Latitude 7320 Detachable

Service Manual

Regulatory Model: T04H
Regulatory Type: T04H001
June 2023
Rev. A03

DELL Technologies

Notes, cautions, and warnings

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

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

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

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Contents

Chapter 1: Working inside your computer 6
Before working inside your computer 6
Safety precautions 6
Electrostatic discharge—ESD protection 7
ESD field service kit 7
After working inside your computer 8

Chapter 2: Removing and installing components 9
Recommended tools 9
Screw size list 9
Major components of Latitude 7320 Detachable 10
Subscriber Identity Module (SIM) card 12
Removing the SIM tray 12
Installing the SIM tray 13
Display assembly 14
Removing the display assembly 14
Installing the display assembly 18
Solid-state drive 22
Removing the M.2 solid-state drive 22
Installing the M.2 solid-state drive 23
Wireless Wide Area Network (WWAN) card 25
Removing the WWAN card 25
Installing the WWAN card 26
Speakers 27
Removing the left speaker 27
Installing the left speaker 28
Removing the right speaker 29
Installing the right speaker 30
Rear Camera 31
Removing the rear-facing camera 31
Installing the rear-facing camera 32
Microphone module 34
Removing the right microphone modules 34
Installing the right microphone module 34
Removing the left microphone module 35
Installing the left microphone module 36
Front Camera 37
Removing the front-facing camera 37
Installing the front-facing camera 38
Kick stand 38
Removing the Kick stand 38
Installing the kick stand 39
Kickstand Hinges 41
Removing the kick stand hinges 41

Installing the kick stand hinges....41
Docking connector....42
Removing the docking connector....42
Installing the docking connector....43
Hall sensor daughter board....45
Removing the Hall sensor daughter board....45
Installing the Hall sensor daughter board....45
Heat sink....46
Removing the heat sink....46
Installing the heat sink....47
System fan....49
Removing the left fan....49
Installing the left fan....51
Removing the right system fan....52
Installing the right fan....53
Volume button daughter board....54
Removing the Volume button daughter board....54
Installing the volume button daughter board....54
Power-button board....55
Removing the power-button board....55
Installing the power-button board....56
Fingerprint reader....57
Removing the fingerprint reader....57
Installing the fingerprint reader....58
Battery....59
Rechargeable Li-ion battery precautions....59
Removing the battery....59
Installing the battery....61
System board....62
Removing the system board....62
Installing the system board....64
Smart card reader....67
Removing the smart card reader....67
Installing the smart card reader....68

Chapter 3: Software....71
Operating system....71
Downloading the drivers....71

Chapter 4: System setup....72
BIOS overview....72
Entering BIOS without keyboard....72
Entering BIOS Setup....72
System setup options....72
Updating the BIOS....83
Updating the BIOS in Windows....83
Updating the BIOS using the USB drive in Windows....83
Updating the BIOS from the One-Time boot menu....84
System and setup password....84

Assigning a System Setup password....84
Deleting or changing an existing system password or setup password....85
Clearing system and setup passwords....85

Chapter 5: Troubleshooting....86
Handling swollen rechargeable Li-ion batteries....86
Dell SupportAssist Pre-boot System Performance Check diagnostics....87
Running the SupportAssist Pre-Boot System Performance Check....87
Built-in self-test (BIST)....87
M-BIST....87
LCD Built-in Self-Test (BIST)....88
System diagnostic lights....88
Recovering the operating system....90
Updating the BIOS using the USB drive in Windows....91
Backup media and recovery options....91
Network power cycle....91
Flea power release....92

Chapter 6: Getting help and contacting Dell....93

Chapter 7: Revision history....94

1

Working inside your computer

Topics:

- Before working inside your computer
- Safety precautions
- Electrostatic discharge—ESD protection
- ESD field service kit
- After working inside your computer

Before working inside your computer

About this task

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

Steps

1. Save and close all open files and exit all open applications.
2. Shut down your computer. 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.

Safety precautions

The safety precautions chapter details the primary steps to be taken before performing any disassembly instructions.

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

- Turn off the system and all attached peripherals.
- Disconnect the system and all attached peripherals from AC power.
- Disconnect all network cables, telephone, and telecommunications lines from the system.
- Use an ESD field service kit when working inside any tabletnotebookdesktop to avoid electrostatic discharge (ESD) damage.
- After removing any system component, carefully place the removed component on an anti-static mat.
- Wear shoes with non-conductive rubber soles to reduce the chance of getting electrocuted.

Standby power

Dell products with standby power must be unplugged before you open the case. Systems that incorporate standby power are essentially powered while turned off. The internal power enables the system to be remotely turned on (wake on LAN) and suspended into a sleep mode and has other advanced power management features.

Unplugging, pressing and holding the power button for 20 seconds should discharge residual power in the system board. Remove the battery from tablets.notebooks.

Bonding

Bonding is a method for connecting two or more grounding conductors to the same electrical potential. This is done through the use of a field service electrostatic discharge (ESD) kit. When connecting a bonding wire, ensure that it is connected to bare metal and never to a painted or non-metal surface. The wrist strap should be secure and in full contact with your skin, and ensure that you remove all jewelry such as watches, bracelets, or rings prior to bonding yourself and the equipment.

Electrostatic discharge—ESD protection

ESD is a major concern when you handle electronic components, especially sensitive components such as expansion cards, processors, memory modules, and system boards. 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 that is emitted for missing or nonfunctional memory.
- **Intermittent** – Intermittent failures represent approximately 80 percent of ESD-related failures. The high rate of intermittent failures means that most of the time when damage occurs, it is not immediately recognizable. The DIMM receives a static shock, but the tracing is merely weakened and does not immediately produce outward symptoms that are related to the damage. The weakened trace may take weeks or months to melt, and in the meantime may cause degradation of memory integrity, intermittent memory errors, and so on.

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. Wireless anti-static straps do not provide adequate protection. Touching the chassis before handling parts does not ensure adequate ESD protection on parts with increased sensitivity to ESD damage.
- Handle all static-sensitive components in a static-safe area. If possible, use anti-static floor pads and workbench pads.
- When unpacking a static-sensitive component from its shipping carton, do not remove the component from the anti-static packing material until you are ready to install the component. Before unwrapping the anti-static packaging, 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 that all field service technicians 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 that technicians keep sensitive parts separate from all insulator parts while performing service and that they use anti-static bags for transporting sensitive components.

After working inside your computer

About this task

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

Steps

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

2

Removing and installing components

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

Topics:

- Recommended tools
- Screw size list
- Major components of Latitude 7320 Detachable
- Subscriber Identity Module (SIM) card
- Display assembly
- Solid-state drive
- Wireless Wide Area Network (WWAN) card
- Speakers
- Rear Camera
- Microphone module
- Front Camera
- Kick stand
- Kickstand Hinges
- Docking connector
- Hall sensor daughter board
- Heat sink
- System fan
- Volume button daughter board
- Power-button board
- Fingerprint reader
- Battery
- System board
- Smart card reader

Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver #0
- Plastic scribe

Screw size list

Table 1. Latitude 7320 Detachable screw size list

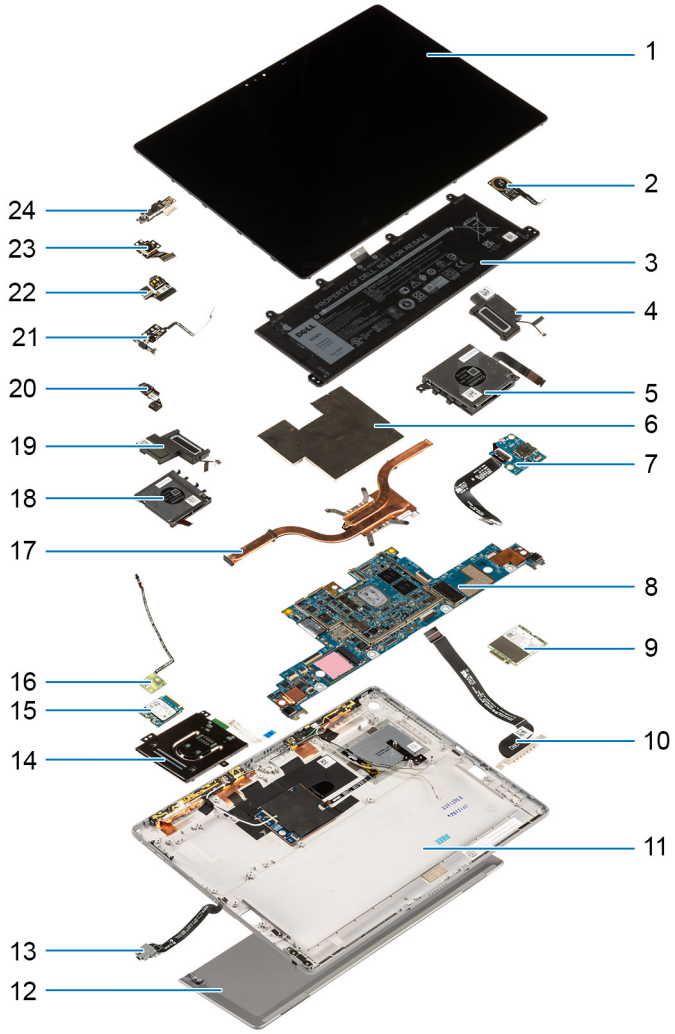
Component	Screw type	Quantity	Image	Color
Display assembly	M1.6x4 M2x2.5	4 2		Silver Black
Solid-state drive	M2x2.5	1		Black

Table 1. Latitude 7320 Detachable screw size list (continued)

Component	Screw type	Quantity	Image	Color
WWAN card	M1.6x2.5	1		Black
Rear camera	M1.6x3	2		Black
Kick stand	M1.6x3	4		Black
Kick stand hinges	M2x2	6		Silver
Docking connector	M2x2.5	2		Black
Hall sensor board	M2x2	1		Silver
Heat sink	M2x2.5	4		Black
System fan	M2x3	4		Silver
Volume button board	M1.6x3	2		Black
Power button board	M1.6x1.5	2		Silver
Battery	M1.6x3 M2x3	1 6		Black Silver
System board	M1.6x2.5 M2x2	2 2		Black Silver
Smart card reader	M2x2	6		Silver

Major components of Latitude 7320 Detachable

The following image shows the major components of Latitude 7320 Detachable.



1. Display assembly
2. Fingerprint reader
3. Battery
4. Speaker
5. Right fan
6. System board shielding cover
7. Power button board
8. System board
9. Wireless Wide Area Network (WWAN) card
10. Docking board
11. Base cover
12. Kick-stand
13. Audio port
14. Smart-card reader
15. Wireless Local Area Network (WLAN) Antenna module
16. Hall sensor
17. Heat sink
18. Left fan
19. Speaker
20. IR camera
21. Volume button daughter board
22. Microphone module
23. Rear facing camera
24. Front camera module

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.

Subscriber Identity Module (SIM) card

Removing the SIM tray

Prerequisites

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

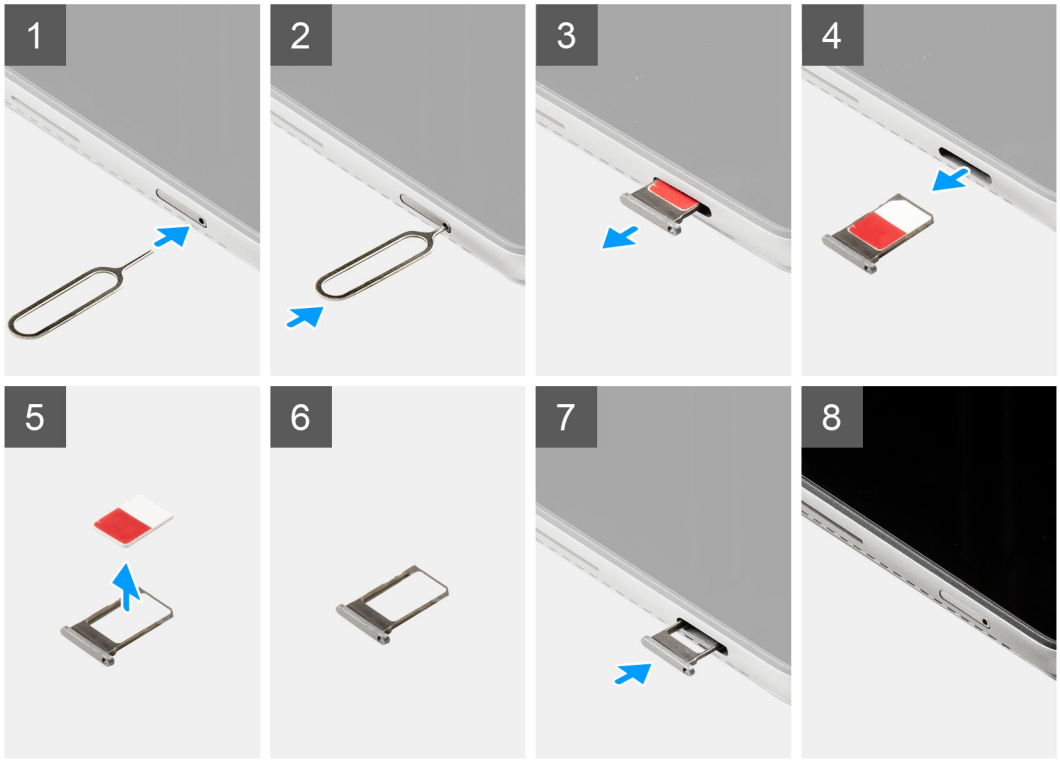
NOTE: SIM card or SIM card tray removal is only available on systems that are shipped with WWAN module. The procedure for removal is only applicable for systems that are shipped with a WWAN module.

CAUTION: Removing the SIM card with the computer turned on, may cause data loss or damage to the card. Ensure that your computer is turned off or the network connections are disabled.

About this task

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





Steps

1. Insert a pin into the hole of the SIM card slot.
2. Push the pin inward to release the SIM card tray
3. Slide the SIM card tray out of the slot in the computer.
4. Remove the SIM card from the SIM card tray.
5. Slide the SIM card tray into the slot, until it clicks into place.

Installing the SIM tray

Prerequisites

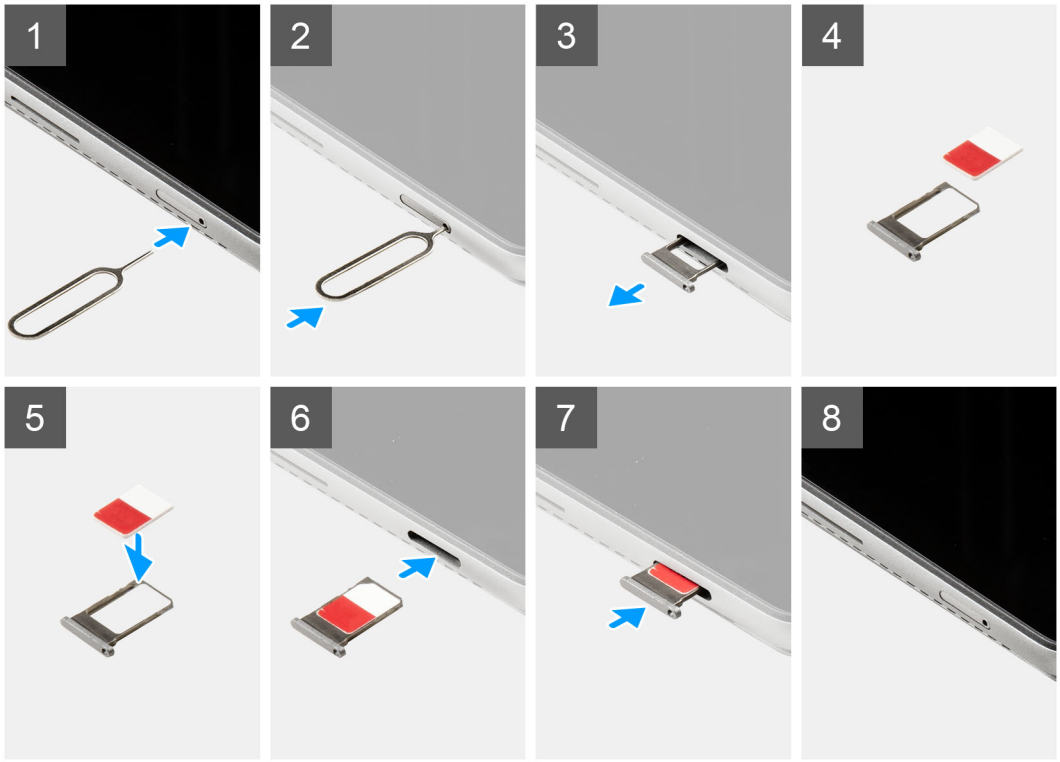
If you are replacing a component, remove the existing component before performing the installation procedure.

NOTE: SIM card or SIM card tray removal is only available on systems that are shipped with the WWAN module. Hence, the removing procedure is only applicable for systems that are shipped with WWAN module.

About this task

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





Steps

1. Insert a pin into the hole of the SIM card tray and push inward to release the tray.
2. Slide the SIM card tray out of the slot on the computer.
3. Place the SIM card into the SIM card tray with the metallic contact facing down.
4. Align the SIM card tray with the slot in the computer and carefully slide it in.
5. Slide the SIM card tray into the slot, until it clicks into place.

Next steps

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

Display assembly

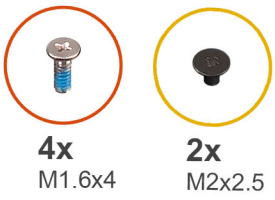
Removing the display assembly

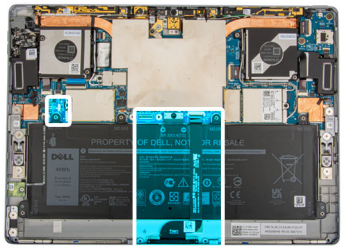
Prerequisites

1. Follow the procedure in Before working inside your system.
2. Remove the SIM tray.

About this task

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









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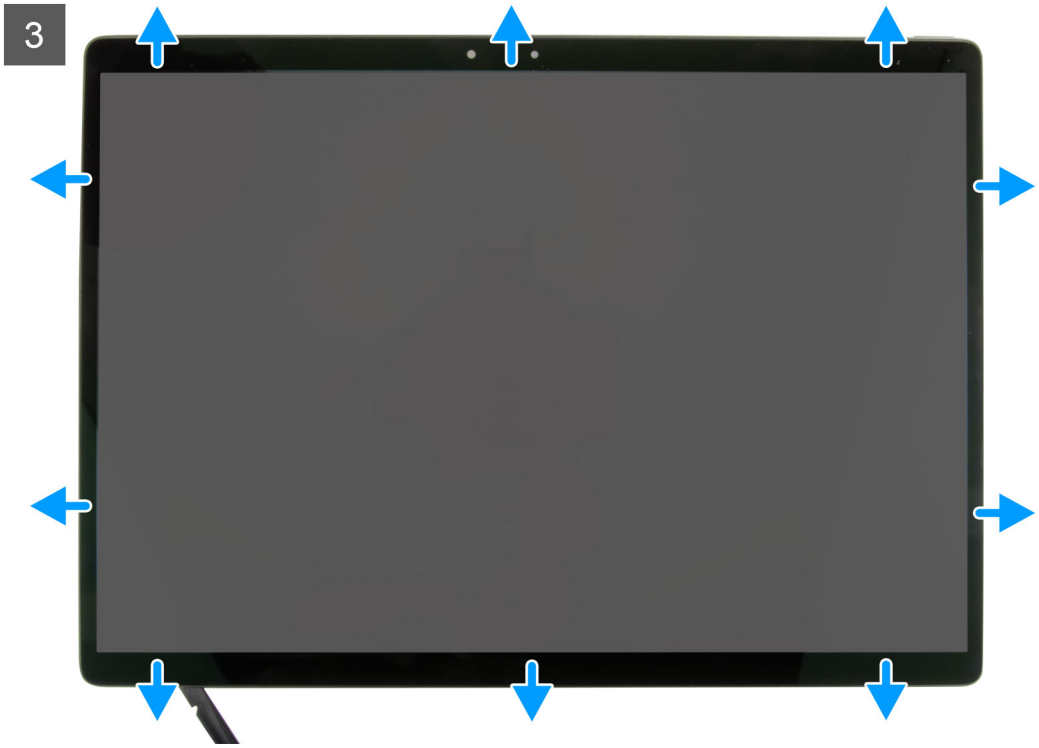
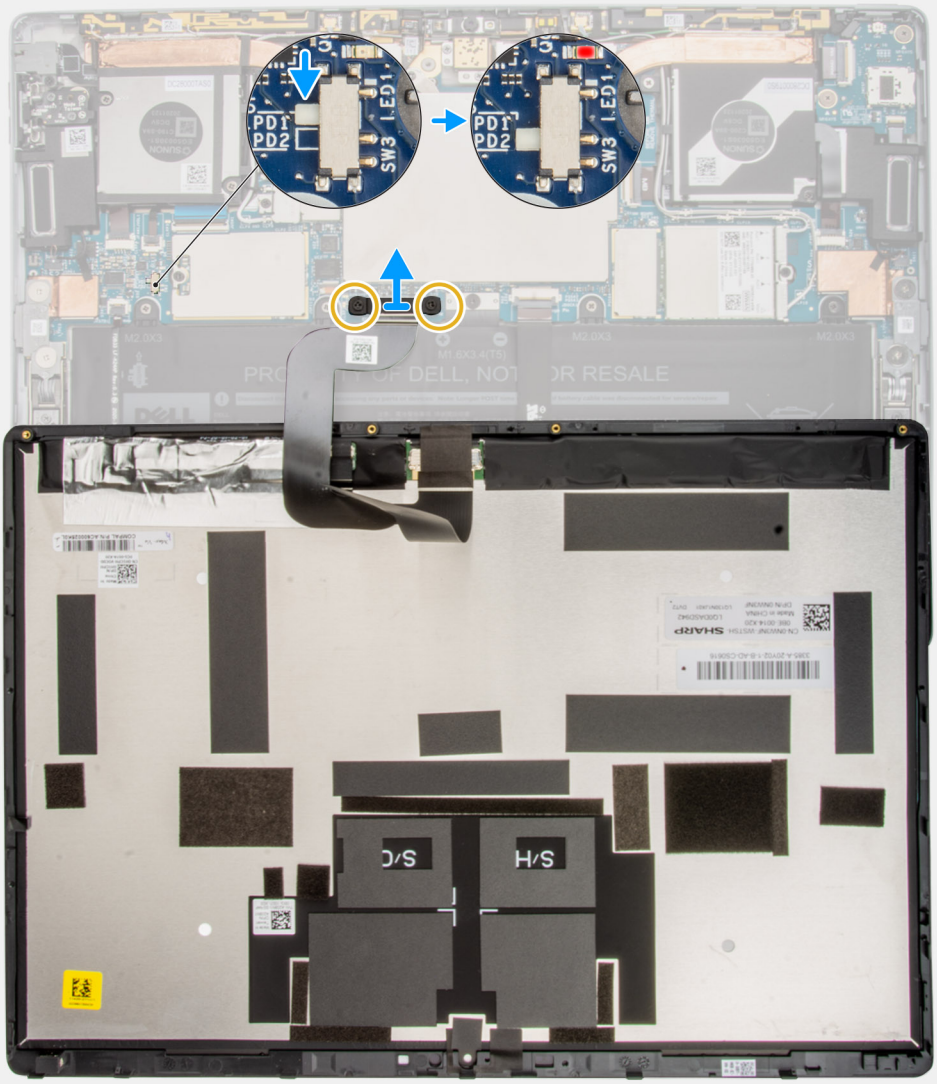


4



5



5





Steps

1. Open the kick stand to the widest possible angle, the system will power on.

   NOTE: The Latitude 7320 Detachable has an automatic power-on feature. The system powers on anytime the kick stand is opened. Follow the below steps to ensure that the system does not power on while the performing replacement procedures.

2. With the kick stand open, shut down the computer using the operating system.
3. Place the system on a padded surface with the display assembly facing down.

4. **CAUTION: Make sure that the system has already been powered off before removing the screws.**

   Remove the four (M1.6x4) screws securing the display panel to the display back cover.
5. Using a plastic scribe, push the two release holes next to the kick stand hinges to loosen the display assembly from the display back cover.
6. Close the kick stand and flip the computer over with the display facing upwards.
7. Using a plastic scribe, pry open the display panel from the bottom-left or bottom-right corner.
8. Work your way around the top and remaining sides of the display panel.
9. Gently flip open the display assembly from the top edge and lay the display panel assembly face down.

   CAUTION: Do NOT pull the display panel away from the base while the display panel is still connected to the system board.
10. Slide the power switch on the system board from "PD1 (Power on)" to "PD2 (Power off)".

    NOTE: After switching the power switch to "PD2 (Power off)", an LED indicator next to the switch will illuminate red, indicating that power has been cut-off from the computer.
11. Remove the two (M2x2.5) screws that secure the display cable bracket to the system board.
12. Remove the display cable bracket from the computer.
13. Disconnect the display cable from the system board and remove the display assembly from the computer.

