Latitude 7320

Service Manual

Regulatory Model: P133G/P134G
Regulatory Type: P133G001/P134G001
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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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1

Working on your computer

Topics:

- Safety instructions

Safety instructions

Prerequisites

Use the following safety guidelines to protect your computer from potential damage and to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:

- You have read the safety information that shipped with your computer.
- A component can be replaced or, if purchased separately, installed by performing the removal procedure in reverse order.

About this task

NOTE: Disconnect all power sources before opening the computer cover or panels. After you finish working inside the computer, replace all covers, panels, and screws before connecting to the power source.

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage

CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface at the same time as touching a connector on the back of the computer.

CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

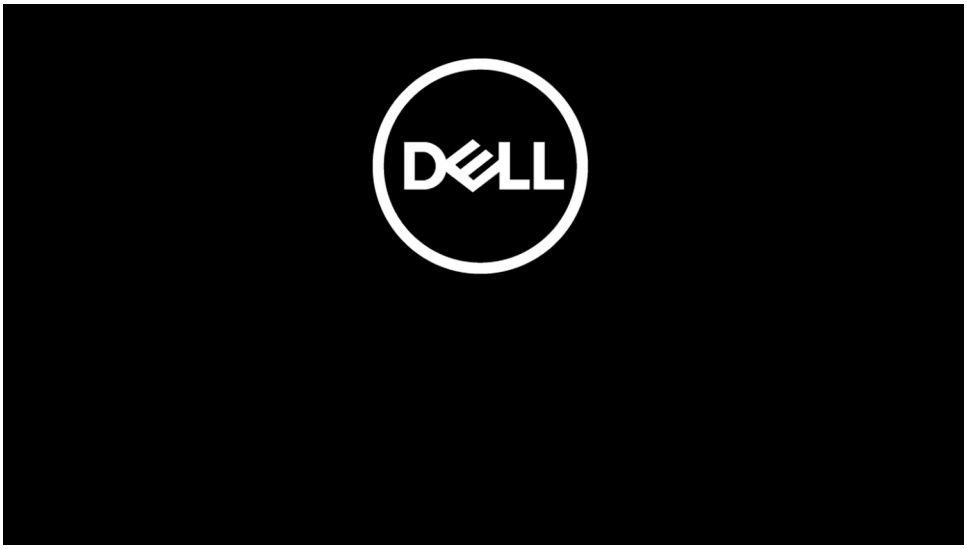
CAUTION: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

NOTE: The color of your computer and certain components may appear differently than shown in this document.

Service mode

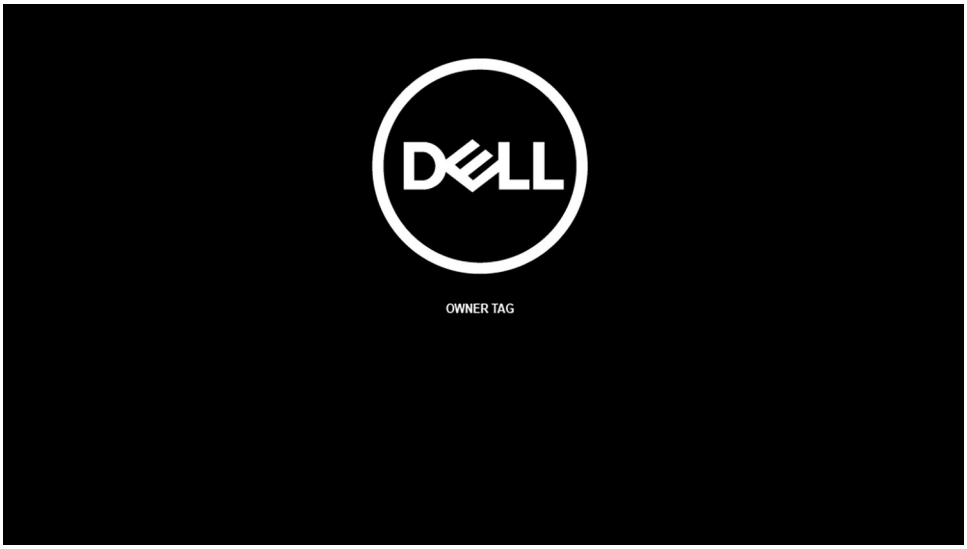
Service Mode allows users to immediately cut off power from the system and conduct repairs without disconnecting the battery cable from the system board:

1. Shut down the system and disconnect the AC adapter.
2. Press and hold the **<B>** key on the keyboard and then press the power button. The system boots.



3. *[For models configured with an Owner Tag]* When the Owner Tag information appears on the screen, press any key to proceed.

   NOTE: The **Service Mode** procedure will automatically skip this step if the Owner Tag of the system is not set up in advance by the manufacturer.



4. Ensure that the AC adapter has been disconnected and press any key to proceed.

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

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

To exit **Service Mode**, connect AC adapter and press the power button to power on the system. The system will automatically return to normal functioning mode.

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 notebook 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 15 seconds should discharge residual power in the system board. Remove the battery from 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 DIMMs, and system boards. Very slight charges can damage circuits in ways that may not be obvious, such as intermittent problems or a shortened product life span. As the industry pushes for lower power requirements and increased density, ESD protection is an increasing concern.

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

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

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

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

Perform the following steps to prevent ESD damage:

- Use a wired ESD wrist strap that is properly grounded. The use of wireless anti-static straps is no longer allowed; they do not provide adequate protection. Touching the chassis before handling parts does not ensure adequate ESD protection on parts with increased sensitivity to ESD damage.
- Handle all static-sensitive components in a static-safe area. If possible, use anti-static floor pads and workbench pads.
- When unpacking a static-sensitive component from its shipping carton, do not remove the component from the anti-static packing material until you are ready to install the component. Before unwrapping the anti-static packaging, ensure that you discharge static electricity from your body.
- Before transporting a static-sensitive component, place it in an anti-static container or packaging.

