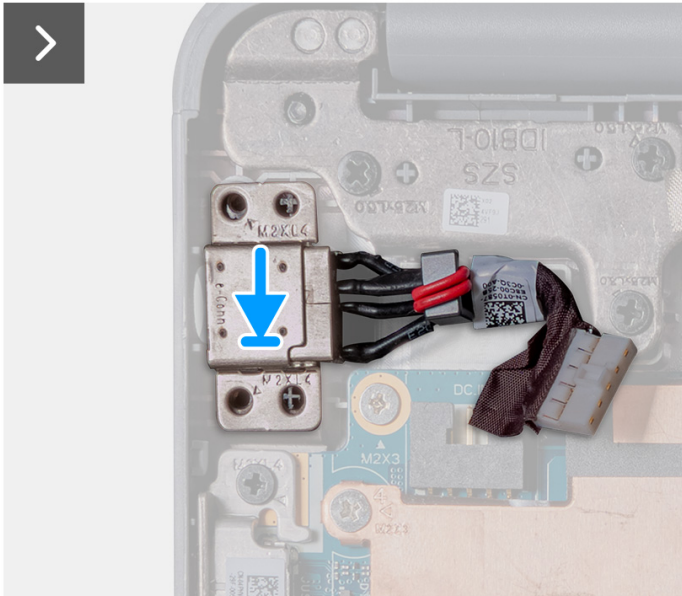
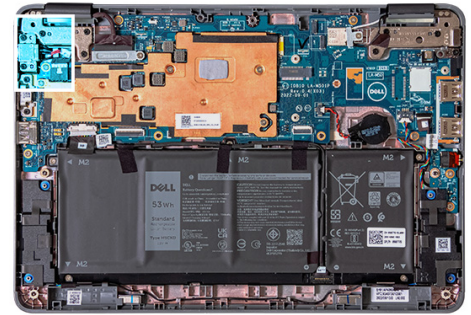
Installing the power-adapter port

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

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



2x
M2x4



1. Place the power-adaptor port into the slot on the computer chassis.
 2. Replace the two screws (M2x4) that secure the power-adaptor port to the computer chassis.
 3. Connect the power-adaptor port cable to the connector on the system board.
1. Install the [palmrest and keyboard assembly](#).
 2. Follow the procedure in [after working inside your computer](#).

World-facing camera (2-in-1)

Removing the world-facing camera (2-in-1)

NOTE: The following world-facing camera removal procedure is applicable to Latitude 3140 2-in-1 only.

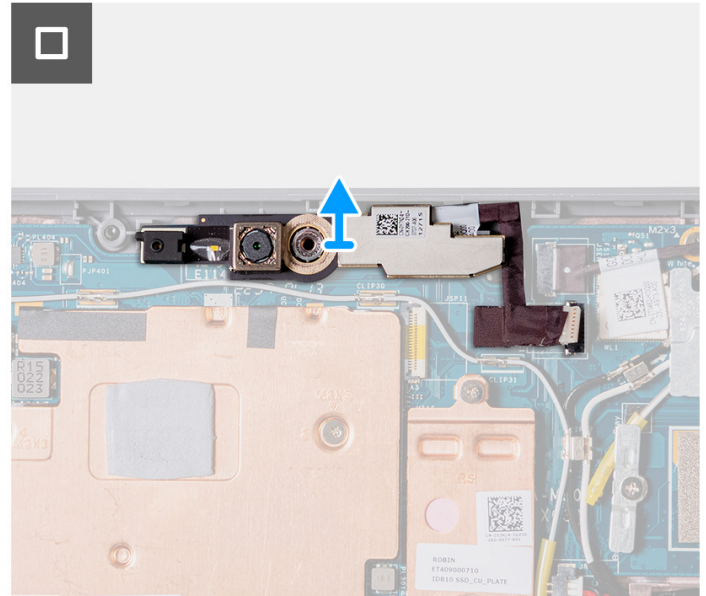
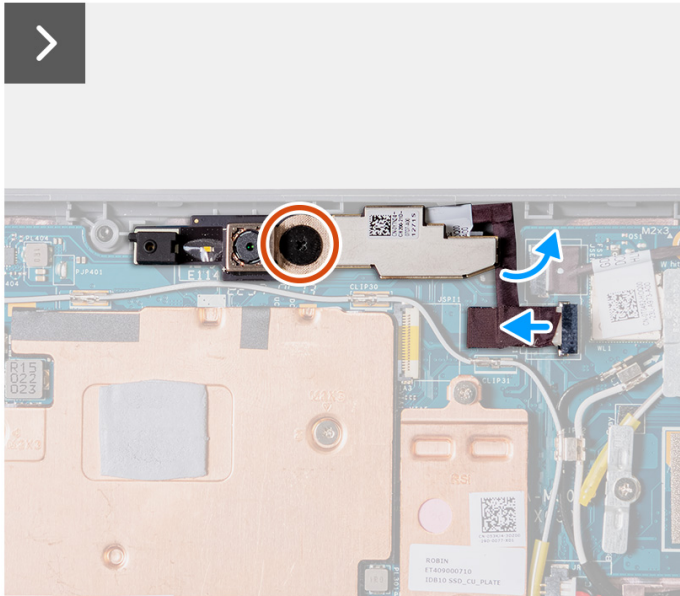
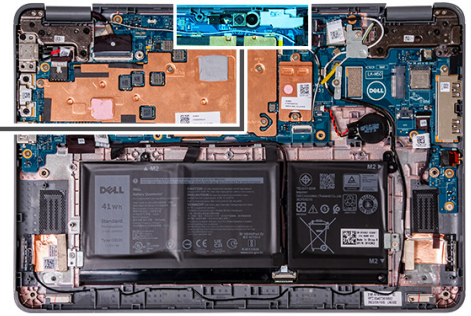
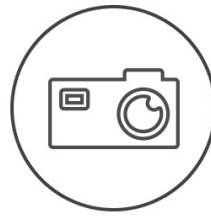
CAUTION: This is a fragile component. Handle with care.

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).

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



1x
M2.5x2.5



1. Disconnect the world-facing camera cable from the connector on the camera module.
2. Remove the single screw (M2.5x2.5) that secures the world-facing camera module to the computer chassis.
3. Lift and remove the world-facing camera module from the computer chassis.

Installing the world-facing camera (2-in-1)

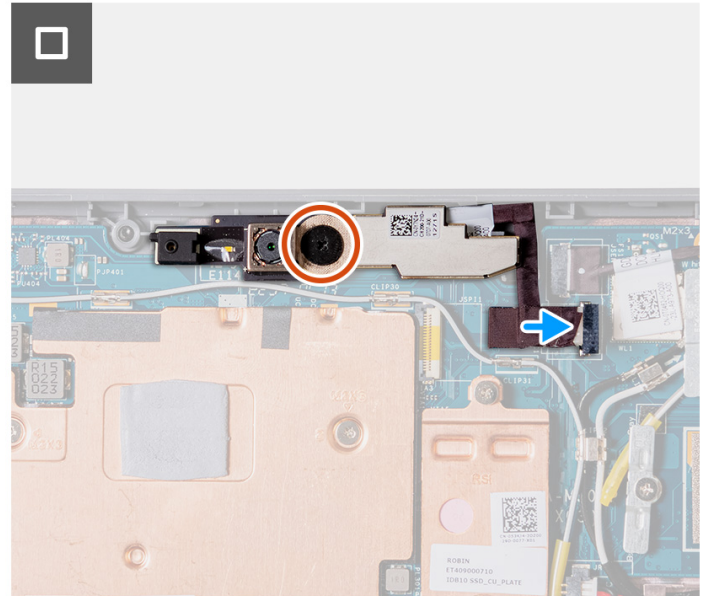
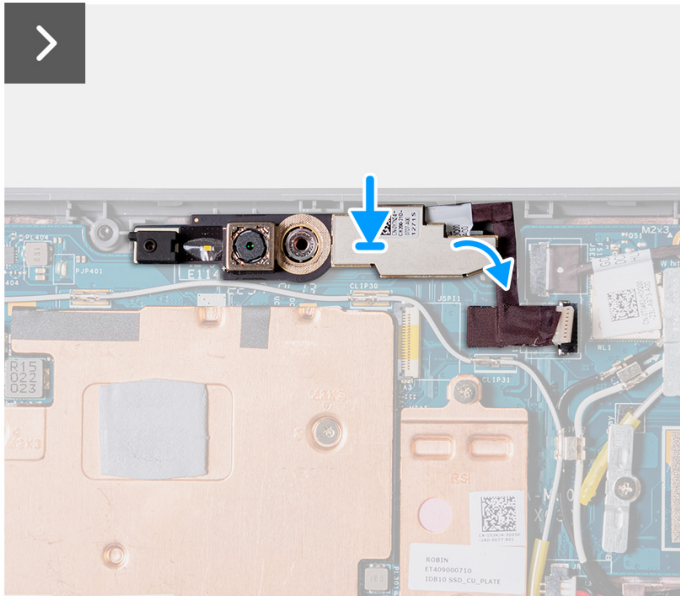
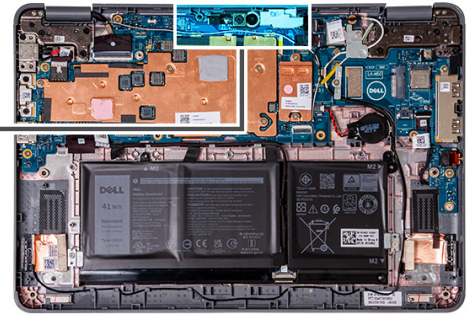
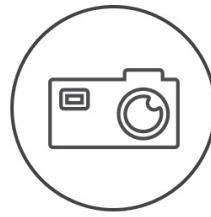
NOTE: The following world-facing camera installing procedure is applicable to Latitude 3140 2-in-1 only.

CAUTION: This is a fragile component. Handle with care.

The following image indicates the location of the world-facing camera and provides a visual representation of the installation procedure.



1x
M2.5x2.5



1. Insert the world-facing camera module into the slot on the computer chassis.
 2. Replace the single screw (M2.5x2.5) to secure the world-facing camera module to the computer chassis.
 3. Connect the world-facing camera cable to the connector on the camera module.
1. Install the [palmrest and keyboard assembly](#).
 2. Follow the procedure in [after working inside your computer](#).

Heat sink

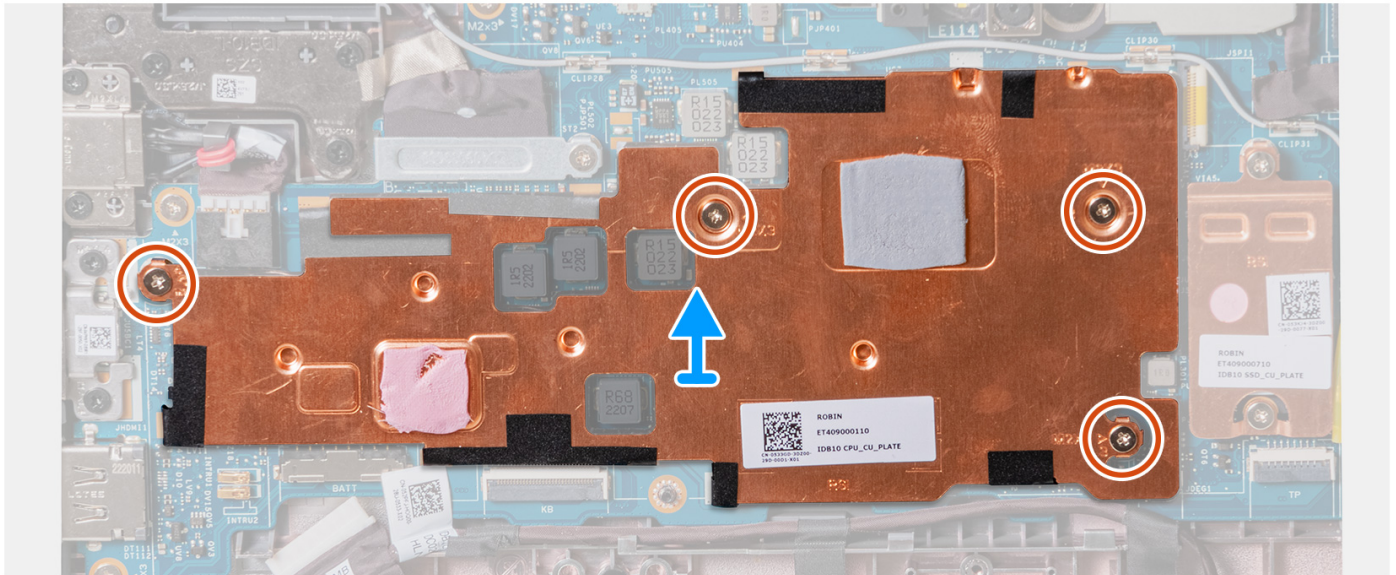
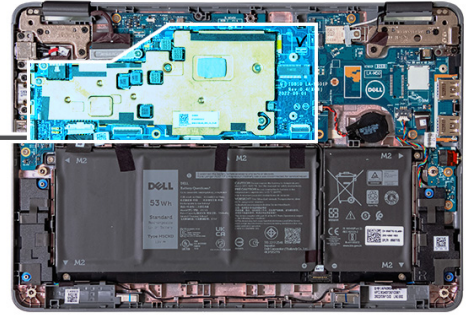
Removing the heat-sink assembly

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).

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



4x
M2x3



1. Remove the four screws (M2x3) that secure the heat-sink assembly to the system board.
2. Lift and remove the heat-sink assembly from the system board.

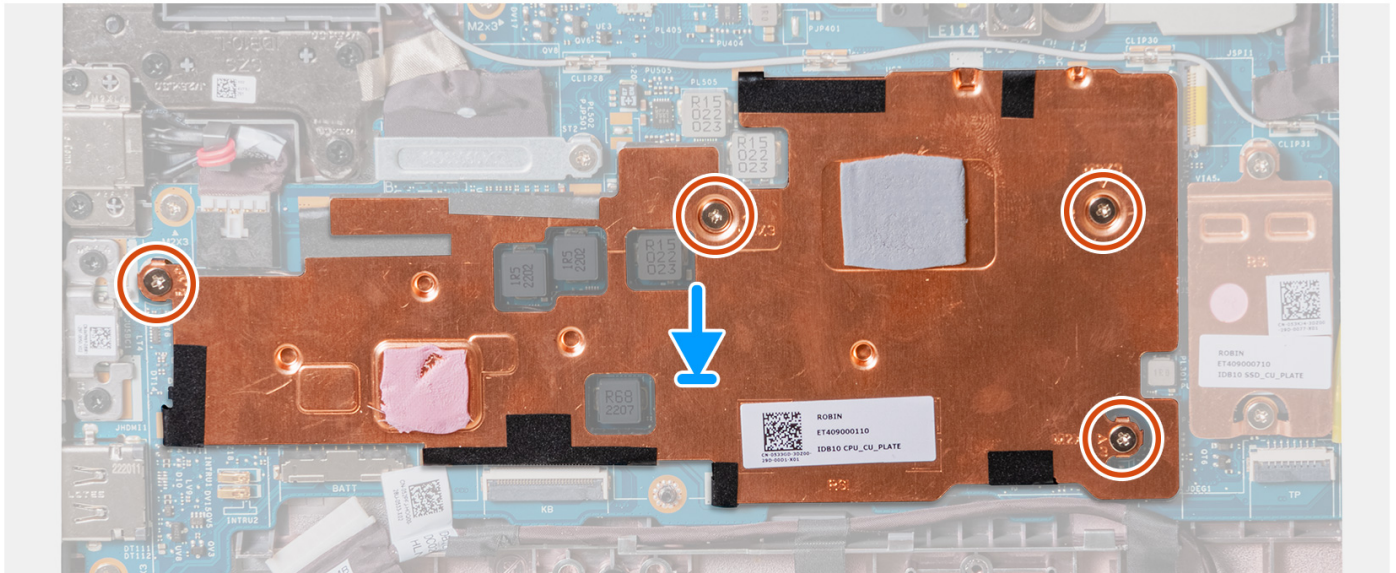
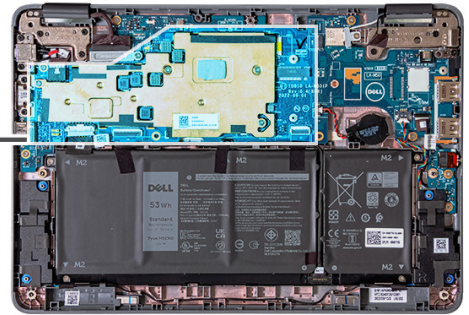
Installing the heat-sink assembly

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

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



4x
M2x3



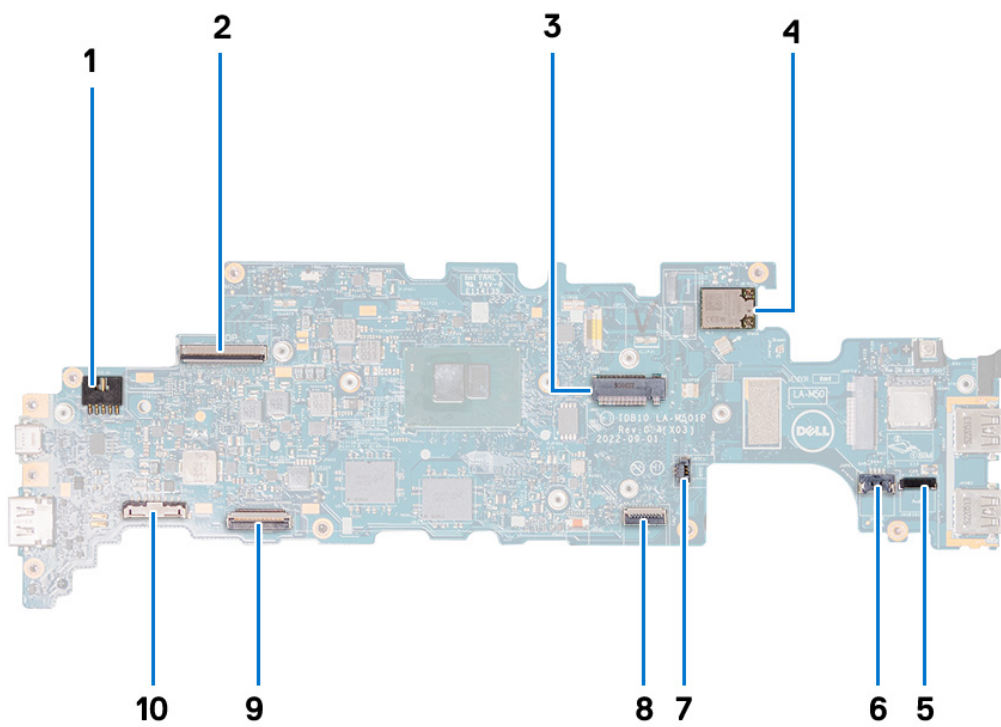
1. Align and replace the heat-sink assembly into its slot on the system board.
2. Replace the four screws (M2x3) to secure the heat-sink assembly to the system board.
1. Install the [palmrest and keyboard assembly](#).
2. Follow the procedure in [after working inside your computer](#).

System board

Removing the system board (Laptop)

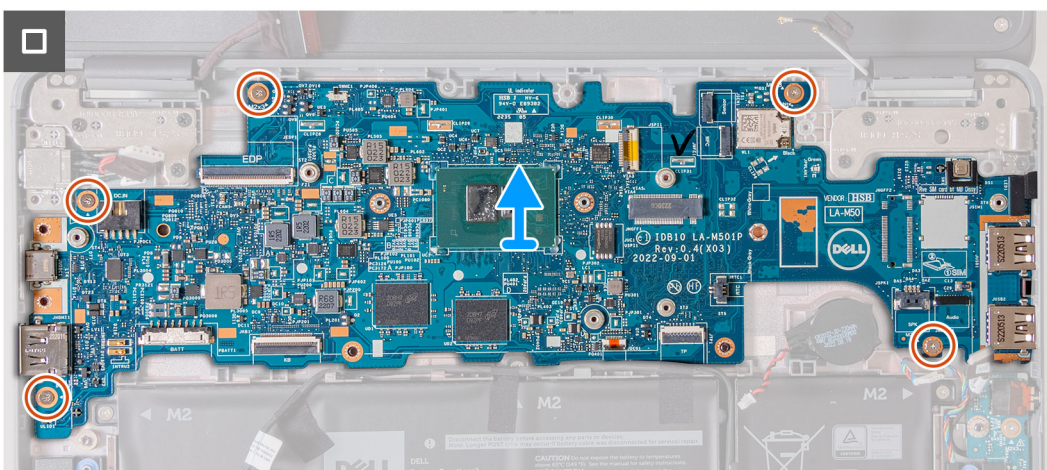
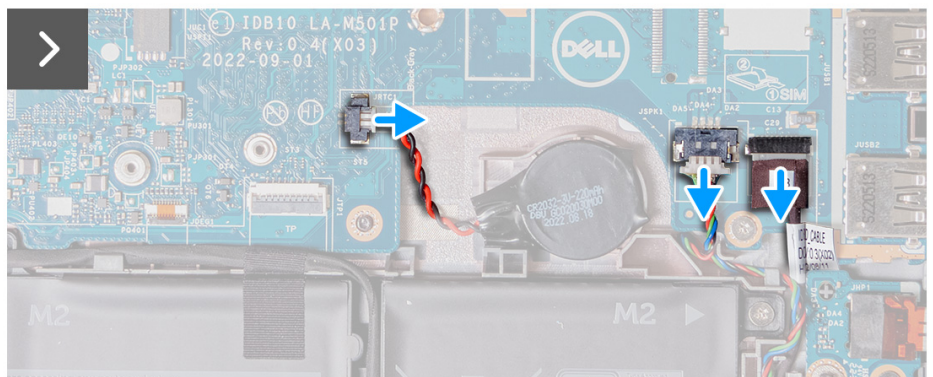
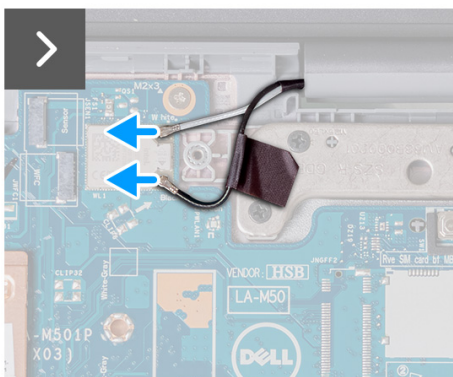
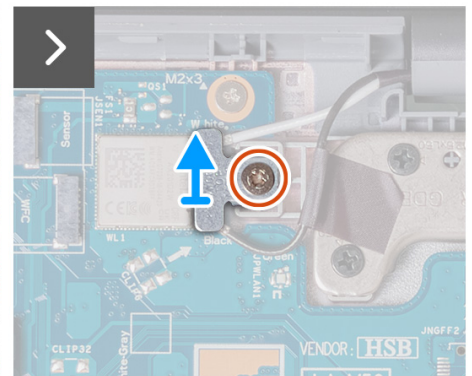
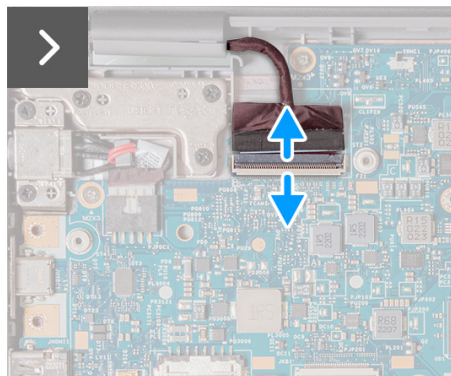
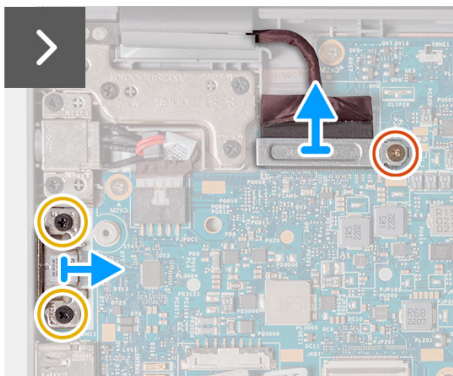
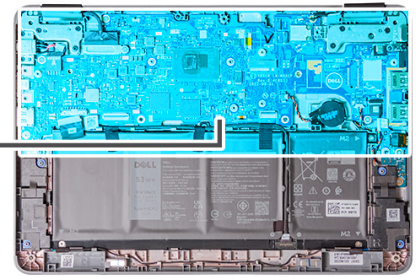
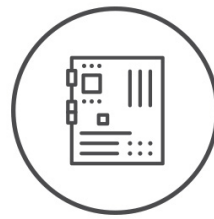
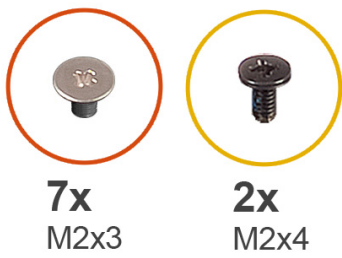
1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).
3. Remove the [solid-state drive](#).
4. Remove the [heatsink assembly](#).

The following image indicates the connectors on your system board.