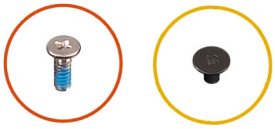
Installing the display assembly

Prerequisites

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

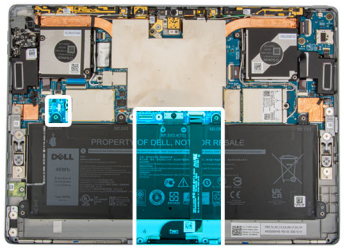
About this task

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

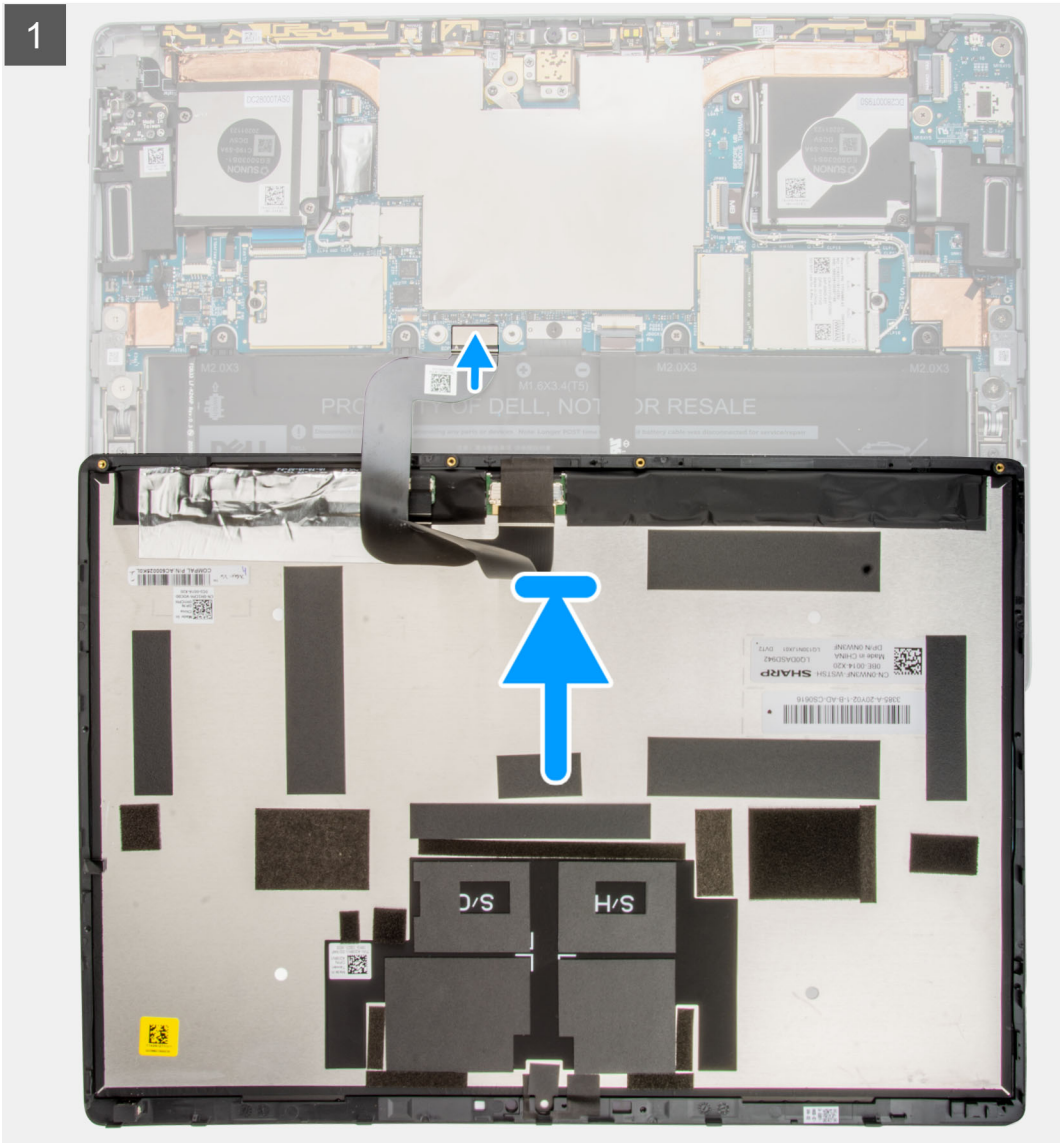


4x
M1.6x4

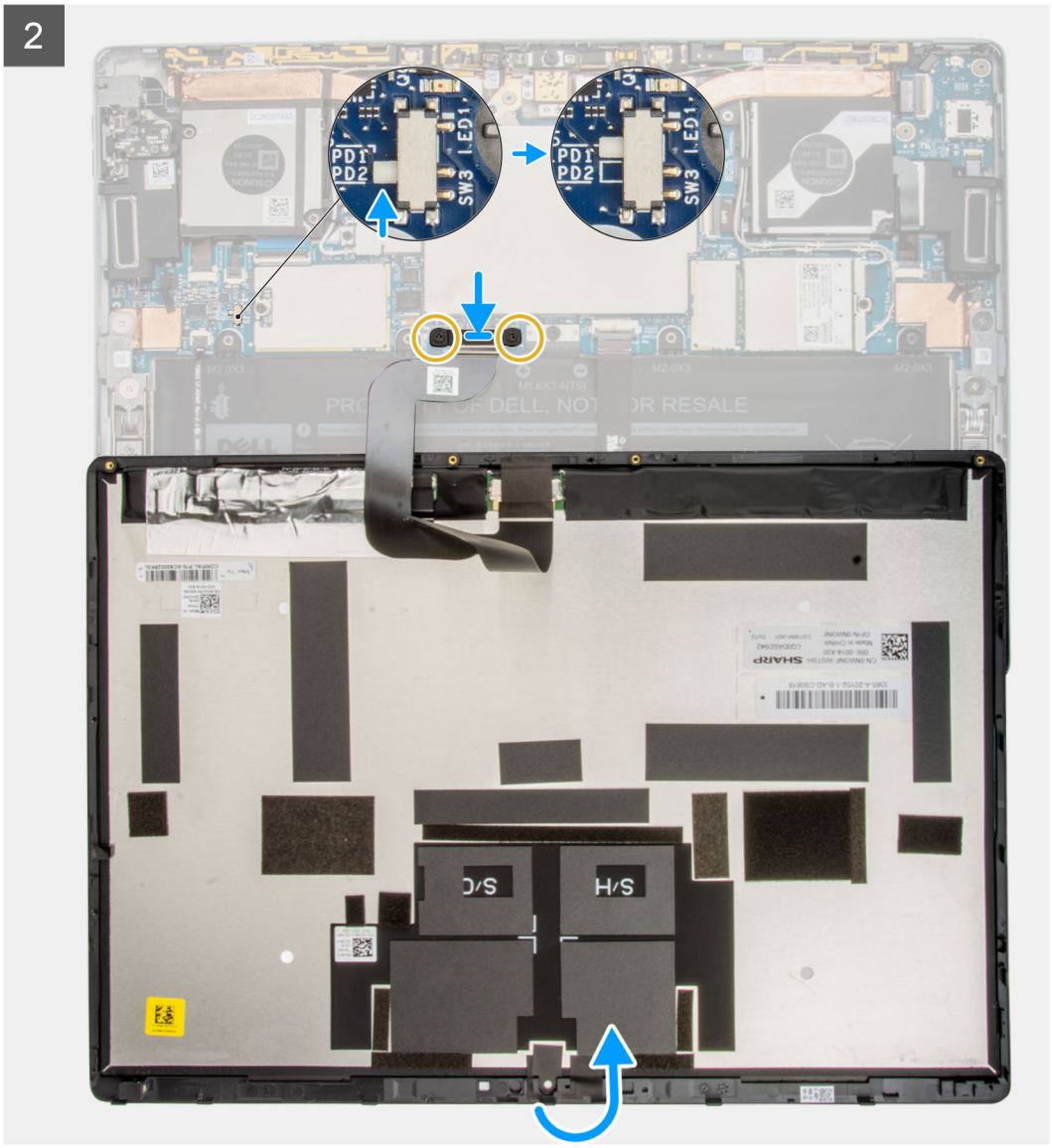
2x
M2x2.5



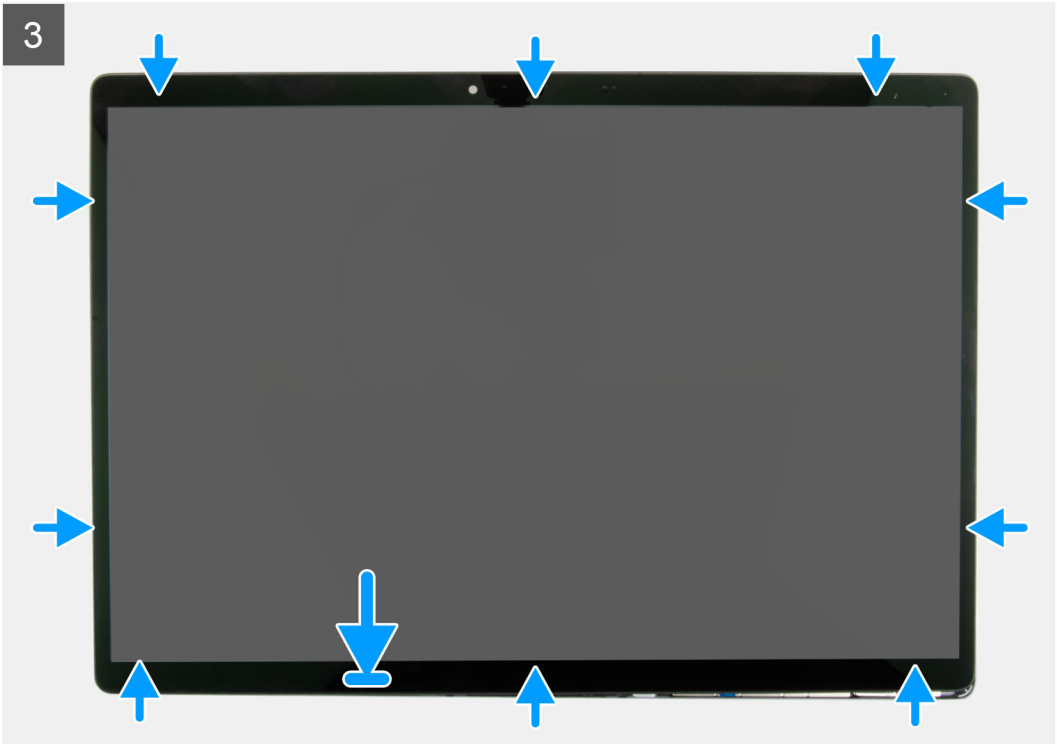
1



2



3



4





Steps

1. Place the display assembly face down on a padded surface just below the computer.
2. Connect the display cable to the connector on the system board.
3. Align and place the display cable bracket and place it on the display cable connector.
4. Replace the two (M2x2.5) screws that secure the display cable bracket to the system board.
5. Slide the power switch on the system board from "PD2 (Power off)" to "PD1 (Power on)".

   NOTE: After switching the power switch to the "PD1 (Power on)" position the LED indicator next to the switch will stop illuminating, indicating that power has been restored to the computer.

6. Gently flip the display assembly on to the computer.
7. Align and slide the bottom of the display assembly into the computer.
8. Gently press along the edges of the display assembly until it snaps into place.
9. Replace the four screws (M1.6x4) that secure the display panel to the display back cover.
10. Close the kick stand.

Next steps

1. Install the SIM tray.
2. Follow the procedure in After working inside your computer.

Solid-state drive

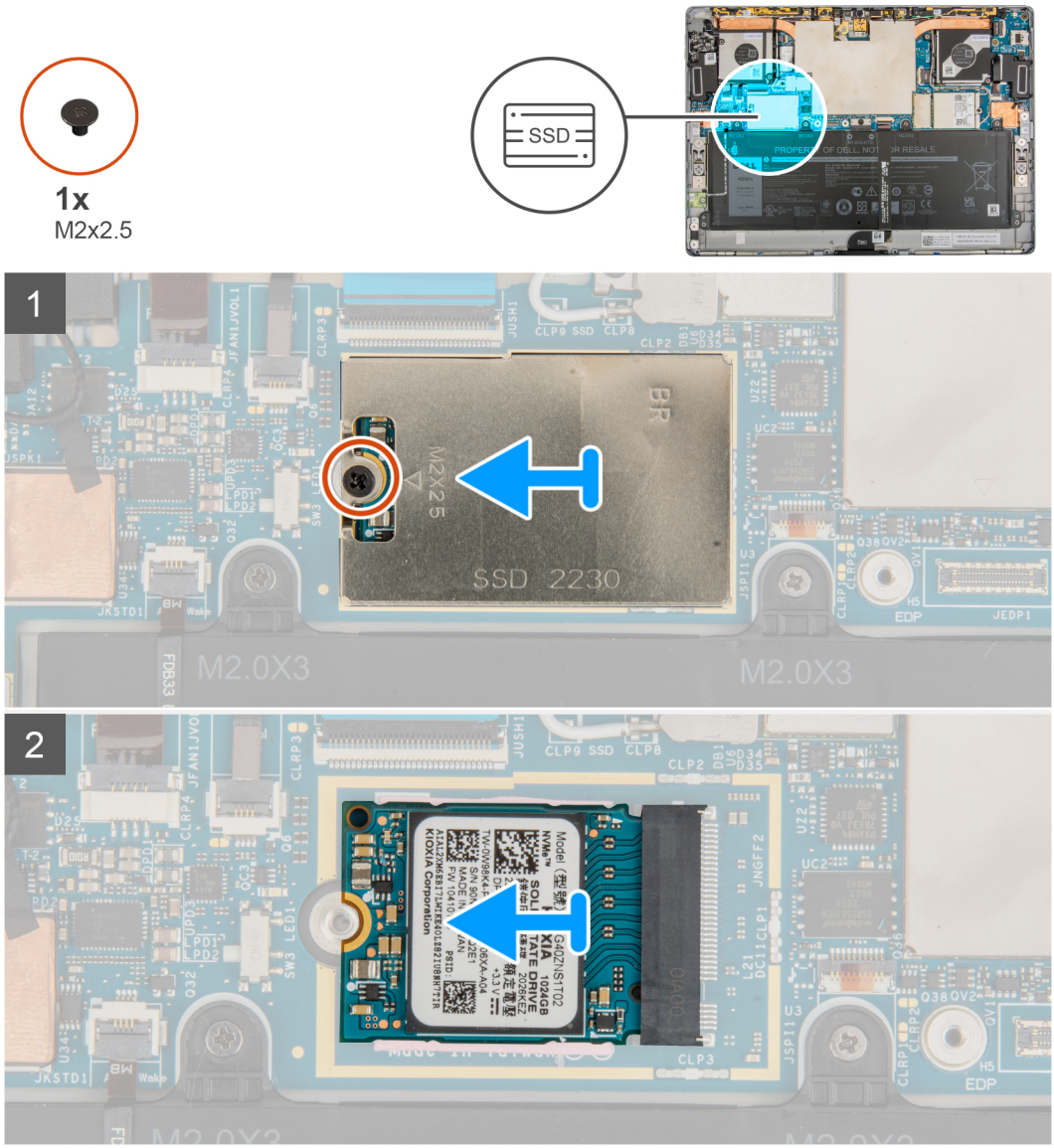
Removing the M.2 solid-state drive

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray.
3. Remove the display assembly.

About this task

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



Steps

1. Remove the single (M2x2.5) screw securing the M.2 solid-state drive shield in place.
2. Remove the M.2 solid-state drive shield from the computer.

   NOTE: If the thermal pad located under the M.2 SSD gets detached from the system board, re-adhere it to the system board.

3. Slide the M.2 solid-state drive out the computer.

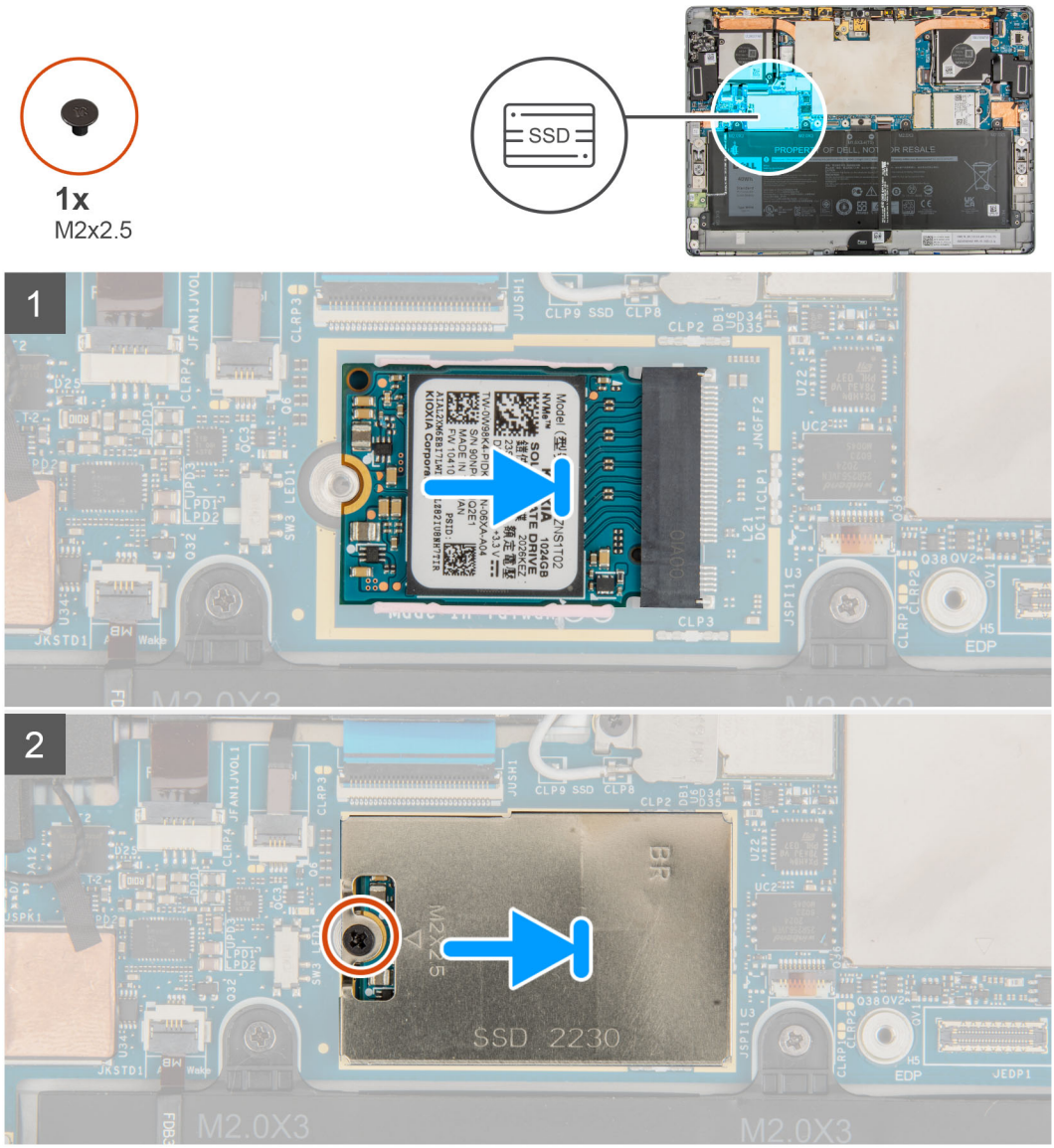
Installing the M.2 solid-state drive

Prerequisites

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

About this task

The following image indicates the location of the M.2 solid-state drive and provides a visual representation of the installation procedure.



Steps

1. Align the notch on the M.2 solid-state drive with the tab on the M.2 solid-state drive slot on the system board.
2. Slide the M.2 solid-state drive into the M.2 solid-state drive slot on the system board..
3. Align and place the M.2 solid-state drive shielding cover on the M.2 solid-state drive.

   NOTE: Ensure the shielding cover is placed on the guiding clips of the system board.

4. Replace the single (M2x2.5) that secures the M.2 solid-state drive shield to the system board.

Next steps

1. Install the display assembly.
2. Install the SIM tray.
3. Follow the procedure in After working inside your computer.

Wireless Wide Area Network (WWAN) card

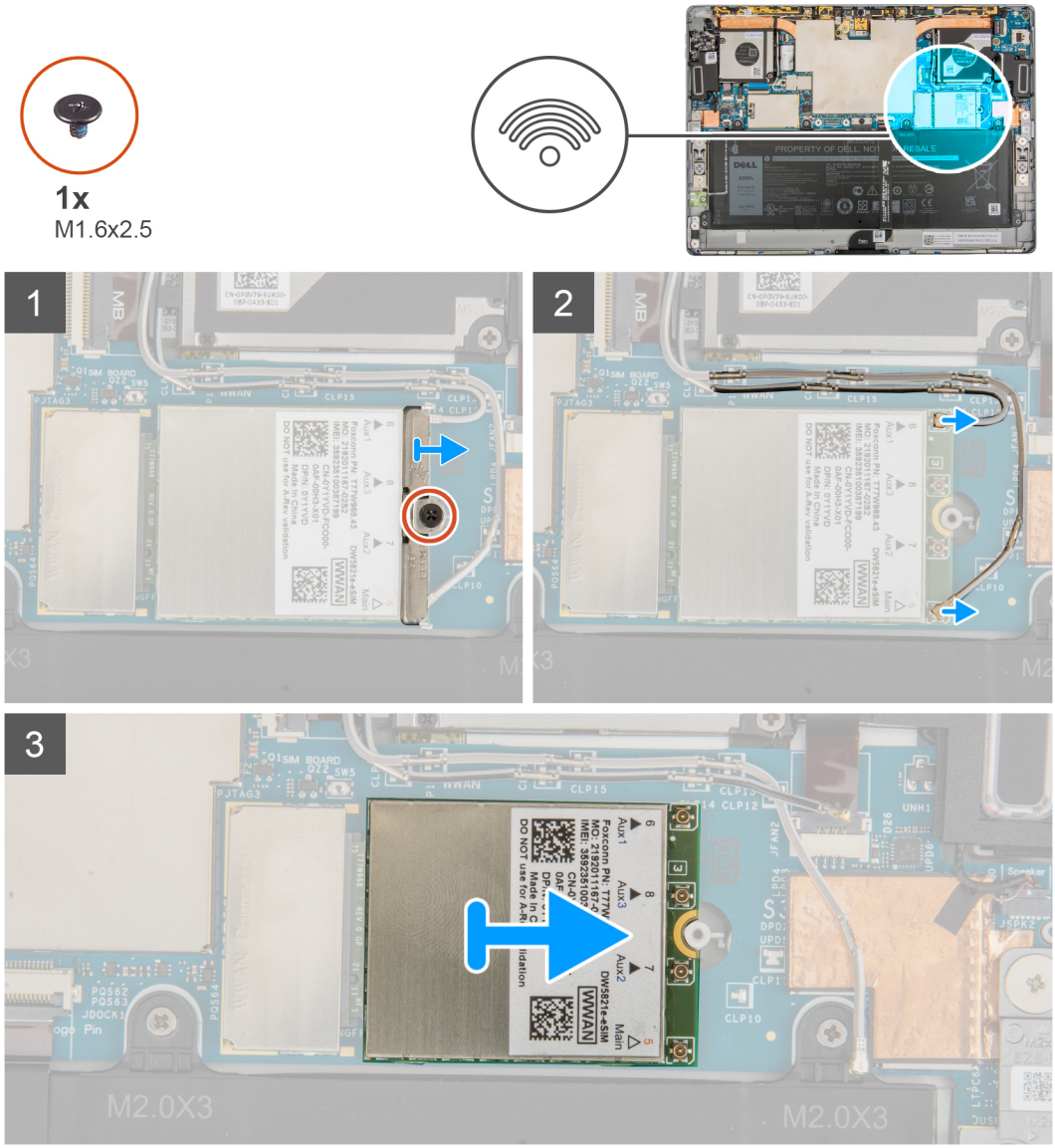
Removing the WWAN card

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray.
3. Remove the display assembly.

About this task

The following image indicates the location of the WWAN card and provide a visual representation of the removal procedure.



Steps

1. Loosen the single captive screw that secures the WWAN card bracket to the WWAN card.
2. Slide and remove the WWAN card bracket off the WWAN card.
3. Disconnect the antenna cables from the WWAN card.
4. Slide and remove the WWAN card from the WWAN card slot.

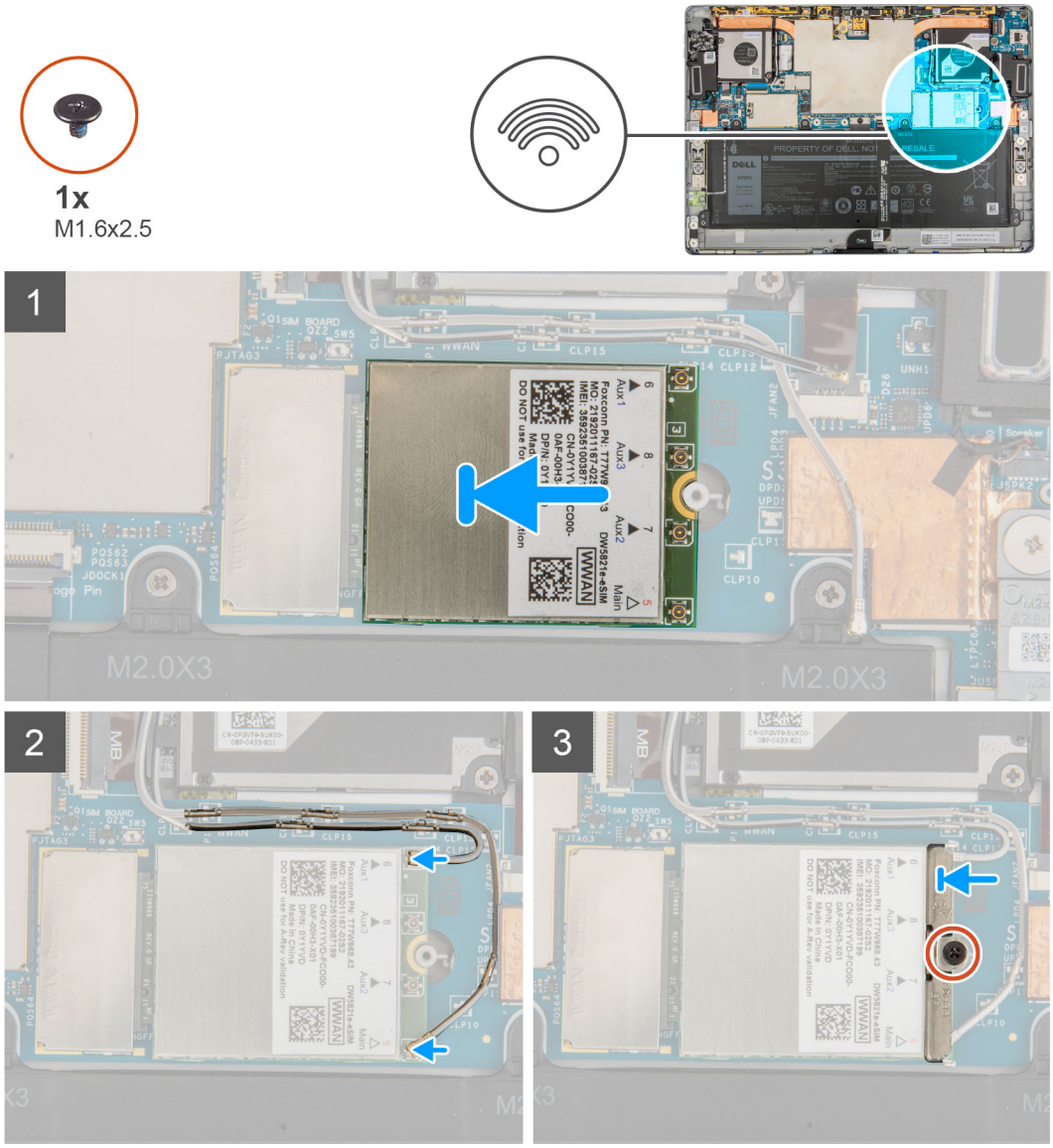
Installing the WWAN card

Prerequisites

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

About this task

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



Steps

1. Align the notch on the WWAN card with the tab on the WWAN slot on the system board.
2. Slide the WWAN card at an angle into the WWAN slot on the system board.
3. Connect the antenna cables to the WWAN card.
   The following table provides the antenna-cable color scheme:

Table 2. Antenna-cable color scheme

Connectors on the WWAN card	Antenna-cable color
Main (white triangle)	White

Table 2. Antenna-cable color scheme (continued)

Connectors on the WWAN card	Antenna-cable color
Auxiliary (black triangle)	Black

4. Place the WWAN card bracket on the antenna connectors of the WWAN card.
5. Tighten the single captive screw to secure the WWAN bracket to the WWAN card.