ESD field service kit

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

Components of an ESD field service kit

The components of an ESD field service kit are:

- **Anti-Static Mat** – The anti-static mat is dissipative and parts can be placed on it during service procedures. When using an anti-static mat, your wrist strap should be snug and the bonding wire should be connected to the mat and to any bare metal on the system being worked on. Once deployed properly, service parts can be removed from the ESD bag and placed directly on the mat. ESD-sensitive items are safe in your hand, on the ESD mat, in the system, or inside a bag.
- **Wrist Strap and Bonding Wire** – The wrist strap and bonding wire can be either directly connected between your wrist and bare metal on the hardware if the ESD mat is not required, or connected to the anti-static mat to protect hardware that is temporarily placed on the mat. The physical connection of the wrist strap and bonding wire between your skin, the ESD mat, and the hardware is known as bonding. Use only Field Service kits with a wrist strap, mat, and bonding wire. Never use wireless wrist straps. Always be aware that the internal wires of a wrist strap are prone to damage from normal wear and tear, and must be checked regularly with a wrist strap tester in order to avoid accidental ESD hardware damage. It is recommended to test the wrist strap and bonding wire at least once per week.
- **ESD Wrist Strap Tester** – The wires inside of an ESD strap are prone to damage over time. When using an unmonitored kit, it is a best practice to regularly test the strap prior to each service call, and at a minimum, test once per week. A wrist strap tester is the best method for doing this test. If you do not have your own wrist strap tester, check with your regional office to find out if they have one. To perform the test, plug the wrist-strap's bonding-wire into the tester while it is strapped to your wrist and push the button to test. A green LED is lit if the test is successful; a red LED is lit and an alarm sounds if the test fails.
- **Insulator Elements** – It is critical to keep ESD sensitive devices, such as plastic heat sink casings, away from internal parts that are insulators and often highly charged.
- **Working Environment** – Before deploying the ESD Field Service kit, assess the situation at the customer location. For example, deploying the kit for a server environment is different than for a desktop or portable environment. Servers are typically installed in a rack within a data center; desktops or portables are typically placed on office desks or cubicles. Always look for a large open flat work area that is free of clutter and large enough to deploy the ESD kit with additional space to accommodate the type of system that is being repaired. The workspace should also be free of insulators that can cause an ESD event. On the work area, insulators such as Styrofoam and other plastics should always be moved at least 12 inches or 30 centimeters away from sensitive parts before physically handling any hardware components
- **ESD Packaging** – All ESD-sensitive devices must be shipped and received in static-safe packaging. Metal, static-shielded bags are preferred. However, you should always return the damaged part using the same ESD bag and packaging that the new part arrived in. The ESD bag should be folded over and taped shut and all the same foam packing material should be used in the original box that the new part arrived in. ESD-sensitive devices should be removed from packaging only at an ESD-protected work surface, and parts should never be placed on top of the ESD bag because only the inside of the bag is shielded. Always place parts in your hand, on the ESD mat, in the system, or inside an anti-static bag.
- **Transporting Sensitive Components** – When transporting ESD sensitive components such as replacement parts or parts to be returned to Dell, it is critical to place these parts in anti-static bags for safe transport.

ESD protection summary

It is recommended 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.

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 List
- Major components of your system
- micro-SD card
- SIM card tray
- Base cover
- Solid-state drive
- WWAN card
- Battery
- Heatsink assembly
- Palmrest antenna module
- Display assembly
- Audio board
- Speakers
- SmartCard reader
- System board
- I/O board
- Power button with fingerprint reader
- Keyboard
- Palmrest assembly

Recommended tools

The procedures in this document require the following tools:

- Phillips #0 screwdriver
- Plastic scribe: Recommended for field technicians.

Screw List

The following table shows the screw list and the image of the screws.

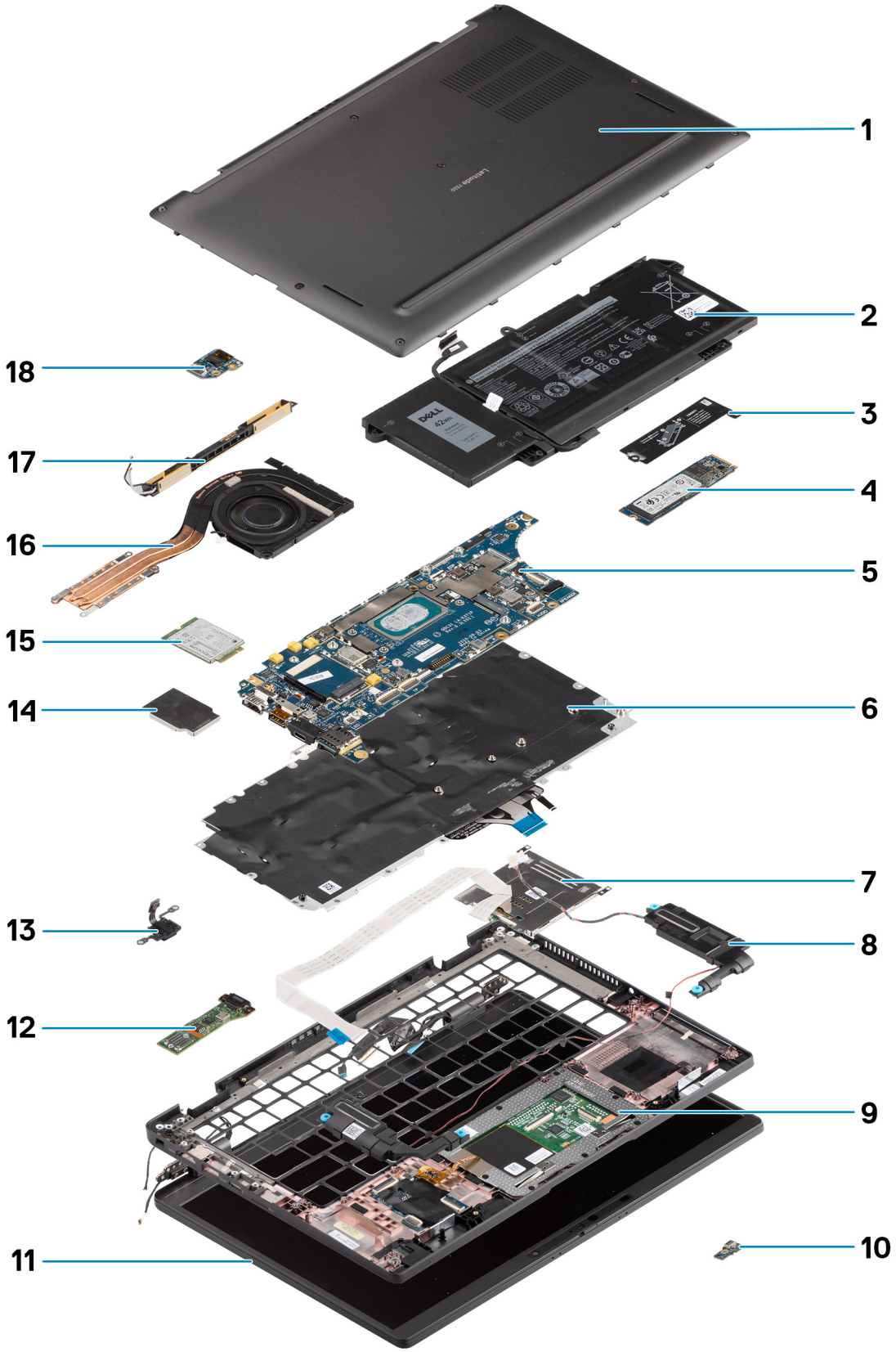
Table 1. Screw list

Component	Screw type	Quantity	Image
Base cover	Captive screws	8	

Table 1. Screw list (continued)