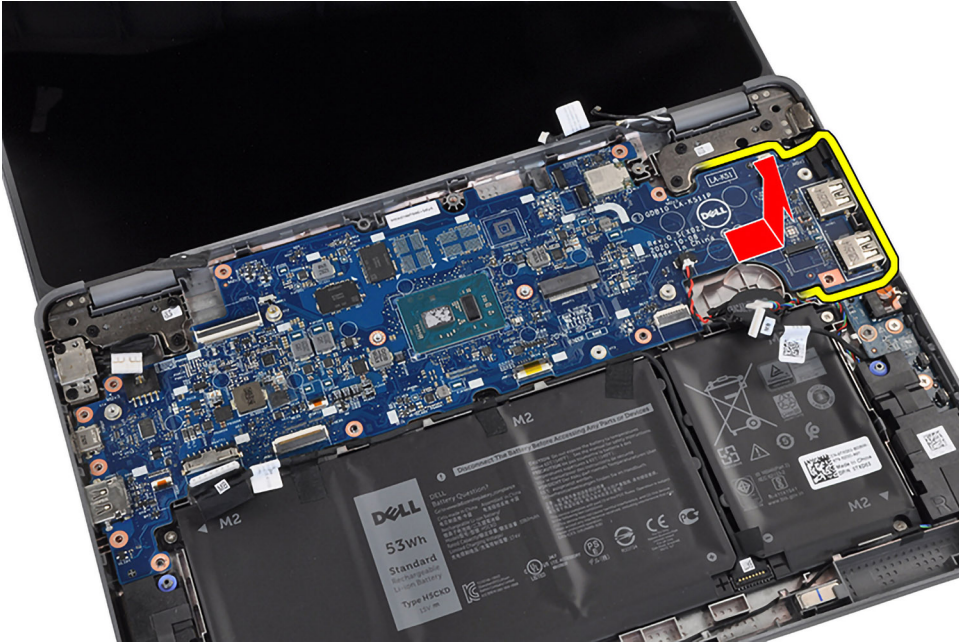
1. Power-adaptor port connector
2. Display-cable connector
3. Solid-State Drive slot
4. WLAN module
5. Audio-board cable connector
6. Speaker-cable connector
7. Coin-cell battery cable
8. Touchpad Flexible Flat Cable (FFC) connector
9. Keyboard Flexible Printed Circuits (FPC) connector
10. Battery-cable connector

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



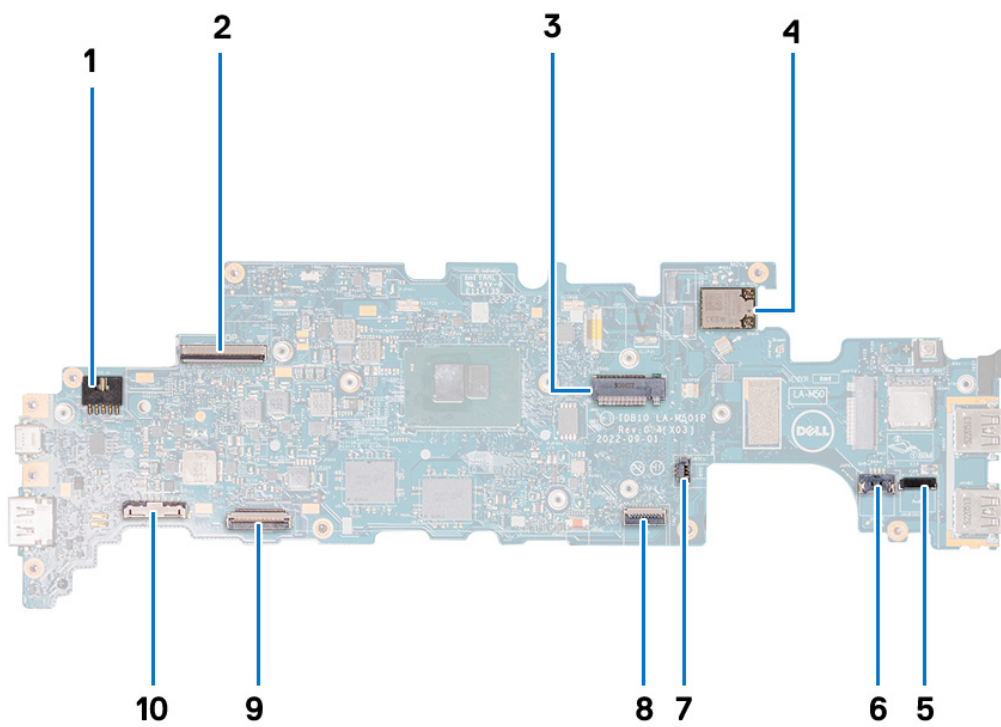
1. If your computer has a USB-C port, remove the two screws (M2x4) that secure the USB-C bracket to the system board. Lift and remove the USB-C bracket from the system board.
2. Remove the single screw (M2x3) that secures the display-cable bracket to the system board. Lift and remove the display-cable bracket from the system board.
3. Disconnect the power-adaptor port cable from the system board.
4. Open the latch and disconnect the display cable from the connector on the system board.
5. Remove the single screw (M2x3) that secures the WLAN antenna cable bracket to the system board.

6. Lift and remove the WLAN antenna cable bracket from the system board.
7. Disconnect the two antenna cables that are connected to the WLAN module on the system board.
8. Disconnect the coin cell battery cable from the connector on the system board.
9. Pry the coin-cell battery to release it from the adhesive. Lift and remove it from the system board.
10. Disconnect the power adapter port cable from the connector on the system board.
11. Disconnect the speaker cable and the audio-board cable from their connectors on the system board.
12. Remove the five screws (M2x3) that secure the system board to the computer chassis.
13. Remove the system board by holding it on the right side, then sliding it out from the right. This releases the I/O connectors on the left side of the system board from the slots on the base cover.



Installing the system board (Laptop)

If you are replacing a component, remove the existing component before performing the installation procedure. The following image indicates the connectors on your system board.



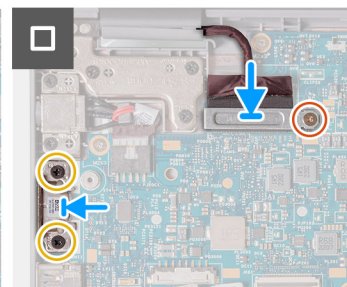
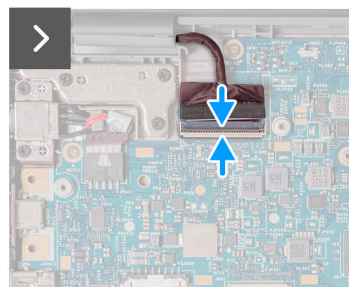
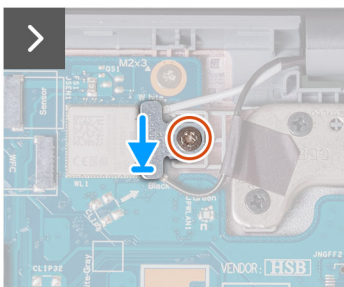
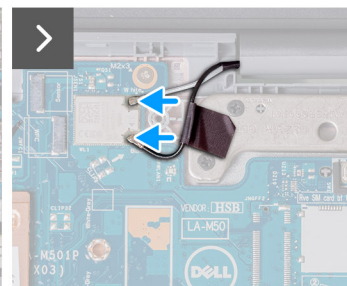
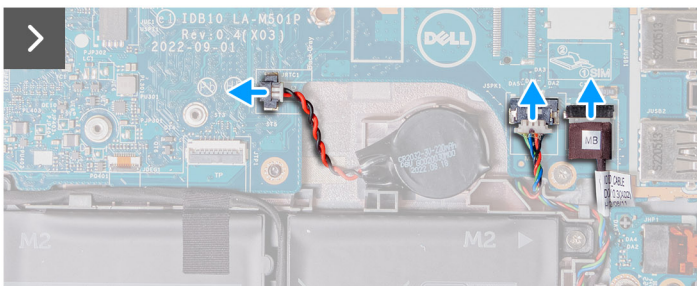
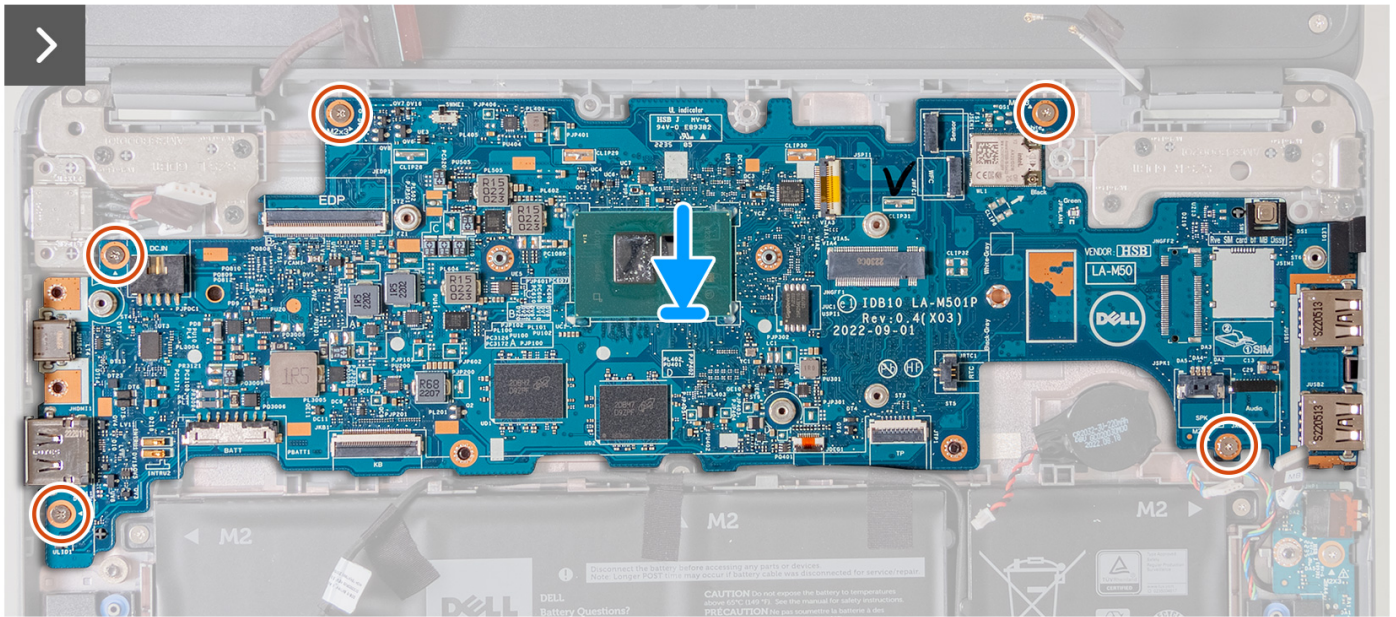
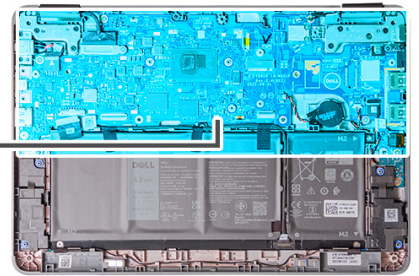
1. Power-adapter port connector
2. Display-cable connector
3. Solid-State Drive slot
4. WLAN module
5. Audio-board cable connector
6. Speaker-cable connector
7. Coin-cell battery cable
8. Touchpad Flexible Flat Cable (FFC) connector
9. Keyboard Flexible Printed Circuits (FPC) connector
10. Battery-cable connector

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



7x
M2x3

2x
M2x4



This computer is offered with a configuration that utilizes an on-board storage where the UFS storage is part of the system board assembly.

In the event the computer requires a system board replacement, all data stored locally on the computer will be lost and will no longer be recoverable. Pre-wire the customer to backup their data on the computer in order to prevent any potential data loss after a service incident.

After replacing the system board, OS reinstallation will be required. This can be done using the OS Recovery media or initiating BIOSConnect OS Recovery, provided that Internet connection is available.

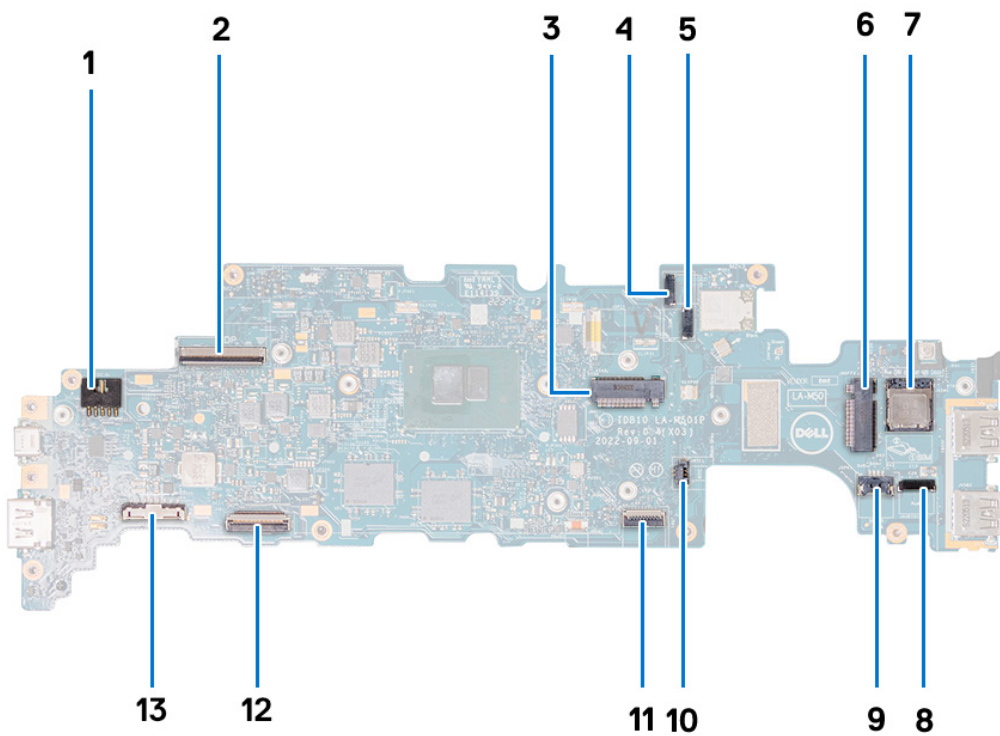
NOTE: Dell is not responsible for backing up the customer's data. The customer is responsible for the data on their own computer and keeping any backups of the files.

1. Replace the system board into the computer chassis.
 2. Replace the five screws (M2x3) that secure the system board to the computer chassis.
 3. Replace the coin-cell battery into its slot on the system board.
 4. Connect the coin-cell battery cable to the connector on the system board.
 5. Connect the speaker cable and the audio board cable to their connectors on the system board.
 6. Connect the two antenna cables to the WLAN module on the system board.
 7. Replace the WLAN antenna cable bracket on the system board.
 8. Replace the single screw (M2x3) to secure the WLAN antenna cable bracket to the system board.
 9. Connect the display cable to its connector on the system board. Close the latch to secure the cable.
 10. Replace the display-cable bracket on the system board.
 11. Replace the single screw (M2x3) to secure the display-cable bracket to the system board.
 12. Connect the power adapter port cable to its connector on the system board.
 13. If your computer has a USB-C port, replace the USB-C bracket on the system board. Replace the two screws (M2x4) to secure the USB-C bracket to the system board.
1. Install the [heatsink assembly](#).
 2. For computers that are shipped with a Solid State Drive (SSD), install the [solid-state drive](#).
 3. Install the [palmrest and keyboard assembly](#).
 4. Follow the procedure in [after working inside your computer](#).

Removing the system board (2-in-1)

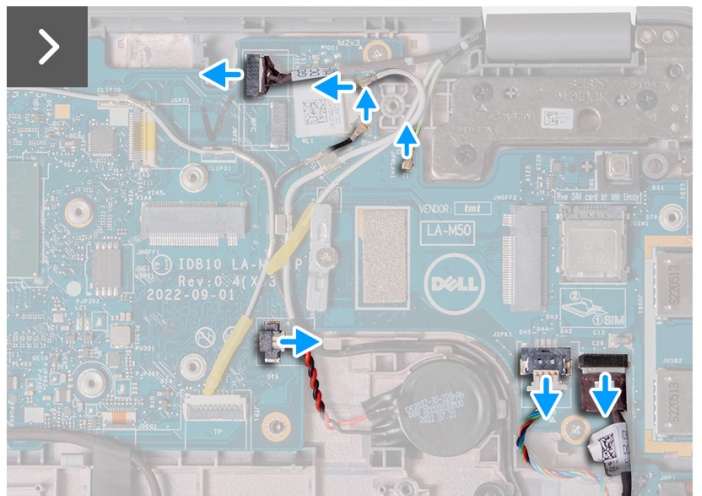
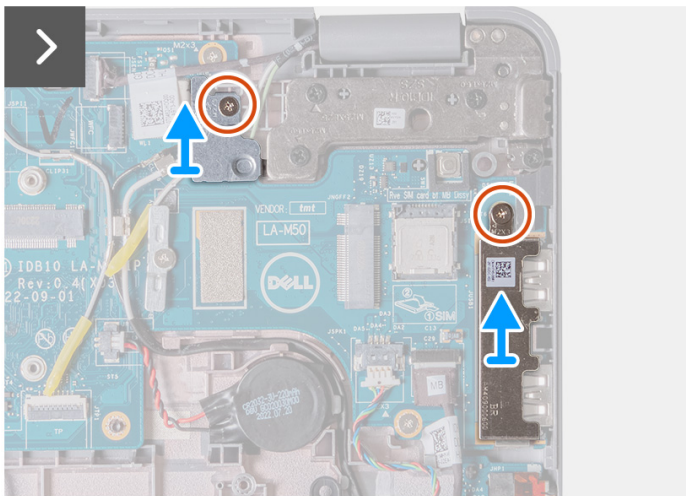
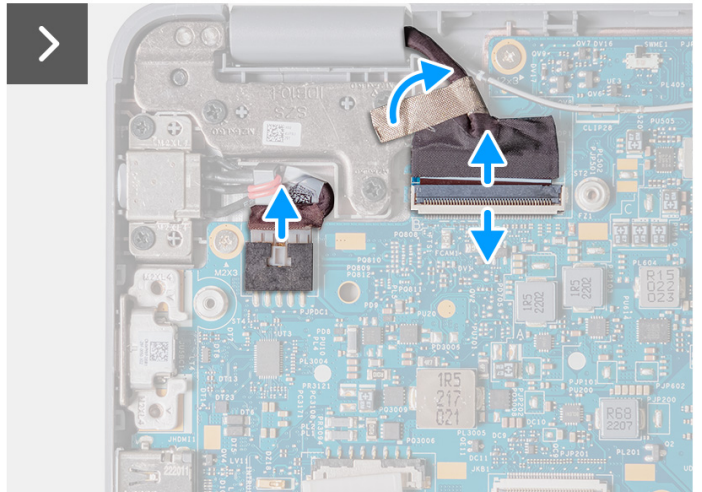
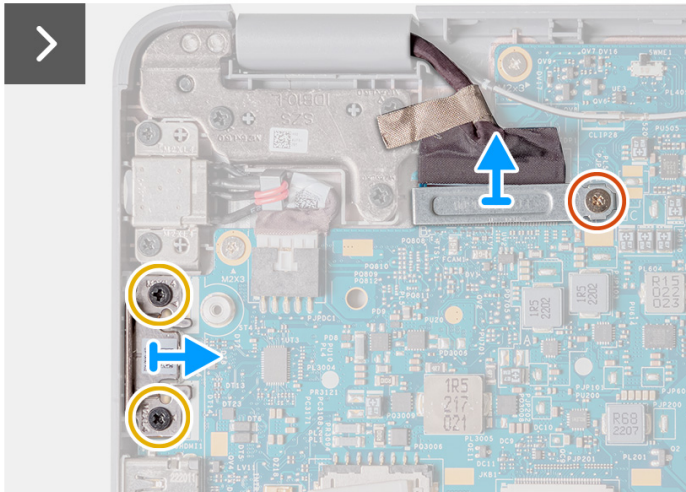
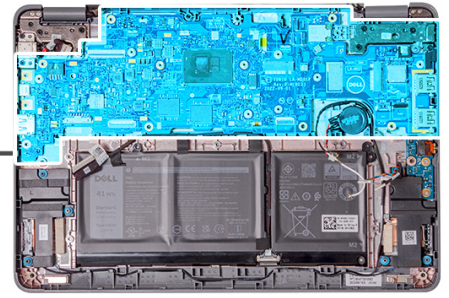
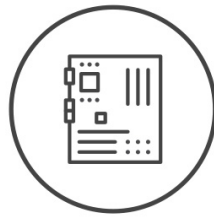
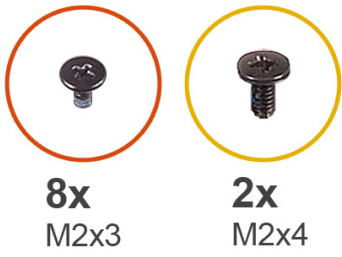
1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).
3. Remove the [solid-state drive](#).
4. Remove the [heatsink assembly](#).
5. Remove the [world-facing camera](#).

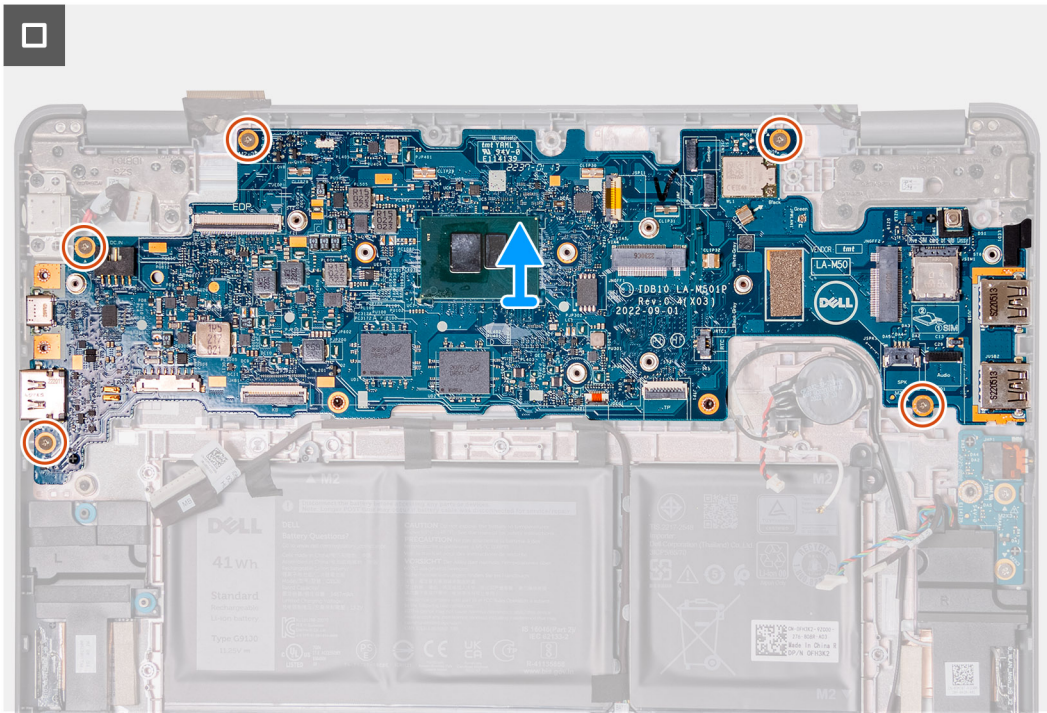
The following image indicates the connectors on your system board.



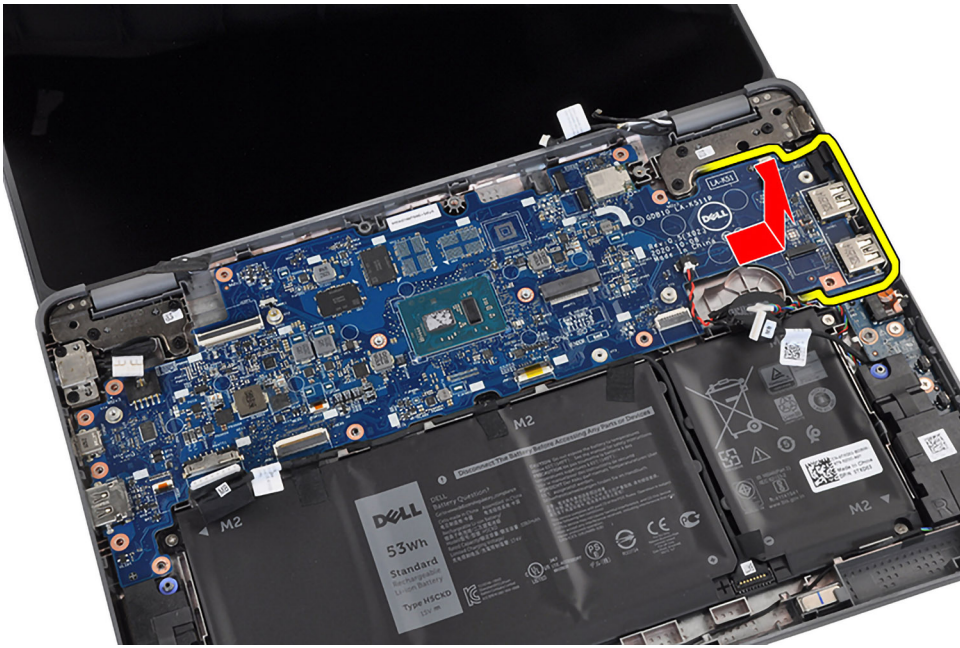
- | | |
|--|--|
| 1. Power-adaptor port connector | 2. Display-cable connector |
| 3. Solid-State Drive slot | 4. Touch-display connector |
| 5. World-facing camera cable connector | 6. WWAN-card slot |
| 7. SIM-card slot | 8. Audio-board cable connector |
| 9. Speaker-cable connector | 10. Coin-cell battery cable |
| 11. Touchpad Flexible Flat Cable (FFC) connector | 12. Keyboard Flexible Printed Circuits (FPC) connector |
| 13. Battery-cable connector | |

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



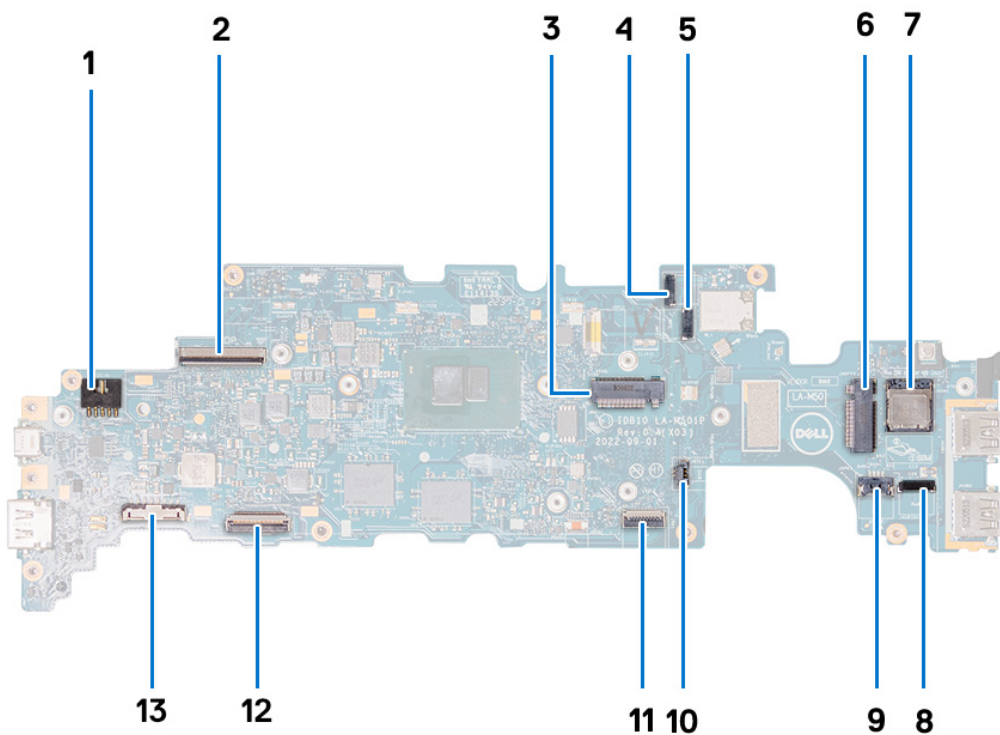


1. If your computer has a USB-C port, remove the two screws (M2x4) that secure the USB-C bracket to the system board. Lift and remove the USB-C bracket from the system board.
2. Remove the single screw (M2x3) that secures the display-cable bracket to the system board. Lift and remove the display-cable bracket from the system board.
3. Disconnect the power-adapter port cable from the system board.
4. Open the latch and disconnect the display cable from the connector on the system board.
5. Remove the single screw (M2x3) that secures the WLAN antenna cable bracket to the system board. Lift and remove the WLAN antenna cable bracket from the system board.
6. Remove the single screw (M2x3) that secures the USB-A bracket to the system board. Lift and remove the USB-A bracket from the system board.
7. Disconnect the three antenna cables that are connected to the WLAN module on the system board.
8. Disconnect the touch-display connector.
9. Disconnect the coin cell battery cable from the connector on the system board.
10. Pry the coin-cell battery to release it from the adhesive. Lift and remove it from the system board.
11. Disconnect the speaker cable and the audio-board cable from their connectors on the system board.
12. Remove the five screws (M2x3) that secure the system board to the computer chassis.
13. Remove the system board by holding it on the right side, then sliding it out from the right. This releases the I/O connectors on the left side of the system board from the slots on the base cover.