NOTE: For instructions on how to find your computer's IMEI (International Mobile Station Equipment Identity) number, see the knowledge base article 000143678 at Dell Support Site.

Next steps

1. Install the display assembly.
2. Install the SIM tray.
3. Follow the procedure in After working inside your computer.

Speakers

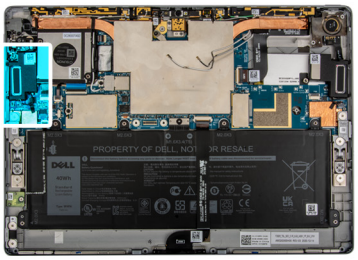
Removing the left speaker

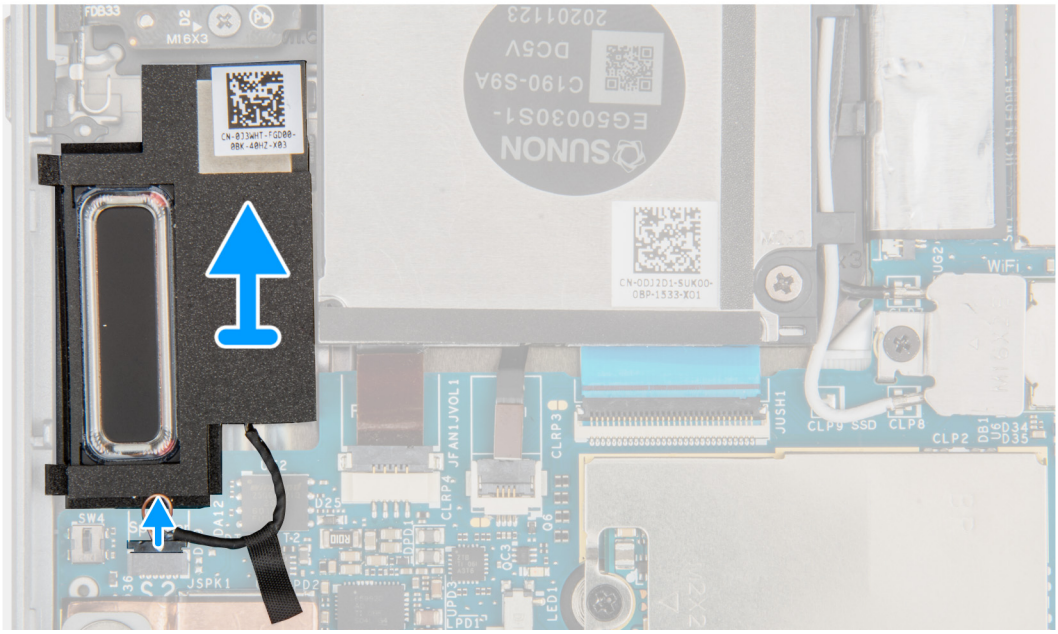
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray.
3. Remove the display assembly.

About this task

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





Steps

1. Disconnect the speaker cable from the connector on system board.
2. Lift the speakers along with the cable off the system board.

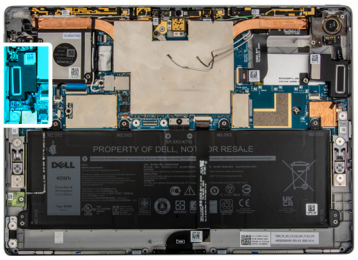
Installing the left speaker

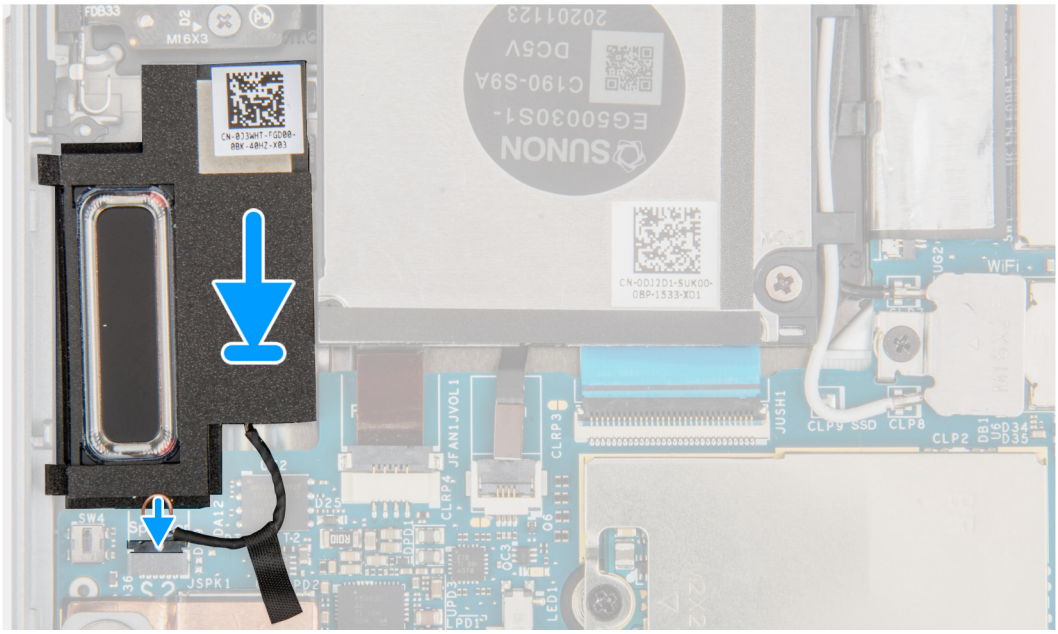
Prerequisites

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

About this task

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





]

Steps

1. Align and place the speakers in its slot on the system board.
2. Reconnect the left speaker cable to the connector on the system board.

Next steps

1. Install the display assembly.
2. Install the SIM tray.
3. Follow the procedure in After working inside your computer.

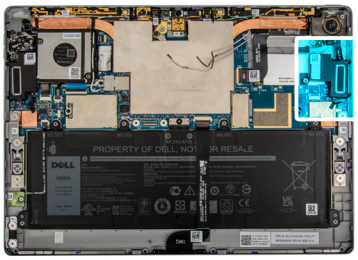
Removing the right speaker

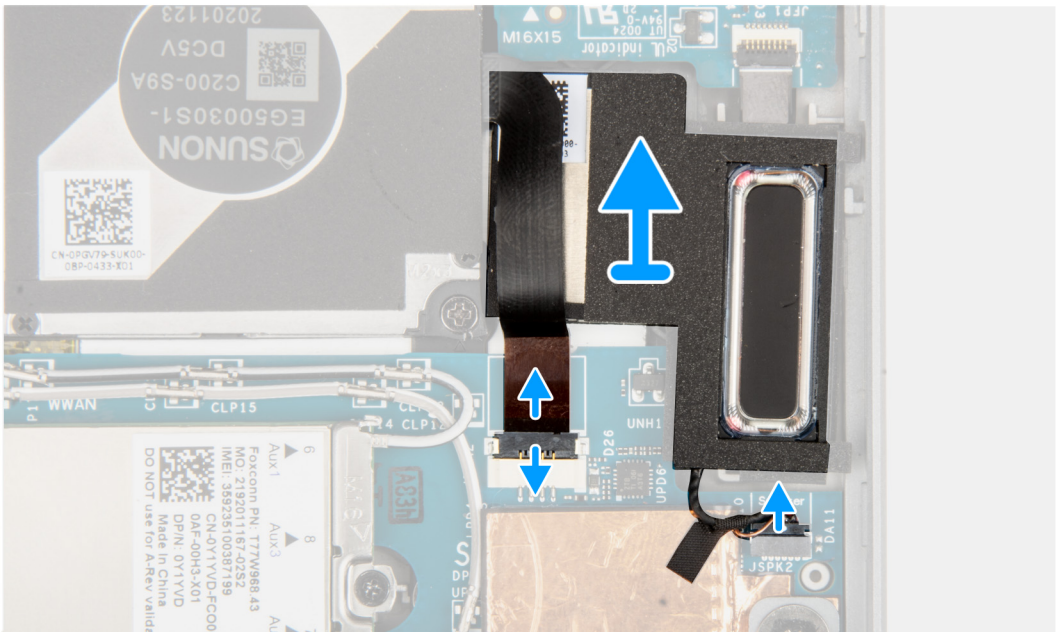
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray.
3. Remove the display assembly.

About this task

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





Steps

1. Disconnect the right fan FPC and speaker cable from the connector on system board.
2. Lift the speakers along with the cable off the system board.

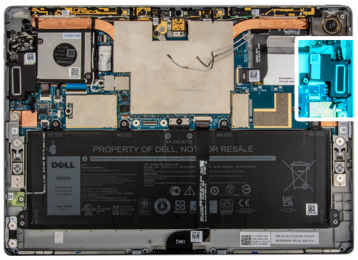
Installing the right speaker

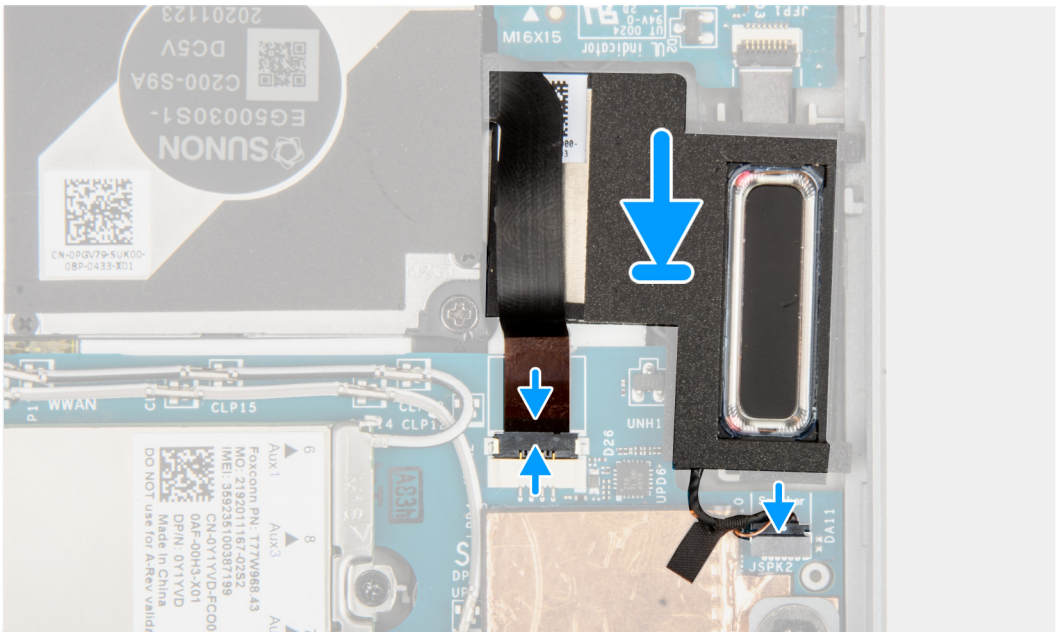
Prerequisites

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

About this task

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





]

Steps

1. Align and place the speaker in its slot on the system board.
2. Reconnect the fan FPC and left speaker cable to the connector on the system board.

Next steps

1. Install the display assembly.
2. Install the SIM tray.
3. Follow the procedure in After working inside your computer.

Rear Camera

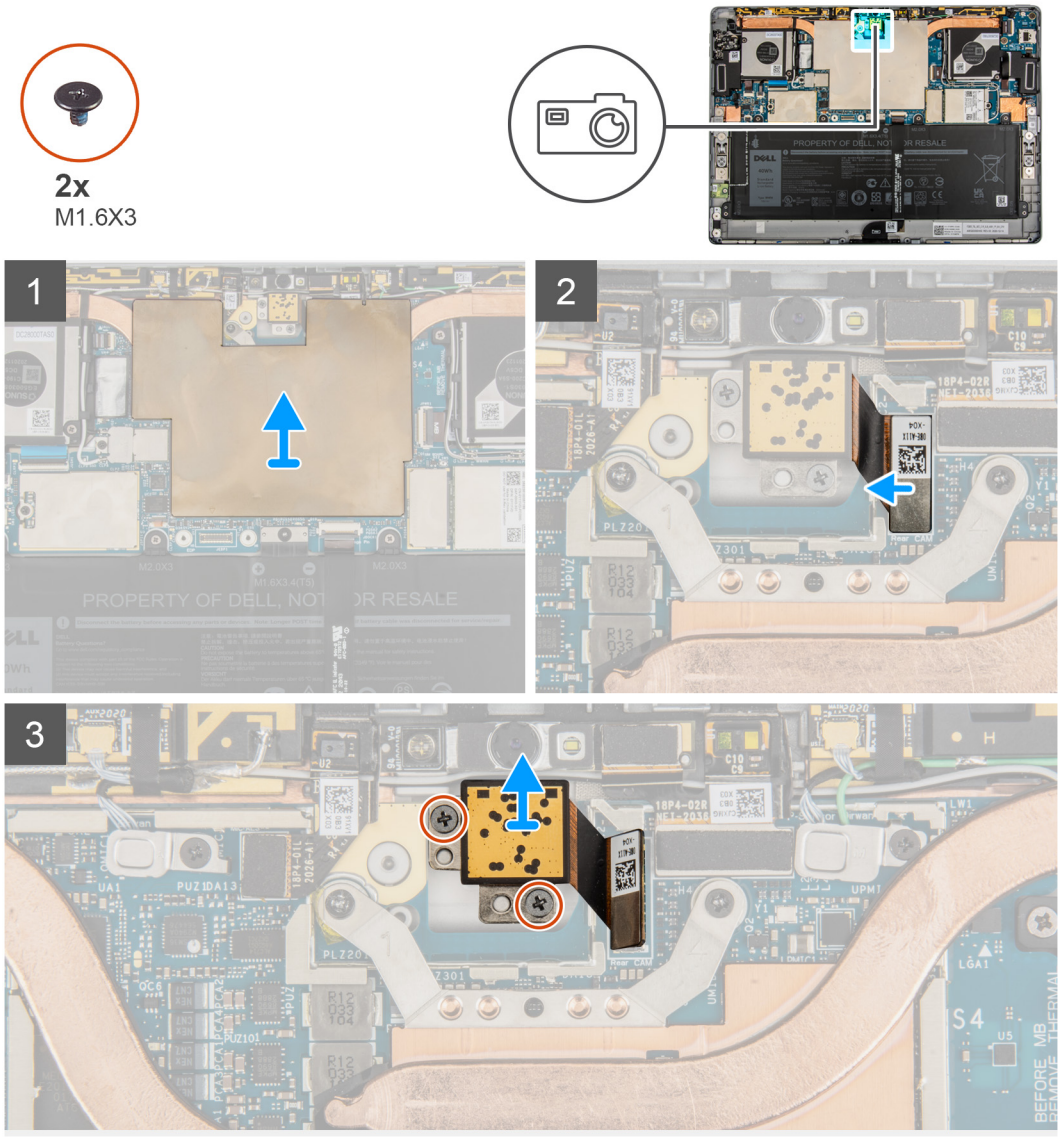
Removing the rear-facing camera

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray
3. Remove the display assembly.

About this task

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



Steps

1. Lift the system board shield off the system board.
2. Disconnect the rear-facing camera FPC from the connector on the system board.
3. Remove the two (M1.6x3) screws that secure the rear-facing camera in place.
4. Lift the rear-facing camera out of the system.

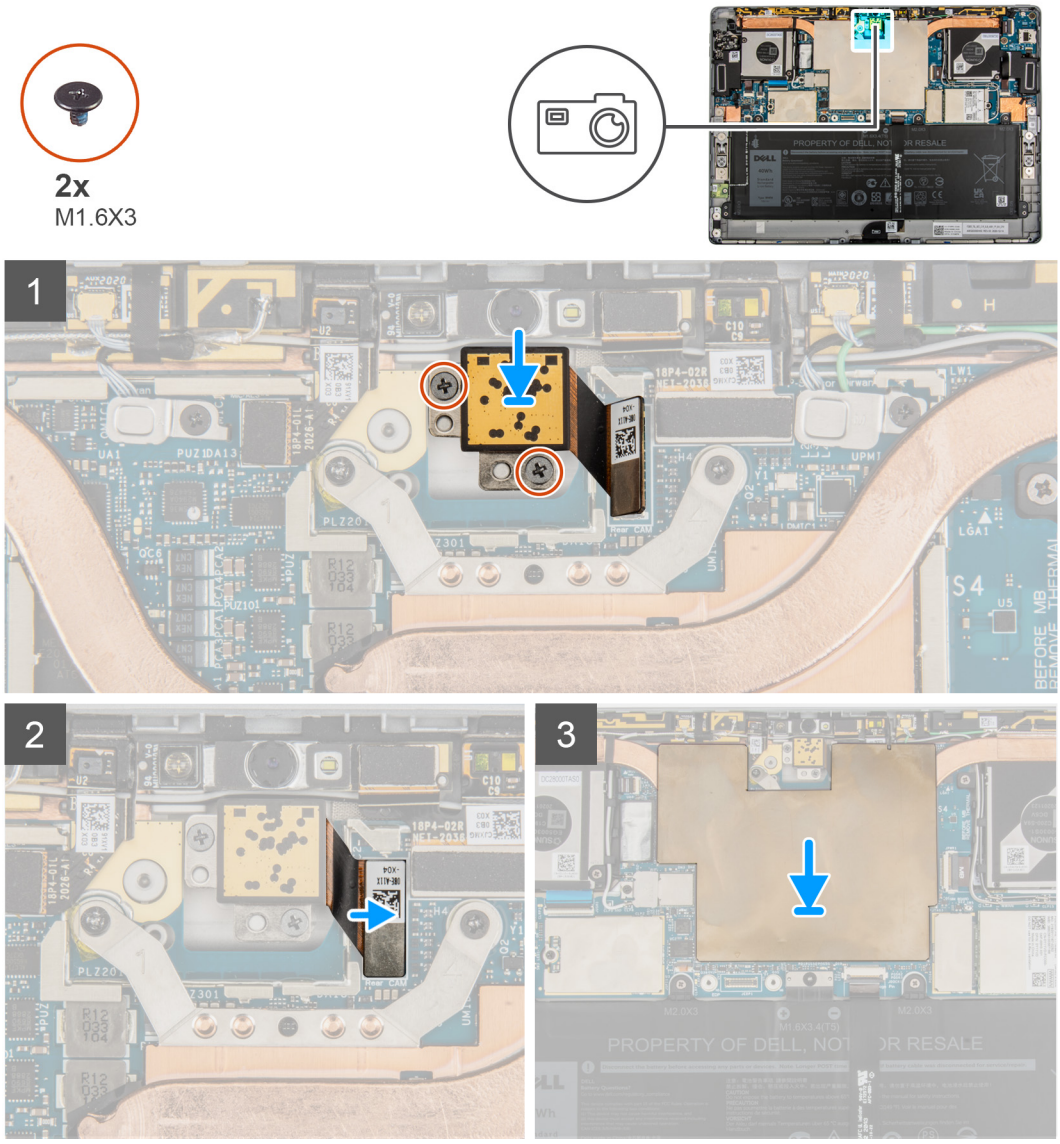
Installing the rear-facing camera

Prerequisites

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

About this task

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



Steps

1. Align and place the rear-facing camera into the slot on the display back cover.
2. Replace the two (M1.6x3) that secure the rear-facing camera to the display back cover.
3. Connect the rear-facing camera FPC to the connector on the system board.
4. Place the system board shield on the system board and gently press until it snaps it into place.

Next steps

1. Install the display assembly.
2. Install the SIM tray.
3. Follow the procedure in After working inside your computer.

Microphone module

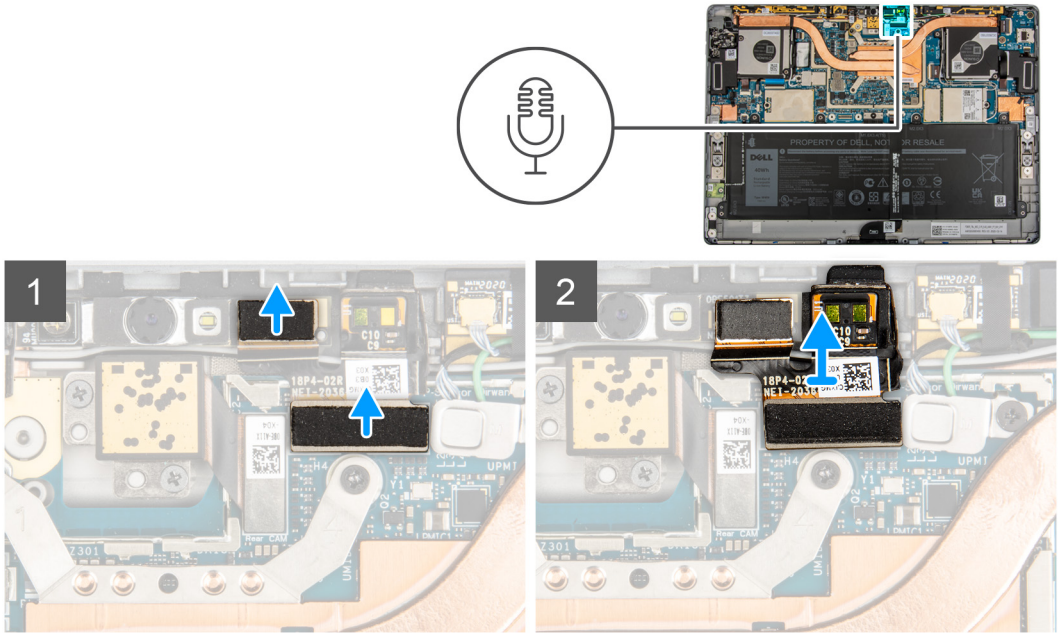
Removing the right microphone modules

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray
3. Remove the display assembly.

About this task

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



Steps

1. Lift the system board shield off the system board.
2. Disconnect the right microphone module from the front-facing camera module.
3. Disconnect the right microphone module FPC from the system board..
4. Lift the right microphone module out of the system.

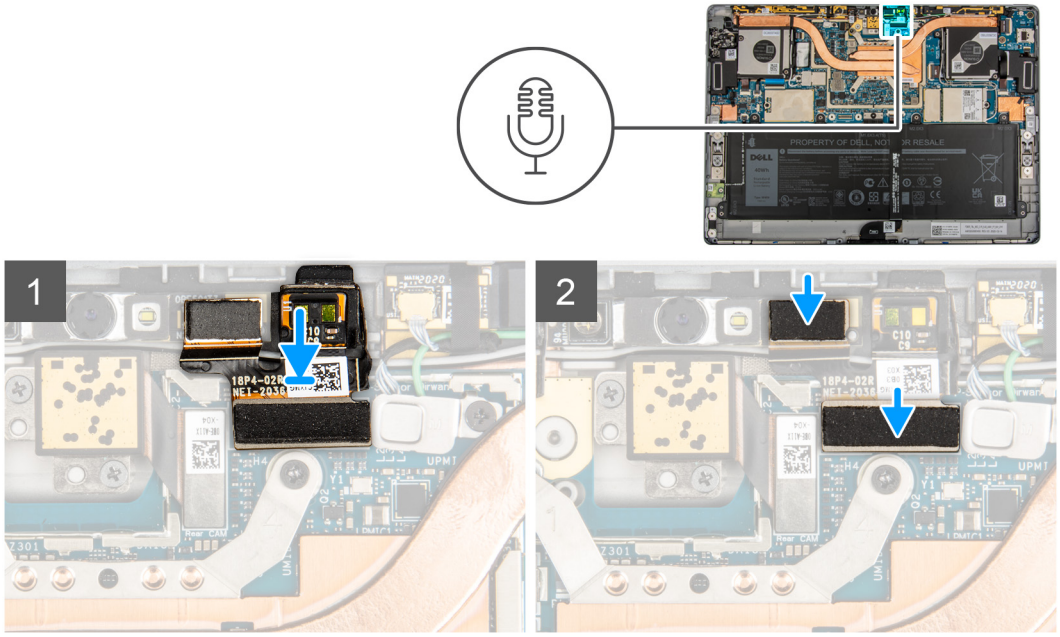
Installing the right microphone module

Prerequisites

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

About this task

The following image indicates the location of the right microphone module and provides a visual representation of the installation procedure.



Steps

1. Align and place the right microphone into the slot on the display back cover.
2. Connect the right microphone module to the front-facing camera module.

   NOTE: The right microphone module must be connected to both the front-facing camera and system board. Failure to make both of these connections will result in the front-facing camera not working..

3. Connect the right microphone module FPC to the connector on the system board.
4. Place the system board shield on the system board and gently press until it snaps it into place.