Component	Screw type	Quantity	Image
	NOTE: Screws are part of the base cover.		
Solid-state drive	M2x2	2	
WWAN	M2x2.5	1	
3-cell Battery	M2.5x4 Captive screws	1 4	
Heatsink assembly	M2x2.5	6	
Palmrest antenna	M2x2 M2x2.5	1 2	
Display assembly	M2x2 M2.5x5	3 4	
Audio board	M2x2.5	1	
SmartCard reader	M2x2.5	3	
System board	M2x3 M2x4	9 2	
I/O board	M2x4	2	
Power button with fingerprint reader	M1.6x1.7	2	
Keyboard	M1.6x1.7 M2x2	18 2	

Major components of your system



1. Base cover

2. Battery
3. Solid-state drive shield
4. Solid-state drive
5. System board
6. Keyboard assembly
7. SmartCard reader
8. Speakers
9. Palmrest assembly
10. LCD board
11. Display assembly
12. I/O board
13. Power button with fingerprint reader
14. WWAN card shield
15. WWAN card
16. Heatsink
17. Palmrest antenna
18. Audio board

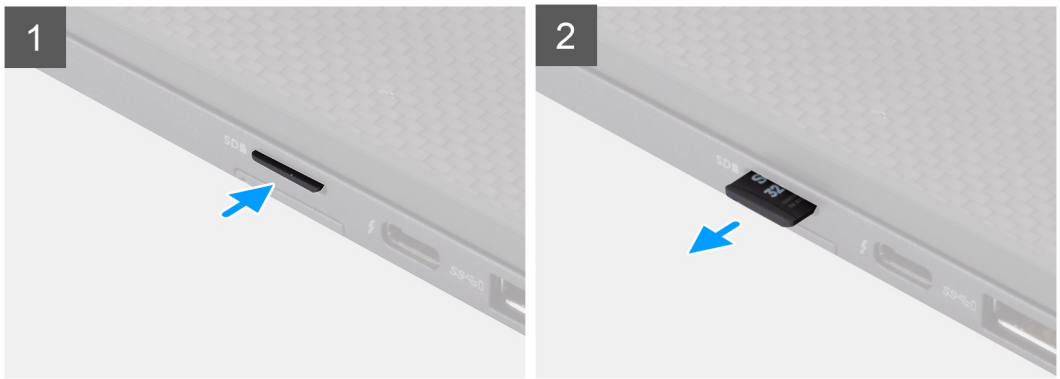
NOTE: Dell provides a list of components and their part numbers for the original system configuration purchased. These parts are available according to warranty coverages purchased by the customer. Contact your Dell sales representative for purchase options.

micro-SD card

Removing the micro-SD card

About this task

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



Steps

1. Push the micro-SD card to eject it from the slot.
2. Remove the micro-SD card from the computer.

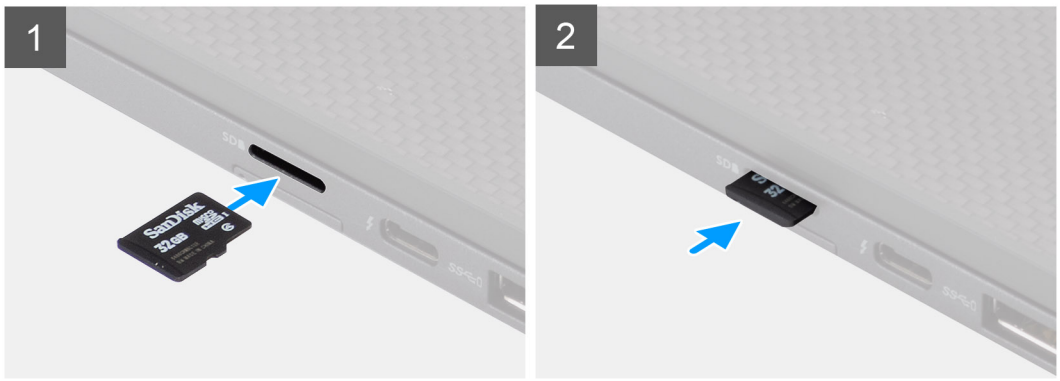
Installing the micro-SD card

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 micro-SD card reader slot and provides a visual representation of the installation procedure.



Steps

Insert the micro-SD card into its slot until it clicks into place.