Installing the system board (2-in-1)

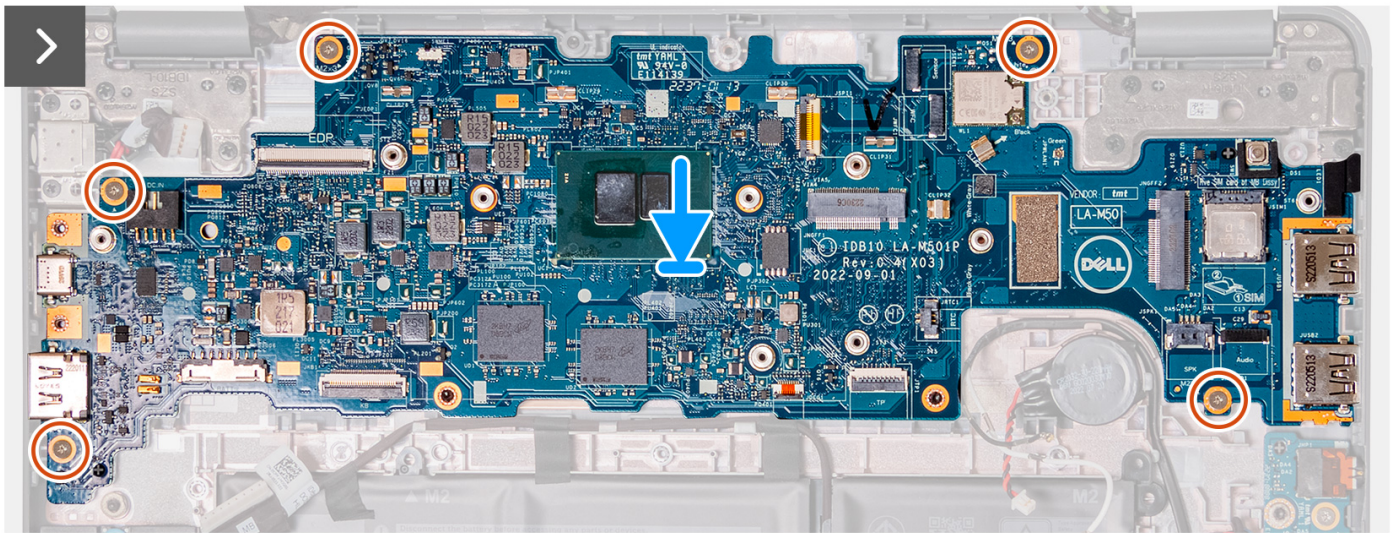
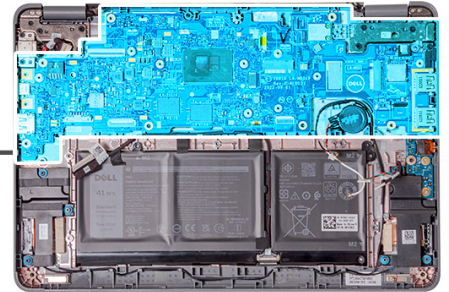
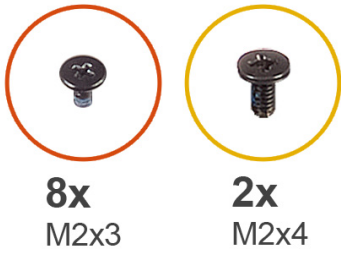
If you are replacing a component, remove the existing component before performing the installation procedure. The following image indicates the connectors on your system board.

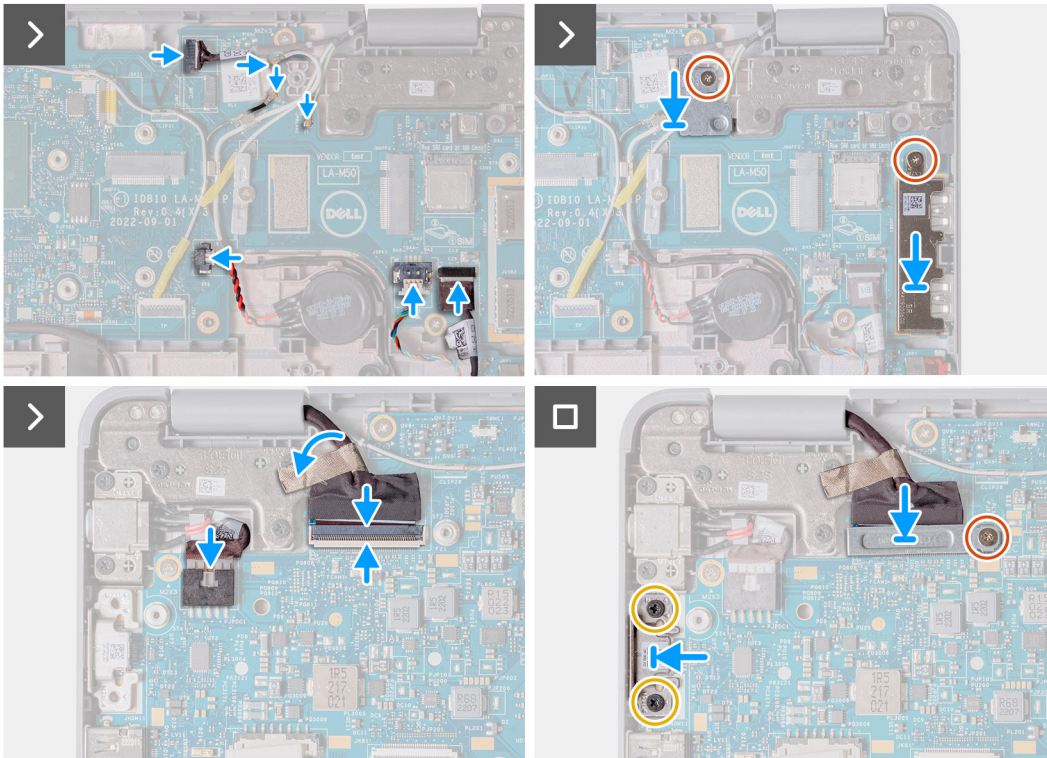


- | | |
|--|----------------------------|
| 1. Power-adaptor port connector | 2. Display-cable connector |
| 3. Solid-State Drive slot | 4. Touch-display connector |
| 5. World-facing camera cable connector | 6. WWAN-card slot |

- 7. SIM-card slot
- 9. Speaker-cable connector
- 11. Touchpad Flexible Flat Cable (FFC) connector
- 13. Battery-cable connector
- 8. Audio-board cable connector
- 10. Coin-cell battery cable
- 12. Keyboard Flexible Printed Circuits (FPC) connector

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





This computer is offered with a configuration that utilizes an on-board storage where the UFS storage is part of the system board assembly.

In the event the computer requires a system board replacement, all data stored locally on the computer will be lost and will no longer be recoverable. Pre-wire the customer to backup their data on the computer in order to prevent any potential data loss after a service incident.

After replacing the system board, OS reinstallation will be required. This can be done using the OS Recovery media or initiating BIOSConnect OS Recovery, provided that Internet connection is available.

NOTE: Dell is not responsible for backing up the customer's data. The customer is responsible for the data on their own computer and keeping any backups of the files.

1. Replace the system board into the computer chassis.
 2. Replace the five screws (M2x3) that secure the system board to the computer chassis.
 3. Replace the coin-cell battery into its sot on the system board.
 4. Connect the coin-cell battery cable to the connector on the system board.
 5. Connect the speaker cable and the audio board cable to their connectors on the system board.
 6. Connect the touch-display connector.
 7. Connect the three antenna cables to the WLAN module on the system board.
 8. Replace the WLAN antenna cable bracket on the system board.
 9. Replace the single screw (M2x3) to secure the WLAN antenna cable bracket to the system board.
 10. Replace the USB Type-A bracket on the system board.
 11. Replace the single screw (M2x3) to secure the USB Type-A bracket to the system board.
 12. Connect the power adapter port cable to its connector on the system board.
 13. Connect the display cable to its connector on the system board. Close the latch to secure the cable.
 14. Replace the display-cable bracket on the system board.
 15. Replace the single screw (M2x3) to secure the display-cable bracket to the system board.
 16. If your computer has a USB-C port, replace the USB-C bracket on the system board. Replace the two screws (M2x4) to secure the USB-C bracket to the system board.
1. Install the [world-facing camera](#).
 2. Install the [heatsink assembly](#).
 3. For computers that are shipped with a Solid State Drive (SSD), install the [solid-state drive](#).
 4. Install the [palmrest and keyboard assembly](#).

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

Display assembly

Removing the display assembly (Laptop)

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).

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



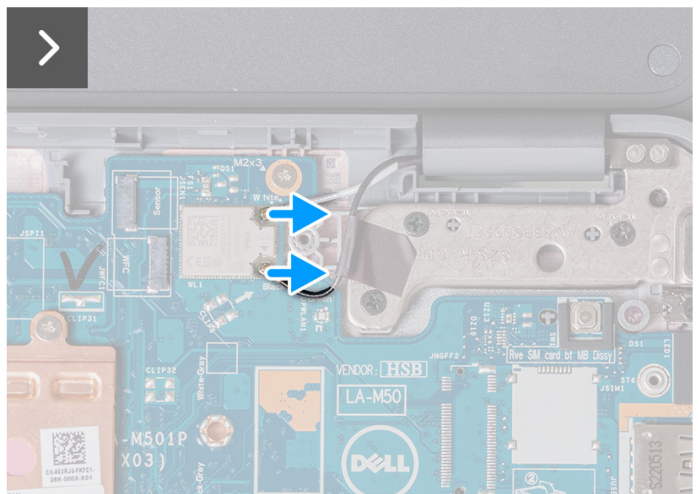
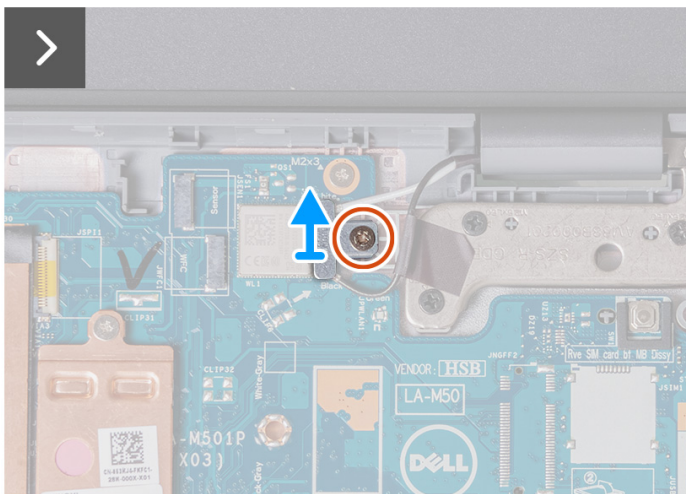
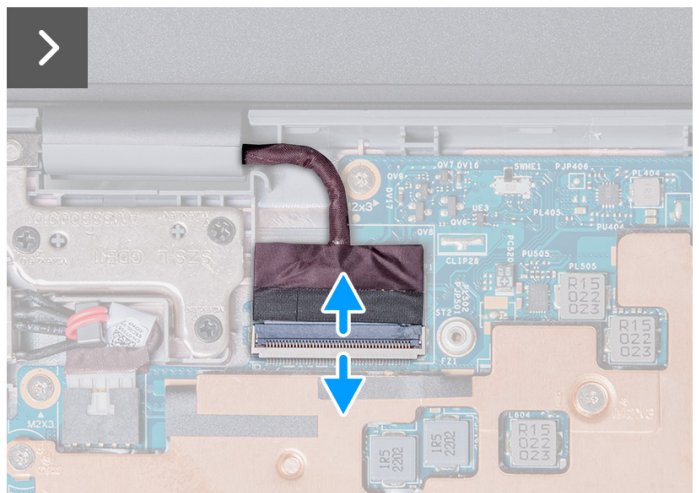
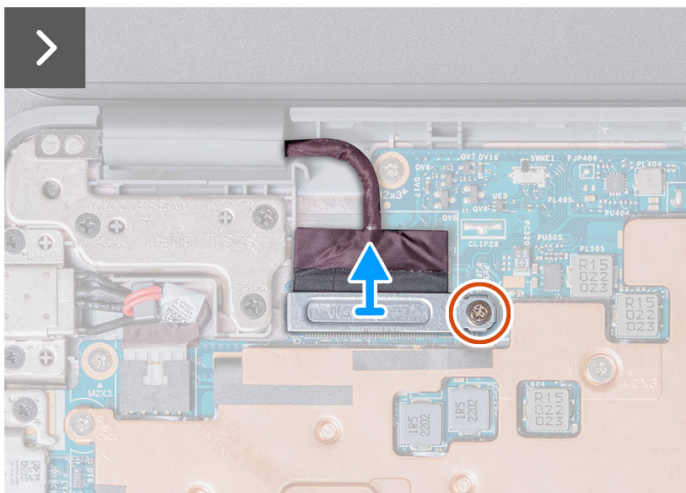
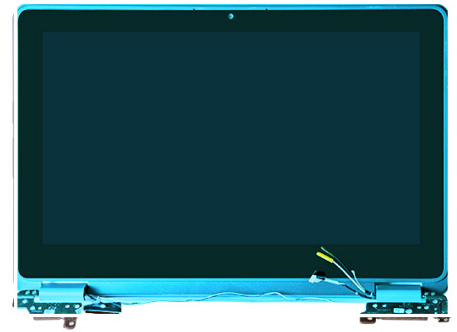
2x
M2x3

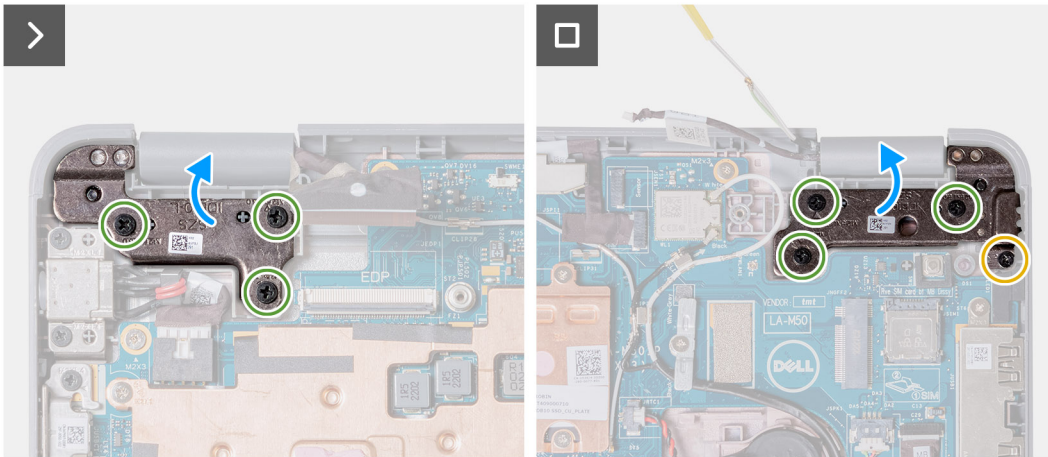


6x
M2.5x5

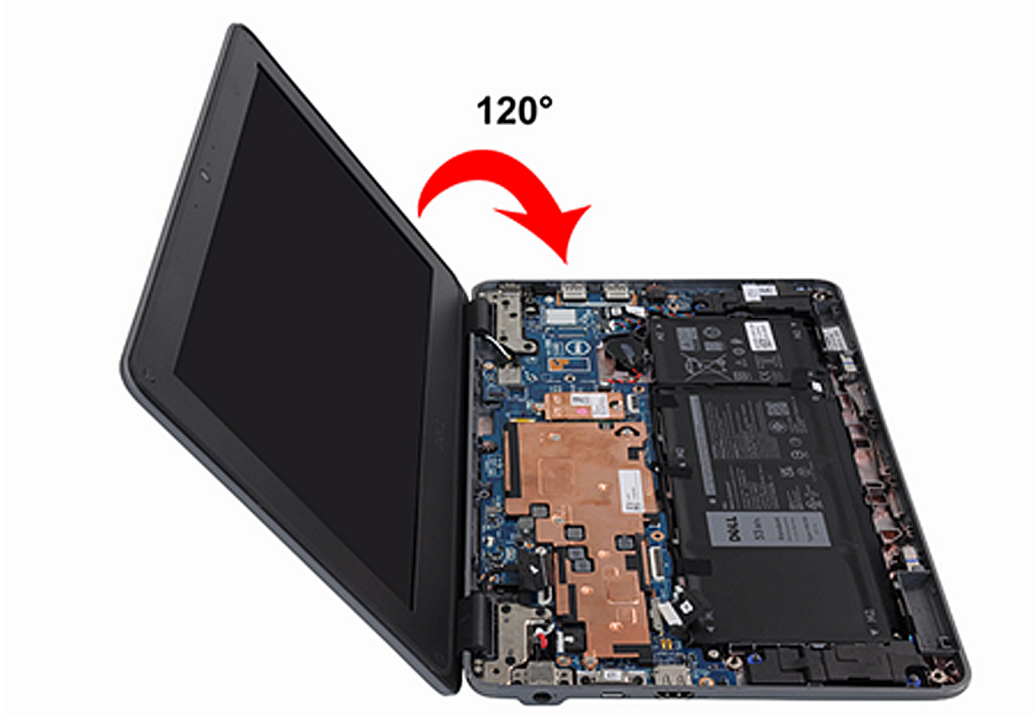


1x
M2x4





1. Remove the single screw (M2x3) that secures the WLAN antenna cable bracket to the system board.
2. Lift and remove the WLAN antenna cable bracket from the system board.
3. Disconnect the two antenna cables that are connected to the WLAN module on the system board.
4. Remove the single screw (M2x3) that secures the display-cable bracket to the system board. Lift and remove the display-cable bracket from the system board.
5. Open the latch and disconnect the display cable from the connector on the system board.
6. Open the system to 120 degrees.



7. Remove the single (M2x4) screw and six (M2.5x5) screws that secure the display assembly to the computer chassis.
8. Lift and remove the display assembly from the computer chassis.

Installing the display assembly (Laptop)

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

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



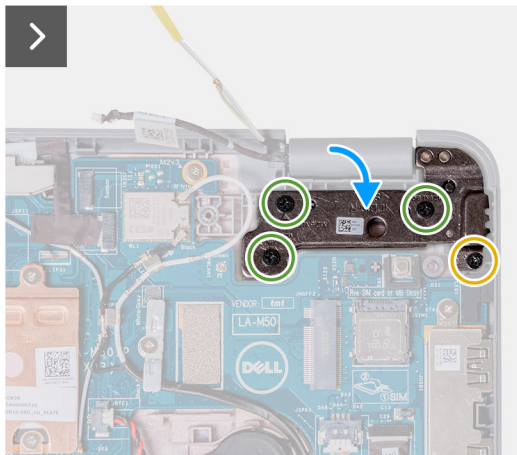
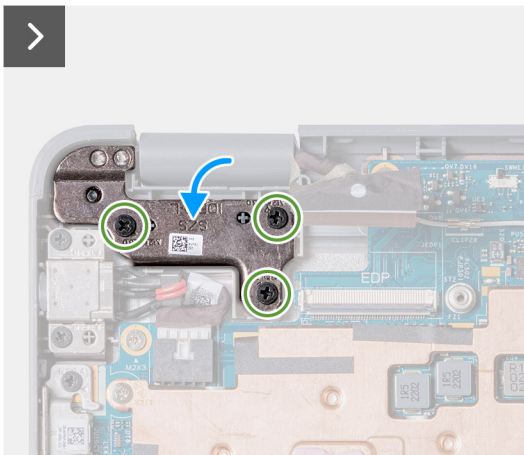
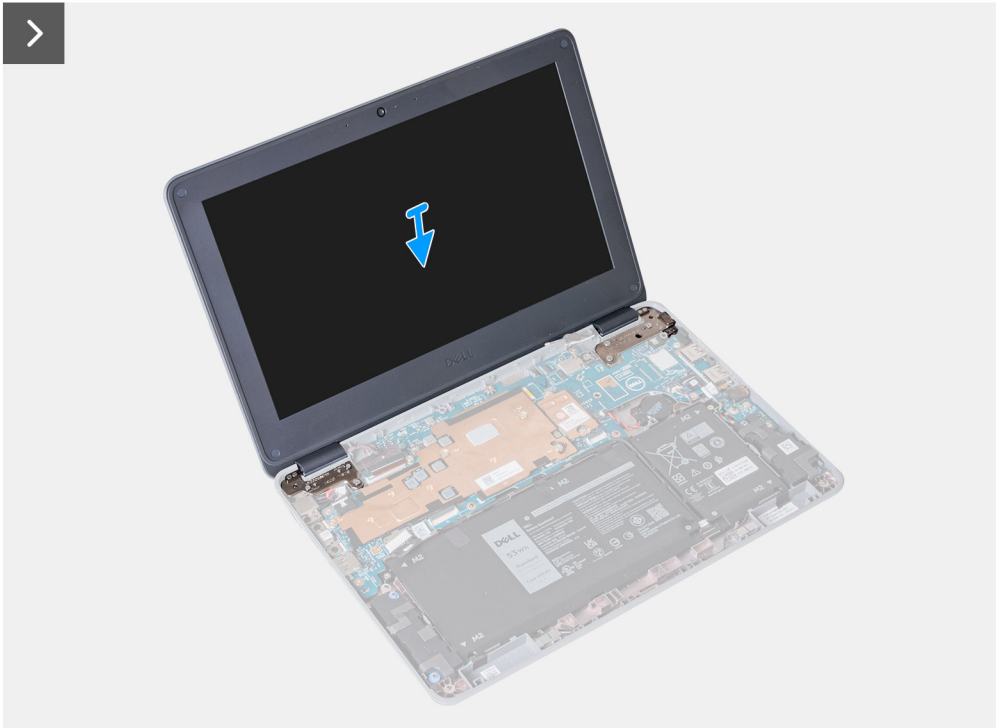
2x
M2x3

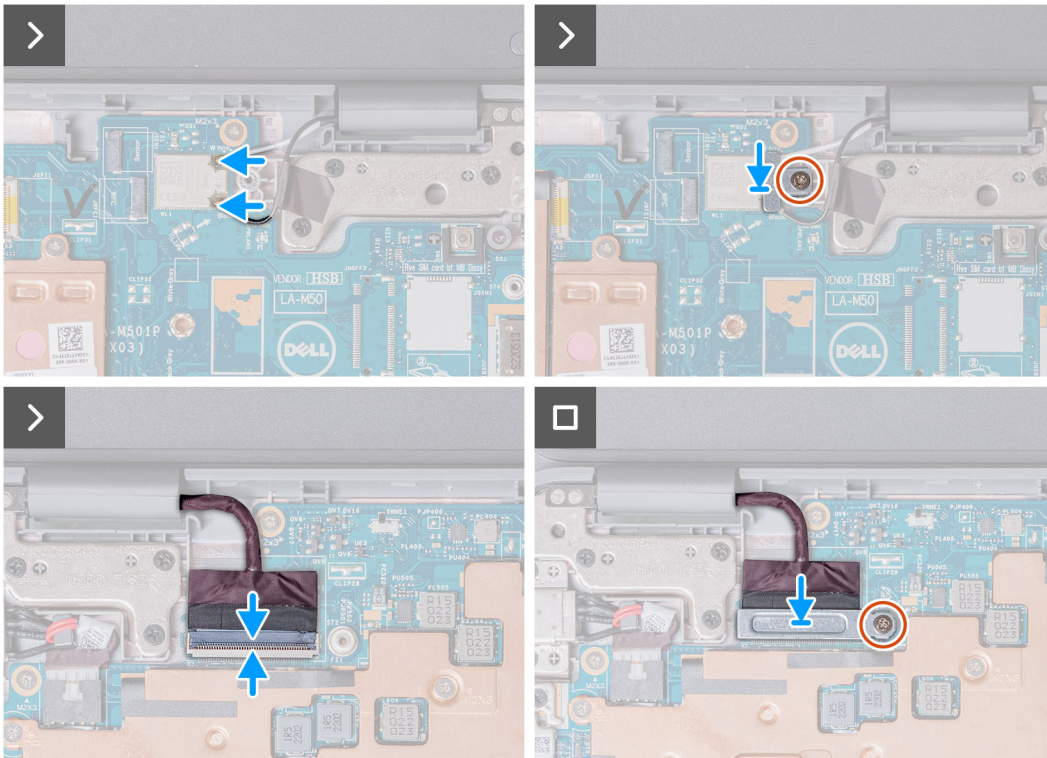


6x
M2.5x2.5



1x
M2x4





1. Align and place the display assembly on the computer chassis.
 2. Replace the single (M2x4) screw and six (M2.5x5) screws that secure the display assembly to the computer chassis.
 3. Connect the display cable to the connector on the system board. Close the latch to secure the cable.
 4. Replace the display cable bracket on the system board. Replace the single screw (M2x3) to secure the display bracket to the system board.
 5. Connect the two antenna cables to the WLAN module on the system board.
 6. Replace the WLAN antenna cable bracket on the system board.
 7. Replace the single screw (M2x3) that secures the WLAN antenna cable bracket to the system board.
1. Install the [palmrest and keyboard assembly](#).
 2. Follow the procedure in [after working inside your computer](#).

Removing the display assembly (2-in-1)

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).