Next steps

1. Install the display assembly.
2. Install the SIM tray.
3. Follow the procedure in After working inside your computer.

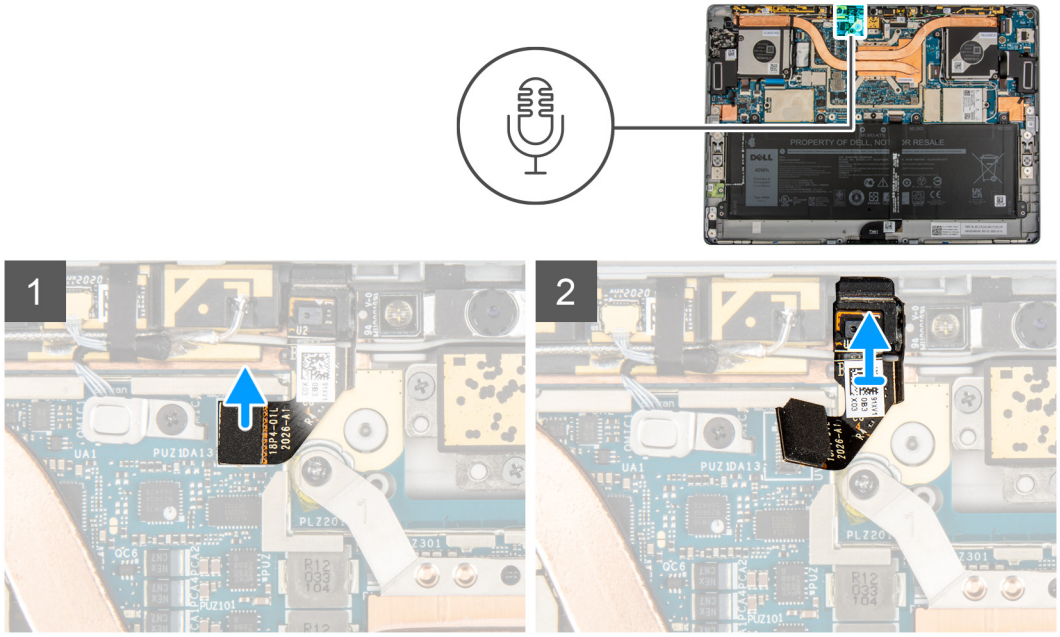
Removing the left microphone module

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray
3. Remove the display assembly.

About this task

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



Steps

1. Disconnect the left microphone module FPC from the system board..
2. Lift the left microphone module out of the system.

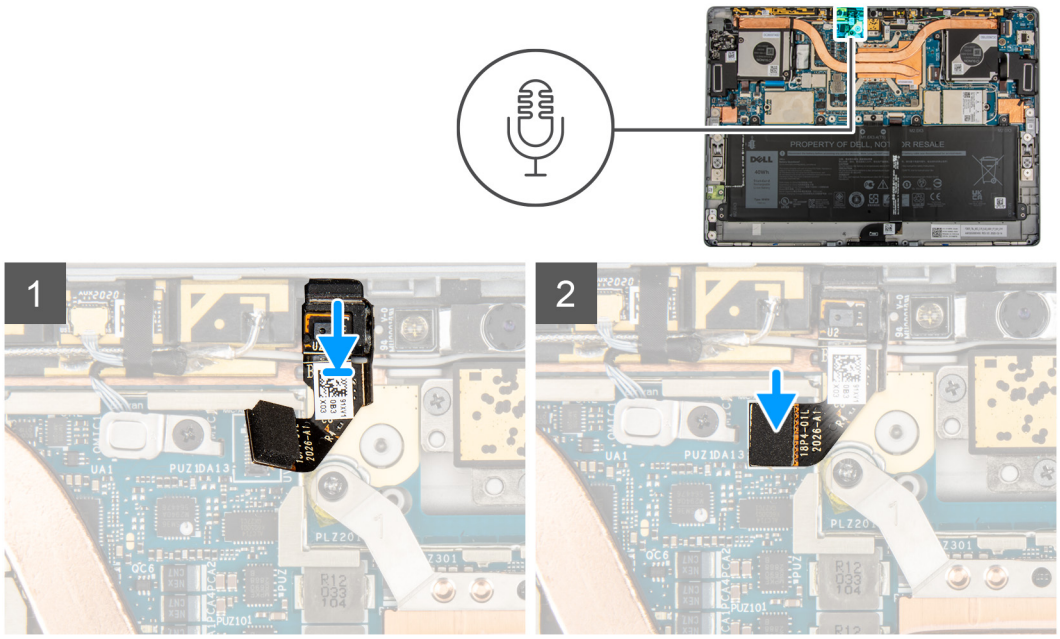
Installing the left microphone module

Prerequisites

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

About this task

The following image indicates the location of the left microphone module and provides a visual representation of the installation procedure.



Steps

1. Align and place the left microphone into the slot on the display back cover.
2. Connect the left microphone module FPC to the connector on the system board.

Next steps

1. Install the display assembly.
2. Install the SIM tray.
3. Follow the procedure in After working inside your computer.

Front Camera

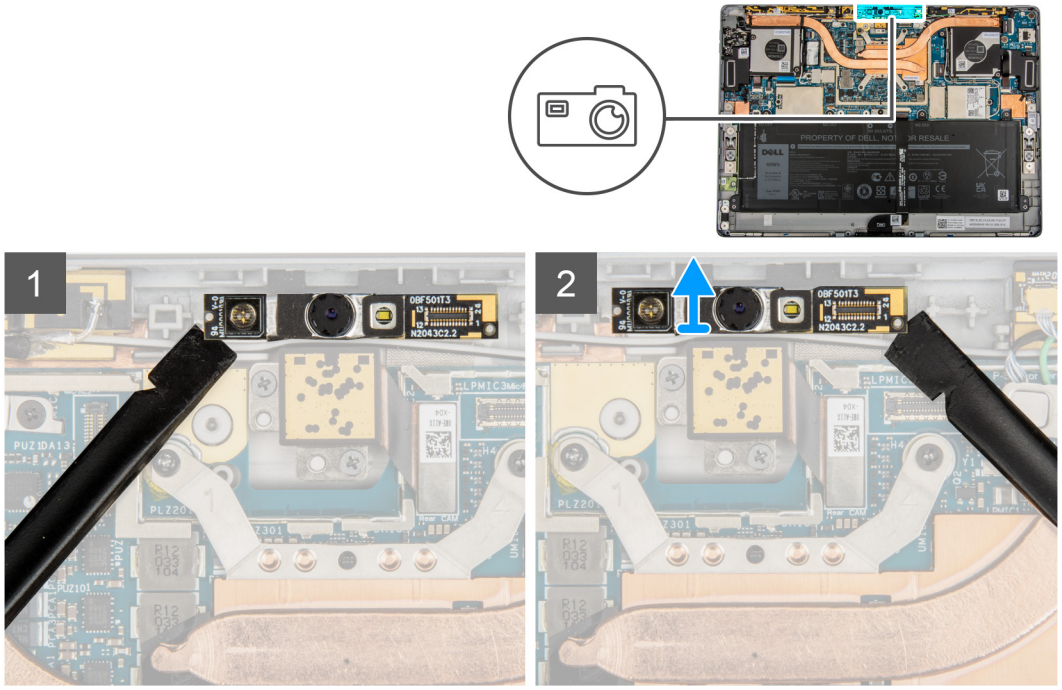
Removing the front-facing camera

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray
3. Remove the display assembly.
4. Remove the microphone modules.

About this task

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



Steps

1. Using a plastic scribe, gently pry off the left and right side of the front-facing module.
2. Lift the front-facing camera out of the system.

NOTE: If the thermal pad located under the front-facing camera gets detached from the back cover, re-adhere it to the back cover.

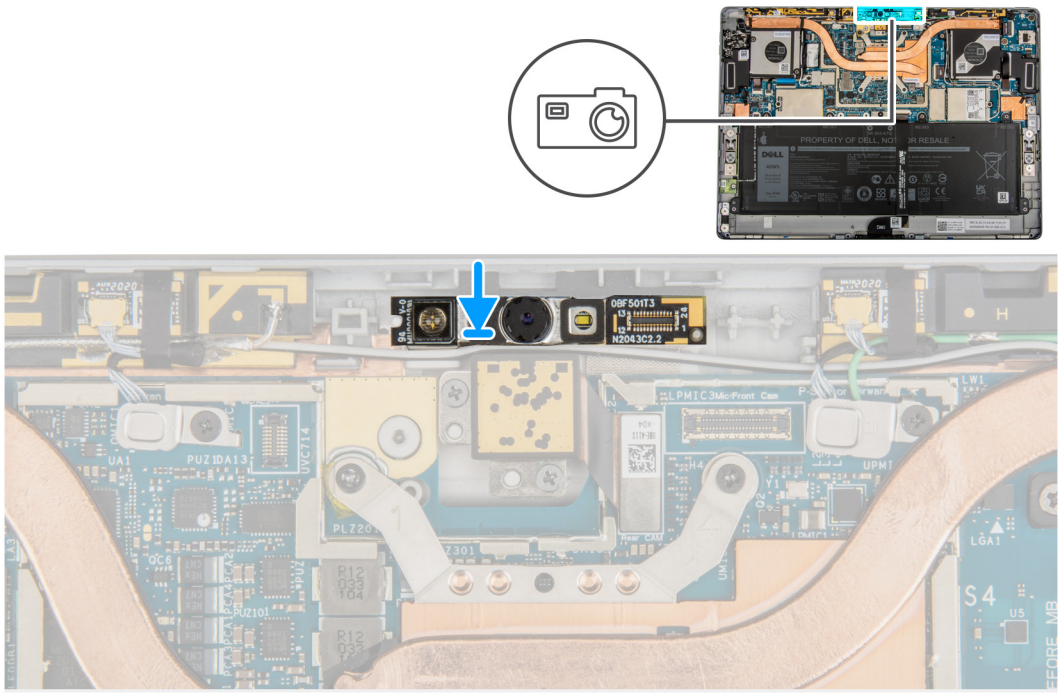
Installing the front-facing camera

Prerequisites

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

About this task

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



Steps

1. Align and place the front-facing camera into the slot on the display back cover.
2. Gently press the edges of the front-facing camera and seat it in place

Next steps

1. Install the microphone modules.
2. Install the display assembly.
3. Install the SIM tray.
4. Follow the procedure in After working inside your computer.

Kick stand

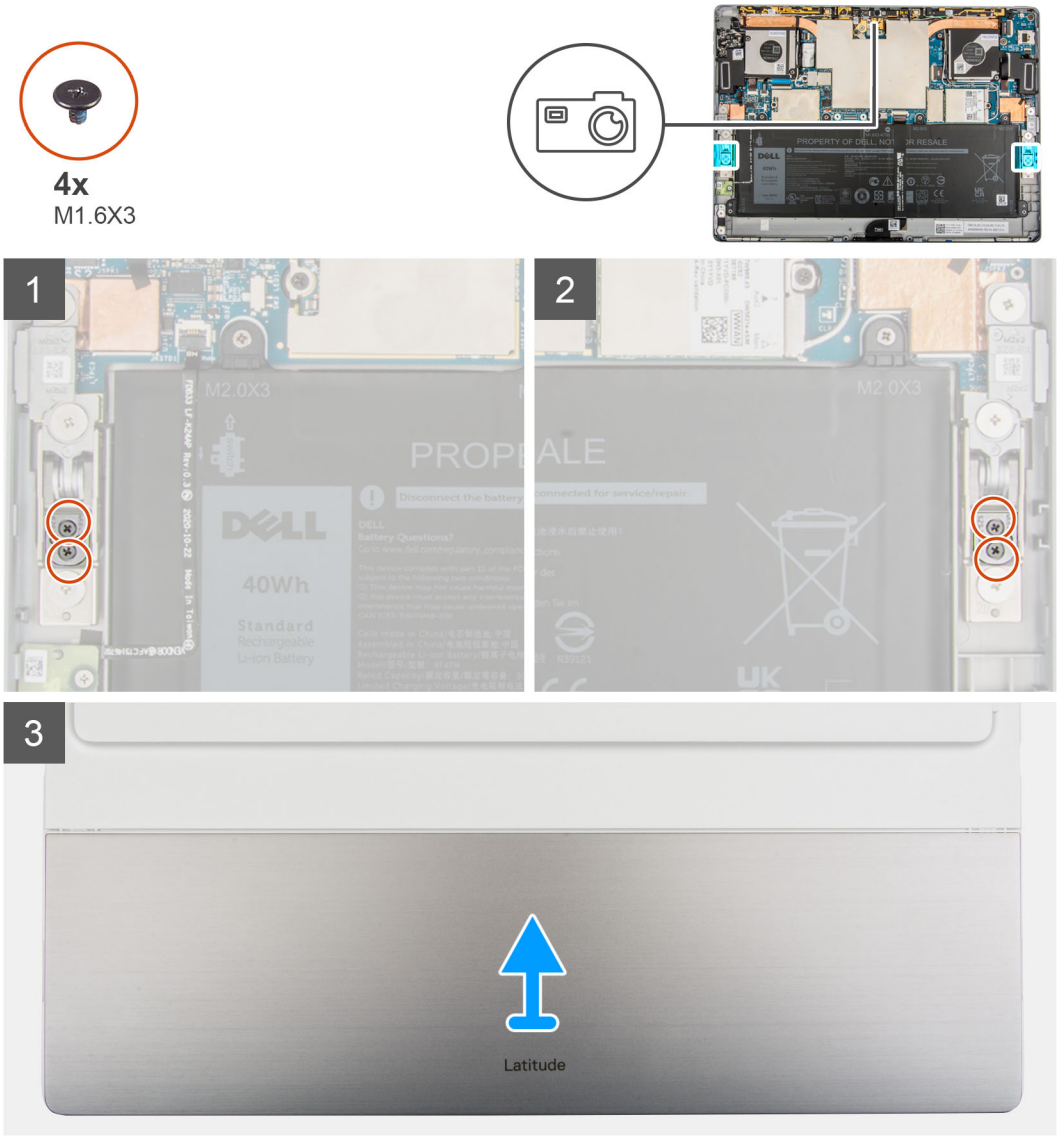
Removing the Kick stand

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray.
3. Remove the display assembly.

About this task

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



Steps

1. Remove the four (M1.6x3) screws that secure the kick stand to the kick stand hinges.
2. Flip the system over and lift the kick stand away from the system.

Installing the kick stand

Prerequisites

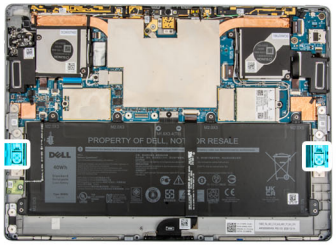
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

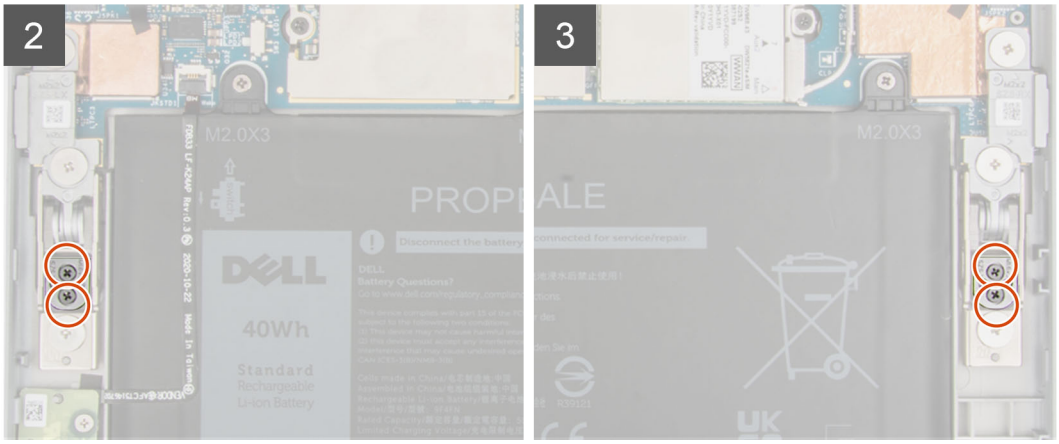
The following images indicate the location of the kick stand and provide a visual representation of the installation procedure.



4x
M1.6X3







Steps

1. Align the screw holes on the kick stand with the screw holes on the frame, and flip the system.

   NOTE: Ensure that the pins on the kick stand are inserted into the alignment holes on the kick stand hinges.

2. Replace the four (M1.6x3) screws that secure the kick stand to the kick stand hinges.

Next steps

1. Install the display assembly.
2. Install the SIM tray.
3. Follow the procedure in After working inside your computer.

Kickstand Hinges

Removing the kick stand hinges

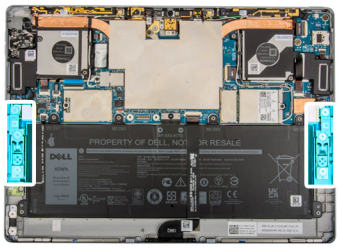
Prerequisites

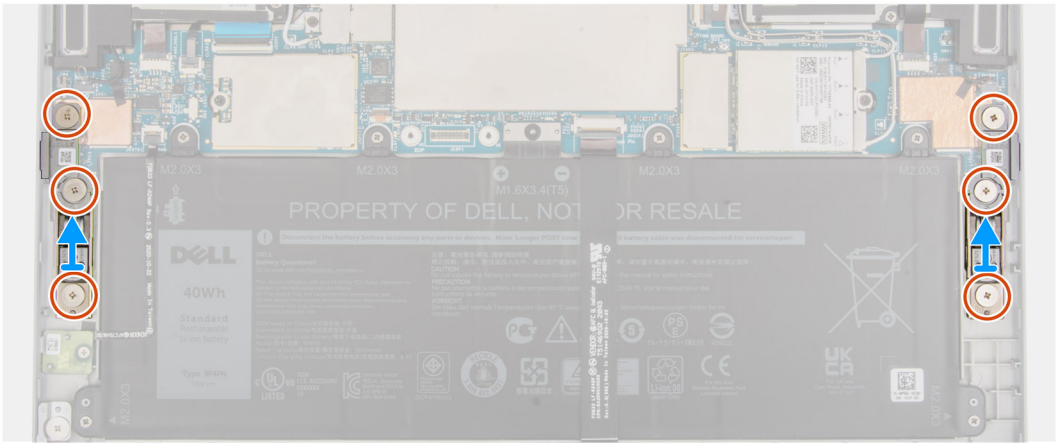
1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray.
3. Remove the display assembly.
4. Remove the kick stand.

About this task

The following images indicate the location of the kick stand hinges and provide a visual representation of the removal procedure.







Steps

1. Remove the six (M2x2) screws that secure the kick stand hinges to the frame .
2. Lift the kick stand hinges out of the computer.

Installing the kick stand hinges

Prerequisites

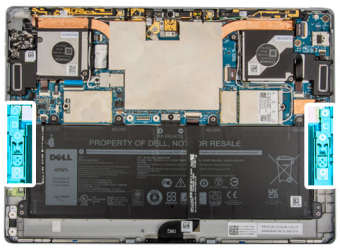
If you are replacing a component, remove the existing component before performing the installation procedure.

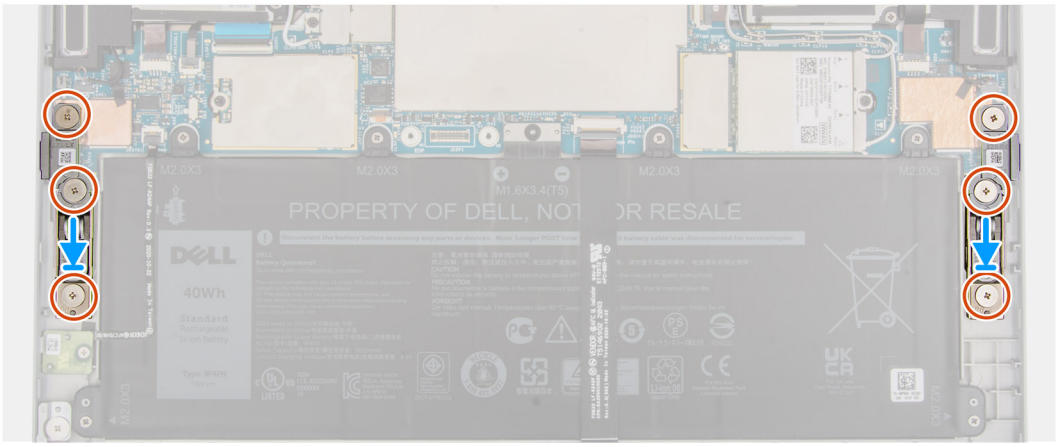
About this task

The following images indicate the location of the kick stand hinges and provide a visual representation of the installation procedure.



6x
M2X2





Steps

1. Align the screw holes on the kick stand hinges with the screw holes on the frame.
2. Replace the six (M2x2) screws that secure the Kick stand hinges to the frame.

Next steps

1. Install the kick stand.
2. Install the display assembly.
3. Install the SIM card.
4. Follow the procedure in After working inside your computer.

Docking connector

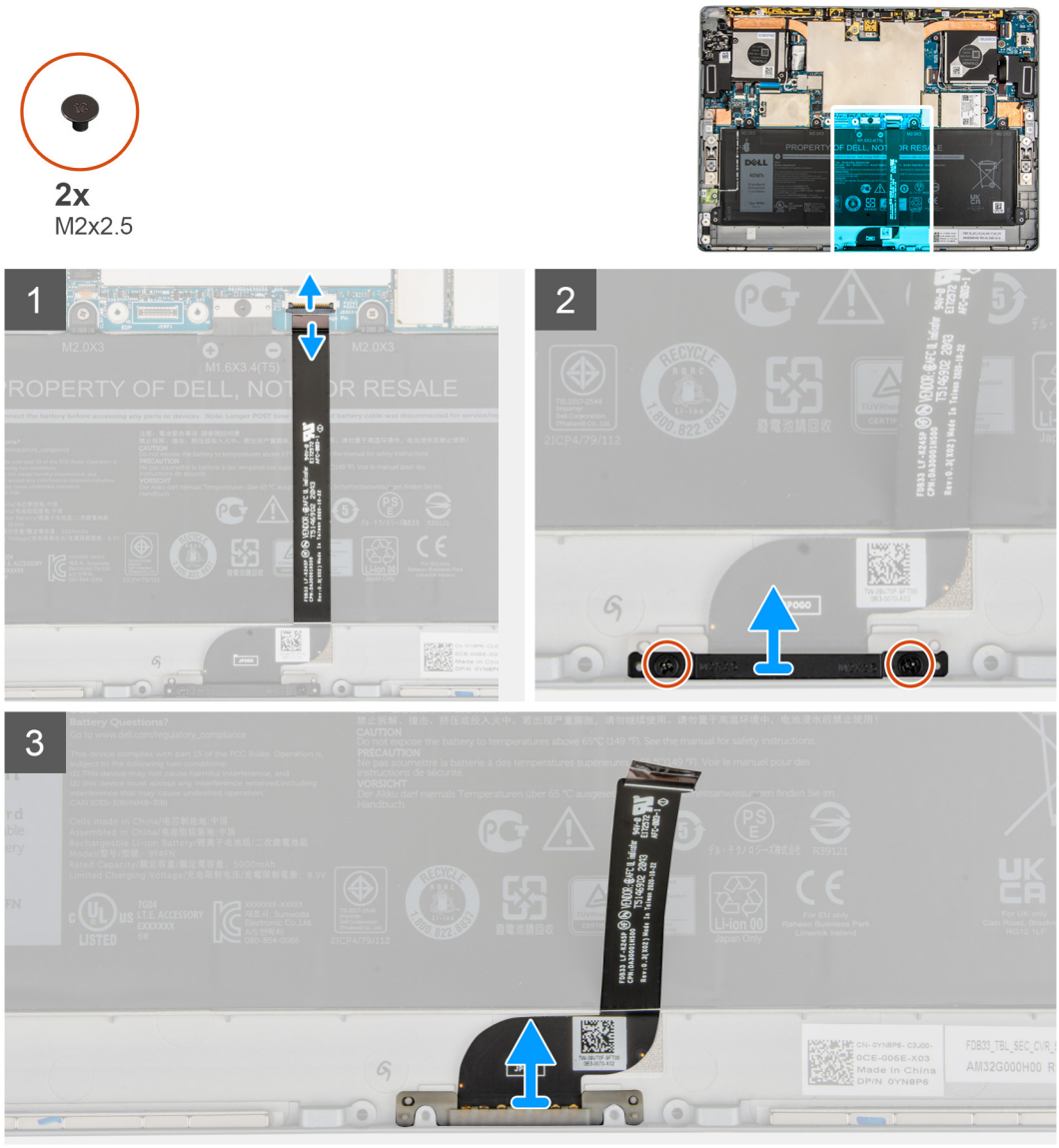
Removing the docking connector

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray.
3. Remove the display assembly.

About this task

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



Steps

1. Open the latch and disconnect the docking connector FPC from the connector on the system board.
2. Peel the docking connector from the battery.
3. Remove the two (M2x2) screws that secure the docking connector bracket to the frame.
4. Lift the docking connector bracket and slide the docking connector out of the computer.

Installing the docking connector

Prerequisites

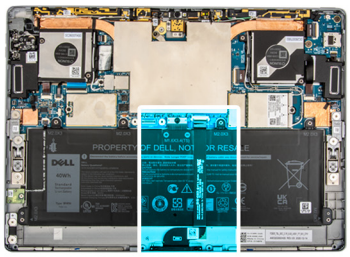
If you are replacing a component, remove the existing component before performing the installation procedure.