SIM card tray

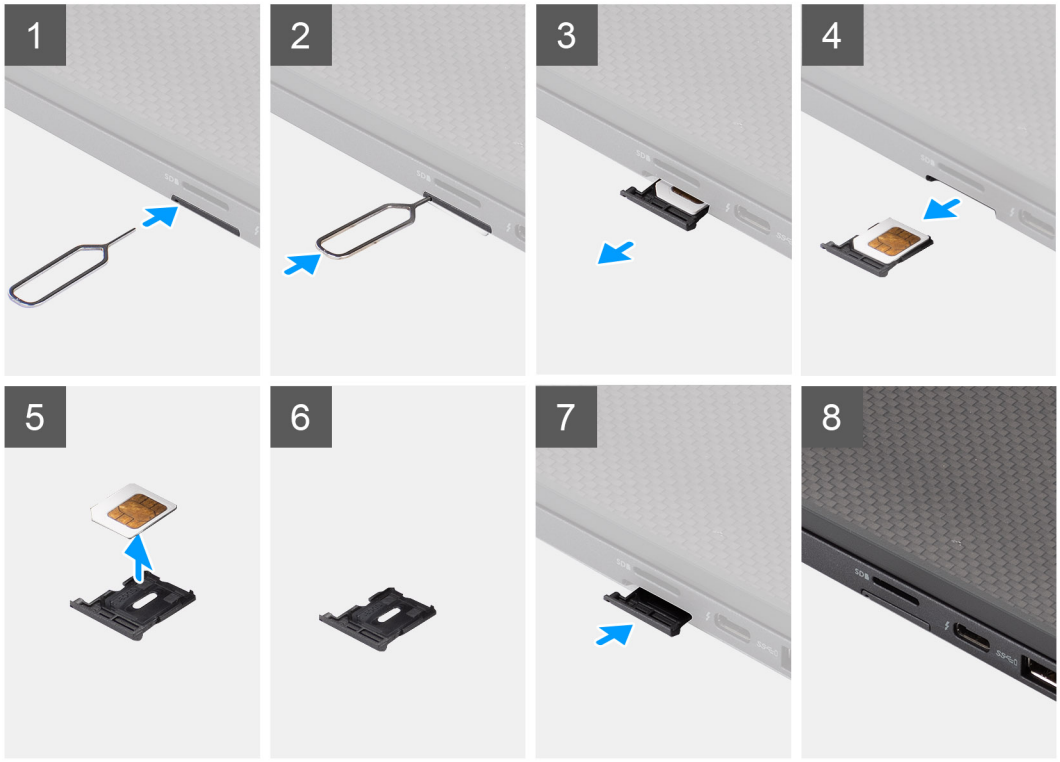
Removing the SIM card tray

Prerequisites

Follow the procedure in before working inside your computer.

About this task

The following image provides a visual representation of the SIM card tray removal procedure.



Steps

1. Insert a pin into the release hole to release the SIM card tray.
2. Push the pin to disengage the lock, and eject the SIM card tray.
3. Slide the SIM card tray out of the slot on the system.
4. Remove the SIM card from the SIM card tray.
5. Slide and push the SIM card tray back into the slot.

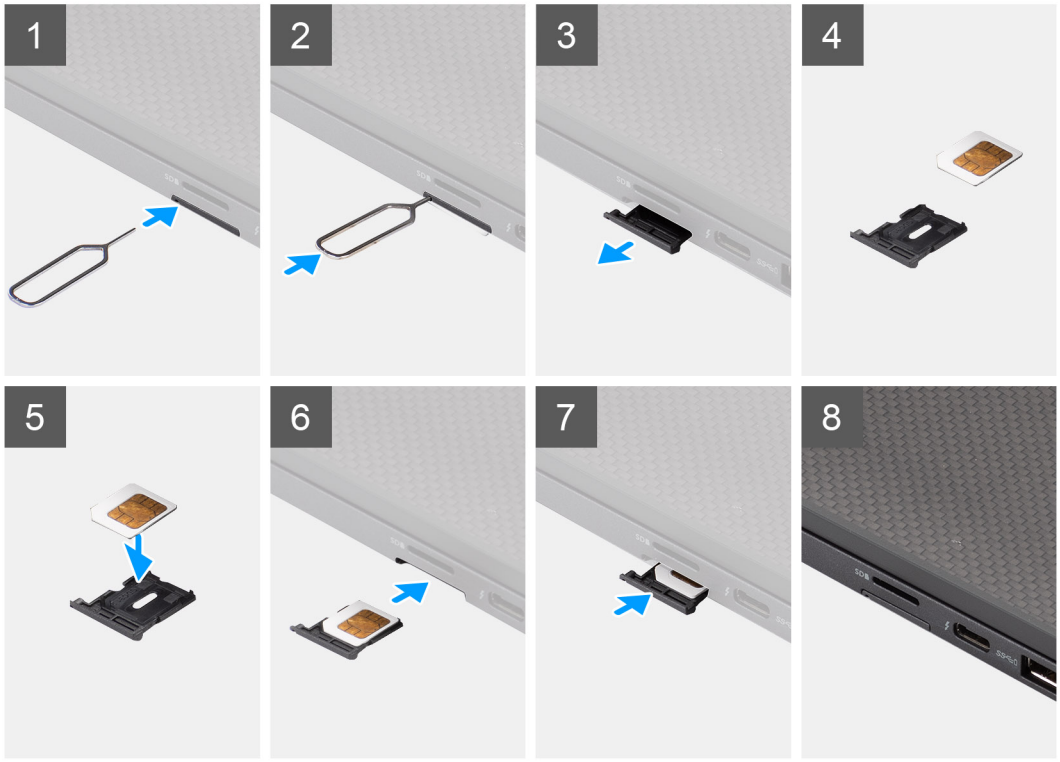
Installing the SIM card tray

Prerequisites

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

About this task

The following image provides a visual representation of the SIM card tray installation procedure.



Steps

1. Align and place the SIM card in the dedicated slot on the SIM card tray.
2. Slide the SIM card tray into the slot in the system [6], and push it to lock in place.

Next steps

Follow the procedure in After working on your computer.

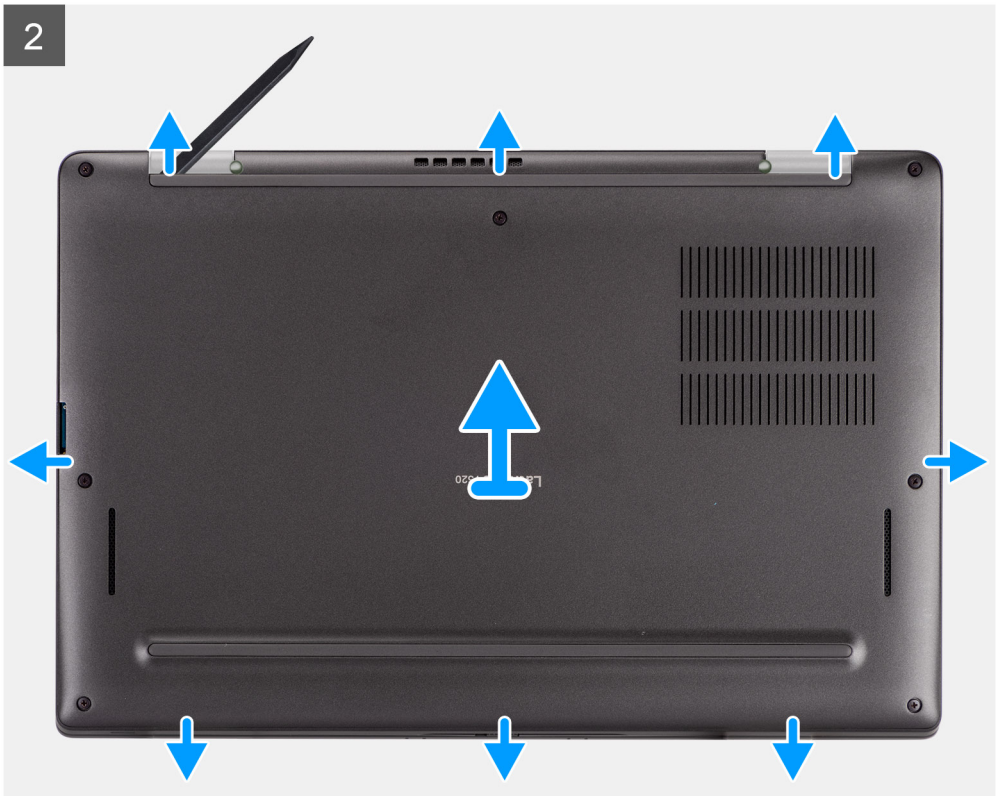
Base cover

Removing the base cover

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the microSD card.
3. Enter the service mode.