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



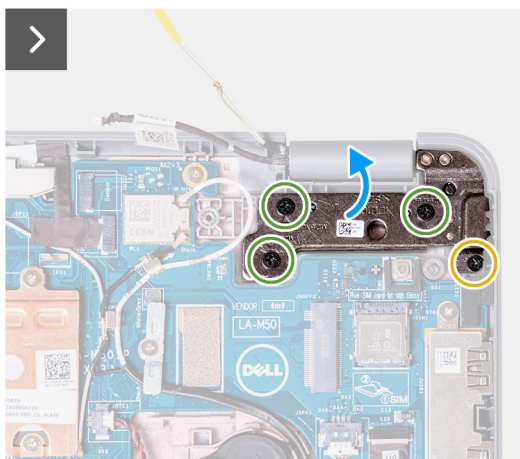
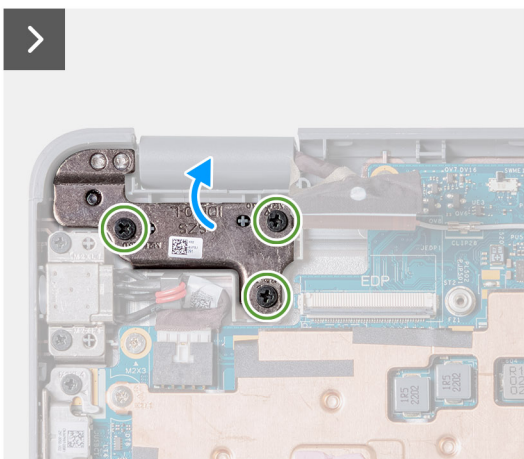
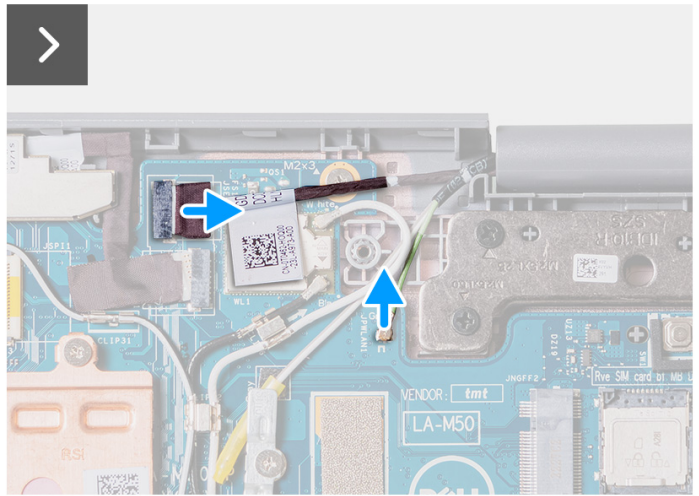
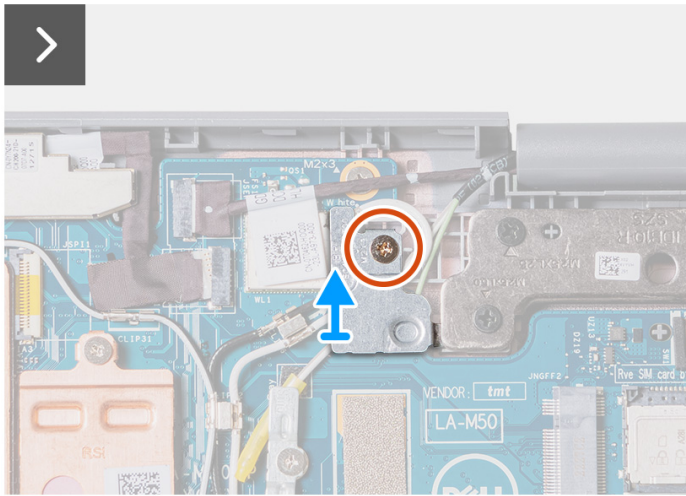
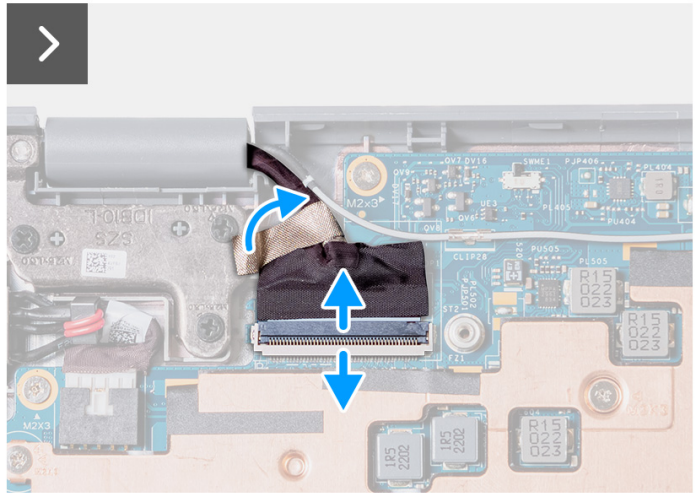
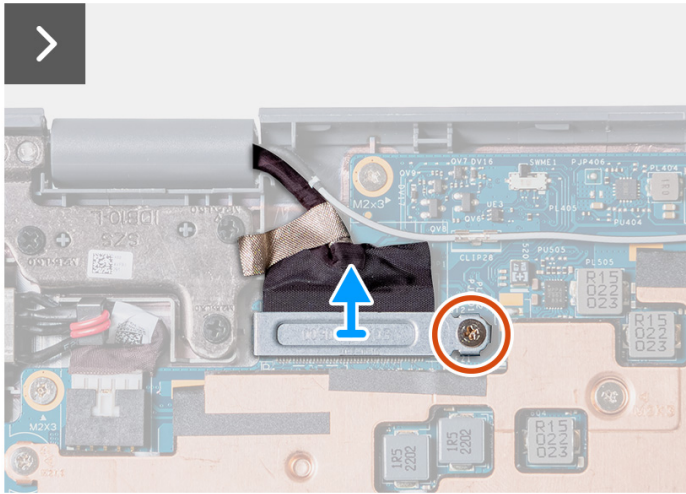
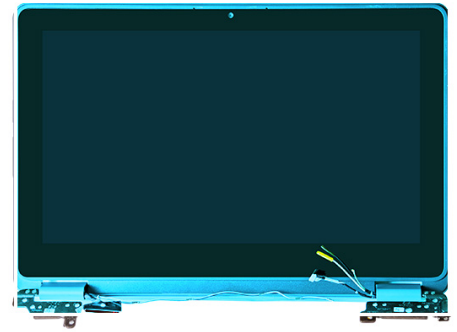
2x
M2x3



6x
M2.5x5

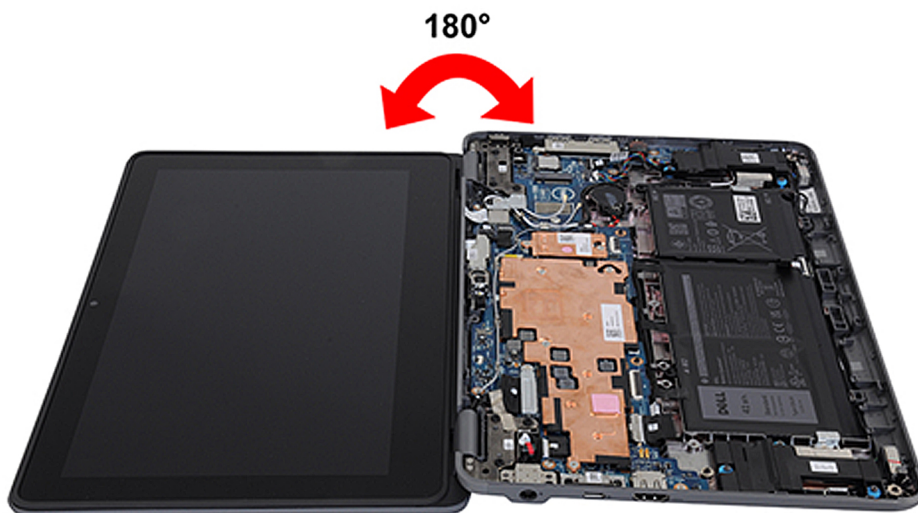


1x
M2x4





1. Remove the single screw (M2x3) that secures the WLAN antenna cable bracket to the system board.
2. Lift and remove the WLAN antenna cable bracket from the system board.
3. Disconnect the two antenna cables that are connected to the WLAN module on the system board.
4. Remove the single screw (M2x3) that secures the display-cable bracket to the system board. Lift and remove the display cable bracket from the system board.
5. Open the latch and disconnect the display cable from the connector on the system board.
6. Disconnect the touch-screen cable from the connector on the system board.
7. Open the system to 180 degrees.

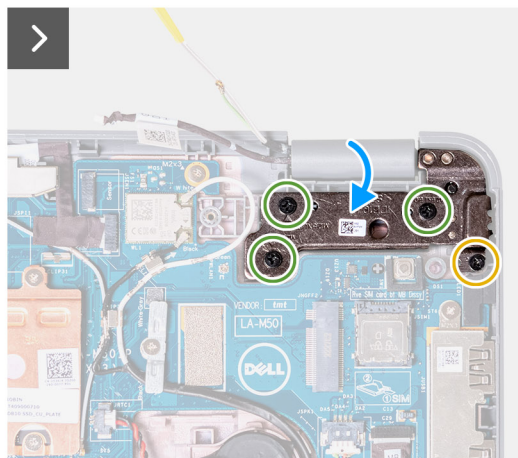
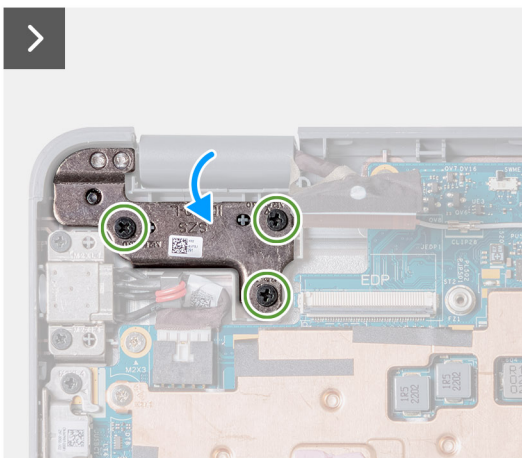
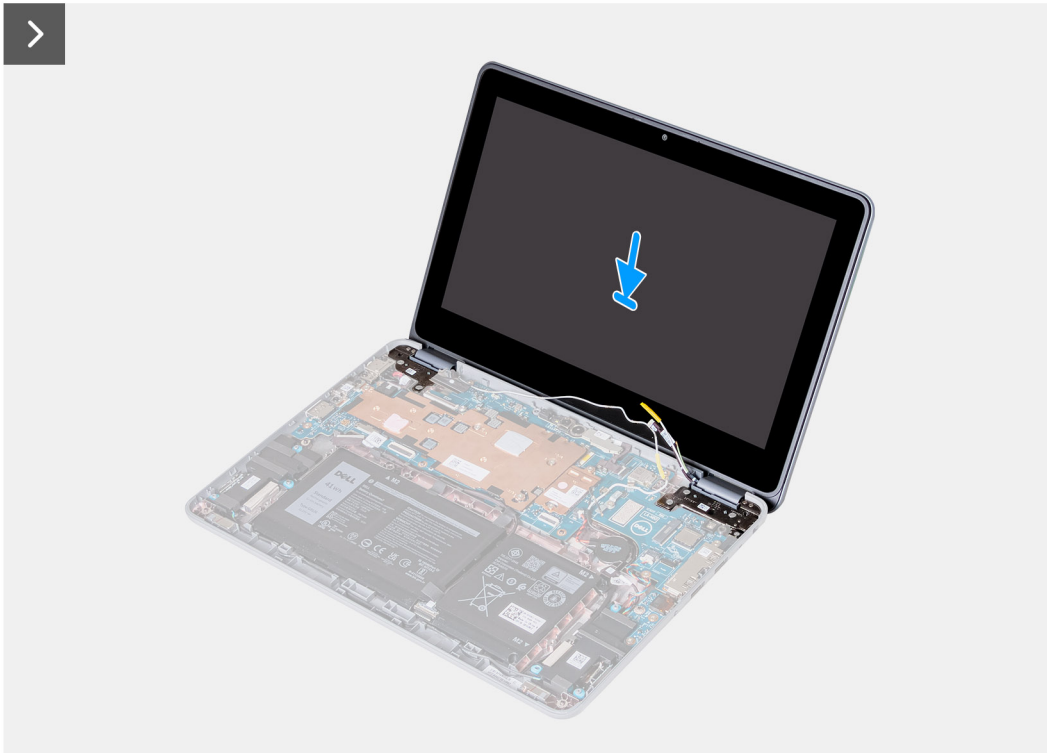
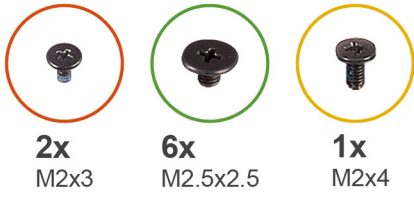


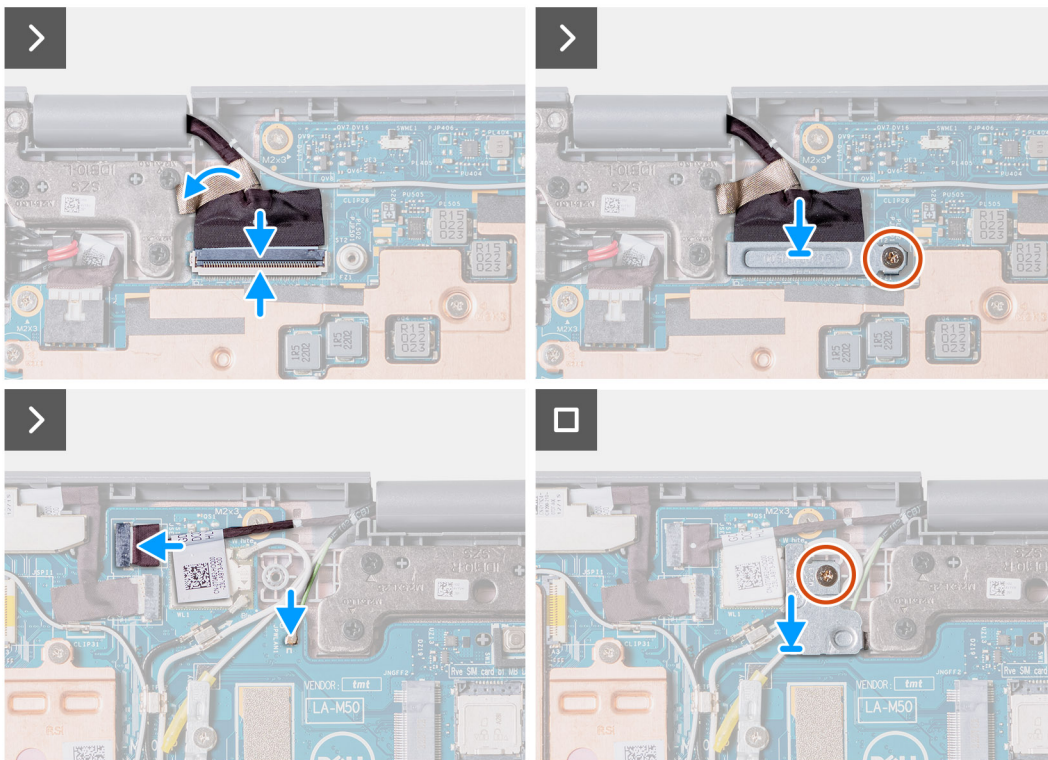
8. Remove the single (M2x4) screw and six (M2.5x5) screws that secure the display assembly to the computer chassis.
9. Lift and remove the display assembly from the computer chassis.

Installing the display assembly (2-in-1)

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

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





1. Align and place the display assembly on the computer chassis.
 2. Replace the single (M2x4) screw and six (M2.5x5) screws that secure the display assembly to the computer chassis.
 3. Connect the touch-screen cable to the connector on the system board.
 4. Connect the display cable to the connector on the system board. Close the latch to secure the cable.
 5. Replace the display cable bracket on the system board. Replace the single screw (M2x3) to secure the display bracket to the system board.
 6. Connect the two antenna cables to the WLAN module on the system board.
 7. Replace the WLAN antenna cable bracket on the system board.
 8. Replace the single screw (M2x3) that secures the WLAN antenna cable bracket to the system board.
1. Install the [palmrest and keyboard assembly](#).
 2. Follow the procedure in [after working inside your computer](#).

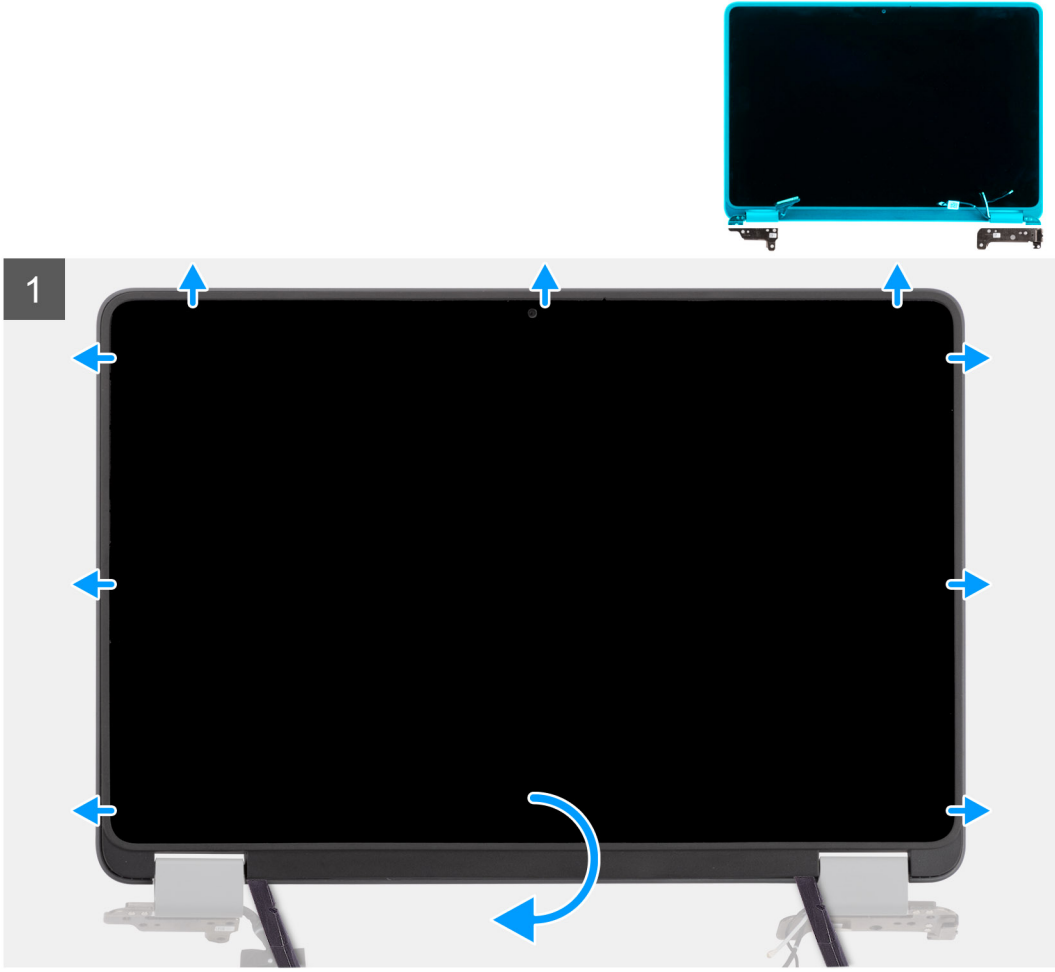
Touch-panel assembly (2-in-1)

Removing the touch-panel assembly (2-in-1)

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).
3. Remove the [display assembly](#).

i **NOTE:** The following touch-panel assembly removal procedure is applicable to Latitude 3140 2-in-1 only.

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



removal

Image: Touch-panel assembly

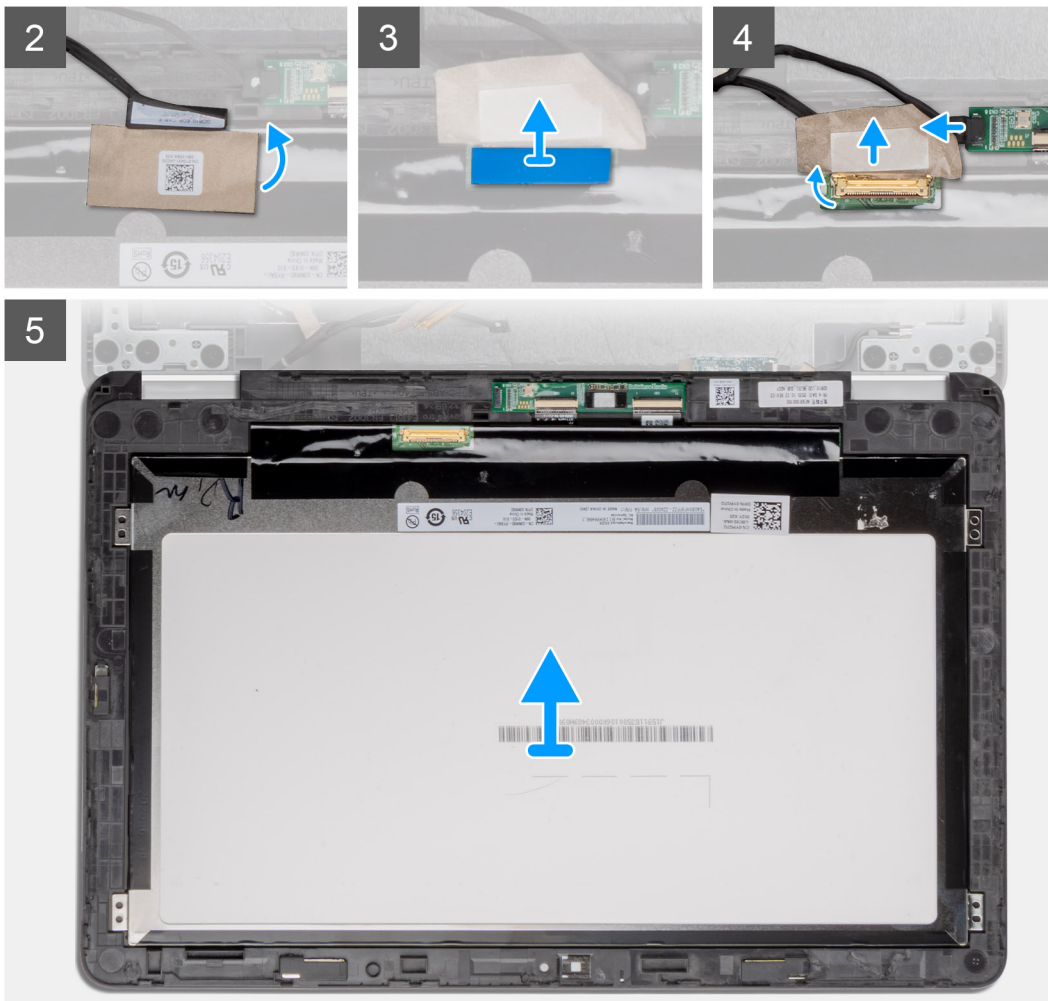


Image: Touch-panel assembly

removal

1. Place the display assembly on a flat surface. Open the display hinge caps to 90 degrees and open the display hinges to 180 degrees.
2. Open the display-hinge caps to 180 degrees and place the display hinges over the edge of the table.
3. Use a plastic scribe to pry open the display assembly, starting from the U-shaped recesses near the hinges at the bottom edge of the display assembly.
4. Pry open the bottom side of the display assembly.

(i) NOTE: Pry the touch-panel from the recesses located in the U-shaped indents near the hinges.



5. Adjust the display hinge caps to 90 degrees and the display hinges to 180 degrees so that the display assembly can lay flat on the surface.
6. Lift and remove the touch-panel assembly from the display cover.
7. Gently flip over the display panel assembly and place it on a flat surface.

CAUTION: The display cable is not long enough to completely flatten the panel. Technicians must move the touch-panel assembly underneath the display hinges.

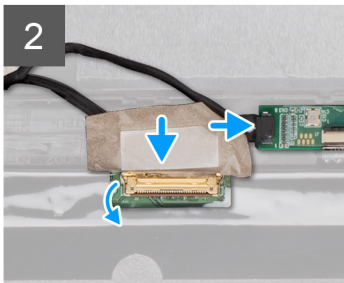
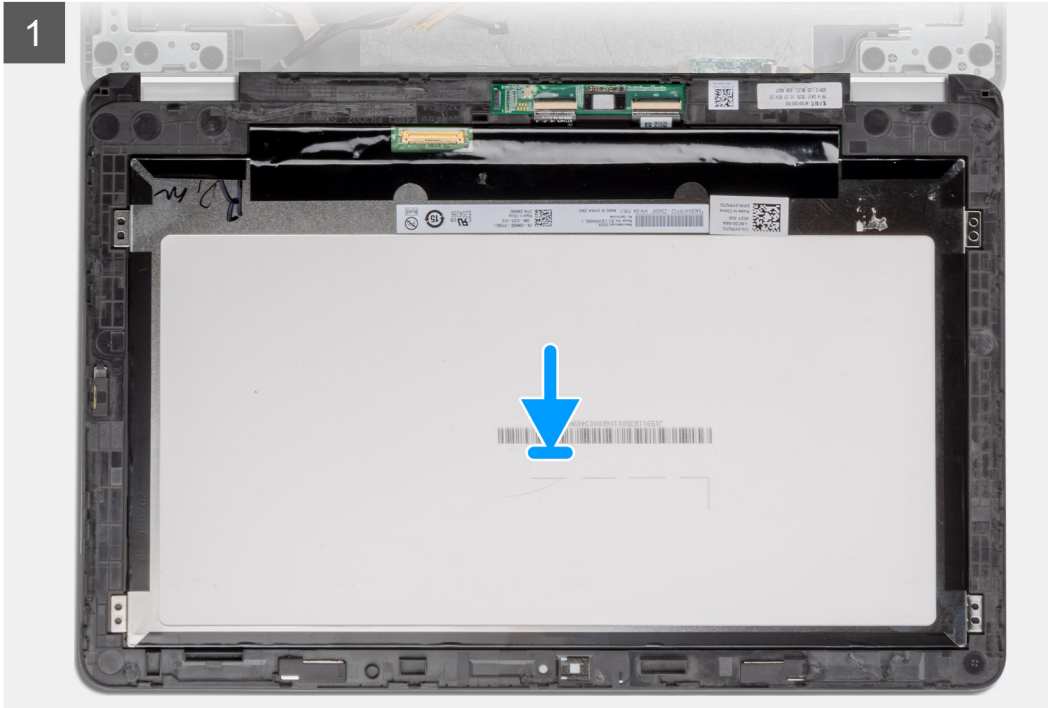
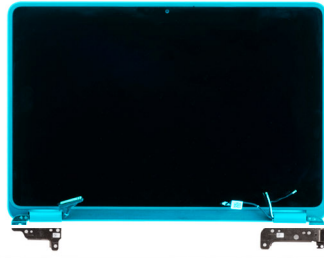
8. Peel off the mylar tape that secures the display cable on the rear of the display panel.
9. Peel off the rubber sticker from the display-cable connector.
10. Disconnect the display cable from the connector on the display panel.
11. Peel off the tape that secures the connector on the touch-control board.
12. Disconnect the display cable from the connector on the touch-control board.
13. Lift and remove the touch-panel assembly.