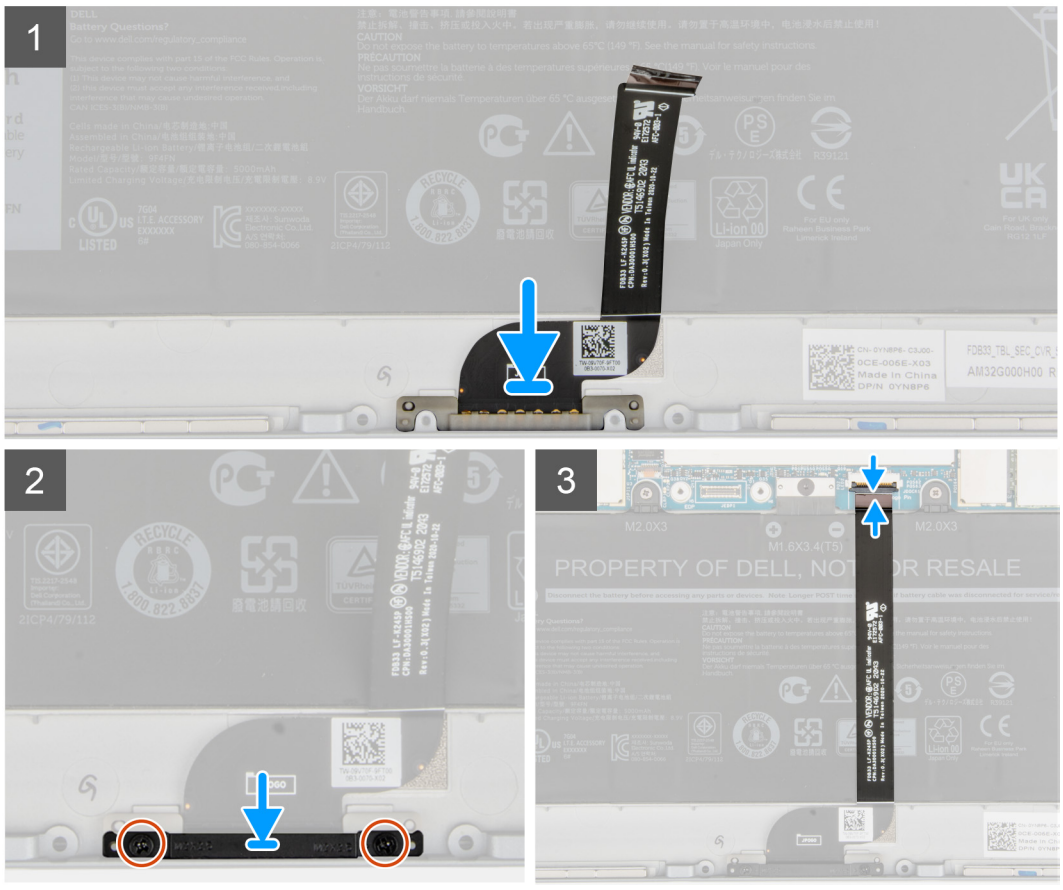
About this task

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



2x
M2x2.5





Steps

1. Align and place docking connector into slot on the frame.
2. Align and place the docking connector bracket on the docking connector.
3. Replace the two (M2x2) screws to secure the docking connector bracket to the frame.
4. Affix the docking connector FPC to the battery.
5. Connect the docking connector FPC to the connector on the system board and close the latch.

Next steps

1. Install the display assembly.
2. Install the SIM tray.
3. Follow the procedure in After working inside your computer.

Hall sensor daughter board

Removing the Hall sensor daughter board

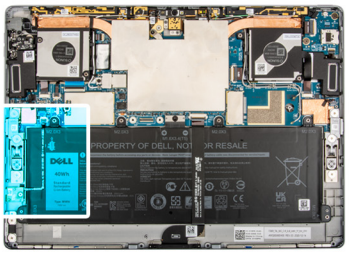
Prerequisites

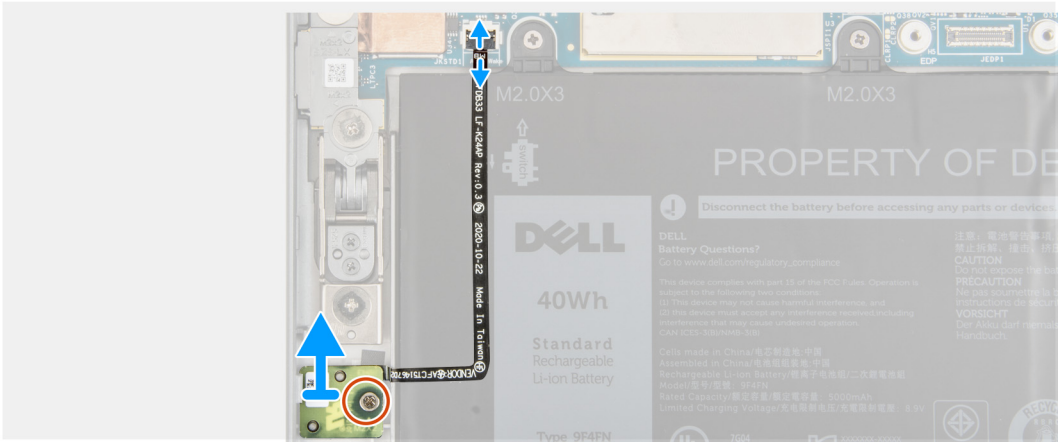
1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray.
3. Remove the display assembly.

About this task

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







Steps

1. Disconnect the Hall sensor daughter board FPC from the connector on the system board.
2. Gently peel back the Hall sensor daughter board FPC from the battery .
3. Remove the single (M2x2) screw that secures the Hall sensor daughter board to the frame.
4. Lift the Hall sensor daughter board out of the computer.

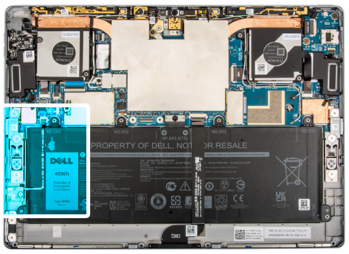
Installing the Hall sensor daughter board

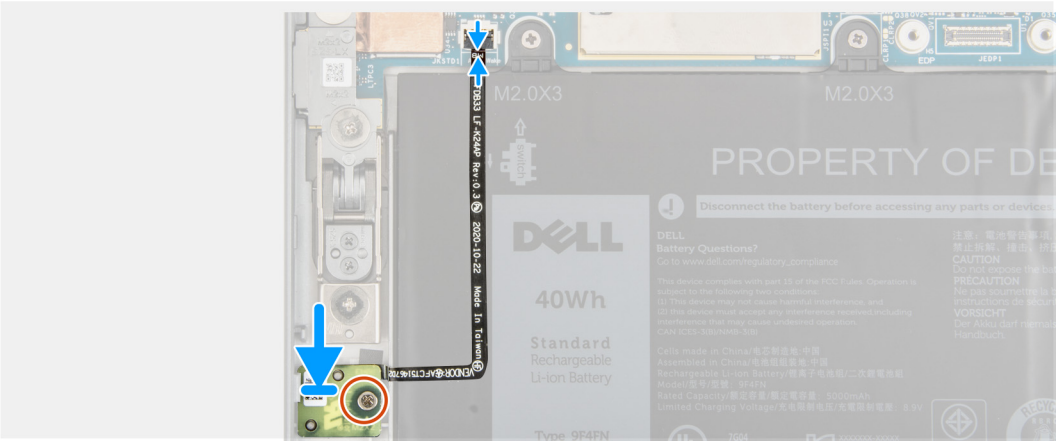
About this task

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



1x
M2x2





Steps

1. Align and place the Hall sensor daughter board into the slot on the frame.
2. Replace the single (M2x2) that secures the Hall sensor daughter board to the frame.
3. Affix the Hall sensor daughter board FPC to the battery.
4. Connect the Hall sensor daughter board FPC to the connector on the system board and close the latch.

Next steps

1. Install the display assembly.
2. Install the SIM tray.
3. Follow the procedure in After working inside your computer.

Heat sink

Removing the heat sink

Prerequisites

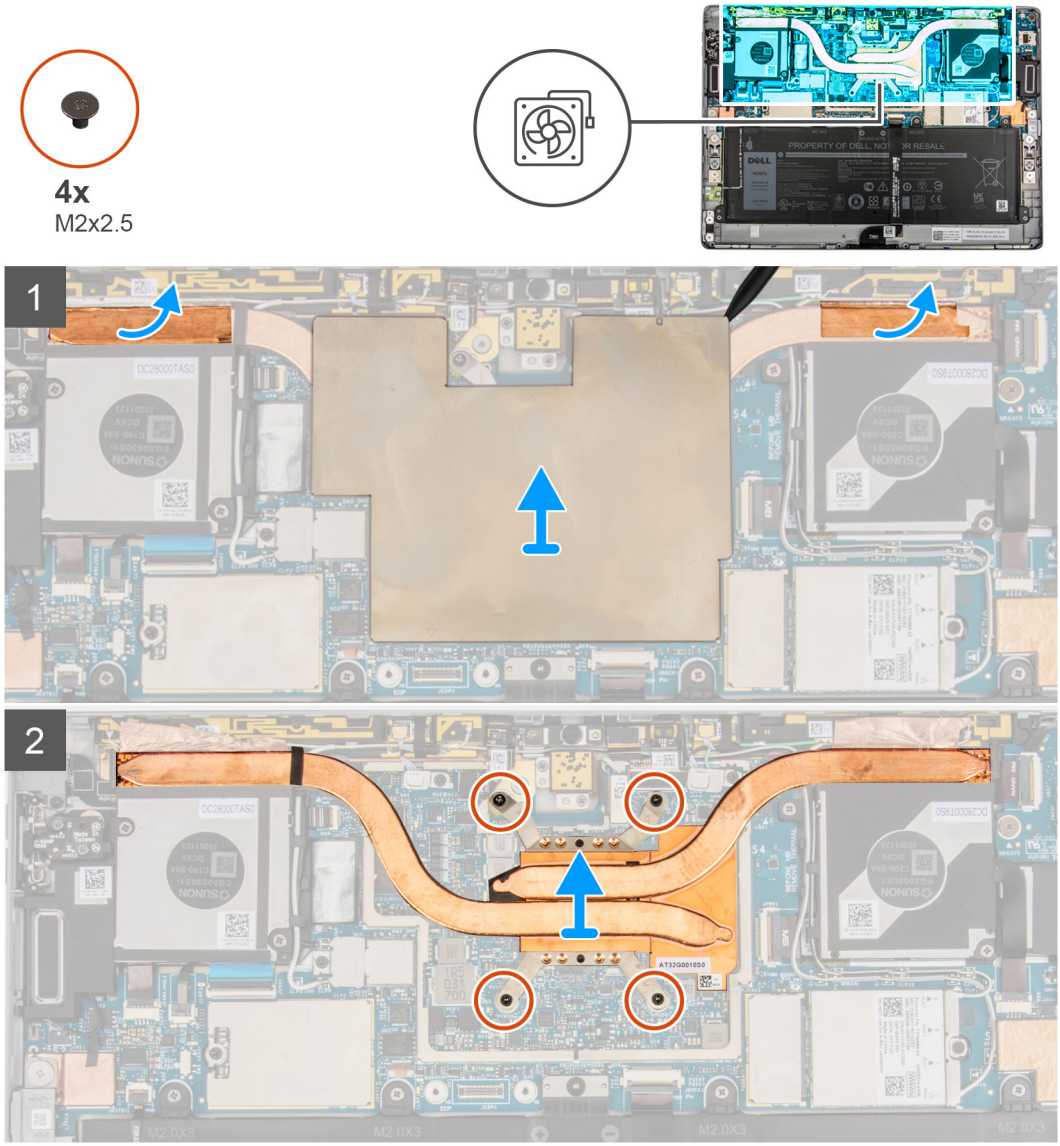
1. Follow the procedure in before working inside your computer.

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

2. Remove the SIM card.
3. Remove the display assembly.

About this task

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



Steps

1. Lift the system board shielding cover from the system board.
2. Peel back the WLAN antenna grounding foil and WWAN antenna grounding foil from the heat sink..
3. Loosen the four captive screws that secure the heat sink as per their callout .
4. Lift the heat sink out of the system.

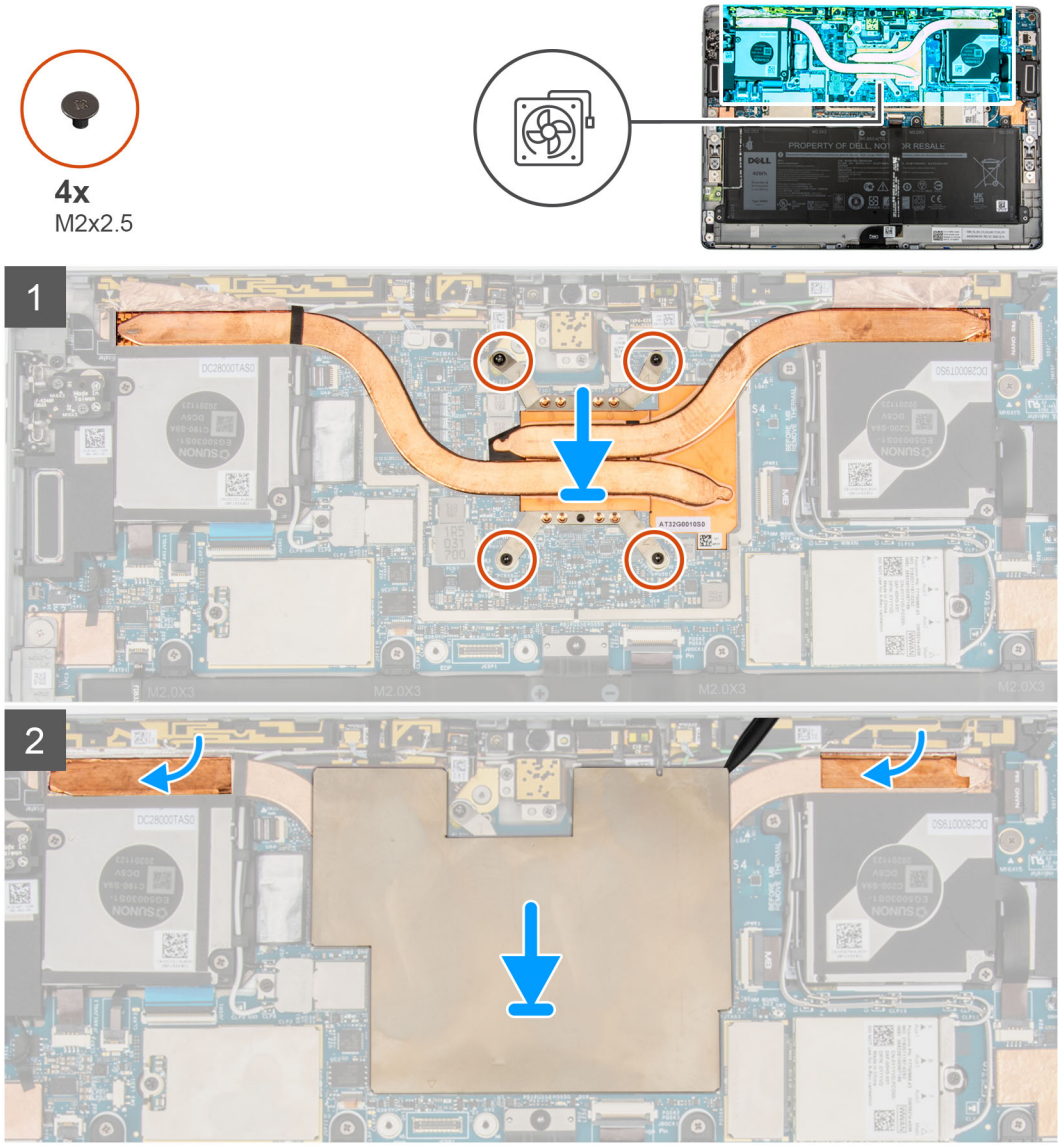
Installing the heat sink

Prerequisites

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

About this task

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



Steps

1. Align the screw holes on the heat sink with the screw holes on the system board.
2. Tighten the four captive screws that secure the heat sink to the system board as per their callout.
3. Affix the WLAN antenna grounding foil and WWAN antenna grounding foil to the heat sink.
4. Place the system board shielding cover on the system board and gently press until it snaps it into place.

Next steps

1. Install the display assembly.
2. Install the SIM card.
3. Follow the procedure in After working inside your computer.

System fan

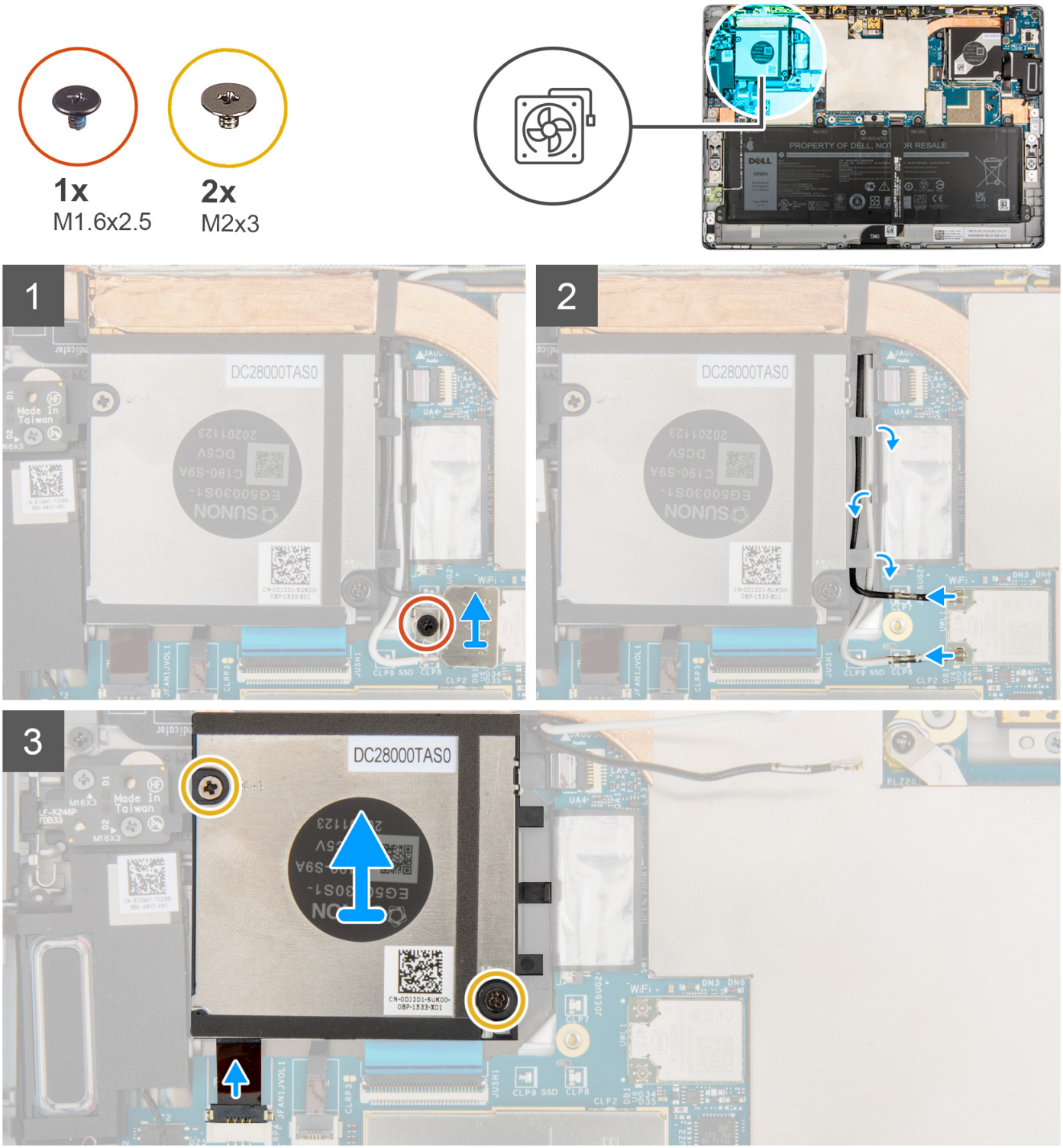
Removing the left fan

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray.
3. Remove the display assembly.

About this task

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



Steps

1. Loosen the single captive screw that secures the WLAN bracket to the system board.
2. Lift the WLAN bracket out of the computer.
3. Disconnect and unroute the WLAN antennas from the routing clips on the fan case.
4. Remove the two (M2x3) screws that secure the left system fan to the frame.
5. Disconnect the left system fan FPC from the connector on the system board.
6. Lift the left fan out of the computer.

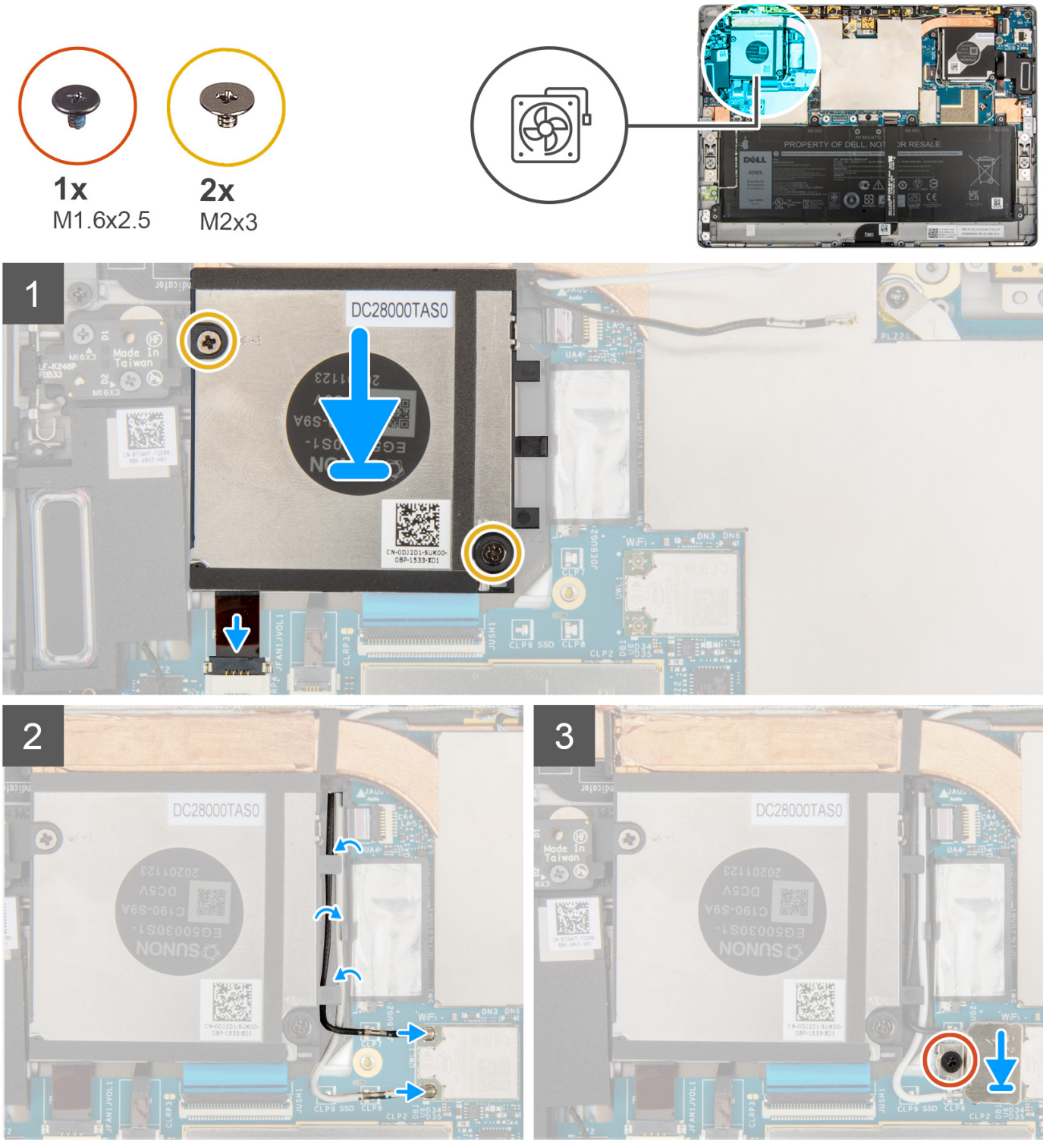
Installing the left fan

Prerequisites

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

About this task

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



Steps

1. Align the screw holes on the left system fan with the screw holes on the frame.
2. Replace the two screws (M2x3) to secure the system fan to the frame.
3. Connect the left system fan FPC to the connector on the system board.
4. Route the WLAN antenna cable through the routing pin on the fan case.
5. Connect the antenna cables to the wireless card.

   The following table provides the antenna-cable color scheme for the wireless card of your computer.

Table 3. Antenna-cable color scheme

Connectors on the wireless card	Antenna-cable color
Main (white triangle)	White
Auxiliary (black triangle)	Black

6. Place the WLAN card bracket on the WLAN card.
7. Tighten the single captive screw that secures the WLAN card bracket to the system board.

Next steps

1. Install the display assembly.
2. Install the SIM tray.
3. Follow the procedure in After working inside your computer.

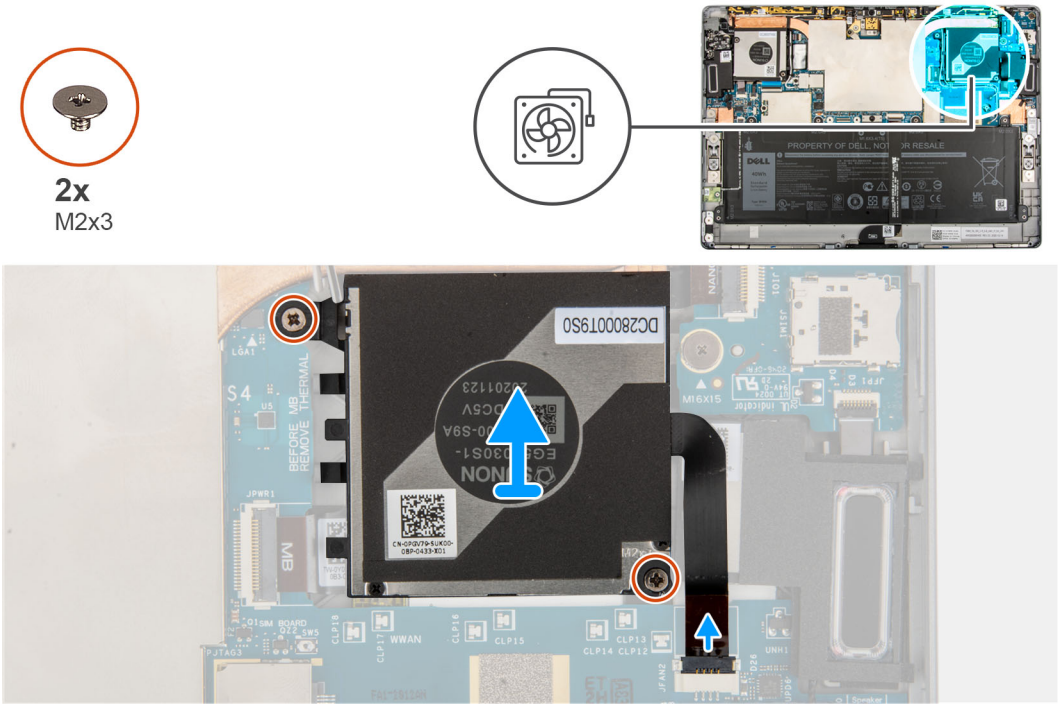
Removing the right system fan

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SIM card.
3. Remove the display assembly.