About this task



Steps

1. Loosen the eight captive screws that secure the base cover to the computer.
2. Use a plastic scribe to pry open the base cover, starting from the U-shaped recesses near the hinges at the top edge of the base cover.

   CAUTION: Do not slide the scribe through the edge of the top side of the base cover as it damages the latches inside the base cover.

3. Pry open the left and right sides of the base cover.
4. Pry open the bottom side of the base cover.
5. Hold the left and right sides of the base cover and remove it from the computer.

Installing the base cover

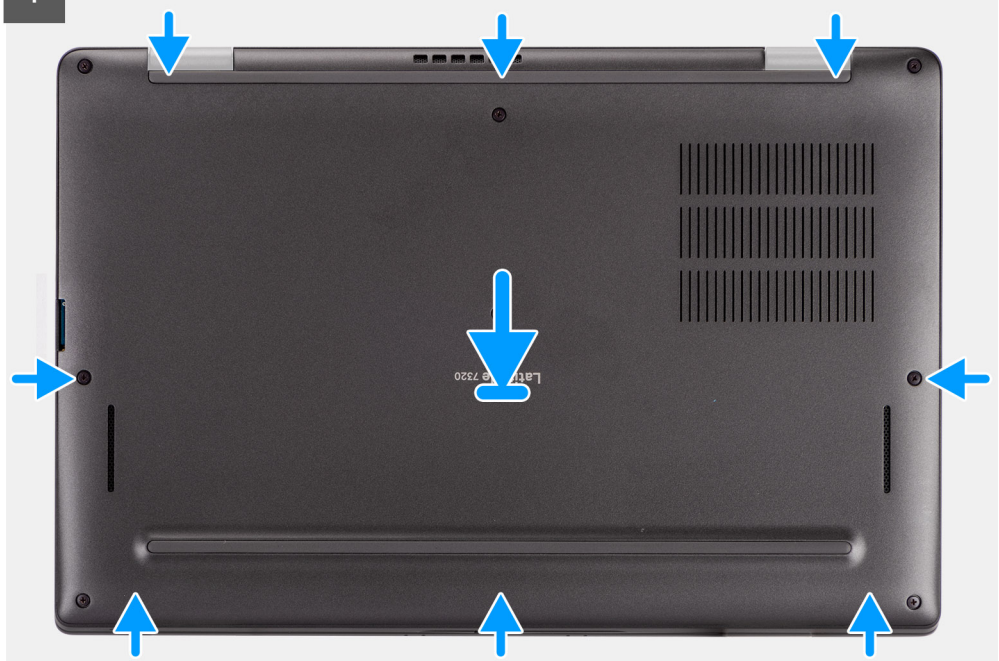
Prerequisites

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

About this task

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

1



2

Steps

1. Align and place the base cover on the computer, and snap the base cover latches into place.
2. Tighten the eight captive screws to secure the base cover to the computer.

Next steps

1. Install the microSD card.
2. **NOTE:** Plug-in AC before powering up your computer.

   Follow the procedure in after working inside your computer.

Solid-state drive

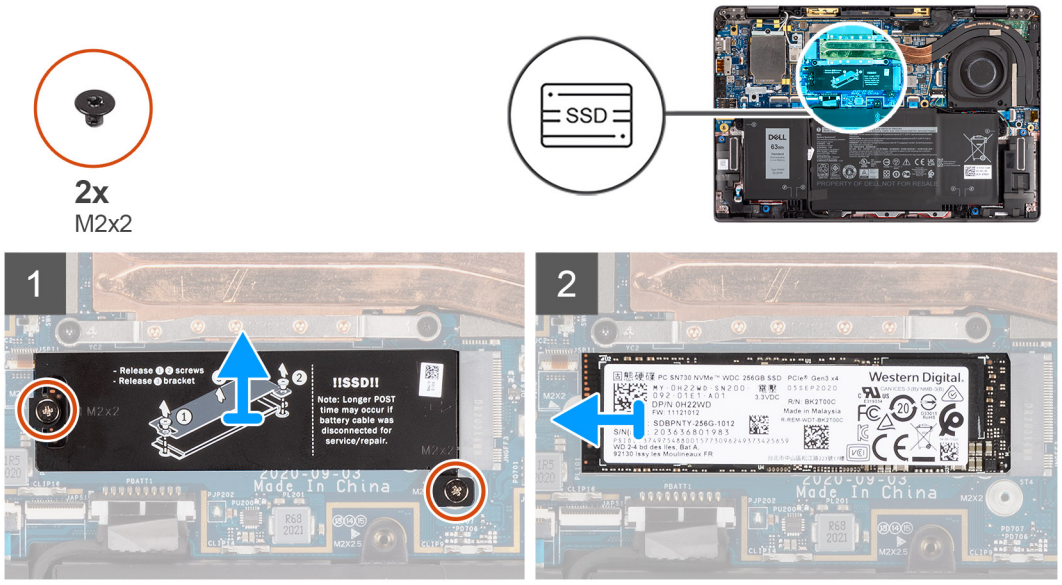
Removing the solid-state drive

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the microSD card.
3. Enter the service mode.
4. Remove the base cover.

About this task

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



Steps

1. Remove the two screws (M2x2) that secure the SSD shield and remove the shield from the SSD.
2. Slide and remove the solid-state drive from the M.2 slot on the system board.

   NOTE: A thermal pad is included with the SSD plate and must always be adhered to the plate. If the thermal pad gets separated from the plate or is adhered to the SSD, stick back the thermal pad to the SSD plate before reinstalling the plate to the SSD.