Installing the touch-panel assembly (2-in-1)

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

NOTE: The following touch-panel assembly installation procedure is applicable to Latitude 3140 2-in-1 only.

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



installation

Image: Touch-panel assembly

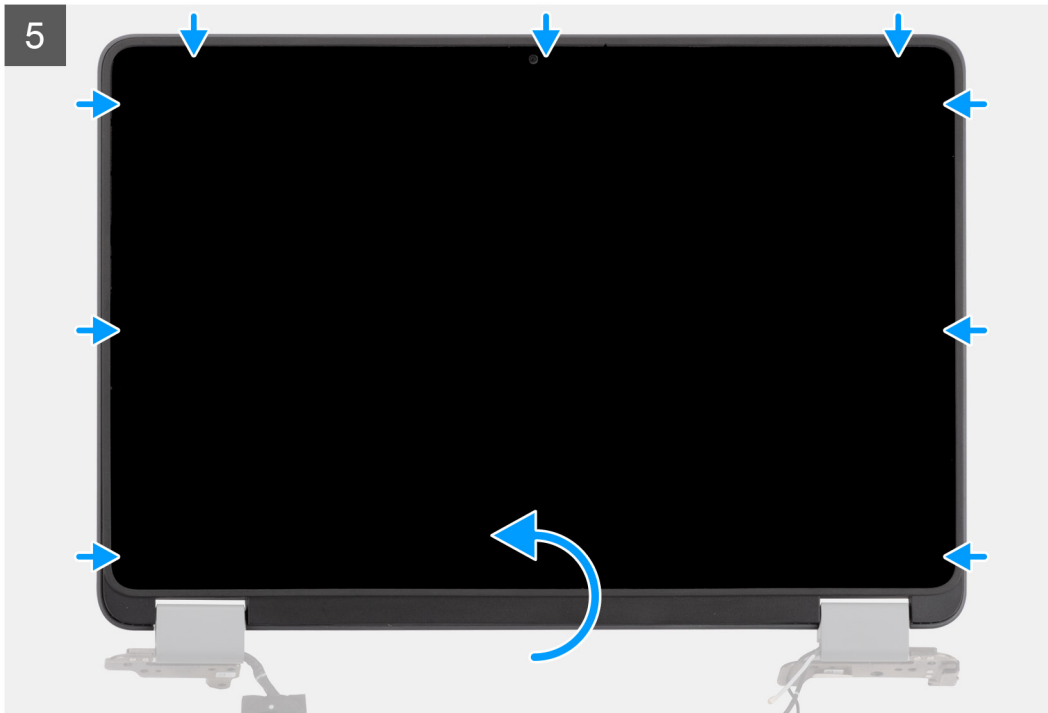


Image: Touch-panel assembly

installation

1. Align and place the touch-panel assembly on the display cover.
 2. Connect the display cable to the connector on the touch-control board.
 3. Affix the tape to secure the connector on the touch-control board.
 4. Connect the display cable to the connector on the display panel.
 5. Affix the rubber sticker on the display-cable connector.
 6. Affix the mylar tape to secure the display cable on the rear of the display panel.
 7. Gently snap the touch panel assembly into place.
1. Install the [display assembly](#).
 2. Install the [palmrest and keyboard assembly](#).
 3. Follow the procedure in [after working inside your computer](#).

Display bezel (Laptop)

Removing the display bezel (Laptop)

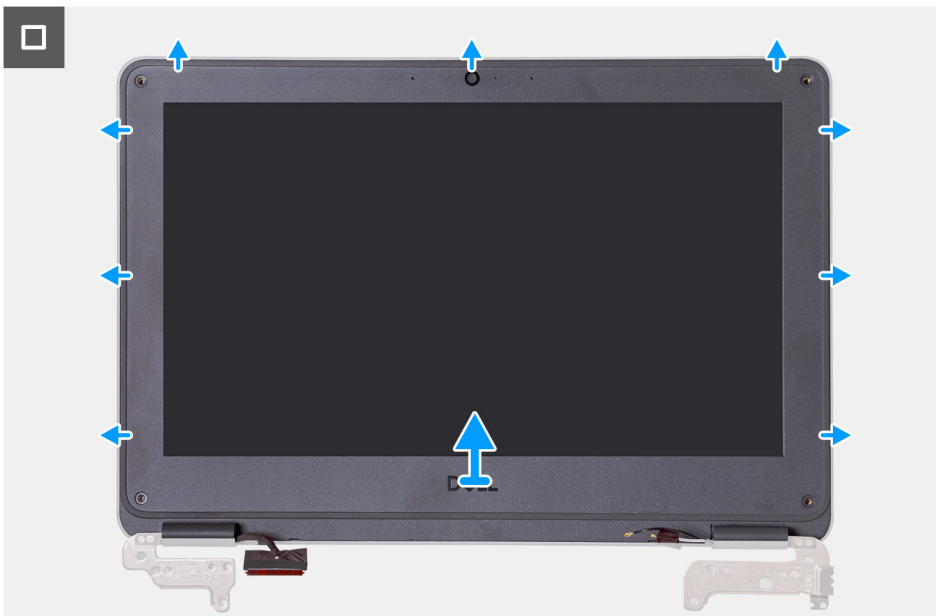
NOTE: The following display bezel removal procedure is applicable to Latitude 3140 laptops only.

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).
3. Remove the [display assembly](#).

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



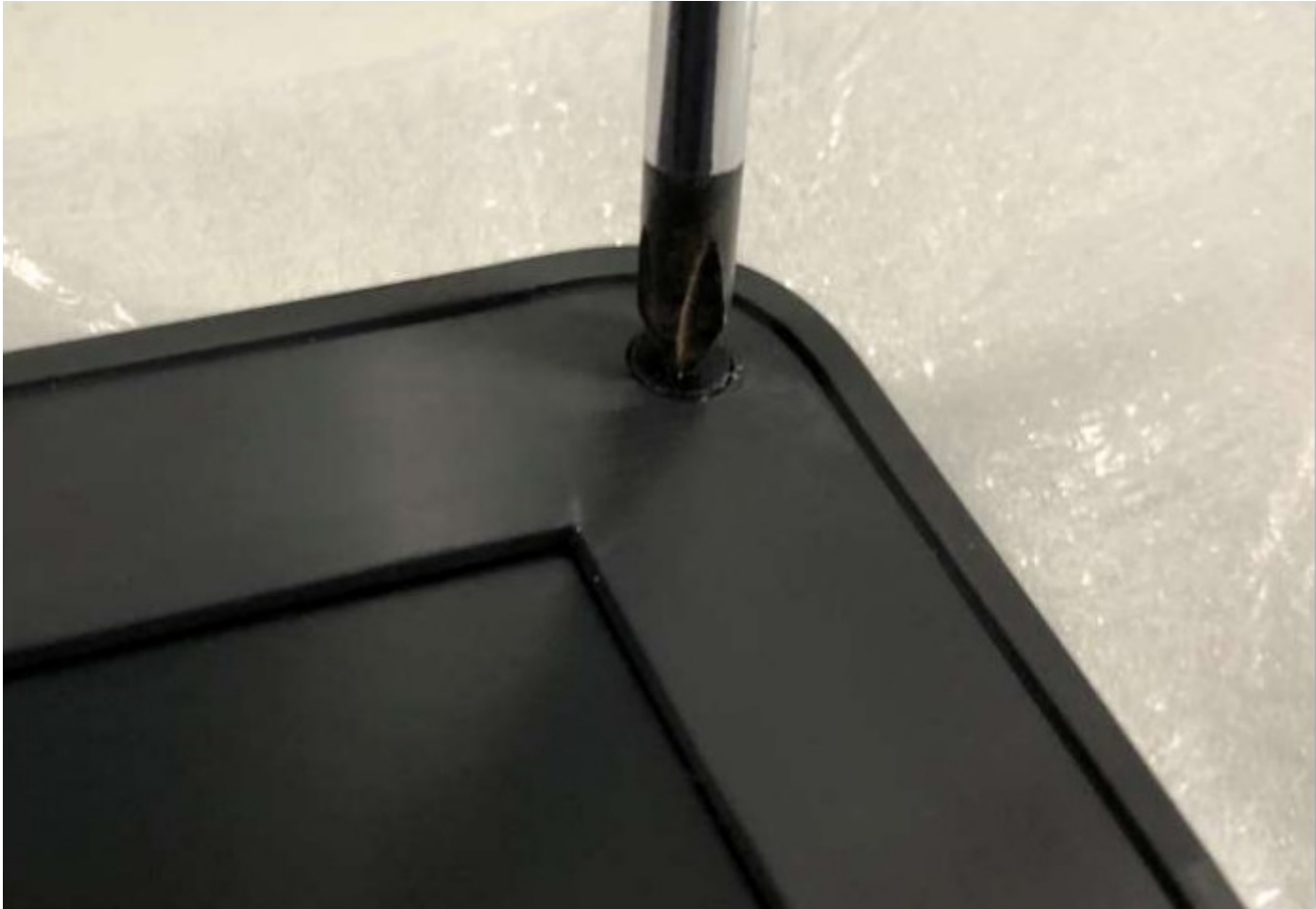
4x
M2.5x3.8



1. Remove the four screws (M2.5x3.8) that secure the display bezel to the display assembly.

NOTE: The bezel screws are covered with disposable mylar stickers that are not reusable. To remove them, use a Phillips screwdriver to puncture through each sticker and to reach each of the four screws that secure the display bezel

to the display assembly.



2. Use a plastic scribe to carefully pry open the recesses near the left and right hinges on the bottom edge of the display bezel.
3. Use the scribe to pry open the top, left, and right sides of the display bezel.

i **NOTE:** Pry the touch-panel from the recesses located in the U-shaped indents near the hinges.



4. Lift and remove the display bezel from the display assembly.

Installing the display bezel (Laptop)

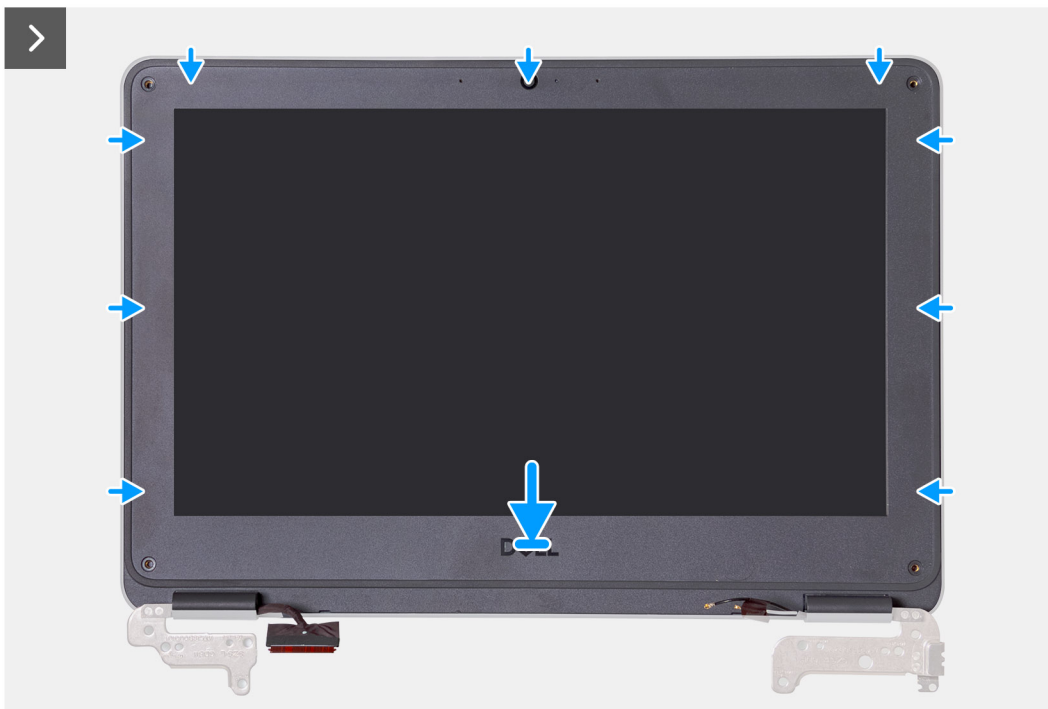
If you are replacing a component, remove the existing component before performing the installation procedure.

NOTE: The following display bezel installation procedure is applicable to Latitude 3140 laptops only.


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



4x
M2.5x3.8





1.  **NOTE:** When replacing the new display bezel, adhere the new stickers over the screws once the screws have been secured.
Align the display bezel with the display assembly. Gently snap the display bezel into place.
 2. Replace the four screws (M2.5x3.8) to secure the display bezel on the display assembly.
1. Install the [display assembly](#).
 2. Install the [palmrest and keyboard assembly](#).
 3. Follow the procedure in [after working inside your computer](#).

Display panel

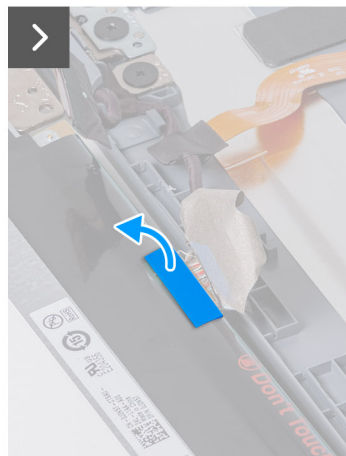
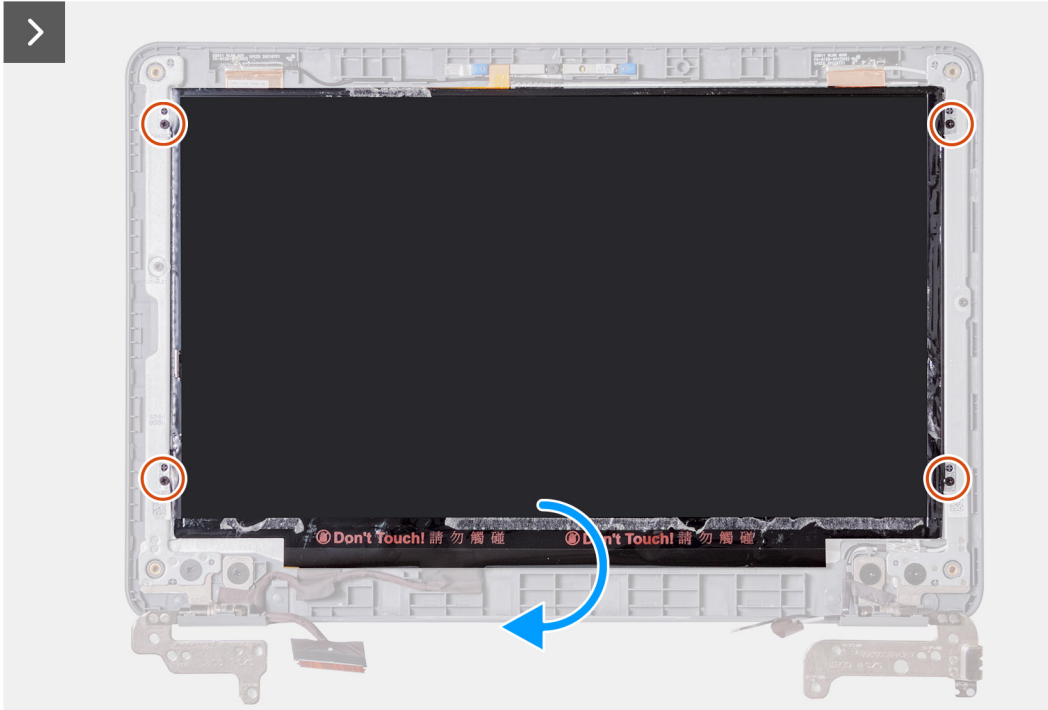
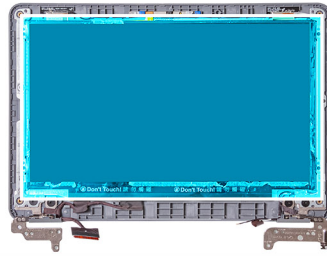
Removing the display panel

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).
3. Remove the [display assembly](#) for laptops, or the [display assembly](#) for 2-in-1s.
4. Remove the [display bezel](#) for laptops, or the [touch-panel assembly](#) for 2-in-1s.

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



4x
M2x2.5



1. Remove the four screws (M2x2.5) that secure the display panel on the display assembly.
2. Gently flip over the display panel.
3. Peel off the mylar tape that secures the display cable on the rear of the display panel.
4. Peel off the rubber sticker from the display cable connector.
5. Disconnect the display cable from the connector on the display panel.
6. Lift and remove the display panel from the display assembly.

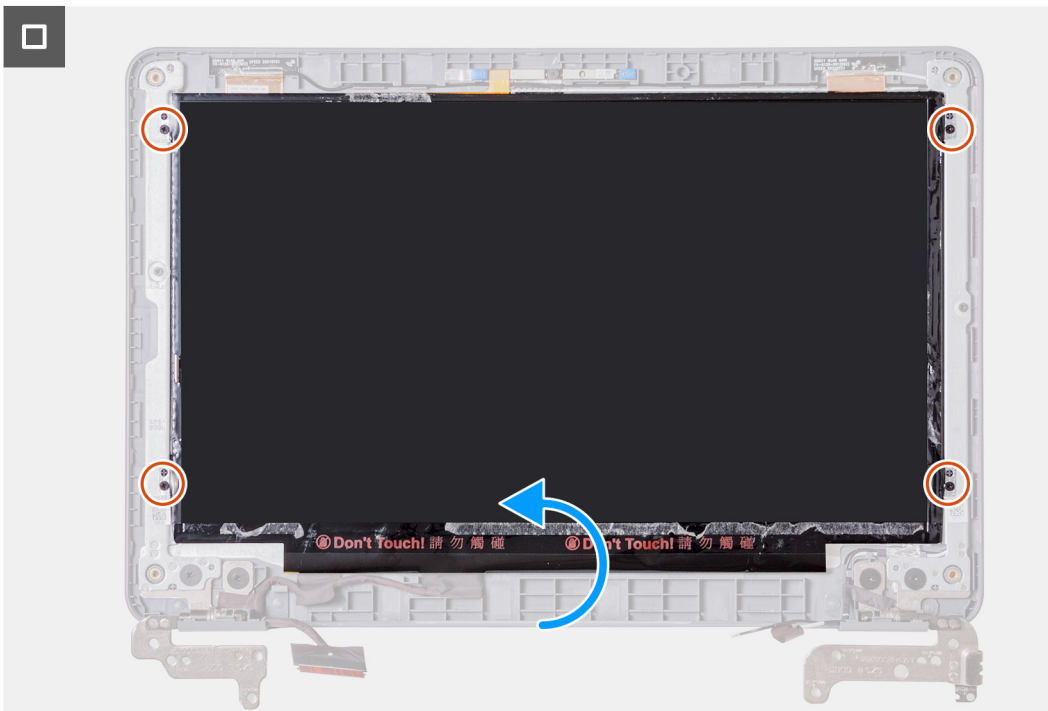
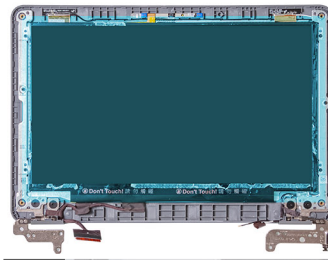
Installing the display panel

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

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



4x
M2x2.5



1. Connect the display cable on the connector on the display panel.
 2. Affix the rubber sticker on the display cable connector.
 3. Affix the mylar tape to secure the display cable on the rear of the display panel.
 4. Align the display panel with the display assembly. Gently snap the display bezel into place.
 5. Replace the four screws (M2x2.5) to secure the display panel on the display assembly.
 6. Gently flip over the display panel.
1. Install the [display bezel](#) for laptops, or the [touch-panel assembly](#) for 2-in-1s.
 2. Install the [display assembly](#) for laptops, or the [display assembly](#) for 2-in-1s.
 3. Install the [palmrest and keyboard assembly](#).

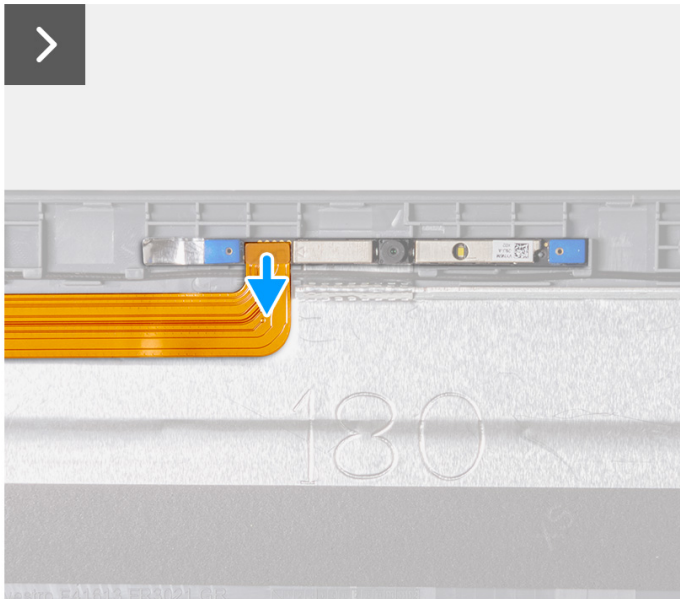
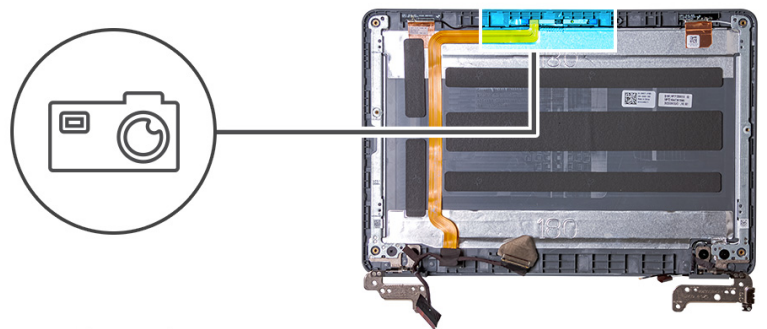
4. Follow the procedure in [after working inside your computer](#).

User-facing camera

Removing the user-facing camera

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).
3. Remove the [display assembly](#) for laptops, or [display assembly](#) for 2-in-1s.
4. For laptops, remove the [display bezel](#); for 2-in-1 computers, remove the [touch-panel assembly](#).
5. Remove the [display panel](#).

The following image indicates the location of the user-facing camera, and provides a visual representation of the removal procedure.

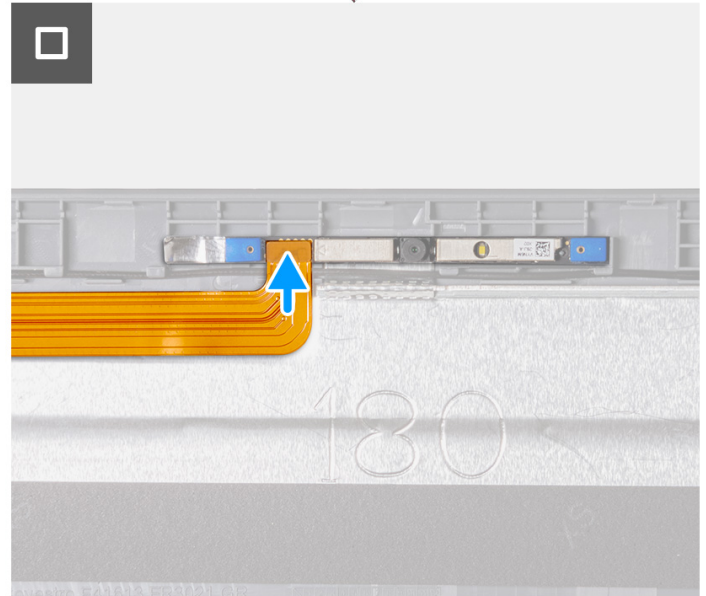
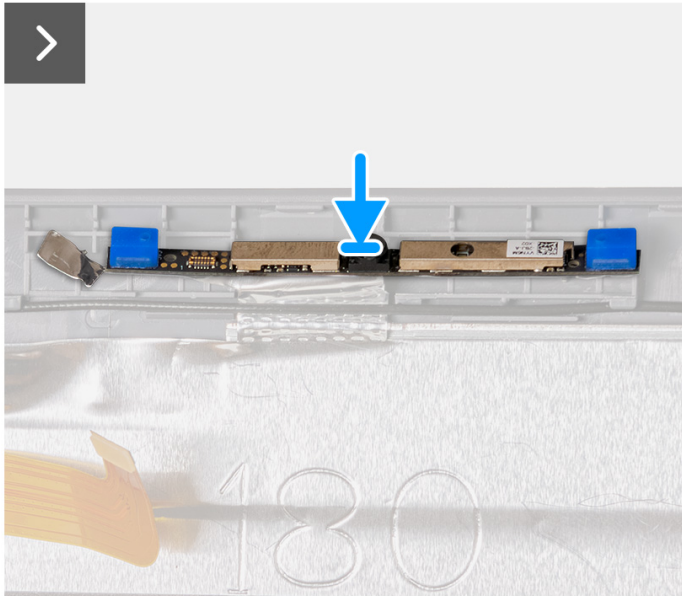
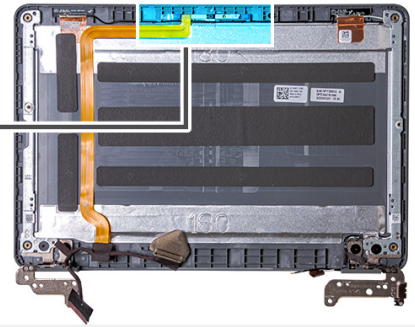


1. Disconnect the display cable from the user-facing camera module.
2. Use a plastic scribe to pry the user-facing camera module from the display cover.
3. Lift and remove the user-facing camera module from the display cover.

Installing the user-facing camera

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

The following image indicates the location of the front-facing camera, and provides a visual representation of the installation procedure.