About this task

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



Steps

1. Remove the two (M2x3) screws that secure the right system fan to the frame.
2. Disconnect the right system fan FPC from the connector on the system board.
3. Lift the right system fan out of the system.

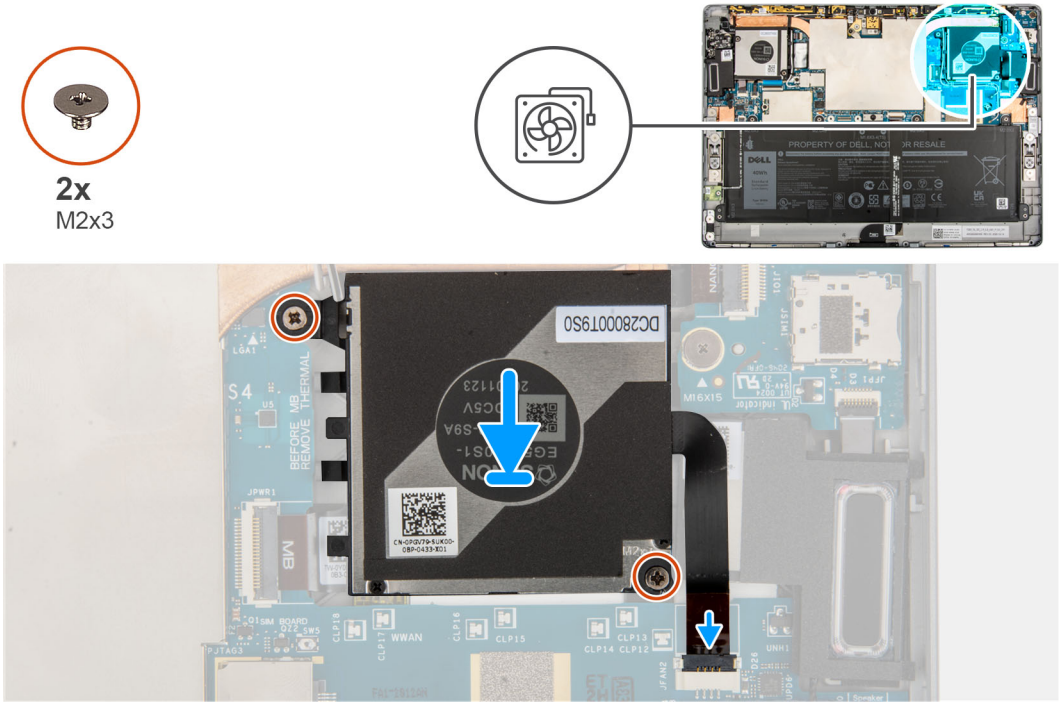
Installing the right fan

Prerequisites

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

About this task

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



Steps

1. Align the screw holes on the right system fan with the screw holes on the frame.
2. Replace the two screws (M2x3) to secure the right system fan to the frame.
3. Connect the right system fan FPC to the connector on the system board.

Next steps

1. Install the display assembly.
2. Install the SIM card.
3. Follow the procedure in After working inside your computer.

Volume button daughter board

Removing the Volume button daughter board

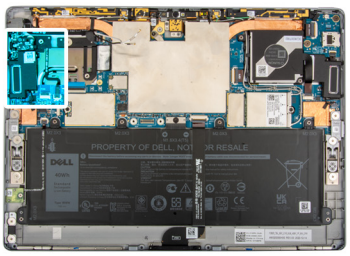
Prerequisites

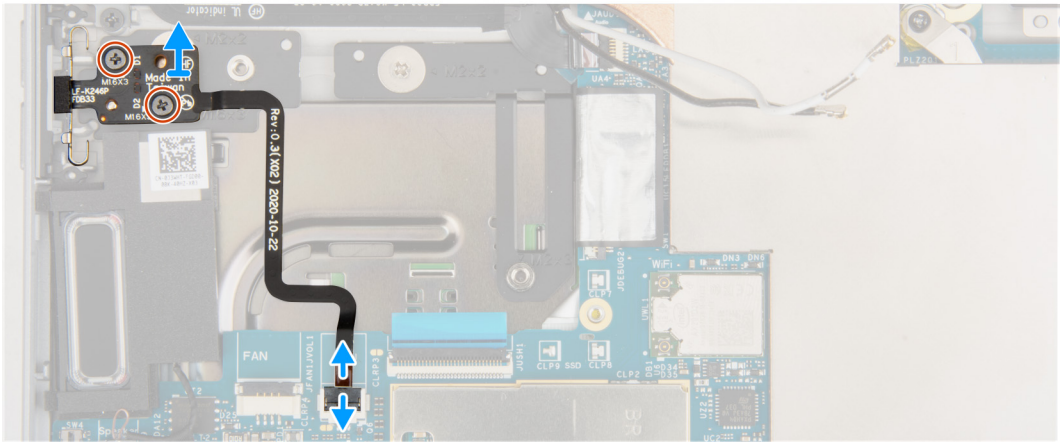
1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray.
3. Remove the display assembly.
4. Remove the left system fan.

About this task

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







Steps

1. Open the latch and disconnect the volume button daughter board FPC from the system board.
2. Remove the two (M1.6x3) screws that secure the volume button daughter board to system board.
3. Lift the volume button daughter board out of the system.

Installing the volume button daughter board

Prerequisites

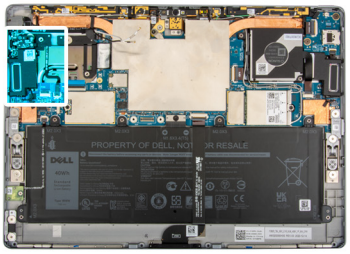
If you are replacing a component, remove the existing component before performing the installation procedure.

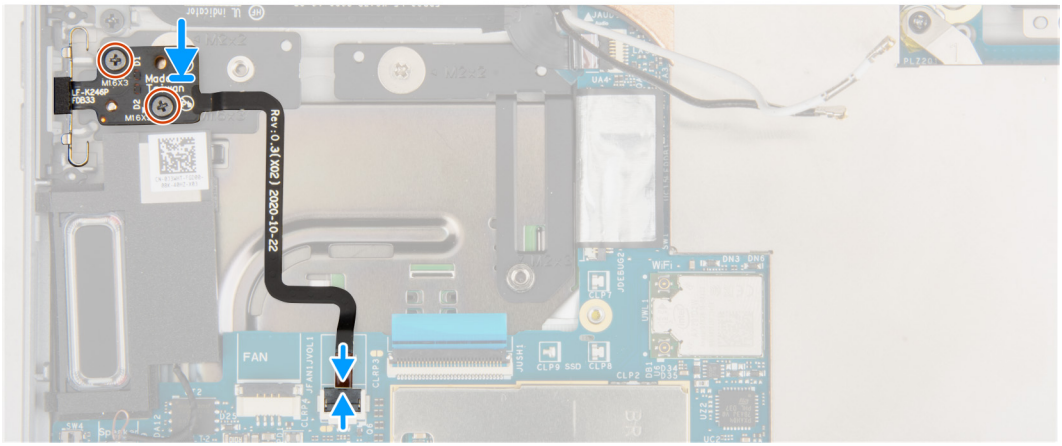
About this task

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



2x
M1.6x3





Steps

1. Align and place the volume button daughter board on the system board.

   NOTE: When installing the volume button daughter board, fully insert the power button module into its compartment, and then press the volume buttons to check whether the daughter board is correctly installed.

2. Replace the two (M1.6x3) screws that secure the volume daughter board to the system board.
3. Connect the volume daughter board FPC to the connector on the system board and close the latch.

Next steps

1. Install the left system fan.
2. Install the display assembly.
3. Install the SIM tray.
4. Follow the procedure in After working inside your computer.

Power-button board

Removing the power-button board

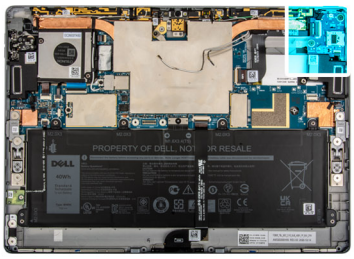
Prerequisites

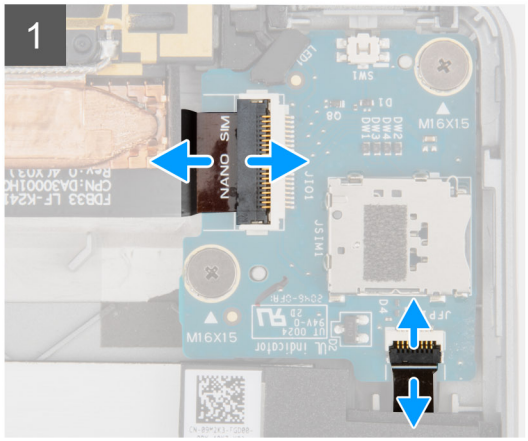
1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray.
3. Remove the display assembly.
4. Remove the WWAN card.
5. Remove the right system fan.

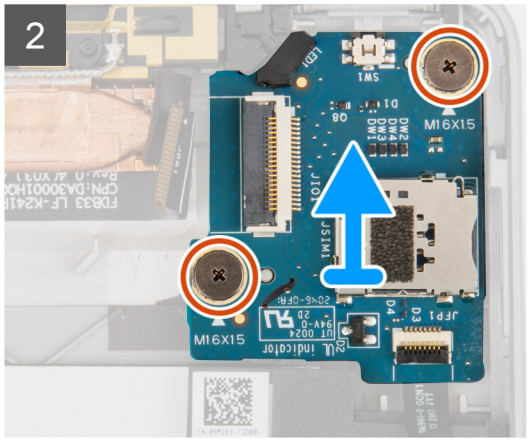
About this task

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









Steps

1. Open the latch and disconnect the power-button daughter board FPC and the fingerprint reader FFC from the power-button daughter board.
2. Remove the two (M1.6x1.5) screws that secure the power-button daughter board to the frame..
3. Lift the power-button daughter board out of the system.

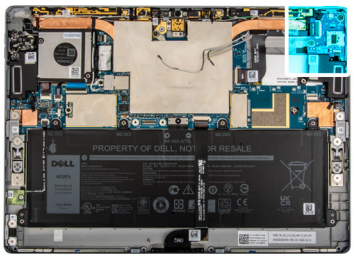
Installing the power-button board

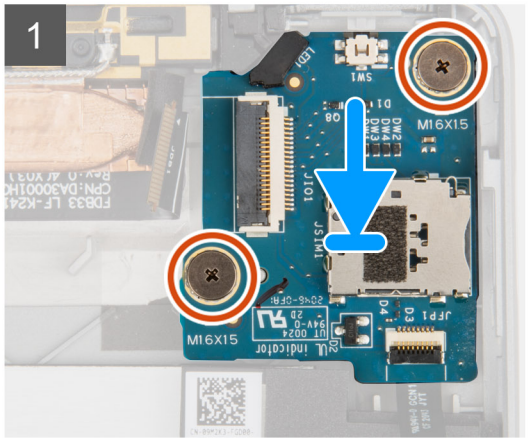
About this task

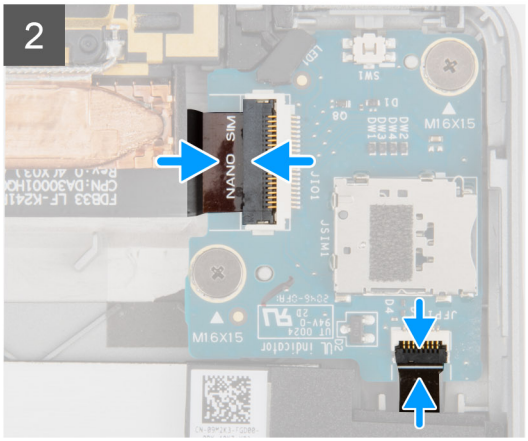
The following images indicate the location of the power-button board and provide a visual representation of the installation procedure.



2x
M1.6x1.5







Steps

1. Align and place the power-button board on the frame.
2. Replace the two screws (M1.6x1.5) that secure the power-button board to the frame.
3. Connect the power-button daughter board FPC and the fingerprint reader FFC to the power-button daughter board

Next steps

1. Install the right system fan.
2. Install the WWAN card.
3. Install the display assembly.
4. Install the SIM tray.
5. Follow the procedure in After working inside your computer.

Fingerprint reader

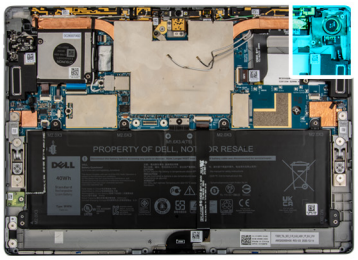
Removing the fingerprint reader

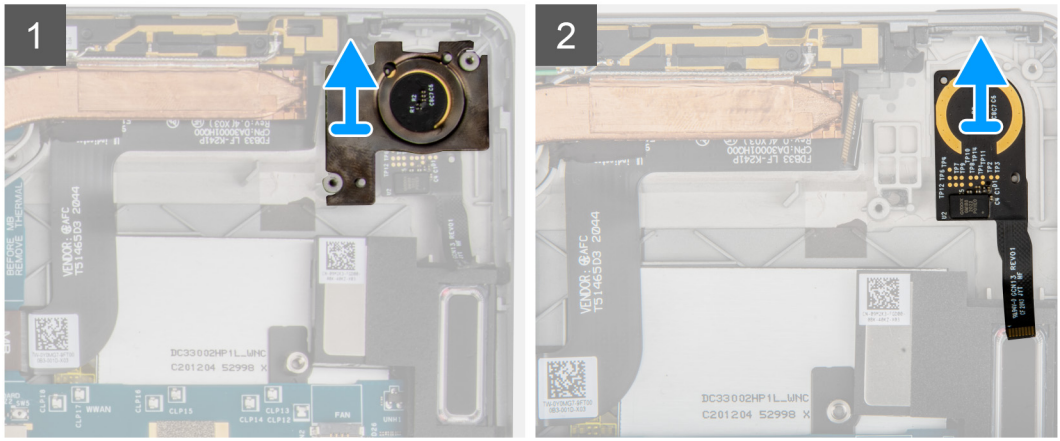
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray.
3. Remove the display assembly.
4. Remove the WWAN card.
5. Remove the right system fan.
6. Remove thepower-button board

About this task

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





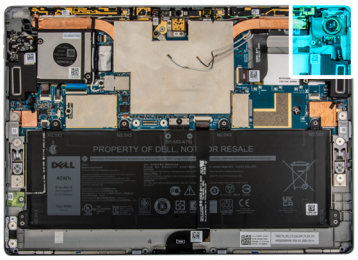
Steps

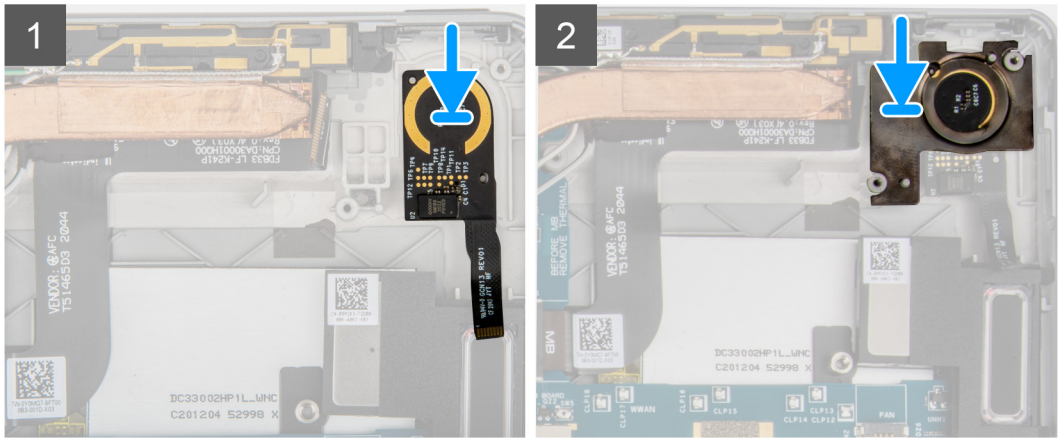
1. Peel and remove the fingerprint reader bracket.
2. Lift the fingerprint reader out of the system.

Installing the fingerprint reader

About this task

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





Steps

1. Align and place the fingerprint reader on the frame.
2. Replace the fingerprint reader bracket on the finger print reader.

Next steps

1. Install the power-button daughter board.
2. Install the right system fan.
3. Install the WWAN card.
4. Install the display assembly.
5. Install the SIM tray.
6. Follow the procedure in After working inside your computer.

Battery

Rechargeable Li-ion battery precautions

WARNING:

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

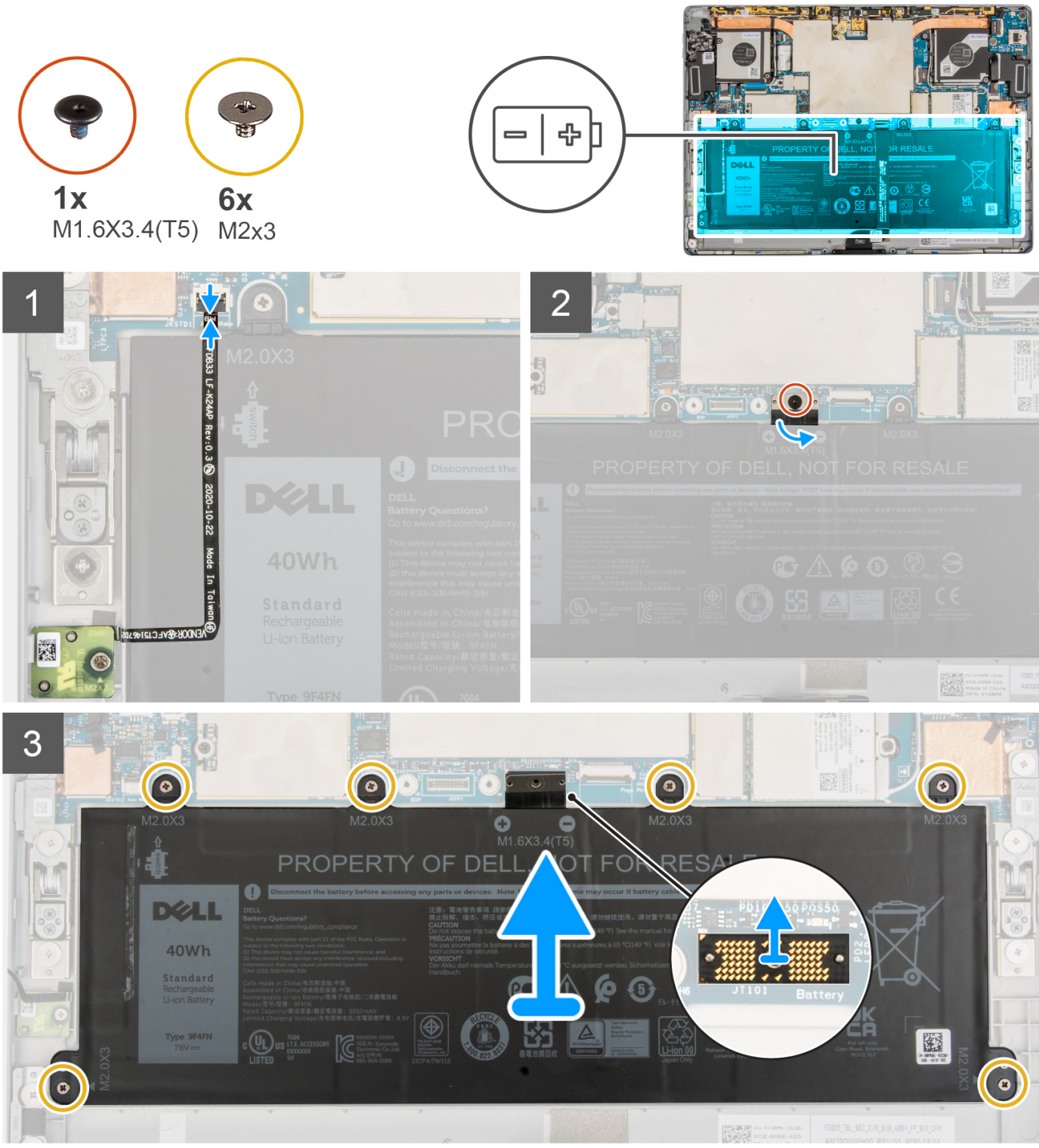
Removing the battery

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray.
3. Remove the display assembly.

About this task

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



Steps

1. Disconnect and carefully peel back the HALL sensor daughter board FPC and docking connector FPC from the battery..
2. Remove the single (M1.6x3.4) screw that secures the battery cable connector to the system board.
3. Disconnect the battery cable connector from the system board.
4. Remove the six (M2x3) screws that secure the battery to the frame.
5. Ensure that the battery cable is disconnected from the interposer board.
6. Gently lift the battery out of the frame.
7. Remove the interposer board from the system.

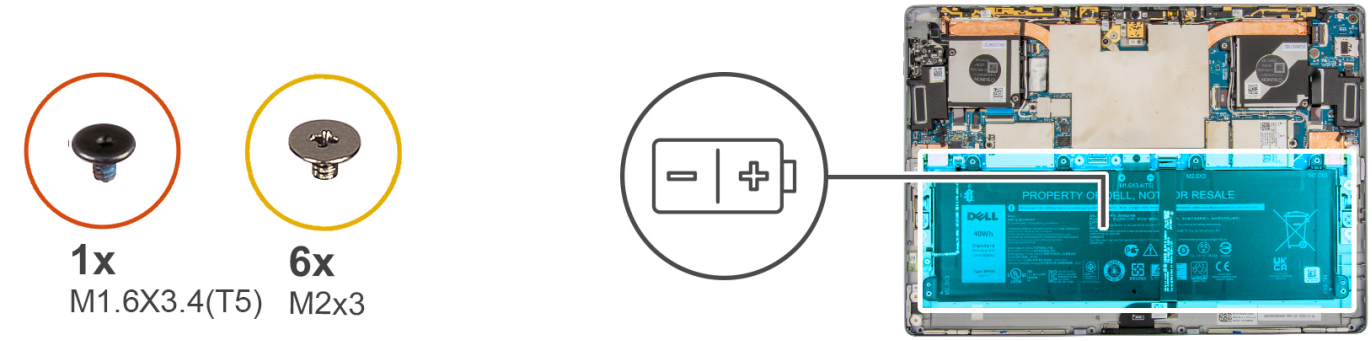
Installing the battery

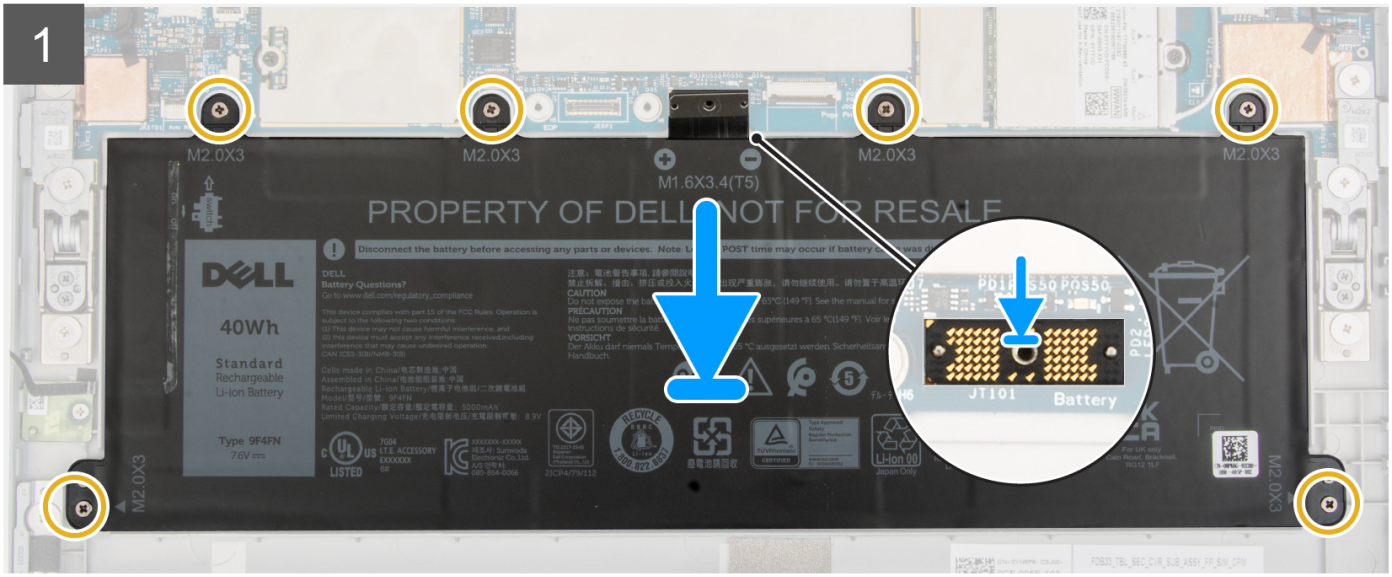
Prerequisites

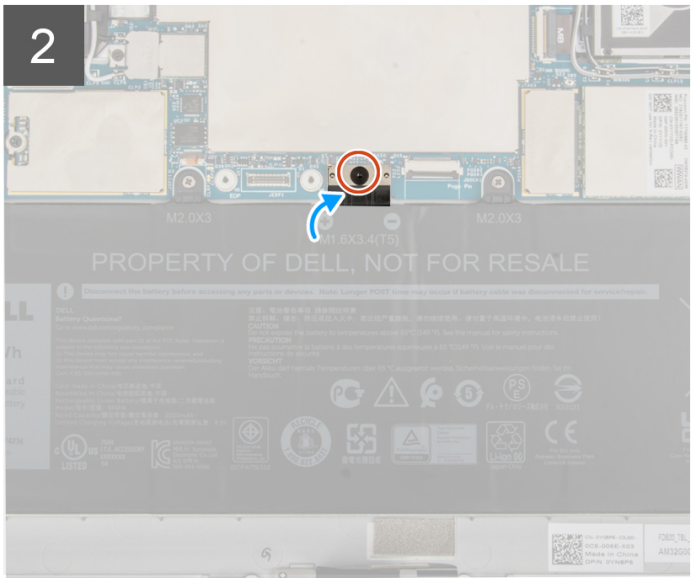
If you are replacing a component, remove the existing component before performing the installation procedure.