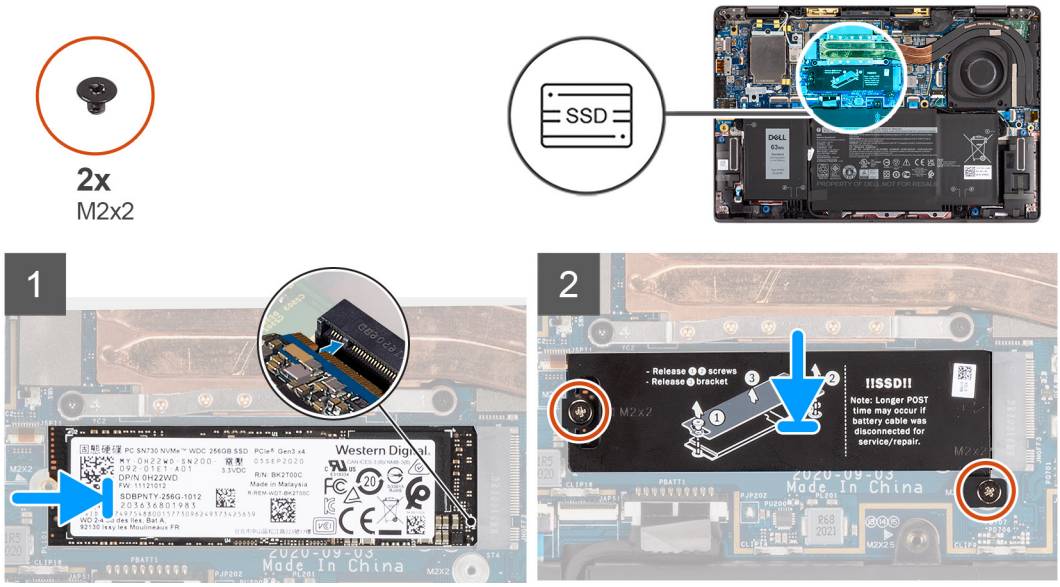
Installing the solid-state drive

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 solid-state drive and provides a visual representation of the installation procedure.



Steps

1. Align the notch on the SSD with the tab on the M.2 slot and slide the SSD into the M.2 card slot on the system board.
2. Replace the SSD shield, press to fit it firmly to cover the SSD, securing it with two (M2x2) screws.

Next steps

1. Install the base cover.
2. Install the microSD card.
3. **NOTE:** Plug-in AC before powering up your computer.

   Follow the procedure in after working inside your computer.

WWAN card

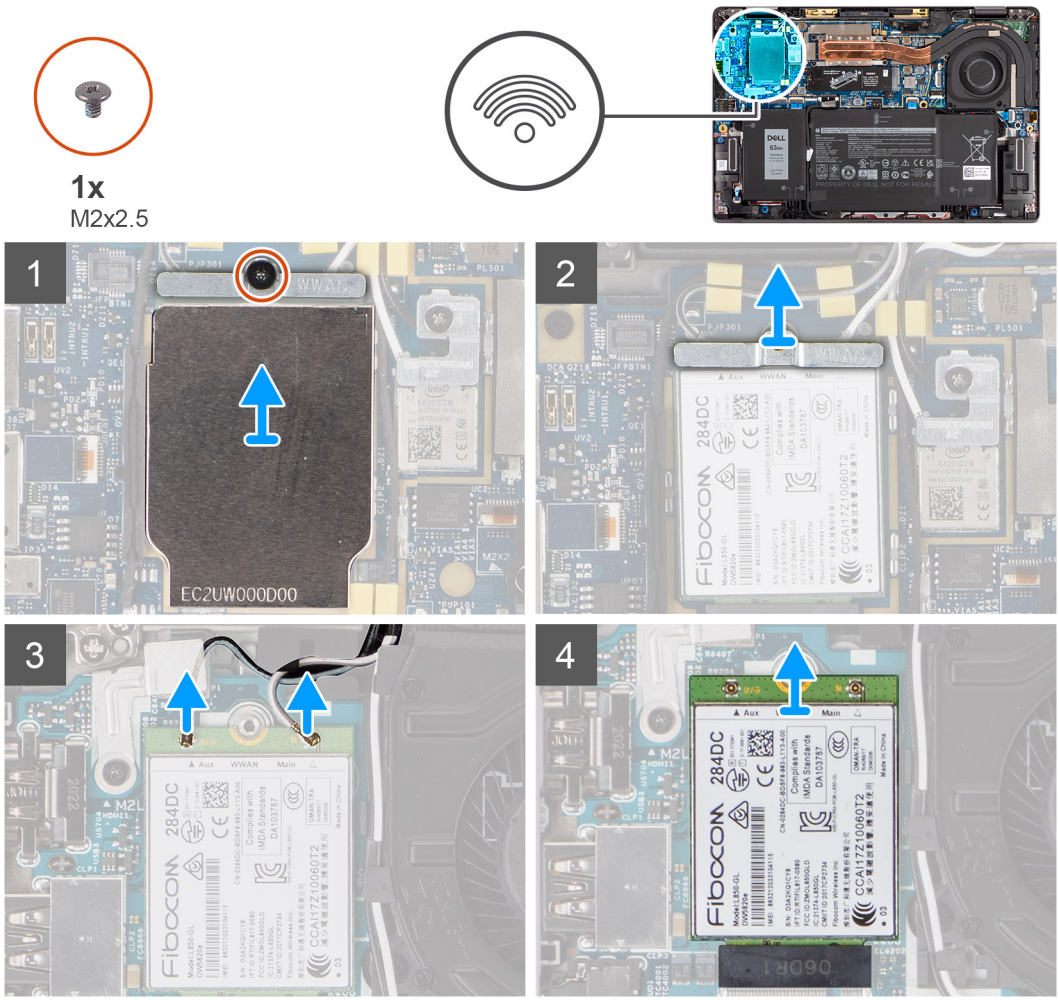
Removing the WWAN card

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the microSD card.
3. Enter the service mode.
4. Remove the base cover.

About this task

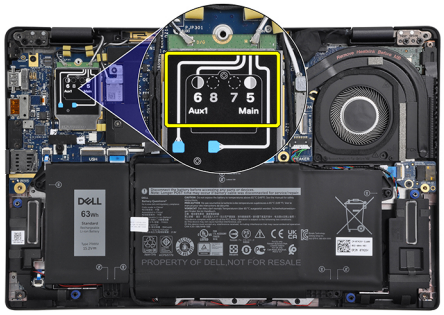
The following images indicate the location of the WWAN card and provide a visual representation of the removal procedure.



Steps

1. Using a plastic scribe, pry and remove the WWAN card shield covering the WWAN card.

   NOTE: Pry open the WWAN card shield from the recess on the top left corner.



2. Loosen the single (M2x2.5) screw and remove the WWAN-card bracket.
3. Disconnect the antenna cables from the connectors on the WWAN card.
4. Slide and remove the WWAN card out from the M.2 slot on the system board.