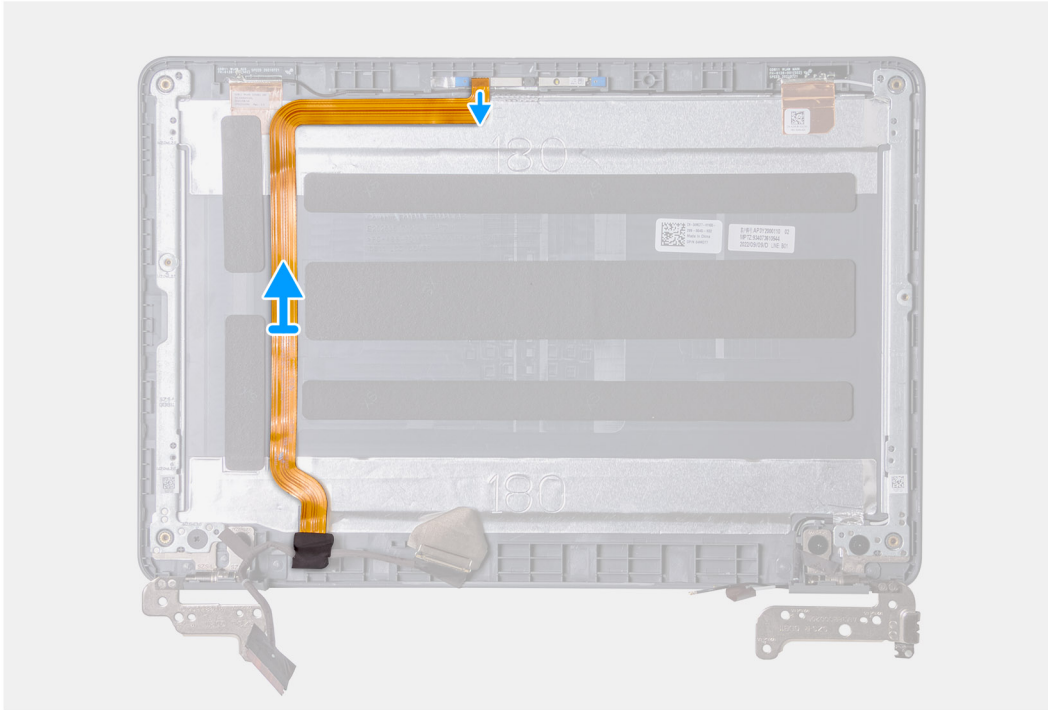
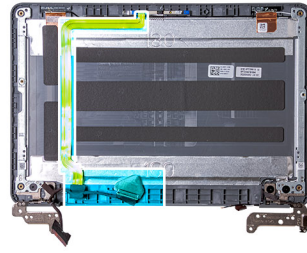
1. Insert the front-facing camera module into the slot on the display cover.
2. Connect the display cable to the front-facing camera module.
1. Install the [display panel](#).
2. For laptops, install the [display bezel](#); for 2-in-1 computers, install the [touch-panel assembly](#).
3. Install the [display assembly](#) for laptops, or [display assembly](#) for 2-in-1s.
4. Install the [palmrest and keyboard assembly](#).
5. Follow the procedure in [after working inside your computer](#).

Display cable

Removing the display cable

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).
3. Remove the [display assembly](#) for laptops, or [display assembly](#) for 2-in-1s.
4. For laptops, remove the [display bezel](#); for 2-in-1 computers, remove the [touch-panel assembly](#).
5. Remove the [display panel](#).

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

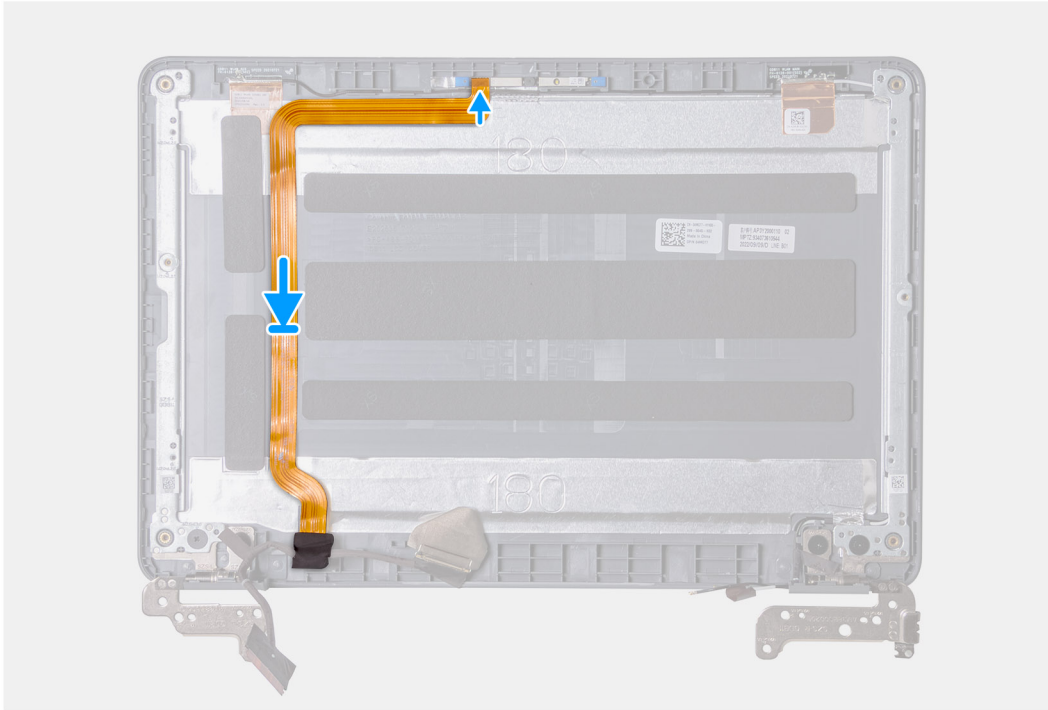
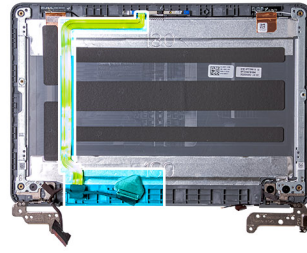


1. Disconnect the display cable from the user-facing camera module.
2. Peel off the tape from the left hinge that secures the display cable.
3. Unroute the display cable from the routing channel on the bottom-left side of the display cover.
4. Peel off the display cable from the display cover.

Installing the display cable

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

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



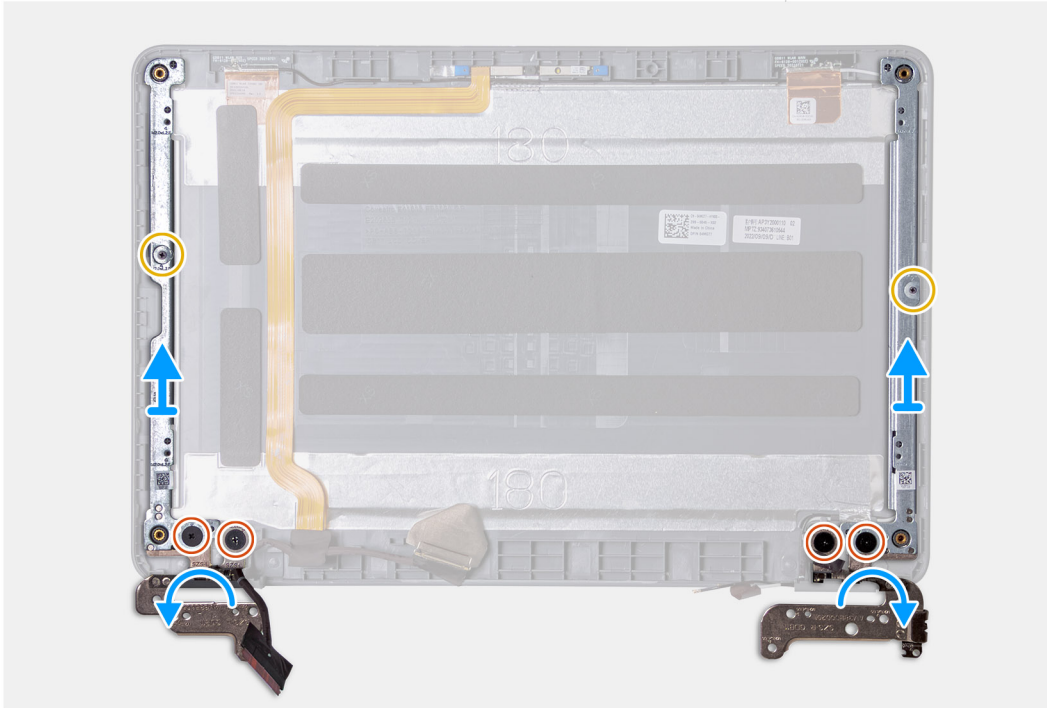
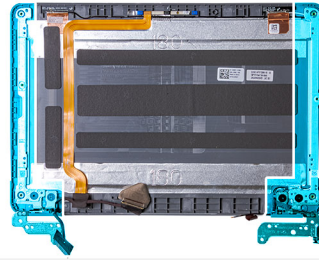
1. Align and affix the display cable on the display cover.
 2. Route the display cable through the routing channel on the bottom-left side of the display cover.
 3. Affix the tape to the left hinge to secure the display cable.
 4. Connect the display cable to the user-facing camera module.
1. Install the [display panel](#).
 2. For laptops, install the [display bezel](#); for 2-in-1 computers, install the [touch-panel assembly](#).
 3. Install the [display assembly](#) for laptops, or [display assembly](#) for 2-in-1s.
 4. Install the [palmrest and keyboard assembly](#).
 5. Follow the procedure in [after working inside your computer](#).

Display hinges

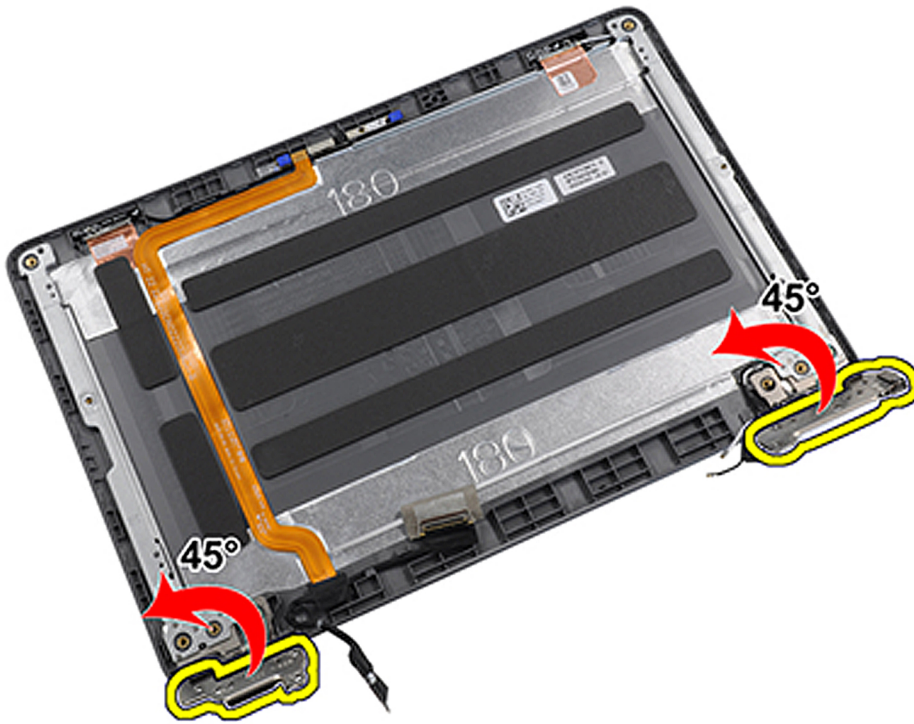
Removing the display hinge

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).
3. Remove the [display assembly](#) for laptops, or [display assembly](#) for 2-in-1s.
4. For laptops, remove the [display bezel](#); for 2-in-1 computers, remove the [touch-panel assembly](#).
5. Remove the [display panel](#).

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



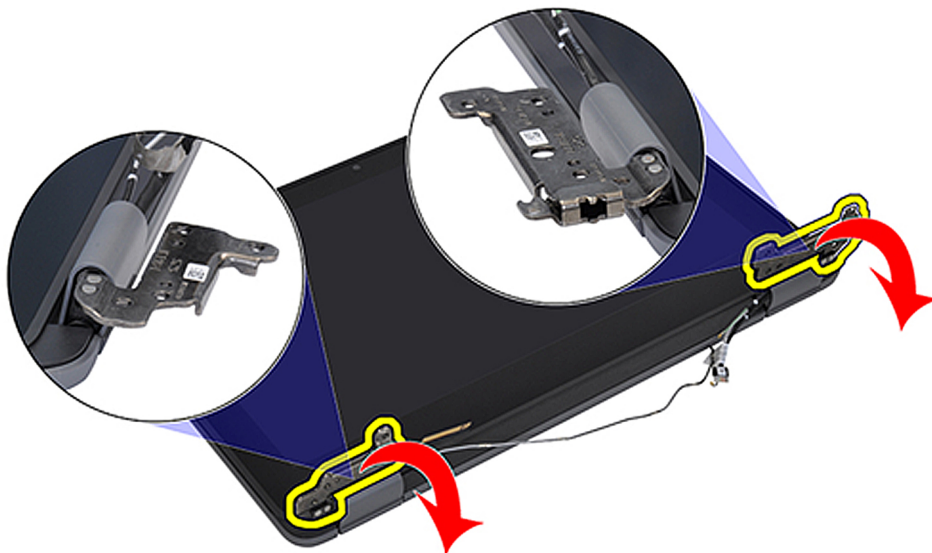
1. Peel off the tape from the left hinge that secures the display cable.
2. Peel off the tape from the right hinge that secures the WLAN antenna cables.
3. For laptops, remove the two (M2x2.5) screws and four (M2.5x2.5) screws that secure the display hinges to the display assembly.
4. For 2-in-1 computers, remove the six (M2.5x2.5) screws and four (M2x2) screws that secure the display hinges to the display assembly.
5. Open the display hinges to 45 degrees.



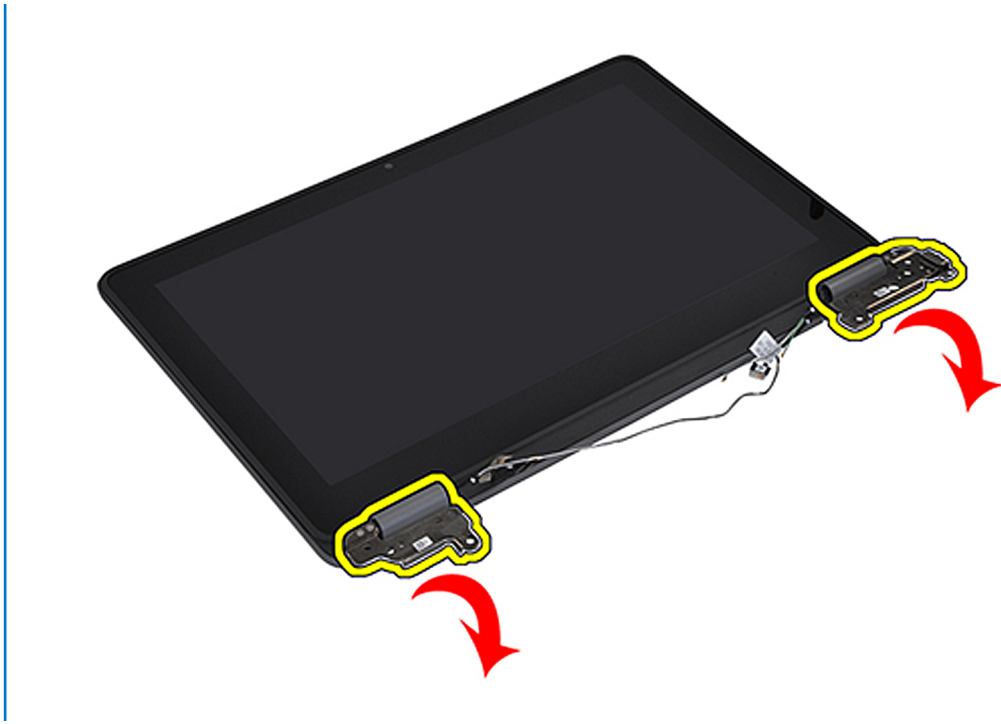
6. Remove the display hinges from the display assembly.

NOTE:

For 2-in-1s, the display hinges and hinge caps work in tandem to rotate. First rotate the hinges 90-degrees downward (to a 180-degree angle) to unlock the hinge caps.



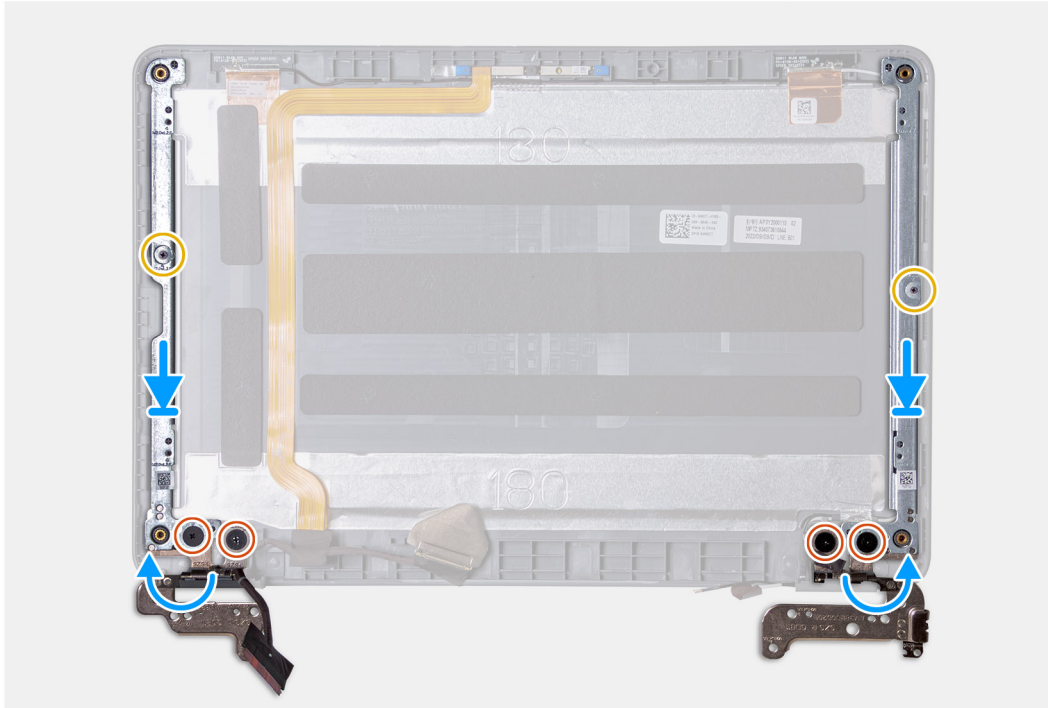
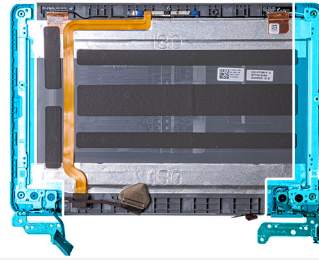
Once the hinges are in the unlock position, the hinge caps can be rotated to the desired angle.



Installing the display hinge

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

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



1. Align and place the display hinges on the display assembly.
 2. For laptops, replace the two (M2x2.5) screws and four (M2.5x2.5) screws to secure the display hinges to the display assembly.
 3. For 2-in-1 computers, replace the six (M2.5x2.5) screws and four (M2x2) screws to secure the display hinges to the display assembly.
 4. Affix the tape from the left hinge to secure the display cable.
 5. Affix the tape from the right hinge to secure the WLAN antenna cables.
1. Install the [display panel](#).
 2. For laptops, install the [display bezel](#); for 2-in-1 computers, install the [touch-panel assembly](#).
 3. Install the [display assembly](#) for laptops, or [display assembly](#) for 2-in-1s.
 4. Install the [palmrest and keyboard assembly](#).
 5. Follow the procedure in [after working inside your computer](#).

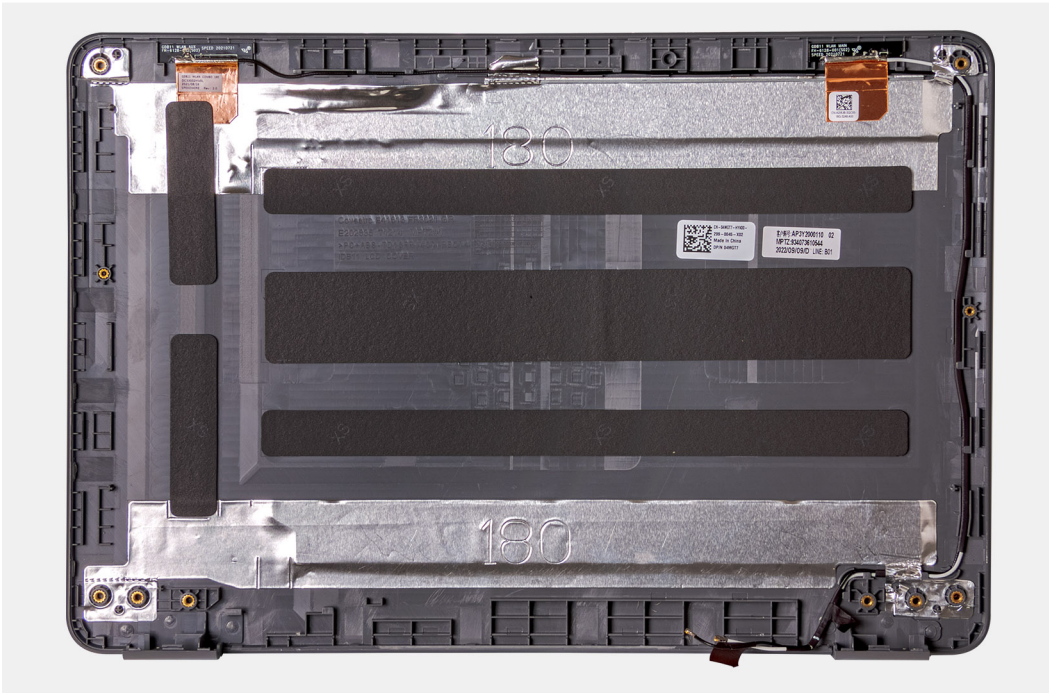
Display back-cover

Display back-cover assembly

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palmrest and keyboard assembly](#).
3. Remove the [display assembly](#) for laptops, or [display assembly](#) for 2-in-1s.
4. For laptops, remove the [display bezel](#); for 2-in-1 computers, remove the [touch-panel assembly](#).
5. Remove the [display panel](#).
6. Remove the [user-facing camera](#).
7. Remove the [display cable](#).

8. Remove the [display hinges](#).

After performing the preceding steps, you are left with the display cover assembly.



1. Install the [display hinges](#).
2. Install the [display cable](#).
3. Install the [user-facing camera](#).
4. Install the [display panel](#).
5. For laptops, install the [display bezel](#); for 2-in-1 computers, install the [touch-panel assembly](#).
6. Install the [display assembly](#) for laptops, or [display assembly](#) for 2-in-1s.
7. Install the [palmrest and keyboard assembly](#).
8. Follow the procedure in [after working inside your computer](#).

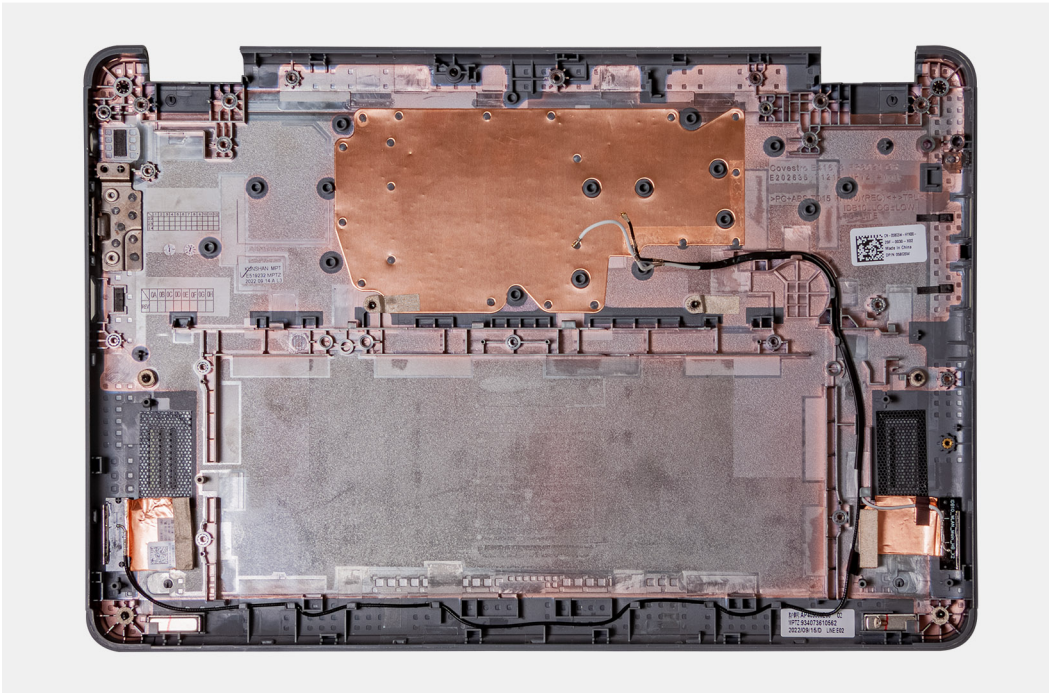
Base-cover assembly

Replacing the base-cover assembly

1. Follow the procedure in [before working inside your computer](#).
2. Remove the [palm-rest and keyboard assembly](#).
i **NOTE:** Be sure to loosen the captive screws that secure the palm-rest assembly to the computer chassis before removing the palm-rest and keyboard assembly.
3. For systems that are shipped with a Solid State Drive (SSD), remove the [solid-state drive](#).
4. Remove the [speakers](#) for laptops or [speakers](#) for 2-in-1s.
5. Remove the [audio board](#).
6. Remove the [3-cell battery](#) or the [4-cell battery](#) depending on the system configuration.
7. Remove the [display assembly](#) for laptops or [display assembly](#) for 2-in-1s.
8. Remove the [power adapter port](#).
9. For 2-in-1s, remove the [world-facing camera](#).
10. Remove the [system board](#) for laptops, or [system board](#) for 2-in-1s.

i **NOTE:** The system board can be removed with the heat sink attached.

After performing the preceding steps, you are left with the base cover assembly.