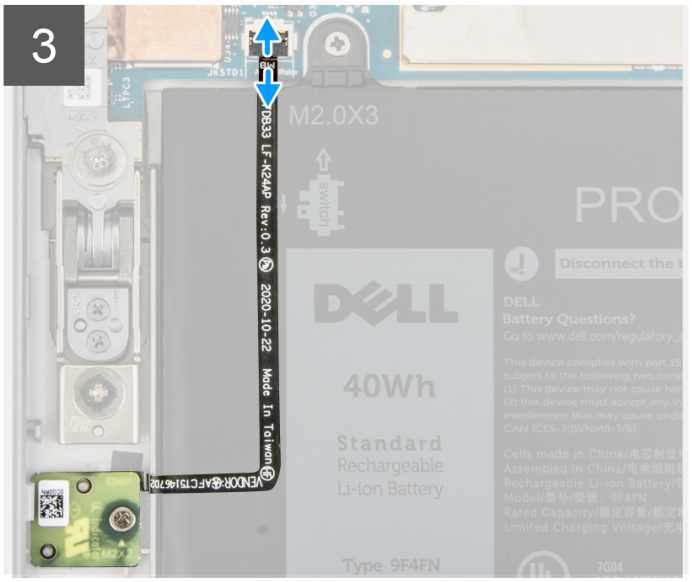
About this task

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









Steps

1. Place the interposer board on the system board.
2. Align and place the battery into the system.
3. Replace the six (M2x3) screws that secure the battery to the frame.
4. Connect the battery cable to the system board.
5. Replace the single (M1.6x3.4) screw that secures the battery cable connector to the system board.
6. Affix the HALL sensor daughter board FPC and docking connector FPC on the battery.
7. Connect the HALL sensor daughter board FPC and docking connector FPC to the connector on the system board and close the latch.

Next steps

1. Install the display assembly.
2. Install the SIM tray.
3. Follow the procedure in After working inside your computer.

System board

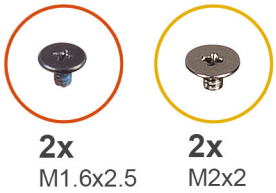
Removing the system board

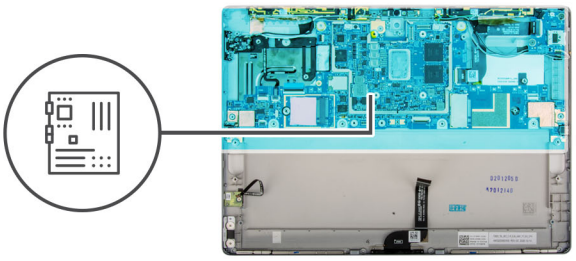
Prerequisites

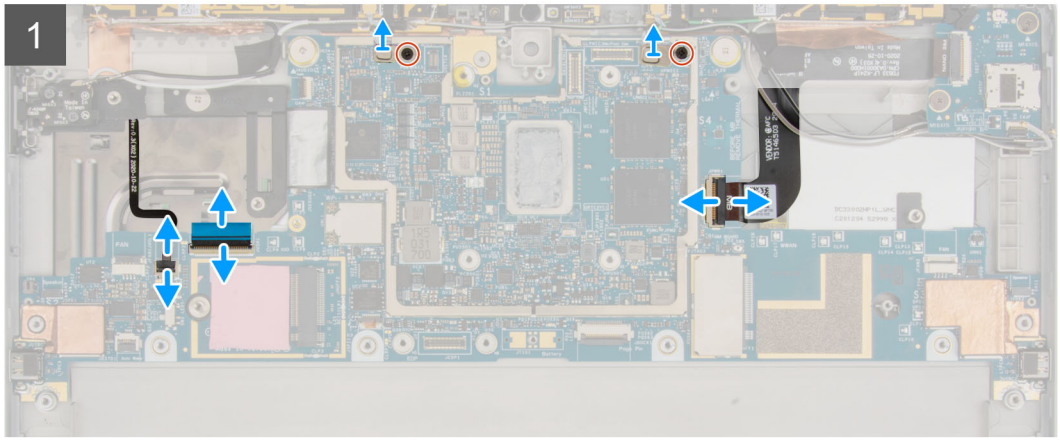
1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray.
3. Remove the display assembly.
4. Remove the WWAN card.
5. Remove the left speaker.
6. Remove the right speaker.
7. Remove the rear camera.
8. Remove the left system fan.
9. Remove the right system fan.
10. Remove the solid-state drive.
11. Remove the Microphone.
12. Remove the kickstand.
13. Remove the kickstand hinges.
14. Remove the heat sink.
15. Remove the battery.

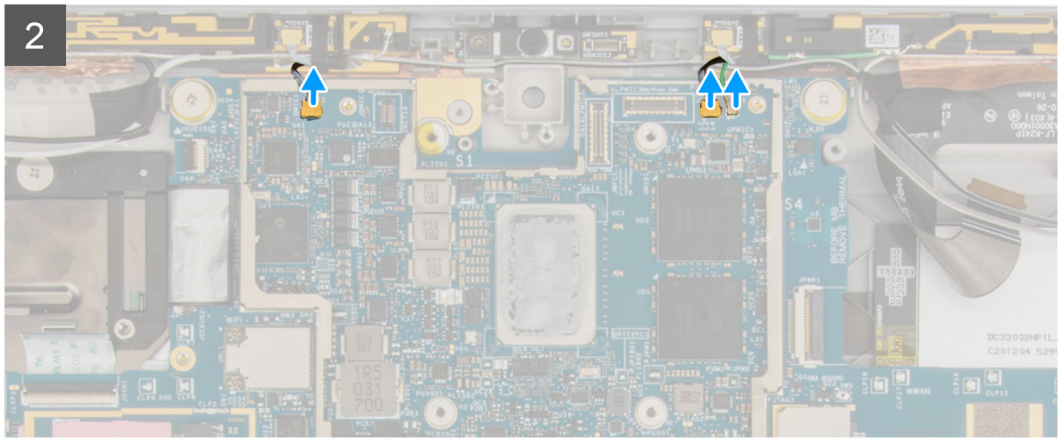
About this task

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


2x
M1.6x2.5
2x
M2x2




1


2



Steps

1. Remove the two (M1.6x2.5) screws that secure the Darwin cable brackets to the system board.
2. Disconnect the volume button FPC, USH FFC, audio port FPC, rear-facing camera FPC, and the power button daughter board FPC from the system board.
3. Disconnect the Darwin antennas and the P-sensor cable from the system board.
4. Remove the two (M2x2) screws that secure the system board to the frame.
5. Lift the system board out of the system.

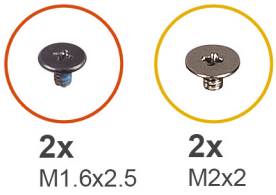
Installing the system board

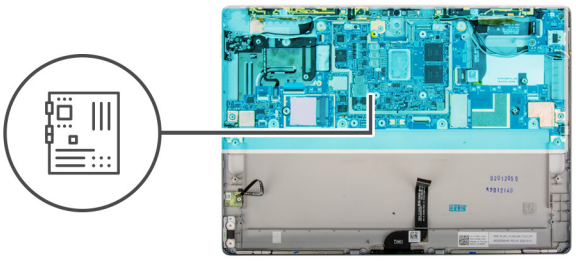
Prerequisites

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

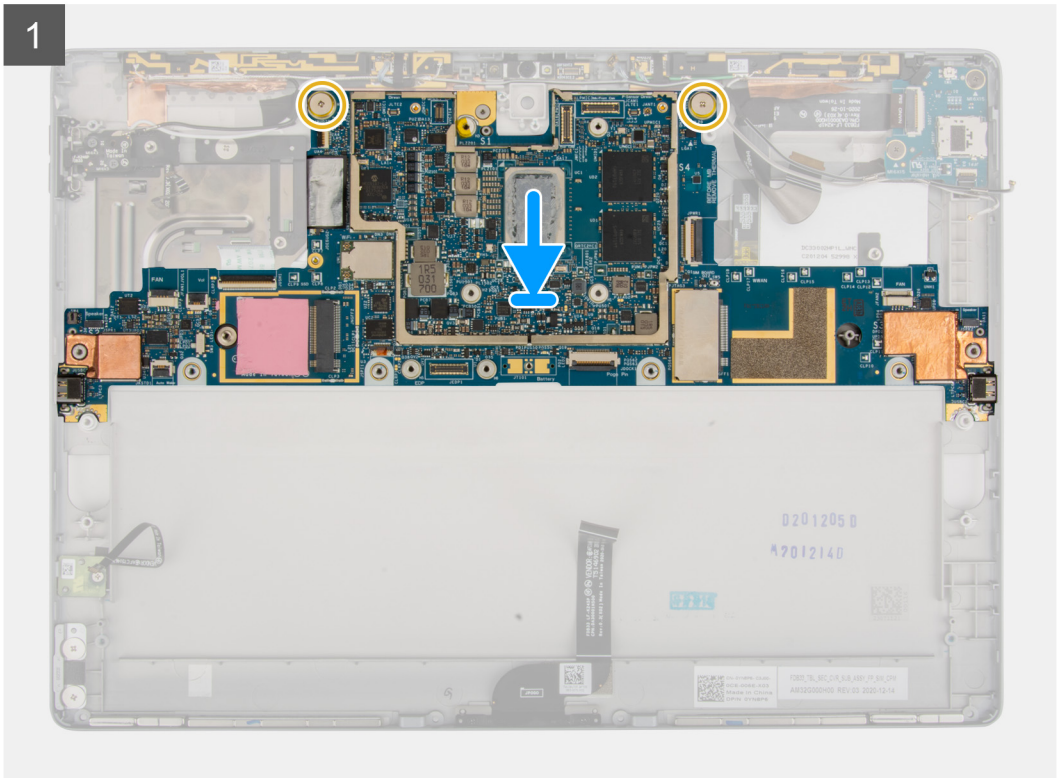
About this task

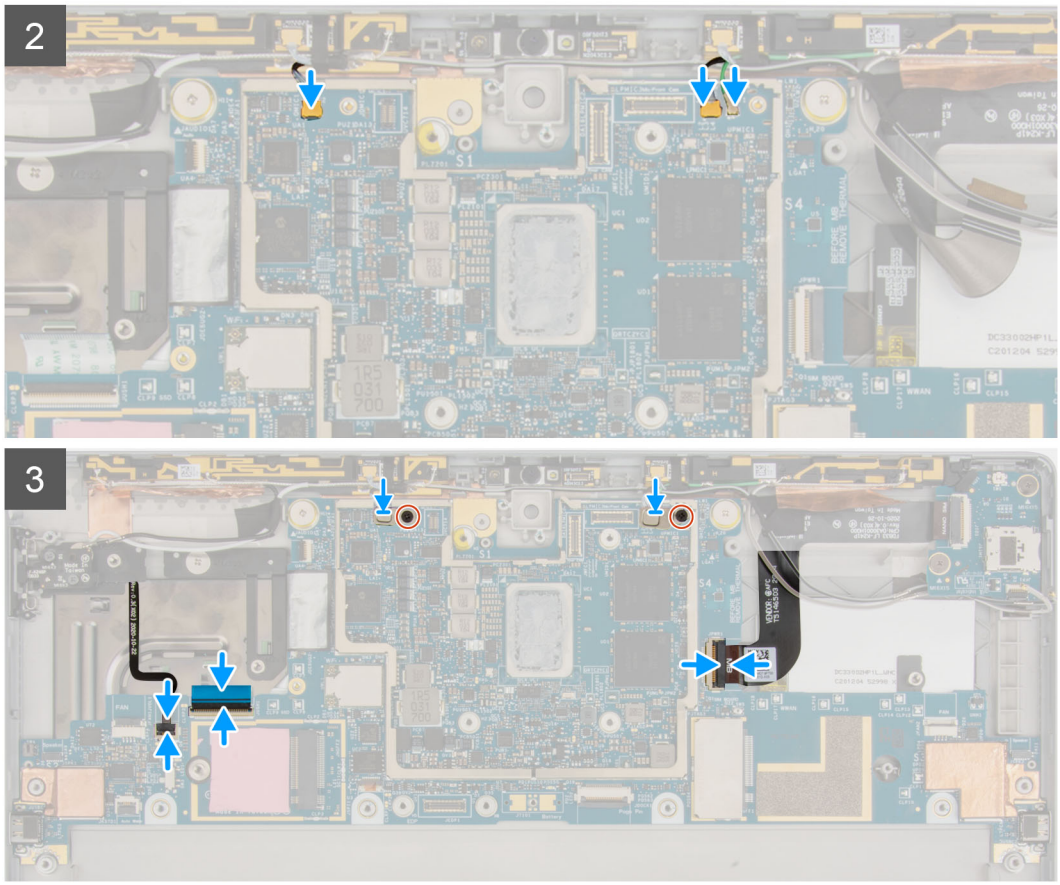
The following image indicates the location of the system board and provides a visual representation of the installation procedure.





1





Steps

1. Align the screw holes on the system board with the screw holes on the frame.
2. Replace the two (M2x2) screws that secure the system board to the frame.
3. Connect the volume button FPC, USH FFC, audio port FPC, rear-facing camera FPC, and the power button daughter board FPC to the system board
4. Connect the Darwin antennas and the P-sensor cable to the system board.
5. Place the Darwin antenna brackets on the Darwin antenna connector.
6. Replace the two (M1.6x2.5) screws that secure the Darwin cable brackets to the system board.

Next steps

1. Install the battery.
2. Install the heat sink.
3. Install the kickstand hinges.
4. Install the kickstand.
5. Install the Microphone.
6. Install the solid-state drive.
7. Install the right system fan.
8. Install the left system fan.
9. Install the rear camera.
10. Install the left speaker.
11. Install the right speaker.
12. Install the WWAN card.
13. Install the display assembly.
14. Install the SIM tray.
15. Follow the procedure in After working inside your computer.

Smart card reader

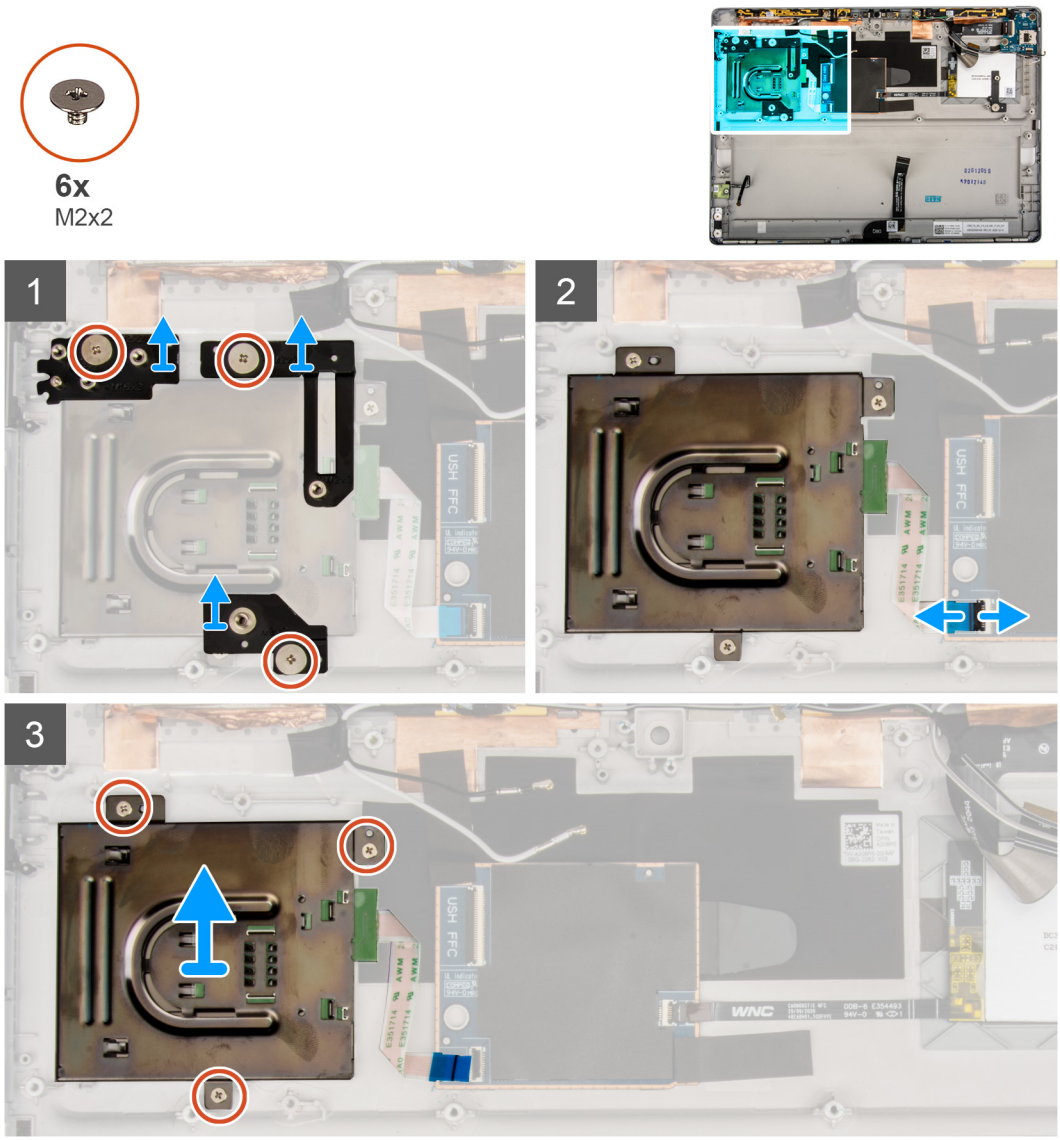
Removing the smart card reader

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SIM tray.
3. Remove the display assembly.
4. Remove the WWAN card.
5. Remove the left system fan.
6. Remove the right system fan.
7. Remove the solid-state drive.
8. Remove the Microphone.
9. Remove the kickstand.
10. Remove the kickstand hinges.
11. Remove the heat sink.
12. Remove the system board.
13. Remove the battery.

About this task

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



Steps

1. Remove the three (M2x2) screws that secure the smart card reader support brackets to the frame.
2. Remove the smart card reader support brackets.
3. Open the latch and disconnect the smart card reader FPC from the connector on the USH board.
4. Remove the three (M2x2) screws that secure the smart card reader to the frame.
5. Lift the smart card reader off the system.

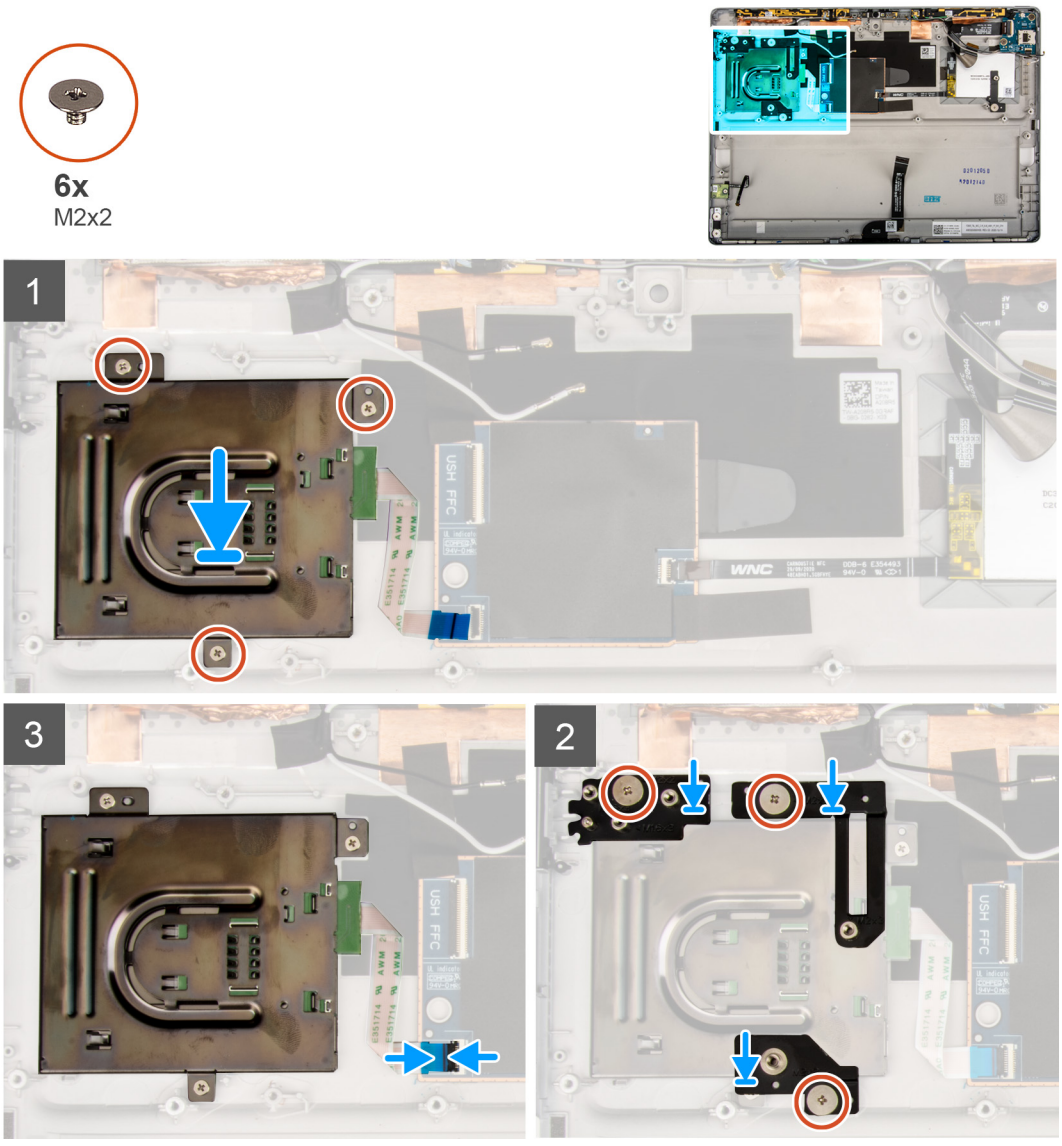
Installing the smart card reader

Prerequisites

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

About this task

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



Steps

1. Align and place the smart card reader on the frame.
2. Replace the three (M2x2) screws that secure the smart card reader to the frame.
3. Connect the smart card reader FPC to the connector on the USH board and close the latch.
4. Place the smart card reader support brackets on the smart card reader.
5. Replace the three (M2x2) screws that secure the smart card reader support bracket to the frame.

Next steps

1. Install the battery.
2. Install the system board.
3. Install the heat sink.
4. Install the kickstand hinges.
5. Install the kickstand.
6. Install the Microphone.
7. Install the solid-state drive.
8. Install the right system fan.
9. Install the left system fan.
10. Install the WWAN card.
11. Install the display assembly.

12. Install the SIM tray.
13. Follow the procedure in After working inside your computer.

3

Software

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

Topics:

- Operating system
- Downloading the drivers

Operating system

Your Latitude 7320 Detachable supports the following operating systems:

- Windows 10 Home (64-bit)
- Windows 10 Professional (64-bit)

Downloading the drivers

Steps

1. Turn on your computer.
2. Go to Dell Support Site.
3. Enter the Service Tag of your computer, and then click **Submit**.

   NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.

4. Click **Drivers & downloads**.
5. Click the **Detect Drivers** button.
6. Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7. If necessary, your computer starts to download and install **SupportAssist**.

   NOTE: Review on-screen instructions for browser-specific instructions.

8. Click **View Drivers for My System**.
9. Click **Download and Install** to download and install all driver updates detected for your computer.
10. Select a location to save the files.
11. If prompted, approve requests from **User Account Control** to make changes on the system.
12. The application installs all drivers and updates identified.

    NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13. For manual download and installation, click **Category**.
14. From the drop-down list, select the preferred driver.
15. Click **Download** to download the driver for your computer.
16. After the download is complete, navigate to the folder where you saved the driver file.
17. Double-click the driver file icon and follow the instructions on the screen to install the driver.

4

System setup

System setup enables you to manage your tabletdesktopnotebook hardware and specify BIOS level options. From the System setup, you can:

- Change the NVRAM settings after you add or remove hardware.
- View the system hardware configuration.
- Enable or disable integrated devices.
- Set performance and power management thresholds
- Manage your computer security

Topics:

- BIOS overview
- Entering BIOS without keyboard
- Entering BIOS Setup
- System setup options
- Updating the BIOS
- System and setup password
- Clearing system and setup passwords

BIOS overview

The BIOS manages data flow between the computer's operating system and attached devices such as hard disk, video adapter, keyboard, mouse, and printer.

Entering BIOS without keyboard

Steps

1. Press the power button to turn on your tablet.
2. Press and hold the **Volume Up** button when the Dell logo appears on the screen.
3. When the **F12** boot selection menu appears, select **BIOS Setup** using the **Volume Up** button.
4. Press the **Volume Down** button to enter BIOS setup program.

Entering BIOS Setup

Steps

1. Turn on your computer.
2. Press F2 immediately to enter the BIOS Setup.

   NOTE: If you wait too long and the operating system logo appears, continue to wait until you see the desktop. Then, turn off your computer and try again.

System setup options

NOTE: Depending on your system and its installed devices, the items that are listed in this section may or may not appear.