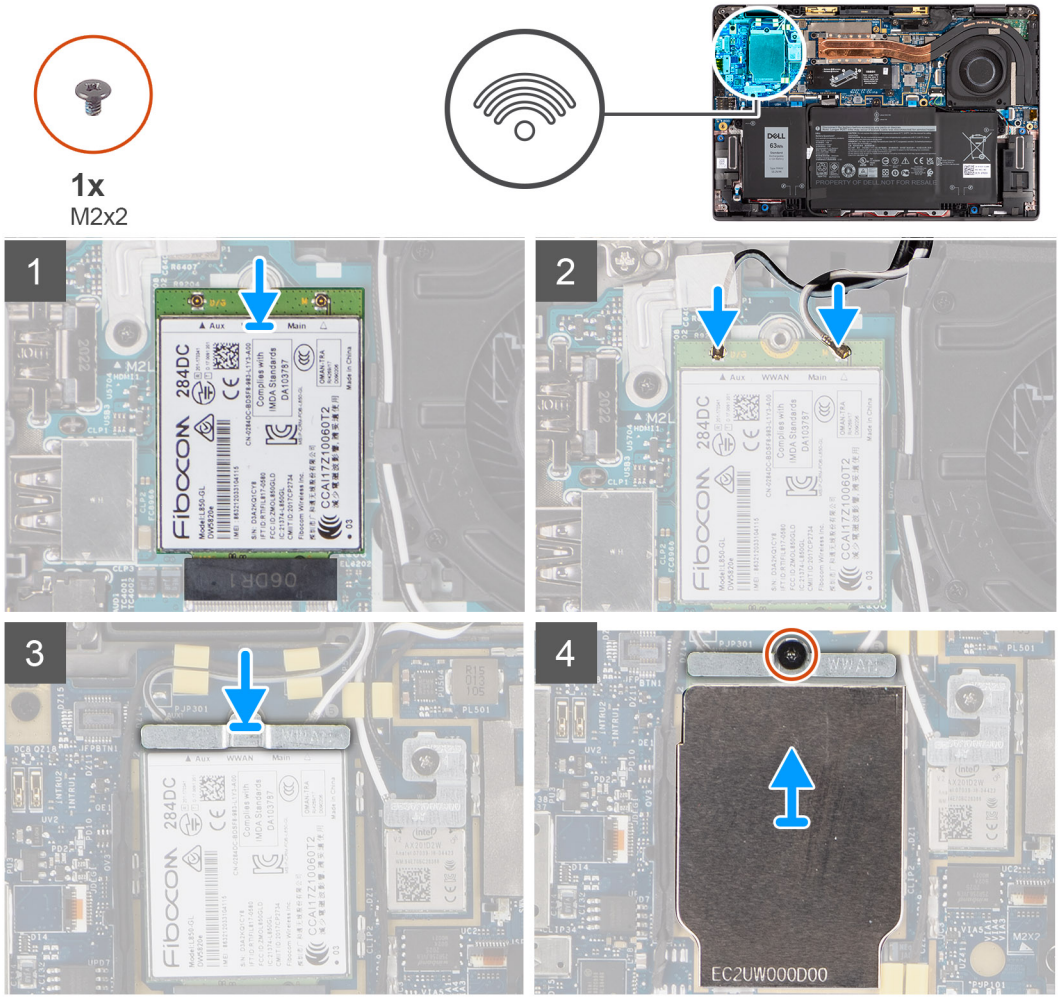
Installing the WWAN card

Prerequisites

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

About this task

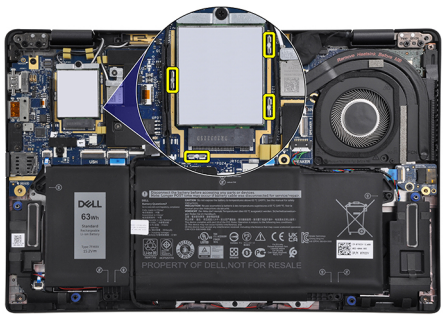
The following image indicates the location of the WWAN card and provides a visual representation of the installation procedure.



Steps

1. Align the notch on the WWAN card with the tab on the WWAN-card slot and slide the WWAN into the M.2 slot on the system board.
2. Connect the antenna cables to the connectors on the WWAN card.
3. Align and place the WWAN-card bracket and tighten the single (M2x2.5) screw securing it to the system board.
4. Replace the WWAN-card shield over the WWAN card.

NOTE: Insert the edges of the WWAN-card shield into the clips on the system board to secure it in place.



Next steps

1. Install the base cover.
2. Install the microSD card.
3. **NOTE:** Plug-in AC before powering up your computer.

   Follow the procedure in after working inside your computer.

Battery

Lithium-ion battery precautions

CAUTION:

- **Exercise caution when handling Lithium-ion batteries.**
- **Discharge the battery completely before removing it. Disconnect the AC power adapter from the system and operate the computer solely on battery power—the battery is fully discharged when the computer no longer turns on when the power button is pressed.**
- **Do not crush, drop, mutilate, or penetrate the battery with foreign objects.**
- **Do not expose the battery to high temperatures, or disassemble battery packs and cells.**
- **Do not apply pressure to the surface of the battery.**
- **Do not bend the battery.**
- **Do not use tools of any kind to pry on or against the battery.**
- **Ensure any screws during the servicing of this product are not lost or misplaced, to prevent accidental puncture or damage to the battery and other system components.**
- **If the battery gets stuck inside your computer as a result of swelling, do not try to release it as puncturing, bending, or crushing a lithium-ion battery can be dangerous. In such an instance, contact Dell technical support for assistance. See www.dell.com/contactdell.**
- **Always purchase genuine batteries from www.dell.com or authorized Dell partners and resellers.**