1. Install the [system board](#) for laptops, or for [system board 2-in-1s](#).
2. For 2-in-1s, install the [world-facing camera](#).
3. Install the [power adapter port](#).
4. Install the [display assembly](#) for laptops, or for [display assembly 2-in-1s](#).
5. Install the [3-cell battery](#) or the [4-cell battery](#) depending on the system configuration.
6. Install the [audio board](#).
7. Install the [speakers](#) for laptops, or [speakers](#) for 2-in-1s.
8. For systems that are shipped with a Solid State Drive (SSD), install the [solid-state drive](#).
9. Install the [palmrest and keyboard assembly](#).
10. Follow the procedure in [after working inside your computer](#).

Drivers and downloads

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

System setup

CAUTION: Unless you are an expert computer user, do not change the settings in the BIOS Setup program. Certain changes can make your computer work incorrectly.

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

NOTE: Before you change BIOS Setup program, it is recommended that you write down the BIOS Setup program screen information for future reference.

Use the BIOS Setup program for the following purposes:

- Get information about the hardware installed in your computer, such as the amount of RAM and the size of the hard drive.
- Change the system configuration information.
- Set or change a user-selectable option, such as the user password, type of hard drive installed, and enabling or disabling base devices.

Entering BIOS setup program

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

Navigation keys

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

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 follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
Tab	Moves to the next focus area. NOTE: For the standard graphics browser only.
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 restarts the system.

Boot Sequence

Boot Sequence allows you to bypass the System Setup–defined boot device order and boot directly to a specific device (for example: USB flash drive, external optical drive, or external storage device). During the Power-on Self Test (POST), when the Dell logo appears, you can:

- Access System Setup by pressing F2 key
- Bring up the one-time boot menu by pressing F12 key


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

- Removable Drive (if available)
- Optical Drive (if available)
- Solid-State Drive (if available)
- Diagnostics

The boot sequence screen also displays the option to access the System Setup screen.

One time boot menu

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

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

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

- Removable Drive (if available)
- Optical Drive (if available)
- Solid-State Drive (if available)
- Diagnostics

The boot sequence screen also displays the option to access the System Setup screen.

System setup options


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

Table 4. System setup options—Overview menu

Overview	
Latitude 3140/Latitude 3140 2-in-1	
BIOS Version	Displays the BIOS version number.
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Displays the Asset Tag of the computer.
Manufacture Date	Displays the manufacture date of the computer.
Ownership Date	Displays the ownership date of the computer.
Express Service Code	Displays the Express Service Code of the computer.
Ownership Tag	Displays the Ownership Tag of the computer.
Signed Firmware Update	Displays whether the Signed Firmware Update is enabled on your computer. By default, the Signed Firmware Update option is enabled.
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.

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

Overview	
Processor Information	
Processor Type	Displays the processor type.
Maximum Clock Speed	Displays the maximum processor clock speed.
Minimum Clock Speed	Displays the minimum processor clock speed.
Current Clock Speed	Displays the current processor clock speed.
Core Count	Displays the number of cores on the processor.
Processor ID	Displays the processor identification code.
Processor L2 Cache	Displays the processor L2 Cache size.
Processor L3 Cache	Displays the processor L3 Cache size.
Microcode Version	Displays the microcode version.
Intel Hyper-Threading Capable	Displays whether the processor is Hyper-Threading (HT) capable.
64-Bit Technology	Displays whether 64-bit technology is used.
Memory Information	
Memory Installed	Displays the total computer memory installed.
Memory Available	Displays the total computer memory available.
Memory Speed	Displays the memory speed.
Memory Channel Mode	Displays single or dual channel mode.
Memory Technology	Displays the technology that is used for the memory.
Devices Information	
Panel Type	Displays the Panel Type of the computer.
Video Controller	Displays the video controller type of 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.
Audio Controller	Displays the audio controller information of the computer.
Bluetooth Device	Displays the Bluetooth device information of the computer.
Pass Through MAC Address	Displays the MAC address of the video pass-through.

Table 5. System setup options—Boot Configuration menu

Boot Configuration	
Boot Sequence	
Boot Mode: UEFI only	Displays the boot mode of the computer.
Boot Sequence	Displays the boot sequence.
Secure Digital (SD) Card Boot	Enables or disables read-only boot from Secure Digital (SD) card. By default, the Secure Digital (SD) Card Boot option is enabled.
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.

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

Boot Configuration	
	The computer stops booting to the operating system when a component is not authenticated during the boot process.
Enable Secure Boot	<p>Enables the computer to boot using only validated boot software.</p> <p>By default, the Enable Secure Boot option is enabled.</p> <p>For additional security, Dell Technologies recommends keeping the Secure Boot option enabled to ensure that the UEFI firmware validates the operating system during the boot process.</p> <p>NOTE: For Secure Boot to be enabled, the computer is required to be in UEFI boot mode and the Enable Legacy Option ROMs option is required to be turned off.</p>
Secure Boot Mode	<p>Enables or disables the Secure Boot operation mode.</p> <p>By default, the Deployed Mode is selected.</p> <p>NOTE: Deployed Mode should be selected for normal operation of Secure Boot.</p>
Enable Microsoft UEFI CA	<p>When disabled, the UEFI CA is removed from the BIOS UEFI Secure Boot database.</p> <p>NOTE: When disabled, the Microsoft UEFI CA could render your computer unable to boot, system graphics may not function, some devices may not function properly, and the computer could become unrecoverable.</p> <p>By default, the Enable Microsoft UEFI CA option is enabled.</p> <p>For additional security, Dell Technologies recommends keeping the Microsoft UEFI CA option enabled to ensure the broadest compatibility with devices and operating systems.</p>
Expert Key Management	
Enable Custom Mode	<p>Enables or disables the keys in the PK, KEK, db, and dbx security key databases to be modified.</p> <p>By default, the Enable Custom Mode option is disabled.</p>
Custom Mode Key Management	<p>Selects the custom values for expert key management.</p> <p>By default, the PK option is selected.</p>

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 switch between 12-hour and 24-hour clock. Changes to the time format take effect immediately.
Camera	
Enable Camera	<p>Enables the camera.</p> <p>By default, the Enable Camera option is enabled.</p> <p>NOTE: Depending on the configuration ordered, the camera setup option may not be available.</p>
Audio	
Enable Audio	Enables all integrated audio controller.

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


Integrated Devices	
	By default, all the options are enabled.
Enable Microphone	Enables the microphone. By default, the Enable Microphone option is enabled.  NOTE: Depending on the configuration ordered, the microphone setup option may not be available.
Enable Internal Speaker	Enables the internal speaker. By default, the Enable Internal Speaker option is enabled.
USB/Thunderbolt Configuration	
Enable USB Boot Support	Enables booting from USB mass storage devices that are connected to external USB ports. By default, the Enable USB Boot Support option is enabled.
Enable External USB Ports	Enables the external USB ports. By default, the Enable External USB Ports option is enabled.
Enable Thunderbolt Technology Support	
Enable Thunderbolt Technology Support	Enables the associated ports and adapters for Thunderbolt Technology support. By default, the Enable Thunderbolt Technology Support option is enabled.
Enable Thunderbolt Boot Support	
Enable Thunderbolt Boot Support	Enables the Thunderbolt adapter-peripheral device and USB devices that are connected to the Thunderbolt adapter to be used during BIOS Pre-boot. By default, the Enable Thunderbolt Boot Support option is disabled.
Enable Thunderbolt (and PCIe behind TBT) pre-boot modules	Enables the PCIe devices that are connected through a Thunderbolt adapter to run the PCIe devices UEFI Option ROM (if present) during pre-boot. By default, the Enable Thunderbolt (and PCIe behind TBT) pre-boot modules option is disabled.
Disable USB4 PCIE Tunneling	Disables the USB4 PCIE Tunneling option. By default, the Disable USB4 PCIE Tunneling option is disabled.
Video/Power only on Type-C Ports	Enables or disables the Type-C port functionality to video or only power. By default, the Video/Power only on Type-C Ports option is disabled.
Type-C Dock	
Type-C Dock Override	Enables or disables to use connected Type-C Dell Dock to provide data stream with external USB ports disabled. When Type-C Dock override is enabled, the Video/Audio/LAN submenu is activated. By default, the Type-C Dock Override option is enabled.
Type-C Dock Audio	Enables or disables the usage of audio inputs and outputs from the connected Type-C Dell docking station. By default, the Type-C Dock Audio option is enabled.
Type-C Dock LAN	Enables or disables the usage of LAN on the external ports of the connected Type-C Dell docking station. By default, the Type-C Dock LAN option is enabled.
Miscellaneous Devices	

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

Integrated Devices	
Enable Fingerprint Reader Device	Enables the Fingerprint Reader Device option. By default, the Enable Fingerprint Reader Device option is enabled.

Table 7. System setup options—Storage menu

Storage	
SATA/NVMe Operation	
SATA/NVMe Operation	Sets operating mode of the integrated SATA hard drive controller. By default, the AHCI/NVMe option is selected. Storage device is configured for AHCI/NVMe mode.
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.
Enable MediaCard	
Secure Digital (SD) Card	Enables or disables the SD card. By default, the Secure Digital (SD) Card option is enabled.
Secure Digital (SD) Card Read-Only Mode	Enables or disables the SD card read-only mode. By default, the Secure Digital (SD) Card Read-Only Mode option is disabled.

Table 8. System setup options—Display menu

Display	
Display Brightness	
Brightness on battery power	Enables to set the screen brightness when the computer is running on battery power. By default, the screen brightness is set to 50 when the computer is running on battery power.
Brightness on AC power	Enables to set the screen brightness when the computer is running on AC power. By default, the screen brightness is set to 100 when the computer is running on AC power.
Touchscreen	Enables or disables the touchscreen option. By default, the Touchscreen option is enabled.
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.

Table 9. System setup options—Connection menu

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

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

Connection	
	By default, the Bluetooth option enabled.
Enable UEFI Network Stack	Enables or disables the UEFI Network Stack and controls the on-board LAN Controller. By default, the Enable UEFI Network Stack option is enabled.
Wireless Radio Control	
Control WLAN Radio	Enables to sense the connection of the computer to a wired network and then disables 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.

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.
Peak Shift	
Enable Peak Shift	Enables the computer to run on battery during peak power usage hours. By default, the Enable Peak Shift option is disabled.
Thermal Management	
	Enables or disables cooling of fan and manages processor heat to adjust the system performance, noise, and temperature. By default, the Optimized option is selected. Standard setting for balanced performance, noise, and temperature.
USB Wake Support	
Wake on Dell USB-C Dock	When enabled, connecting a Dell USB-C Dock wakes the computer from Standby, Hibernate, and Power Off. By default, the Wake on Dell USB-C Dock option is enabled.
Block Sleep	Enables or disables the computer from entering Sleep (S3) mode in the operating system. By default, the Block Sleep option is disabled. i NOTE: When enabled, the computer does not go to Sleep, Intel Rapid Start is disabled automatically, and the operating system power option is blank if it was set to Sleep.
Lid Switch	
Enable Lid Switch	Enables or disables the Lid Switch. By default, the Enable Lid Switch option is enabled.

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

Power	
Power On Lid Open	When enabled, allows the computer to power on from the off state whenever the lid is opened. By default, the Power On Lid Open option is enabled.
Intel Speed Shift Technology	Enables or disables the Intel Speed Shift Technology support. When enabled, the operating system selects the appropriate processor performance automatically. By default, the Intel Speed Shift Technology option is enabled.

Table 11. System setup options—Security menu


Security	
Trusted Platform Module (TPM)	Trusted Platform Module (TPM) is a security device that stores computer-generated keys for encryption and features such as BitLocker, Virtual Secure Mode, remote Attestation. By default, the Trusted Platform Module (TPM) option is enabled. For additional security, Dell Technologies recommends keeping Trusted Platform Module (TPM) enabled to allow these security technologies to fully function.
TPM On	Allows you to enable or disable TPM. By default, the TPM On option is enabled. For additional security, Dell Technologies recommends keeping TPM enabled to allow these security technologies to fully function.
Physical Presence Interface (PPI) Bypass for Enable Commands	The Physical Presence Interface (PPI) Bypass options can be used to allow the operating system to manage certain aspects of the TPM. If these options are enabled, you are not prompted to confirm certain changes to the TPM configuration. By default, the PPI Bypass for Enable Commands option is enabled. For additional security, Dell Technologies recommends keeping the PPI Bypass for Enable Commands option enabled.
Physical Presence Interface (PPI) Bypass for Disable Commands	By default, the PPI Bypass for Disable Commands option is disabled. For additional security, Dell Technologies recommends keeping the PPI Bypass for Disable Commands option disabled.
Physical Presence Interface (PPI) Bypass for Clear Commands	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.
Attestation Enable	The Attestation Enable option controls the endorsement hierarchy of TPM. Disabling the Attestation Enable option prevents TPM from being used to digitally-sign certificates. By default, the Attestation Enable option is enabled. For additional security, Dell Technologies recommends keeping the Attestation Enable option enabled.  NOTE: When disabled, this feature may cause compatibility issues or loss of functionality in some operating systems.
Key Storage Enable	The Key Storage Enable option controls the storage hierarchy of TPM, which is used to store digital keys. Disabling the Key Storage Enable option restricts the ability of TPM to store owner's data. By default, the Key Storage Enable option is enabled.

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


Security	
	<p>For additional security, Dell Technologies recommends keeping the Key Storage Enable option enabled.</p> <p> NOTE: When disabled, this feature may cause compatibility issues or loss of functionality in some operating systems.</p>
SHA-256	<p>Allows you control the usage of SHA-256 by TPM. When enabled, the BIOS and TPM use the SHA-256 hash algorithm to extend measurements into the TPM PCRs during BIOS boot. When disabled, the BIOS and TPM use the SHA-1 hash algorithm to extend measurements into the TPM PCRs during BIOS boot.</p> <p>By default, the SHA-256 option is enabled.</p> <p>For additional security, Dell Technologies recommends keeping the SHA-256 option enabled.</p>
Clear	<p>When enabled, the Clear option clears information stored in the TPM after exiting the system's BIOS. This option returns to disabled state when the system restarts.</p> <p>By default, the Clear option is disabled.</p> <p>Dell Technologies recommends enabling the Clear option only when TPM data is required to be cleared.</p>
TPM State	<p>Enables or disables the Trusted Platform Module (TPM). This is the normal operating state for the Trusted Platform Module (TPM) when you want to use its complete array of capabilities.</p> <p>By default, the TPM State option is enabled.</p>
Intel Platform Trust Technology (PTT)	<p>Intel PTT is a firmware-based Trusted Platform Module (fTPM) device that is part of Intel chipsets. It provides credential storage and key management that can replace the equivalent functionality of a discrete TPM chip.</p>
PTT On	<p>Enables or disables the Intel PTT option.</p> <p>By default, the PTT On option is enabled.</p> <p>For additional security, Dell Technologies recommends keeping the PTT On option enabled.</p>
Physical Presence Interface (PPI) Bypass for Clear Commands	<p>The PPI Bypass for Clear Commands option allows the operating system to manage certain aspects of PTT. When enabled, you are not prompted to confirm changes to the PTT configuration.</p> <p>By default, the PPI Bypass for Clear Commands option is disabled.</p> <p>For additional security, Dell Technologies recommends keeping the PPI Bypass for Clear Commands option disabled.</p>
Clear	<p>When enabled, the Clear option clears the information stored in the PTT fTPM after exiting the system's BIOS. This option returns to disabled state when the system restarts.</p> <p>By default, the Clear option is disabled.</p> <p>Dell Technologies recommends enabling the Clear option only when PTT fTPM data needs to be cleared.</p>
Chassis intrusion	
Chassis Intrusion Detection	<p>Allows you to control the chassis intrusion feature. This feature notifies the user when the base cover has been removed from the computer.</p> <p>When set to Enabled, a notification is displayed on the next boot and the event is logged in the BIOS Events log.</p>

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

Security	
	<p>When set to On-Silent, the event is logged in the BIOS Events log, but no notification is displayed.</p> <p>When set to Disabled, no notification is displayed and no event is logged in the BIOS Events log.</p> <p>By default, the Chassis Intrusion Detection option is enabled.</p> <p>For additional security, Dell Technologies recommends keeping the Chassis Intrusion Detection option enabled.</p>
Block Boot Until Cleared	<p>Enables or disables the Block Boot Until Cleared option.</p> <p>By default, the Block Boot Until Cleared option is enabled.</p> <p>i NOTE: When enabled, the computer does not boot until the chassis intrusion is cleared. If the administrator password is set, Setup has to be unlocked before the warning can be cleared.</p>
Legacy Manageability Interface Access	<p>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.</p> <p>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.</p> <p>When set to Enabled, the Legacy Manageability Interface can be used to read and change BIOS configuration settings.</p> <p>When set to Read-Only, BIOS configuration settings can be read, but cannot be changed through the Legacy Manageability Interface.</p> <p>When set to Disabled, the Legacy Manageability Interface is disabled. BIOS configuration reads and writes are blocked.</p>
SMM Security Mitigation	<p>Enables or disables additional UEFI SMM Security Mitigation protections. This option uses the Windows SMM Security Mitigations Table (WSMT) to confirm to the operating system that security best practices have been implemented by the UEFI firmware.</p> <p>By default, the SMM Security Mitigation option is enabled.</p> <p>For additional security, Dell Technologies recommends keeping the SMM Security Mitigation option enabled unless you have a specific application which is not compatible.</p> <p>i NOTE: This feature may cause compatibility issues or loss of functionality with some legacy tools and applications.</p>
Data Wipe on Next Boot	
Start Data Wipe	<p>⚠ CAUTION: Secure Data Wipe operation deletes information in a way that it cannot be reconstructed.</p> <p>Commands such as delete and format in the operating system may remove files from showing up in the file system, however they can be reconstructed through forensic means as they are still represented on the physical media. Data Wipe prevents this reconstruction and is not recoverable.</p> <p>When enabled, the BIOS will queue up a data wipe cycle for storage devices that are connected to the motherboard on the next reboot.</p> <p>By default, the Start Data Wipe option is disabled.</p>
Absolute	<p>Enables, disables, or permanently disables the BIOS module interface of the optional Absolute Persistence Module service from Absolute software.</p>

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

Security	
	<p>By default, the Absolute option is enabled.</p> <p>For additional security, Dell Technologies recommends keeping the Absolute option enabled.</p> <p>⚠ WARNING: The 'Permanently Disabled' option can only be selected once. When 'Permanently Disabled' is selected, Absolute Persistence cannot be re-enabled. No further changes to the Enable/Disable states are allowed.</p> <p>i NOTE: The Enable/Disable options are unavailable while the computer is in the activated state.</p> <p>i NOTE: When the Absolute features are activated, the Absolute integration cannot be disabled from the BIOS setup screen.</p>
UEFI Boot Path Security	<p>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.</p> <p>By default, the Always Except Internal HDD option is enabled.</p>
Firmware Device Tamper Detection	<p>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 messages are 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.</p> <p>By default, the Firmware Device Tamper Detection option is enabled.</p> <p>For additional security, Dell Technologies recommends keeping the Firmware Device Tamper Detection option enabled.</p>

Table 12. System setup options—Passwords menu

Passwords	
Administrator Password	<p>The Administrator Password prevents unauthorized access to the BIOS Setup options. Once the administrator password is set, the BIOS setup options can only be modified after providing the correct password.</p> <p>The following rules and dependencies apply to the Administrator Password -</p> <ul style="list-style-type: none"> • The administrator password cannot be set if system and/or internal hard drive passwords are previously set. • The administrator password can be used in place of the system and/or internal hard drive passwords. • When set, the administrator password must be provided during a firmware update. • Clearing the administrator password also clears the system password (if set). <p>Dell Technologies recommends using an administrator password to prevent unauthorized changes to BIOS setup options.</p>
System Password	<p>The System Password prevents the system from booting to an operating system without entering the correct password.</p> <p>The following rules and dependencies apply when the System Password is used -</p> <ul style="list-style-type: none"> • The computer shuts down when idle for approximately 10 minutes at the 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.

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



Passwords	<ul style="list-style-type: none"> • The system password is not prompted when the computer resumes from standby mode. <p>Dell Technologies recommends using the system password in situations where it is likely that a system may be lost or stolen.</p>
Hard Drive Password	<p>The Hard Drive Password can be set to prevent unauthorized access of the data stored on the hard drive. The computer prompts for the hard drive password during boot in order to unlock the drive. A password secured hard drive stays locked even when removed from the computer or placed into another computer. It prevents an attacker from accessing data on the drive without authorization.</p> <p>The following rules and dependencies apply when the Hard Drive Password is used -</p> <ul style="list-style-type: none"> • The hard drive password option cannot be accessed when a hard drive is disabled in the BIOS setup. • The computer shuts down when idle for approximately 10 minutes at the hard drive password prompt. • The computer shuts down after three incorrect attempts to enter the hard drive password and treats the hard drive as not available. • The hard drive does not accept password unlock attempts after five incorrect attempts to enter the hard drive password from the BIOS Setup. The hard drive password must be reset for the new password unlock attempts. • The computer treats the hard drive as not available when the Esc key is pressed at the hard drive password prompt. • The hard drive password is not prompted when the computer resumes from standby mode. When the hard drive is unlocked by the user before the computer goes into standby mode, it remains unlocked after the computer resumes from standby mode. • If the system and hard drive passwords are set to the same value, the hard drive unlocks after the correct system password is entered. <p>Dell Technologies recommends using a hard drive password to protect unauthorized data access.</p>
Owner Password	<p>The Owner Password is typically used when a system is loaned or leased, and the end user sets their own system or hard drive password. The Owner Password can provide override access to unlock the system when it is returned. The Owner Password cannot be set via BIOS Setup. System lessors are given a tool which enables them to configure the Owner Password.</p> <p>The following rules and dependencies apply when the Owner Password is used -</p> <ul style="list-style-type: none"> • The owner password cannot be set when the administrator password is already set. • The owner password can be used in place of the administrator, system, or hard drive passwords. <p> NOTE: The hard drive password must have been set on the computer with owner password.</p> <p>Dell Technologies recommends that only system lessors use the owner password.</p>
Strong Password	<p>The Strong Password feature enforces stricter rules for administrator, owner, and system passwords.</p> <p>When enabled, the following rules are enforced -</p> <ul style="list-style-type: none"> • The minimum length of the password is set to 8 characters. • The password is required to include at least 1 upper case and 1 lower case character. <p> NOTE: These requirements do not affect the hard drive password.</p> <p>By default, the Strong Password option is enabled.</p>

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

Passwords	
	For additional security, Dell Technologies recommends keeping the Strong Password option enabled as it requires passwords be more complex.
Password Configuration	<p>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).</p> <p>Dell Technologies recommends setting the minimum password length to at least 8 characters.</p>
Password Bypass	<p>The Password Bypass option allows the computer to reboot from the operating system without entering the system or hard drive password. If the computer has already booted to the operating system, it is presumed that the user has already entered the correct system or hard drive password.</p> <p>NOTE: This option does not remove the requirement to enter the password after shutting down.</p> <p>By default, the Password Bypass option is enabled.</p> <p>For additional security, Dell Technologies recommends keeping the Password Bypass option enabled.</p>
Password Changes	
Allow Non-Admin Password Changes	<p>The Allow Non-Admin Password Changes option in BIOS setup allows an end user to set or change the system or hard drive passwords without entering the administrator password. This gives an administrator control over the BIOS settings but enables an end user to provide their own password.</p> <p>By default, the Allow Non-Admin Password Changes option is disabled.</p> <p>For additional security, Dell Technologies recommends keeping the Allow Non-Admin Password Changes option disabled.</p>
Non-Admin Setup Changes	<p>The Non-Admin Setup Changes option allows an end user to configure the wireless devices without requiring the administrator password.</p> <p>By default, the Non-Admin Setup Changes option is disabled.</p> <p>For additional security, Dell Technologies recommends keeping the Non-Admin Setup Changes option disabled.</p>
Admin Setup Lockout	<p>The Admin Setup Lockout option prevents an end user from even viewing the BIOS setup configuration without first entering the administrator password (if set).</p> <p>By default, the Admin Setup Lockout option is disabled.</p> <p>For additional security, Dell Technologies recommends keeping the Admin Setup Lockout option disabled.</p>
Master Password Lockout	
Enable Master Password Lockout	<p>The Master Password Lockout setting allows you to disable the Recovery Password feature. If the system, administrator, or hard drive password is forgotten, the system becomes unusable.</p> <p>NOTE: When the owner password is set, the Master Password Lockout option is not available.</p> <p>NOTE: When an internal hard drive password is set, it must first be cleared before Master Password Lockout can be changed.</p> <p>By default, the Enable Master Password Lockout option is disabled.</p> <p>Dell Technologies does not recommend enabling the Master Password Lockout unless you have implemented your own password recovery system.</p>

Table 13. System setup options—Update, Recovery menu

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

Table 14. System setup options—System Management menu

System Management	
Service Tag	Displays the Service Tag of the computer.
Asset Tag	<p>Creates a computer Asset Tag that can be used by an IT administrator to uniquely identify a particular computer.</p> <p>i NOTE: Once set in BIOS, the Asset Tag cannot be changed.</p>
AC Behavior	
Wake on AC	<p>Enables or disables the computer to turn on and go to boot when AC power is supplied to the computer.</p> <p>By default, the Wake on AC option is disabled.</p>
Wake on LAN	<p>Enables or disables the computer to turn on by a special LAN signal.</p> <p>By default, the Wake on LAN option is disabled.</p>
Auto On Time	<p>Enable to set the system 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.</p>

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

System Management	
	By default, the Auto On Time option is disabled.

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.
Keyboard Illumination	Configures the operating mode of the keyboard illumination feature. By default, the Bright option is selected. Enables the keyboard illumination feature at 100% brightness level.
Keyboard Backlight Timeout on AC	Sets the timeout value for the keyboard backlight when an AC adapter is connected to the computer. By default, the 10 seconds option is selected.
Keyboard Backlight Timeout on Battery	Sets the timeout value for the keyboard backlight when the computer is running only on the battery power. The keyboard backlight timeout value is only effective when the backlight is enabled. By default, the 10 seconds option is selected.
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 pre-boot Option ROMs, which support entry using a key sequence, are not affected by this setting.

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

Pre-boot Behavior	
Adapter Warnings	
Enable Dock Warning Messages	Enables the warning messages during boot when the adapters with less power capacity are detected. By default, the Enable Dock Warning Messages option is enabled.
Warnings and Errors	Enables or disables the action to be taken when a warning or error is encountered. By default, the Prompt on Warnings and Errors option is selected. Stop, prompt, and wait for user input when warnings or errors are detected. i NOTE: Errors deemed critical to the operation of the computer hardware stop the functioning of the computer.
USB-C Warnings	
Enable Dock Warning Messages	Enables the warning messages during boot when the USB-C adapters with less power capacity are detected. By default, the Enable Dock Warning Messages option is enabled.
Fastboot	Allows you to configure the speed of the UEFI boot process. By default, the Thorough option is selected. Performs complete hardware and configuration initialization during boot.