Table 4. System setup options—System information menu

Overview	
Latitude 7320 detachable	
BIOS Version	Displays the BIOS version number.
Service Tag	Displays the Service Tag of the system.
Asset Tag	Displays the Asset Tag of the system.
Manufacture Date	Displays the manufacture date of the system.
Ownership Date	Displays the ownership date of the system.
Express Service Code	Displays the express service code of the system.
Ownership Tag	Displays the Ownership Tag of the system.
Signed Firmware Update	Displays whether the Signed Firmware Update is enabled on your system.
Battery Information	
Primary	Displays that battery is primary.
Battery Level	Displays the battery level of the system.
Battery State	Displays the battery state of the system.
Health	Displays the battery health of the system.
AC Adapter	Displays whether the AC adapter is connected or not.
Battery Type	Displays the type of battery.
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 system memory installed.
Memory Available	Displays the total system 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 system.
Privacy Screen	Displays the Privacy Screen information of the system.
Video Controller	Displays the video controller type of the system.
Video Memory	Displays the video memory information of the system.

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

Overview	
Wi-Fi Device	Displays the wireless device information of the system.
Native Resolution	Displays the native resolution of the system.
Video BIOS Version	Displays the video BIOS version of the system.
Audio Controller	Displays the audio controller information of the system.
Bluetooth Device	Displays the Bluetooth device information of the system.
LOM MAC Address	Displays the LAN On Motherboard (LOM) MAC address of the system.
Pass Through MAC Address	Displays the pass through MAC address of the system.
Cellular Device	Displays the M.2 PCIe SSD information of the system.

Table 5. System setup options—Boot Configuration menu

Boot Configuration	
Boot Sequence	
Boot mode	Displays the boot mode.
Boot Sequence	Displays the boot sequence.
Secure Digital (SD) Card Boot	Enable or disable the SD card read-only boot. By default, the **Secure Digital (SD) Card Boot** option is not enabled.
Secure Boot	
Enable Secure Boot	Enable or disable the secure boot feature. By default, the **Secure Boot** is enabled.
Secure Boot Mode	Enable or disable to change the secure boot mode options. By default, the option is not enabled.
Expert Key Management	
Enable Custom Mode	Enable or disable custom mode. By default, the **custom mode** option is not enabled.
Custom Mode Key Management	Select the custom values for expert key management.

Table 6. System setup options—Integrated Devices menu

Integrated Devices	
Date/Time	Displays the current date in MM/DD/YYYY format and current time in HH:MM:SS AM/PM format.
Camera	Enables or disable the camera. By default, the **Enable Camera** option is selected
Audio	
Enable Audio	Enable or disable the integrated audio controller. By default, all the options are enabled.
USB/Thunderbolt Configuration	• Enable or disable booting from USB mass storage devices that are connected to external USB ports. By default, the **Enable External USB Ports** option is enabled. • Enable or disable booting from USB mass storage devices such as external hard drive, optical drive, and USB drive.

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

Integrated Devices	
	By default, the **Enable USB Boot Support** option is enabled.
Enable Thunderbolt Technology Support	Enable or disable the associated ports and adapters. By default, the **Enable Thunderbolt Technology Support** option is selected.
Enable Thunderbolt Boot Support	Enable or disable 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	Enable or disable the PCIe devices that are connected through a Thunderbolt adapter to execute 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	Disable the USB4 PCIE Tunneling option. By default, the option is disabled.
Video/Power only on Type-C Ports	Enable or disable 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 Override	Enables 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.
Video	Enable or disable the usage of video on Dell Dock external ports. By default, the **Video** option is disabled.
Audio	Enable or disable the usage of audio on Dell Dock external ports. By default, the **Audio** option is enabled.
Lan	Enable or disable the usage of LAN on Dell Dock external ports. By default, the **Lan** option is enabled.
Miscellaneous Devices	Enable or disable Fingerprint Reader device. By default, the **Enable Fingerprint Reader Device** option is enabled.
Unobtrusive Mode	
Enable Unobtrusive Mode	Enable or disable all the system light and sound. By default, the **Enable Unobtrusive Mode** option is disabled.

Table 7. System setup options—Storage menu

Storage	
SATA/NVMe Operation	
SATA/NVMe Operation	Set the operating mode of the integrated storage device controller. By default, the **RAID On** option is enabled.
Storage interface	
Port Enablement	This page allows you to enable the onboard drives. By default, the **M.2 PCIe SSD** option is enabled.
SMART Reporting	

Table 7. System setup options—Storage menu (continued)

Storage	
Enable SMART Reporting	Enable or disable Self-Monitoring, Analysis, and Reporting Technology (SMART) during system startup. By default, the **Enable SMART Reporting** option is not enabled.
Drive Information	
M.2 PCIe SSD	
Type	Displays the M.2 PCIe SSD type information of the system.
Device	Displays the M.2 PCIe SSD device information of the system.
Enable MediaCard	
Secure Digital (SD) Card	Enable or disable the SD card. By default, the **Secure Digital (SD) Card** option is enabled.
Secure Digital (SD) Card Read-Only Mode	Enable or disable the SD card read-only mode. By default, the **Secure Digital (SD) Card Read-Only Mode** option is not enabled.

Table 8. System setup options—Display menu

Display	
Display Brightness	
Brightness on battery power	Enable to set screen brightness when the system is running on battery power.
Brightness on AC power	Enable to set screen brightness when the system is running on AC power.
Full Screen Logo	Enable or disable full screen logo. By default, the option is not enabled.

Table 9. System setup options—Connection menu

Connection	
Wireless Device Enable	
WWAN/GPS	Enable or disable the internal WWAN/GPS device By default, the option enabled.
WWAN Bus Mode	Set the interface type of the Wireless Wan (WWAN) card. By default, the **Bus Mode PCIe** option is enabled.
WLAN	Enable or disable the internal WLAN device By default, the option enabled.
Bluetooth	Enable or disable the internal Bluetooth device By default, the option enabled.
Contactless smartcard/NFC	Enable or disable the internal Contactless smartcard/NFC device By default, the option enabled.
Enable UEFI Network Stack	Enable or disable 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	Sense the connection of the system to a wired network and subsequently disable the selected wireless radios (WLAN).

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

Connection	
	By default, the option is disabled.
Control WWAN radio	Sense the connection of the system to a wired network and subsequently disable the selected wireless radios (WWAN). By default, the option is disabled.
HTTPs Boot Feature	
HTTPs Boot	Enable or disable the HTTPs Boot feature. By default, the **HTTPs Boot** option is enabled.
HTTPs Boot Mode	With Auto Mode, the HTTPs Boot extracts Boot URL from the DHCP. With Manual Mode, the HTTPs Boot reads Boot URL from the user-provided data. By default, the **Auto Mode** option is enabled.

Table 10. System setup options—Power menu

Power	
Battery configuration	Enables the system 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 enabled.
Advanced Configuration	
Enable Advanced Battery Charge Configuration	Enable or disable the advanced battery charge configuration. By default, the **Enable Advanced Battery Charge Configuration** option is disabled.
Peak Shift	Enables the system to run on battery during peak power usage hours.
Enable Peak Shift	By default, the **Enable Peak Shift** option is disabled.
USB PowerShare	
Enable USB PowerShare	Enable or disable the USB PowerShare. By default, the **Enable USB PowerShare** option is disabled
Thermal Management	Enables to cool the fan and processor heat management to adjust the system performance, noise, and temperature. By default, the **Optimized** option is enabled.
USB Wake Support	
Wake on Dell USB-C Dock	When enabled, connecting a Dell USB-C Dock will wake the system from standby. By default, the **Wake on Dell USB-C Dock** option is enabled.
Block Sleep	Enables to block entering sleep (S3) mode in the operating system. By default, the **Block Sleep** option is disabled.
Lid Switch	Enable or disable the lid switch. By default, the **Lid Switch** option is enabled.
Intel Speed Shift Technology	Enable or disable the Intel speed shift technology support. By default, the **Intel Speed Shift Technology** option is enabled.

Table 11. System setup options—Security menu

Security	
TPM 2.0 Security	
TPM 2.0 Security On	Enable or disable TPM 2.0 security options. By default, the **TPM 2.0 Security On** option is enabled.
Attestation Enable	Enables to control whether the Trusted Platform Module (TPM) Endorsement Hierarchy is available to the operating system. By default, the **Attestation Enable** option is enabled.
Key Storage Enable	Enables to control whether the Trusted Platform Module (TPM) Storage Hierarchy is available to the operating system. By default, the **Key Storage Enable** option is enabled.
SHA-256	BIOS and the TPM will use the SHA-256 hash algorithm to extend measurements into the TPM PCRs during BIOS boot. By default, the **SHA-256** option is enabled.
Clear	Enables to clear the TPM owner information and returns the TPM to the default state. By default, the **Clear** option is disabled.
PPI ByPass for Clear Commands	Controls the TPM Physical Presence Interface (PPI). By default, the **PPI ByPass for clear Commands** option is disabled.
Intel Total Memory Encryption	
Total Memory Encryption	Enable or disable you to protect memory from physical attacks including freeze spray, probing DDR to read the cycles, and others. By default, the **Total Memory Encryption** option is disabled.
Chassis intrusion	Controls the chassis intrusion feature. By default, the **On-Silent** option is enabled.
Clear Intrusion Warning	By default, the option is disabled.
SMM Security Mitigation	Enable or disable SMM Security Mitigation. By default, the option is enabled.
Data Wipe on Next Boot	
Start Data Wipe	Enable or disable the data wipe on next boot. By default, the option is disabled.
Absolute	Enable or disable or permanently disable the BIOS module interface of the optional Absolute Persistence Module service from Absolute software. By default, the option is enabled.
UEFI Boot Path Security	Controls whether the system will prompt the user to enter the admin password (if set) when booting to a UEFI boot device from the F12 boot menu. By default, the **Always Except Internal HDD** option is enabled.

Table 12. System setup options—Passwords menu

Passwords	
Admin Password	Set, change, or delete the administrator password.
System Password	Set, change, or delete the system password.
NVMe SSD0	Set, change, or delete the NVMe SSD0 password.

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

Passwords	
Password Configuration	
Upper Case Letter	Reinforces password must have at least one upper case letter. By default, the option is enabled.
Lower Case Letter	Reinforces password must have at least one lower case letter. By default, the option is enabled.
Digit	Reinforces password must have at least one digit. By default, the option is enabled.
Special Character	Reinforces password must have at least one special character. By default, the option is enabled.
Minimum Characters	Set the minimum characters allowed for password.
Password Bypass	When enabled, this always prompts for system and internal hard drive passwords when powered on from the off state. By default, the **Disabled** option is selected.
Password Changes	
Enable Non-Admin Password Changes	When On, user can change system and hard drive password without the need for admin password. By default, the option is On.
Admin Setup Lockout	
Enable Admin Setup Lockout	Enables administrators control over how their users can or cannot access BIOS setup. By default, the option is disabled.
Master Password Lockout	
Enable Master Password Lockout	When enabled, this disables the master password support. By default, the option is disabled.
Allow Non-Admin PSID Revert	
Enable Allow Non-Admin PSID Revert	Controls access to the Physical Security ID (PSID) revert of NVMe hard-drives from the Dell Security Manager prompt. By default, the option is disabled.

Table 13. System setup options—Update, Recovery menu

Update, Recovery	
UEFI Capsule Firmware Updates	Enable or disable BIOS updates through UEFI capsule update packages. By default, the option is enabled.
BIOS Recovery from Hard Drive	Enables the user to recover from certain corrupted BIOS conditions from a recovery file on the user primary hard drive or an external USB key. By default, the option is enabled.
BIOS Downgrade	
Allow BIOS Downgrade	Enable or disable the flashing of the system firmware to previous revision is blocked. By default, the option is enabled.

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

Update, Recovery	
SupportAssist OS Recovery	Enable or disable the boot flow for SupportAssist OS Recovery tool in the event of certain system errors. By default, the option is enabled.
BIOSConnect	Enable or disable 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. By default, the option is enabled.
Dell Auto operating system Recovery Threshold	Controls the automatic boot flow for SupportAssist System Resolution Console and for Dell operating system Recovery Tool. By default, the threshold value is set to 2.

Table 14. System setup options—System Management menu

System Management	
Service Tag	Display the Service Tag of the system.
Asset Tag	Create a system Asset Tag.
AC Behavior	
Wake on AC	Enable or disable the wake on AC option. By default, the option is disabled.
Wake on LAN	
Wake on LAN	Enable or disable the system to power on by special LAN signals when it receives a wakeup signal from the WLAN. By default, the **Disabled** option is selected.
Auto on Time	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. By default, the option is disabled.
Intel AMT Capability	
Enable Intel AMT Capability	By default **Restrict MEBx Access** option is enabled.
MEBx Hotkey	
Enable MEBx Hotkey	When enabled, this allows the use of Ctrl+P hotkey to access MEBx. By default **OFF** option is disabled.
USB Provision	
Enable USB Provision	Intel AMT can be provisioned using the local provisioning file using a USB storage device. By default **OFF** option is disabled.

Table 15. System setup options—Keyboard menu

Keyboard	
Fn Lock Options	By default, the Fn lock option is enabled.
Keyboard Illumination	Enables to change the keyboard illumination settings. By default, the **Disabled** option is enabled.

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

Keyboard	
Keyboard Backlight Timeout on AC	Set the timeout value for the keyboard backlight when an AC adapter is connected to the system. By default, the **10 seconds** option is enabled.
Keyboard Backlight Timeout on Battery	Set the timeout value for the keyboard backlight when the is running only on battery power. By default, the **10 seconds** option is enabled.
Device Configuration Hotkey Access	Manages whether you can access device configuration screens through hotkeys during system startup. By default, the option is enabled.

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

Pre-boot Behavior	
Adapter Warnings	
Enable Adapter Warnings	Enable or disable the warning messages during boot when the adapters with less power capacity are detected. By default, the option is enabled.
Warning and Errors	Enable or disable the action to be done when a warning or error is encountered. By default, the **Prompt on Warnings and Errors** option is enabled.
USB-C Warnings	
Enable Dock Warning Messages	By default, the option is enabled.
Fastboot	Enable to set the speed of the boot process. By default, the **Minimal** option is enabled.
Extend BIOS POST Time	Set the BIOS POST time. By default, the **0 seconds** option is enabled.
MAC Address Pass-Through	Replaces the external NIC MAC address with the selected MAC address from the system. By default, the **System Unique MAC Address** option is enabled.
Mouse/Touchpad	By default, the **Touchpad and PS/2 Mouse** option is enabled.

Table 17. System setup options—Virtualization menu

Virtualization	
Intel Virtualization Technology	
Enable Intel Virtualization Technology (VT)	Specify whether a Virtual Machine Monitor (VMM) can use the additional hardware capabilities that are provided by Intel Virtualization Technology. By default, the option is enabled.
VT for Direct I/O	Specify whether a Virtual Machine Monitor (VMM) can use the additional hardware capabilities that are provided by Intel Virtualization Technology for Direct I/O. By default, the option is enabled.
Intel Trusted Execution Technology (TXT)	

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

Virtualization	
Enable Intel Trusted Execution Technology (TXT)	Specifies whether a measured Virtual Machine Monitor (MVMM) can use the additional hardware capabilities that are provided by Intel Trusted Execution Technology. By default, the option is disabled.

Table 18. System setup options—Performance menu

Performance	
Multi Core Support	
Active Cores	Enables to change the number of CPU cores available to the operating system. By default, the **All Cores** option is enabled.
Intel SpeedStep	
Enable Intel SpeedStep Technology	Enables the system to dynamically adjust processor voltage and core frequency, decreasing average power consumption and heat production. By default, the option is enabled.
C-States Control	
Enable C-State Control	Enable or disable additional processor sleep states. By default, the option is enabled.
Intel TurbocBoost Technology	
Enable Intel Turbo Boost Technology	Enable or disable Intel TurboBoost mode of the processor. By default, the option is enabled.
Intel Hyper-Threading Technology	
Enable Intel Hyper-Threading Technology	Enable or disable Hyper-Threading in the processor. By default, the option is enabled.
Dynamic Tuning:Machine Learning	
Enable Dynamic Tuning:Machine Learning	Enables the operating system capability to enhance dynamic power tuning capabilities based on detected workloads. By default, the option is disabled.

Table 19. System setup options—System Logs menu

System Logs	
BIOS Event Log	
Clear Bios Event Log	Display BIOS events. By default, the **Keep** option is enabled.
Thermal Event Log	
Clear Thermal Event Log	Display Thermal events. By default, the **Keep** option is enabled.
Power Event Log	
Clear Power Event Log	Display power events. By default, the **Keep** option is enabled.
License Information	Displays the license information of the system.

Updating the BIOS

Updating the BIOS in Windows

About this task

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

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

Steps

1. Go to Dell Support Site.
2. Go to **Identify your product or ask support**. In the box, enter the product identifier, model, service request or describe what you are looking for, and then click **Search**.

   NOTE: If you do not have the Service Tag, click **Detect This PC**. The site automatically detects your device, and you can then click **Explore Product Support** to go to the support page for your device. You can also use the product ID or manually browse for your computer model.

3. Click **Drivers & Downloads**.
4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. After the download is complete, navigate to the folder where the BIOS update file has been saved.
8. Double-click the BIOS update file and follow the on-screen instructions.

   For more information, search Dell Support Site.

Updating the BIOS using the USB drive in Windows

About this task

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

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

Steps

1. Go to Dell Support Site.
2. Go to **Identify your product or ask support**. In the box, enter the product identifier, model, service request or describe what you are looking for, and then click **Search**.

   NOTE: If you do not have the Service Tag, click **Detect This PC**. The site automatically detects your device, and you can then click **Explore Product Support** to go to the support page for your device. You can also use the product ID or manually browse for your computer model.

3. Click **Drivers & Downloads**.

4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. Create a bootable USB drive. For more information, search Dell Support Site.
8. Copy the BIOS setup program file to the bootable USB drive.
9. Connect the bootable USB drive to the computer that needs the BIOS update.
10. Restart the computer and press **F12**.
11. Select the USB drive from the **One Time Boot Menu**.
12. Type the BIOS setup program filename and press **Enter**.
    The **BIOS Update Utility** appears.
13. Follow the on-screen instructions to complete the BIOS update.

Updating the BIOS from the One-Time boot menu

To update the BIOS from the One-Time boot menu, see Updating the BIOS from the One Time Boot Menu at Dell Support Site..

System and setup password

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

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

Table 20. System and setup password

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

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

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

Assigning a System Setup password

Prerequisites

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

Steps

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

5. Press Y to save the changes.
   The computer restarts.

Deleting or changing an existing system password or setup password

Prerequisites

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

Steps

1. To enter the **System Setup**, press **F2** immediately after a power-on or reboot.
2. In the **System BIOS** or **System Setup** screen, select **System Security** and press Enter.
   The **System Security** screen is displayed.
3. In the **System Security** screen, verify that the **Password Status** is Unlocked.
4. Select **System Password**. Update or delete the existing system password, and press Enter or Tab.
5. Select **Setup Password**. Update or delete the existing setup password, and press Enter or Tab.

   NOTE: If you change the system password and/or setup password, reenter the new password when prompted. If you delete the system password and/or setup password, confirm the deletion when prompted.

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

Clearing system and setup passwords

About this task

To clear the system or setup passwords, contact Dell technical support as described at Contact Support.

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

5

Troubleshooting

Topics:

- Handling swollen rechargeable Li-ion batteries
- Dell SupportAssist Pre-boot System Performance Check diagnostics
- Built-in self-test (BIST)
- System diagnostic lights
- Recovering the operating system
- Updating the BIOS using the USB drive in Windows
- Backup media and recovery options
- Network power cycle
- Flea power release

Handling swollen rechargeable Li-ion batteries

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

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

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

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

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

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

Dell SupportAssist Pre-boot System Performance Check diagnostics

About this task

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

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

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

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

Running the SupportAssist Pre-Boot System Performance Check

Steps

1. Turn on your computer.
2. As the computer boots, press the F12 key.

   NOTE: If your computer is not connected to an external keyboard, press and hold the **volume down button + power button** in power-off state to invoke the LCD BIST test.

3. On the boot menu screen, select **Diagnostics**.
   The diagnostic quick test begins.

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

Built-in self-test (BIST)

M-BIST

M-BIST (Built In Self-Test) is the system board 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 Power On Self-Test (POST).

How to run M-BIST

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

1. Press and hold both the **M** key on the keyboard and the **power button** to initiate M-BIST.

   NOTE: If your computer is not connected to an external keyboard, press and hold the **volume down button + power button** in power-off state to invoke the LCD BIST test.

2. The battery indicator LED may exhibit two states:
   a. OFF: No fault was detected with the system board.
   b. AMBER: Amber indicates a problem with the system board.
3. If there is a failure with the system board, the battery status LED flashes one of the following error codes for 30 seconds:

Table 21. LED error codes

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

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

LCD Built-in Self-Test (BIST)

Dell computers 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 computer or with the video card (GPU) and computer settings.

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

How to invoke the 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 the **D** key and **Power on** the laptop to enter LCD built-in self-test (BIST) mode. Continue to hold the D key until the computer boots up.

   NOTE: If your computer is not connected to an external keyboard, press and hold the **volume down button + power button** in power-off state to invoke the LCD BIST test.

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

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

System diagnostic lights

Battery-status light

Indicates the power and battery-charge status.

Solid white — Power adapter is connected and the battery has more than 5 percent charge.

Amber — Computer is running on battery and the battery has less than 5 percent charge.

Off

- Power adapter is connected, and the battery is fully charged.
- Computer is running on battery, and the battery has more than 5 percent charge.
- Computer is in a sleep state, hibernation, or turned off.

The power and battery-status light blinks amber along with beep codes indicating failures.

For example, the power and battery-status light blinks amber two times followed by a pause, and then blinks white three times followed by a pause. This 2,3 pattern continues until the computer is turned off indicating no memory or RAM is detected.

The following table shows different power and battery-status light patterns and associated problems.

Table 22. Computer 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.
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.
2	1	CPU failure	Run the Intel CPU diagnostics tools. If the problem persists, replace the system board.
2	2	Computer Board failure (included BIOS corruption or ROM error)	Flash latest BIOS version. If the problem persists, replace the system board.
2	3	No Memory / RAM detected	Confirm that the memory module is installed properly. If the problem persists, replace the memory module.
2	4	Memory / RAM failure	Reset and swap memory modules among the slots. If the problem persists, replace the memory module.
2	5	Invalid memory installed	Reset and swap memory modules among the slots. If the problem persists, replace the memory module.
2	6	System board / Chipset Error	Replace the system board.
2	7	Potential LCD Panel damage and/ or LCD cable failure (SBIOS message)	Run LCD BIST to check for physical LCD damage. If no sign of life on display (no backlight), reseat the display cable (EDP) at the Motherboard. If the colors are displayed without distortion (screen showing a solid color) or the 2,7 code persists, replace the LCD assembly and display cable (EDP).
2	8	Power rail failure at the system board side	If the display is black or dim (no backlight), replace the Motherboard and display cable (EDP). If no display issues (LCD panel functional), only replace the Motherboard.
3	1	Main battery failure	Reset the main battery connection. If the problem

Table 22. Computer diagnostic lights (continued)

Blinking Pattern		Problem description	Suggested resolution
Amber	**White**		
			persists, replace the main battery.
3	2	PCI or Video card/chip failure	Replace the system board.
3	3	BIOS recovery image not found	Flash latest BIOS version. If the problem persists, replace the system board.
3	4	BIOS recovery image found but invalid	Flash latest BIOS version. If the problem persists, replace the system board.
3	5	Power rail failure	Replace the system board.
3	6	Flash corruption detected by SBIOS.	Replace the system board.
3	7	Timeout waiting on ME to reply to HECI message.	Replace the system board.
4	3	LCD Panel Failure	Replace the LCD Assembly
4	4	Power rail failure at system board side	If the display is dim (no backlight), replace the Motherboard and display cable (EDP). If the display is black/no image on panel, replace the Motherboard and LCD Assembly.
4	5	LCD Panel Failure and Power rail failure at system board side.	Replace the Motherboard, LCD Assembly and Display Cable (EDP).
4	6	Display Cable (EDP) Failure	Reseat the display cable (EDP) at the Motherboard. If the 4,6 code persists, replace the display cable (EDP).

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

- Solid white — Camera is in use.
- Off — Camera is not in use.

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

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

Recovering the operating system

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

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

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

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

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

Updating the BIOS using the USB drive in Windows

About this task

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

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

Steps

1. Go to Dell Support Site.
2. Go to **Identify your product or ask support**. In the box, enter the product identifier, model, service request or describe what you are looking for, and then click **Search**.

   NOTE: If you do not have the Service Tag, click **Detect This PC**. The site automatically detects your device, and you can then click **Explore Product Support** to go to the support page for your device. You can also use the product ID or manually browse for your computer model.

3. Click **Drivers & Downloads**.
4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. Create a bootable USB drive. For more information, search the Knowledge Base Resource at Dell Support Site.
8. Copy the BIOS Setup program file to the bootable USB drive.
9. Connect the bootable USB drive to the computer that needs the BIOS update.
10. Restart the computer and press **F12**.
11. Select the USB drive from the **One Time Boot Menu**.
12. Type the BIOS Setup program filename and press **Enter**.
    The **BIOS Update Utility** appears.
13. Follow the on-screen instructions to complete the BIOS update.

Backup media and recovery options

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

Network power cycle

About this task

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

Steps

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

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

Flea power release

About this task

Flea power is the residual static electricity that remains on the computer even after it has been powered off and the battery has been removed. The following procedure provides the instructions on how to conduct flea power release:

Steps

1. Turn off your computer.
2. Disconnect the power adapter from your computer.
3. Press and hold the power button for 15 seconds to drain the flea power.
4. Connect the power adapter to your computer.
5. Turn on your computer.

6

Getting help and contacting Dell

Self-help resources

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

Table 23. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	Dell Support
Tips	
Contact Support	In Windows search, type `Contact Support`, and press Enter.
Online help for operating system	Dell Support for Windows Dell Support for Linux
Troubleshooting information, user manuals, setup instructions, product specifications, technical help blogs, drivers, software updates, and so on.	Dell Support Site
Dell knowledge base articles for a variety of computer concerns.	1. Go to Dell Support Site. 2. Type the subject or keyword in the **Search** box. 3. Click **Search** to retrieve the related articles.

Contacting Dell

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

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

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

7

Revision history

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

Table 24. Revision history

Revision	Date	Description
A00	03-04-2021	• Original publish date.
A07	07-21-2025	• Changing kickstand screw image. • Added entering BIOS without KB. • Removing CMOS reference in diagnostics.