Table 16. System setup options—Pre-boot Behavior menu (continued)

Pre-boot Behavior	
Extend BIOS POST Time	Sets the BIOS POST (Power-On Self-Test) load time. By default, the 0 seconds option is selected.
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.
Mouse/Touchpad	Defines how the computer handles mouse and touchpad input. By default, the Touchpad and PS/2 Mouse option is selected. Leaves the integrated touchpad enabled when an external PS/2 mouse is present.
Sign of Life	
Early Logo Display	Display Logo Sign of Life. By default, the Early Logo Display option is enabled.
Early Keyboard Backlight	Keyboard Backlight Sign of Life. By default, the Early Keyboard Backlight option is enabled.

Table 17. System setup options—Virtualization menu



Virtualization Support	
Intel Virtualization Technology	
Enable Intel Virtualization Technology (VT)	When enabled, the computer can run a Virtual Machine Monitor (VMM). By default, the Enable Intel Virtualization Technology (VT) option is enabled.
VT for Direct I/O	
Enable Intel VT for Direct I/O	When enabled, the system can perform Virtualization Technology for Direct I/O (VT-d). VT-d is an Intel method that provides virtualization for memory map I/O. By default, the Enable Intel VT for Direct I/O option is enabled.
Intel Trusted Execution Technology (TXT)	
	Specifies whether a measured Virtual Machine Monitor (MVMM) can use the additional hardware capabilities provided by Intel Trusted Execution Technology. The following must be enabled in order to enable Intel TXT - <ul style="list-style-type: none"> ● Trusted Platform Module (TPM) ● Intel Hyper-Threading ● All CPU cores (Multi-Core Support) ● Intel Virtualization Technology ● Intel VT for Direct I/O By default, the Intel Trusted Execution Technology (TXT) option is disabled.
DMA Protection	
Enable Pre-Boot DMA Support	Allows you to control the Pre-Boot DMA protection for both internal and external ports. This option does not directly enable DMA protection in the operating system.  NOTE: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi). By default, the Enable Pre-Boot DMA Support option is enabled. For additional security, Dell Technologies recommends keeping the Enable Pre-Boot DMA Support option enabled.  NOTE: This option is provided only for compatibility purposes, since some older hardware is not DMA capable.

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

Virtualization Support	
Enable OS Kernel DMA Support	<p>Allows you to control the Kernel DMA protection for both internal and external ports. This option does not directly enable DMA protection in the operating system. For operating systems that support DMA protection, this setting indicates to the operating system that the BIOS supports the feature.</p> <p>i NOTE: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi).</p> <p>By default, the Enable OS Kernel DMA Support option is enabled.</p> <p>i NOTE: This option is provided only for compatibility purposes, since some older hardware is not DMA capable.</p>

Table 18. System setup options—Performance menu

Performance	
Multi-Core Support	
Multiple Atom Cores	<p>Enables to change the number of Atom cores available to the operating system. The default value is set to the maximum number of cores.</p> <p>By default, the All Cores option is selected.</p>
Intel SpeedStep	
Enable Intel SpeedStep Technology	<p>Enables the computer to dynamically adjust processor voltage and core frequency, decreasing average power consumption and heat production.</p> <p>By default, the Enable Intel SpeedStep Technology option is enabled.</p>
C-State Control	
Enable C-State Control	<p>Enables or disables the ability of the CPU to enter and exit low-power state. When disabled, it disables all C-states. When enabled, it enables all C-states that the chipset or platform allows.</p> <p>By default, the Enable C-State Control option is enabled.</p>
Intel Turbo Boost Technology	
Enable Intel Turbo Boost Technology	<p>Enables the Intel TurboBoost mode of the processor. When enabled, the Intel TurboBoost driver increases the performance of the CPU or graphics processor.</p> <p>By default, the Enable Intel Turbo Boost Technology option is enabled.</p>
Intel Hyper-Threading Technology	
Enable Intel Hyper-Threading Technology	<p>Enables the Intel Hyper-Threading mode of the processor. When enabled, the Intel Hyper-Threading increases the efficiency of the processor resources when multiple threads run on each core.</p> <p>By default, the Intel Hyper-Threading Technology option is enabled.</p>
Dynamic Tuning: Machine Learning	
Enable Dynamic Tuning: Machine Learning	<p>Enables or disables operating system capability to enhance power tuning capabilities depending on the detected workloads.</p> <p>i NOTE: This option is available for development only and is not customer visible.</p> <p>By default, the Enable Dynamic Tuning: Machine Learning option is enabled.</p>

Table 19. System setup options—System Logs menu

System Logs
BIOS Event Log

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

System Logs	
Clear BIOS Event Log	Allows you to select option to keep or clear BIOS events logs. By default, the Keep Log option is selected.
Thermal Event Log	
Clear Thermal Event Log	Allows you to select option to keep or clear Thermal events logs. By default, the Keep Log option is selected.
Power Event Log	
Clear Power Event Log	Allows you to select option to keep or clear Power events logs. By default, the Keep Log option is selected.

System and setup password


Table 20. System and setup password

Password type	Description
System password	Password that you must enter to log in to your system.
Setup password	Password that you must enter to access and make changes to the BIOS settings of your computer.

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

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

 **CAUTION:** Anyone can access the data that is stored on your computer if it is not locked and left unattended.

 **NOTE:** System and setup password feature is disabled.

Assigning a system setup password

You can assign a new **System or Admin Password** only when the status is in **Not Set**.

To enter the system setup, press F12 immediately after a power-on or reboot.


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

Deleting or changing an existing system setup password

Ensure that the **Password Status** is Unlocked (in the System Setup) before attempting to delete or change the existing System and/or Setup password. You cannot delete or change an existing System or Setup password, if the **Password Status** is Locked.

To enter the System Setup, press F12 immediately after a power-on or reboot.


1. In the **System BIOS** or **System Setup** screen, select **System Security** and press Enter.
The **System Security** screen is displayed.
2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.
3. Select **System Password**, update, or delete the existing system password, and press Enter or Tab.
4. Select **Setup Password**, update, or delete the existing setup password, and press Enter or Tab.

 **NOTE:** If you change the System and/or Setup password, reenter the new password when prompted. If you delete the System and/or Setup password, confirm the deletion when prompted.

5. Press Esc and a message prompts you to save the changes.
6. Press Y to save the changes and exit from System Setup.
The computer restarts.


Clearing BIOS (System Setup) and System passwords

To clear the system or BIOS passwords, contact Dell technical support as described at www.dell.com/contactdell.

 **NOTE:** For information on how to reset Windows or application passwords, refer to the documentation accompanying Windows or your application.

Updating the BIOS

Updating the BIOS in Windows

1. Go to www.dell.com/support.
2. Click **Product support**. In the **Search support** box, enter the Service Tag of your computer, and then click **Search**.
 **NOTE:** If you do not have the Service Tag, use the SupportAssist feature to automatically identify your computer. You can also use the product ID or manually browse for your computer model.
3. Click **Drivers & Downloads**. Expand **Find drivers**.
4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. After the download is complete, browse the folder where you saved the BIOS update file.
8. Double-click the BIOS update file icon and follow the on-screen instructions.
For more information about how to update the system BIOS, search in the Knowledge Base Resource at www.dell.com/support.

Updating the BIOS using the USB drive in Windows

1. Follow the procedure from step 1 to step 6 in [Updating the BIOS in Windows](#) to download the latest BIOS setup program file.
2. Create a bootable USB drive. For more information, search the Knowledge Base Resource at www.dell.com/support.
3. Copy the BIOS setup program file to the bootable USB drive.
4. Connect the bootable USB drive to the computer that needs the BIOS update.
5. Restart the computer and press **F12**.
6. Select the USB drive from the **One Time Boot Menu**.
7. Type the BIOS setup program filename and press **Enter**.

The **BIOS Update Utility** appears.

8. Follow the on-screen instructions to complete the BIOS update.

Updating the BIOS in Linux and Ubuntu

To update the system BIOS on a computer that is installed with Linux or Ubuntu, see the knowledge base article [000131486](https://www.dell.com/support) at www.dell.com/support.


Updating the BIOS from the F12 One Time Boot menu

Update your computer BIOS using the BIOS update.exe file that is copied to a FAT32 USB drive and booting from the F12 **One Time Boot** menu.

BIOS Update

You can run the BIOS update file from Windows using a bootable USB drive or you can also update the BIOS from the F12 **One Time Boot** menu on the computer.

Most of the Dell computers built after 2012 have this capability, and you can confirm by booting your computer to the F12 **One Time Boot** Menu to see if BIOS FLASH UPDATE is listed as a boot option for your computer. If the option is listed, then the BIOS supports this BIOS update option.

 **NOTE:** Only computers with BIOS Flash Update option in the F12 **One Time Boot** menu can use this function.

Updating from the One Time Boot menu

To update your BIOS from the F12 **One Time Boot** menu, you need the following:

- USB drive formatted to the FAT32 file system (key does not have to be bootable)
- BIOS executable file that you downloaded from the Dell Support website and copied to the root of the USB drive
- AC power adapter that is connected to the computer
- Functional computer battery to flash the BIOS

Perform the following steps to perform the BIOS update flash process from the F12 menu:

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

1. From a turn off state, insert the USB drive where you copied the flash into a USB port of the computer.
2. Turn on the computer and press F12 to access the **One Time Boot** Menu, select BIOS Update using the mouse or arrow keys then press Enter.
The flash BIOS menu is displayed.
3. Click **Flash from file**.
4. Select external USB device.
5. Select the file and double-click the flash target file, and then click **Submit**.
6. Click **Update BIOS**. The computer restarts to flash the BIOS.
7. The computer will restart after the BIOS update is completed.

Troubleshooting

Handling swollen rechargeable Li-ion batteries

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

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

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

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

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

Rechargeable Li-ion batteries can swell for various reasons such as age, number of charge cycles, or exposure to high heat. For more information on how to improve the performance and lifespan of the laptop battery and to minimize the possibility of occurrence of the issue, search Dell Laptop Battery in the Knowledge Base Resource at www.dell.com/support.

Dell SupportAssist Pre-boot System Performance Check diagnostics

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 with the BIOS and is launched by the BIOS internally. The embedded system diagnostics provides a set of options for particular devices or device groups allowing you to:

- Run tests automatically or in an interactive mode
- Repeat tests
- Display or save test results
- Run thorough tests to introduce additional test options to provide extra information about the failed device(s)

- View status messages that inform you if 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 terminal when the diagnostic tests are performed.

For more information, see <https://www.dell.com/support/kbdoc/000180971>.

Running the SupportAssist Pre-Boot System Performance Check

1. Turn on your computer.
2. As the computer boots, press the F12 key as the Dell logo appears.
3. On the boot menu screen, select the **Diagnostics** option.
4. Click the arrow at the bottom left corner.
Diagnostics front page is displayed.
5. Click the arrow in the lower-right corner to go to the page listing.
The items detected are listed.
6. To run a diagnostic test on a specific device, press Esc and click **Yes** to stop the diagnostic test.
7. Select the device from the left pane and click **Run Tests**.
8. If there are any issues, error codes are displayed.
Note the error code and validation number and contact Dell.

Built-in self-test (BIST)

M-BIST

M-BIST (Built In Self-Test) is the system board's built-in self-test diagnostics tool that improves the diagnostics accuracy of system board embedded controller (EC) failures.

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

How to run M-BIST

NOTE: M-BIST must be initiated on the system from a power-off state either connected to AC power or with battery only.

1. Press and hold both the **M** key on the keyboard and the **power button** to initiate M-BIST.
2. With both the **M** key and the **power button** held down, the battery indicator LED may exhibit two states:
 - a. OFF: No fault detected with the system board
 - b. AMBER: Indicates a problem with the system board
3. If there is a failure with the system board, the battery status LED will flash one of the following error codes for 30 seconds:

Table 21. LED error codes

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

4. If there is no failure with the system board, the LCD will cycle through the solid color screens described in the LCD-BIST section for 30 seconds and then power off.

LCD Power rail 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 will flash 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 L-BIST Test:

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

LCD Built-in Self Test (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 PC settings.

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

How to invoke LCD BIST Test

1. Power off the Dell laptop.
2. Disconnect any peripherals that are connected to the laptop. Connect only the AC adapter (charger) to the laptop.
3. Ensure that the LCD (screen) is clean (no dust particles on the surface of the screen).
4. Press and hold **D** key and **Power on** the laptop to enter LCD built-in self test (BIST) mode. Continue to hold the D key, until the system boots up.
5. The screen will display solid colors and change colors on the entire screen to white, black, red, green, and blue twice.
6. Then it will display 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 system will shut down.

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

System-diagnostic lights

Table 22. System-diagnostic lights

Blinking pattern		Problem description	Suggested resolution
Amber	White		
1	1	TPM detection failure	Replace the system board.
1	2	Unrecoverable SPI Flash Failure	Replace the system board.
1	5	EC unable to program i-Fuse	Replace the system board.

Table 22. System-diagnostic lights (continued)

Blinking pattern		Problem description	Suggested resolution
Amber	White		
1	6	Generic catch-all for ungraceful EC code flow errors	Disconnect all power source (AC, battery, coin cell) and drain flea power by pressing and holding down power button for 3~5 seconds.
2	1	CPU failure	<ul style="list-style-type: none"> • Run the Dell Support Assist/Dell Diagnostics tool. • If problem persists, replace the system board.
2	2	System board failure (included BIOS corruption or ROM error)	<ul style="list-style-type: none"> • Flash latest BIOS version • If problem persists, replace the system board.
2	3	No memory/RAM detected	<ul style="list-style-type: none"> • Confirm that the memory module is installed properly. • If problem persists, replace the memory module.
2	4	Memory/RAM failure	<ul style="list-style-type: none"> • Reset and swap memory modules among the slots. • If problem persists, replace the memory module.
2	5	Invalid memory installed	<ul style="list-style-type: none"> • Reset and swap memory modules among the slots. • If problem persists, replace the memory module.
2	6	System board/Chipset Error	Replace the system board.
2	7	LCD failure (SBIOS message)	Replace the LCD module.
2	8	LCD failure (EC detection of power rail failure)	Replace the system board.
3	1	CMOS battery failure	<ul style="list-style-type: none"> • Reset the main battery connection. • If problem persists, replace the main battery.
3	2	PCI or Video card/chip failure	Replace the system board.
3	3	BIOS Recovery image not found	<ul style="list-style-type: none"> • Flash latest BIOS version • If problem persists, replace the system board.
3	4	BIOS Recovery image found but invalid	<ul style="list-style-type: none"> • Flash latest BIOS version • If problem persists, replace the system board.
3	5	Power rail failure	Replace the system board.
3	6	Flash corruption detected by SBIOS.	<ul style="list-style-type: none"> • Press power button for over 25 seconds to do

Table 22. System-diagnostic lights (continued)

Blinking pattern		Problem description	Suggested resolution
Amber	White		
			RTC reset. If problem persists, replace the system board. <ul style="list-style-type: none"> • Disconnect all power source (AC, battery, coin cell) and drain flea power by pressing and holding down power button 3~5 seconds to ensure all power are drained. • Run "BIOS recovery from USB", and the instructions are in the website Dell support. • If problem persists, replace the system board.
3	7	Timeout waiting on ME to reply to HECI message.	Replace the system board.

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

Diagnostic error messages

Table 23. Diagnostic error messages

Error messages	Description
AUXILIARY DEVICE FAILURE	The touchpad or external mouse may be faulty. For an external mouse, check the cable connection. Enable the Pointing Device option in the System Setup program.
BAD COMMAND OR FILE NAME	Ensure that you have spelled the command correctly, put spaces in the proper place, and used the correct path name.
CACHE DISABLED DUE TO FAILURE	The primary cache internal to the microprocessor has failed. Contact Dell
CD DRIVE CONTROLLER FAILURE	The optical drive does not respond to commands from the computer.
DATA ERROR	The hard drive cannot read the data.
DECREASING AVAILABLE MEMORY	One or more memory modules may be faulty or improperly seated. Reinstall the memory modules or, if necessary, replace them.
DISK C: FAILED INITIALIZATION	The hard drive failed initialization. Run the hard drive tests in Dell Diagnostics .
DRIVE NOT READY	The operation requires a hard drive in the bay before it can continue. Install a hard drive in the hard drive bay.
ERROR READING PCMCIA CARD	The computer cannot identify the ExpressCard. Reinsert the card or try another card.
EXTENDED MEMORY SIZE HAS CHANGED	The amount of memory recorded in non-volatile memory (NVRAM) does not match the memory module installed in the

Table 23. Diagnostic error messages (continued)

Error messages	Description
	computer. Restart the computer. If the error appears again, Contact Dell
THE FILE BEING COPIED IS TOO LARGE FOR THE DESTINATION DRIVE	The file that you are trying to copy is too large to fit on the disk, or the disk is full. Try copying the file to a different disk or use a larger capacity disk.
A FILENAME CANNOT CONTAIN ANY OF THE FOLLOWING CHARACTERS: \ / : * ? " < > -	Do not use these characters in filenames.
GATE A20 FAILURE	A memory module may be loose. Reinstall the memory module or, if necessary, replace it.
GENERAL FAILURE	The operating system is unable to carry out the command. The message is usually followed by specific information. For example, <i>Printer out of paper</i> . Take the appropriate action.
HARD-DISK DRIVE CONFIGURATION ERROR	The computer cannot identify the drive type. Shut down the computer, remove the hard drive, and boot the computer from an optical drive. Then, shut down the computer, reinstall the hard drive, and restart the computer. Run the Hard Disk Drive tests in Dell Diagnostics .
HARD-DISK DRIVE CONTROLLER FAILURE 0	The hard drive does not respond to commands from the computer. Shut down the computer, remove the hard drive, and boot the computer from an optical drive. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the Hard Disk Drive tests in Dell Diagnostics .
HARD-DISK DRIVE FAILURE	The hard drive does not respond to commands from the computer. Shut down the computer, remove the hard drive, and boot the computer from an optical drive. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the Hard Disk Drive tests in Dell Diagnostics .
HARD-DISK DRIVE READ FAILURE	The hard drive may be defective. Shut down the computer, remove the hard drive, and boot the computer from an optical. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the Hard Disk Drive tests in Dell Diagnostics .
INSERT BOOTABLE MEDIA	The operating system is trying to boot to non-bootable media, such as an optical drive. Insert bootable media.
INVALID CONFIGURATION INFORMATION-PLEASE RUN SYSTEM SETUP PROGRAM	The system configuration information does not match the hardware configuration. The message is most likely to occur after a memory module is installed. Correct the appropriate options in the system setup program.
KEYBOARD CLOCK LINE FAILURE	For external keyboards, check the cable connection. Run the Keyboard Controller test in Dell Diagnostics .
KEYBOARD CONTROLLER FAILURE	For external keyboards, check the cable connection. Restart the computer, and avoid touching the keyboard or the mouse during the boot routine. Run the Keyboard Controller test in Dell Diagnostics .
KEYBOARD DATA LINE FAILURE	For external keyboards, check the cable connection. Run the Keyboard Controller test in Dell Diagnostics .
KEYBOARD STUCK KEY FAILURE	For external keyboards or keypads, check the cable connection. Restart the computer, and avoid touching the

Table 23. Diagnostic error messages (continued)

Error messages	Description
	keyboard or keys during the boot routine. Run the Stuck Key test in Dell Diagnostics .
LICENSED CONTENT IS NOT ACCESSIBLE IN MEDIADIRECT	Dell MediaDirect cannot verify the Digital Rights Management (DRM) restrictions on the file, so the file cannot be played.
MEMORY ADDRESS LINE FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE	A memory module may be faulty or improperly seated. Reinstall the memory module or, if necessary, replace it.
MEMORY ALLOCATION ERROR	The software you are attempting to run is conflicting with the operating system, another program, or a utility. Shut down the computer, wait for 30 seconds, and then restart it. Run the program again. If the error message still appears, see the software documentation.
MEMORY DOUBLE WORD LOGIC FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE	A memory module may be faulty or improperly seated. Reinstall the memory module or, if necessary, replace it.
MEMORY ODD/EVEN LOGIC FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE	A memory module may be faulty or improperly seated. Reinstall the memory module or, if necessary, replace it.
MEMORY WRITE/READ FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE	A memory module may be faulty or improperly seated. Reinstall the memory module or, if necessary, replace it.
NO BOOT DEVICE AVAILABLE	The computer cannot find the hard drive. If the hard drive is your boot device, ensure that the drive is installed, properly seated, and partitioned as a boot device.
NO BOOT SECTOR ON HARD DRIVE	The operating system may be corrupted, Contact Dell .
NO TIMER TICK INTERRUPT	A chip on the system board may be malfunctioning. Run the System Set tests in Dell Diagnostics .
NOT ENOUGH MEMORY OR RESOURCES. EXIT SOME PROGRAMS AND TRY AGAIN	You have too many programs open. Close all windows and open the program that you want to use.
OPERATING SYSTEM NOT FOUND	Reinstall the operating system. If the problem persists, Contact Dell .
OPTIONAL ROM BAD CHECKSUM	The optional ROM has failed. Contact Dell .
SECTOR NOT FOUND	The operating system cannot locate a sector on the hard drive. You may have a defective sector or corrupted File Allocation Table (FAT) on the hard drive. Run the Windows error-checking utility to check the file structure on the hard drive. See Windows Help and Support for instructions (click Start > Help and Support). If a large number of sectors are defective, back up the data (if possible), and then format the hard drive.
SEEK ERROR	The operating system cannot find a specific track on the hard drive.
SHUTDOWN FAILURE	A chip on the system board may be malfunctioning. Run the System Set tests in Dell Diagnostics . If the message reappears, Contact Dell .
TIME-OF-DAY CLOCK LOST POWER	System configuration settings are corrupted. Connect your computer to an electrical outlet to charge the battery. If the problem persists, try to restore the data by entering the System Setup program, then immediately exit the program. If the message reappears, Contact Dell .
TIME-OF-DAY CLOCK STOPPED	The reserve battery that supports the system configuration settings may require recharging. Connect your computer to an electrical outlet to charge the battery. If the problem persists, Contact Dell .

Table 23. Diagnostic error messages (continued)

Error messages	Description
TIME-OF-DAY NOT SET-PLEASE RUN THE SYSTEM SETUP PROGRAM	The time or date stored in the system setup program does not match the system clock. Correct the settings for the Date and Time options.
TIMER CHIP COUNTER 2 FAILED	A chip on the system board may be malfunctioning. Run the System Set tests in Dell Diagnostics .
UNEXPECTED INTERRUPT IN PROTECTED MODE	The keyboard controller may be malfunctioning, or a memory module may be loose. Run the System Memory tests and the Keyboard Controller test in Dell Diagnostics or Contact Dell .
X:\ IS NOT ACCESSIBLE. THE DEVICE IS NOT READY	Insert a disk into the drive and try again.

System error messages

Table 24. System error messages

System message	Description
Alert! Previous attempts at booting this system have failed at checkpoint [nnnn]. For help in resolving this problem, please note this checkpoint and contact Dell Technical Support	The computer failed to complete the boot routine three consecutive times for the same error.
CMOS checksum error	RTC is reset, BIOS Setup default has been loaded.
CPU fan failure	CPU fan has failed.
System fan failure	System fan has failed.
Hard-disk drive failure	Possible hard disk drive failure during POST.
Keyboard failure	Keyboard failure or loose cable. If reseating the cable does not solve the problem, replace the keyboard.
No boot device available	No bootable partition on hard disk drive, the hard disk drive cable is loose, or no bootable device exists. <ul style="list-style-type: none"> • If the hard drive is your boot device, ensure that the cables are connected and that the drive is installed properly and partitioned as a boot device. • Enter system setup and ensure that the boot sequence information is correct.
No timer tick interrupt	A chip on the system board might be malfunctioning or motherboard failure.
NOTICE - Hard Drive SELF MONITORING SYSTEM has reported that a parameter has exceeded its normal operating range. Dell recommends that you back up your data regularly. A parameter out of range may or may not indicate a potential hard drive problem	S.M.A.R.T error, possible hard disk drive failure.

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 in all Dell computers installed with 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, or 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 their 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 www.dell.com/serviceabilitytools. Click **SupportAssist** and then, click **SupportAssist OS Recovery**.

Real-Time Clock (RTC Reset)

The Real Time Clock (RTC) reset function allows you or the service technician to recover Dell Inspiron, systems from No POST/No Power/No Boot situations. The legacy jumper enabled RTC reset has been retired on these models.

Start the RTC reset with the system powered off and connected to AC power. Press and hold the power button for thirty (30) seconds. The system RTC Reset occurs after you release the power button.

Updating the BIOS in Windows

1. Go to www.dell.com/support.
2. Click **Product support**. In the **Search support** box, enter the Service Tag of your computer, and then click **Search**.
 **NOTE:** If you do not have the Service Tag, use the SupportAssist feature to automatically identify your computer. You can also use the product ID or manually browse for your computer model.
3. Click **Drivers & Downloads**. Expand **Find drivers**.
4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. After the download is complete, browse the folder where you saved the BIOS update file.
8. Double-click the BIOS update file icon and follow the on-screen instructions.
For more information about how to update the system BIOS, search in the Knowledge Base Resource at www.dell.com/support.

Backup media and recovery options

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

Wi-Fi power cycle

If your computer is unable to access the Internet due to Wi-Fi connectivity issues a Wi-Fi power cycle procedure may be performed. The following procedure provides the instructions on how to conduct a Wi-Fi power cycle:

 **NOTE:** Some ISPs (Internet Service Providers) provide a modem/router combo device.

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

Drain residual flea power (perform hard reset)


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 are requested to drain residual flea power before removing or replacing any components in your computer.

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

To drain residual flea power (perform a hard reset)

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



 **NOTE:** For more information about performing a hard reset, search in the Knowledge Base Resource at www.dell.com/support.

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 25. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	www.dell.com
My Dell app	
Tips	
Contact Support	In Windows search, type <code>Contact Support</code> , and press Enter.
Online help for operating system	www.dell.com/support/windows
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals and documents.	Your Dell computer is uniquely identified by 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 www.dell.com/support . For more information on how to find the Service Tag for your computer, see Locate the Service Tag on your computer .
Dell knowledge base articles for a variety of computer concerns	<ol style="list-style-type: none"> 1. Go to www.dell.com/support. 2. On the menu bar at the top of the Support page, select Support > Knowledge Base. 3. In the Search field on the Knowledge Base 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 www.dell.com/contactdell.

 **NOTE:** Availability varies by country/region and product, and some services may not be available in your country/region.

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