Removing the 3-cell battery

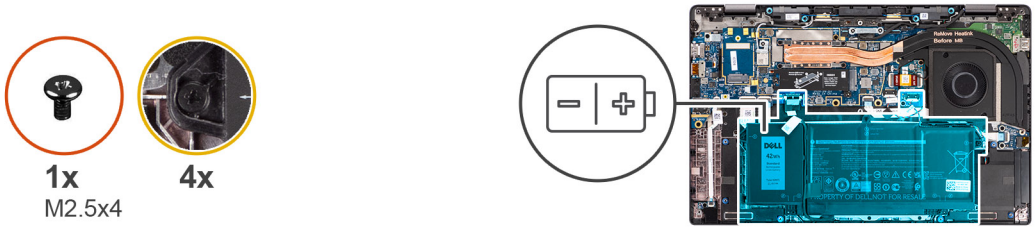
Prerequisites

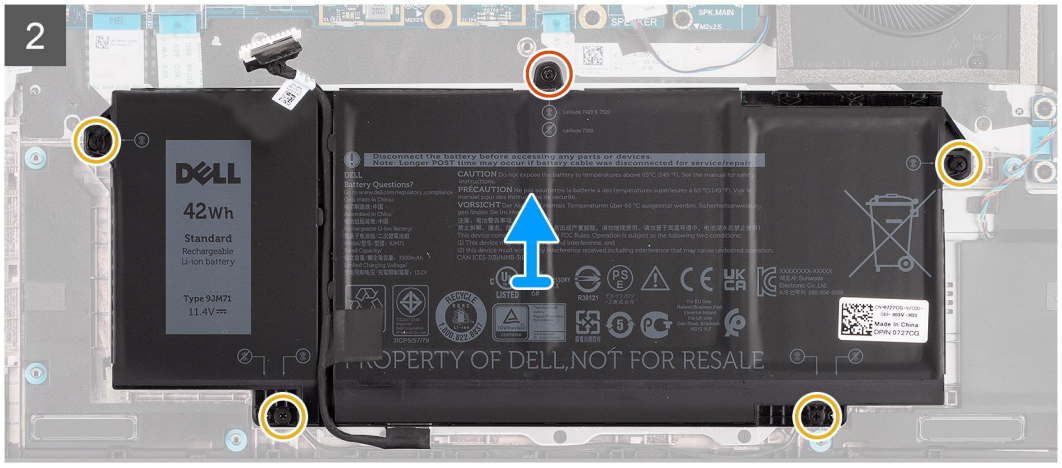
1. Follow the procedure in before working inside your computer.
2. Remove the microSD card.
3. Remove the base cover.

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

About this task

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





Steps

1. Disconnect the battery cable from the system board.
2. Disconnect the speaker cable from the speaker board and release the speaker cable from the routing guides over the upper right side of the battery.
3. Remove the single (M2.5x4) screw and the four captive screws that secure the battery to the computer.
4. Lift and remove the battery from the computer.

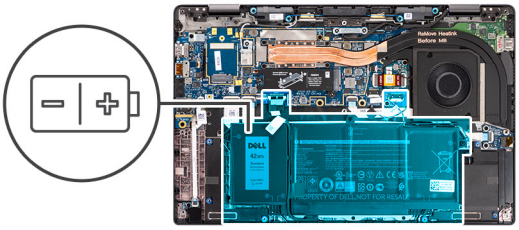
Installing the 3-cell battery

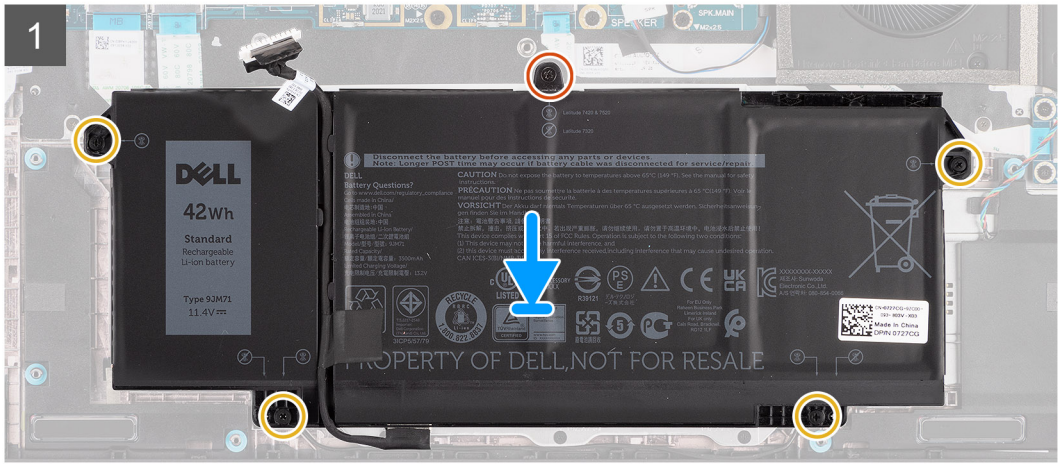
Prerequisites

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

About this task

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





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

Steps

1. Align and place the battery into the computer.
2. Install the single (M2.5x4) screw and four captive screws to secure the battery in place.
3. Connect the speaker cable to the speaker board and reroute the speaker cable into its routing channel over the upper right side of the battery
4. Connect the battery cable to the system board.

Next steps

1. Install the base cover.
2. Install the microSD card.
3. Follow the procedure in after working inside your computer.

Removing the 4-cell battery

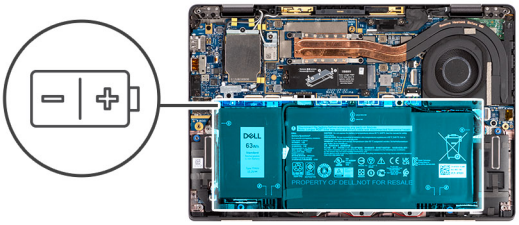
Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the microSD card.
3. Remove the base cover.

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

About this task

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



Steps

1. Disconnect the battery cable from the system board.
2. Disconnect the speaker cable from the speaker board and unroute the speaker cable from its routing channel over the upper right side of the battery.
3. Remove the four captive screws that secure the battery to the computer.
4. Lift the battery and remove the battery from the computer.

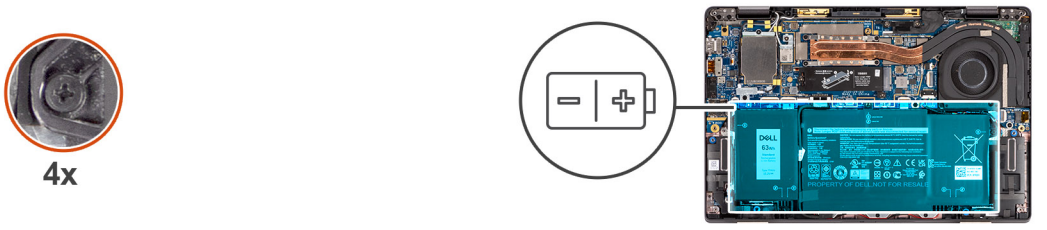
Installing the 4-cell battery

Prerequisites

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

About this task

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



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

Steps

1. Align and place the battery into the computer.
2. Install the four captive screws to secure the battery in place.
3. Connect the speaker cable to the speaker board and reroute the speaker cable into its routing channel over the upper right side of the battery.
4. Connect the battery cable to the system board.

Next steps

1. Install the base cover.
2. Install the microSD card.
3. Follow the procedure in after working inside your computer.

Heatsink assembly

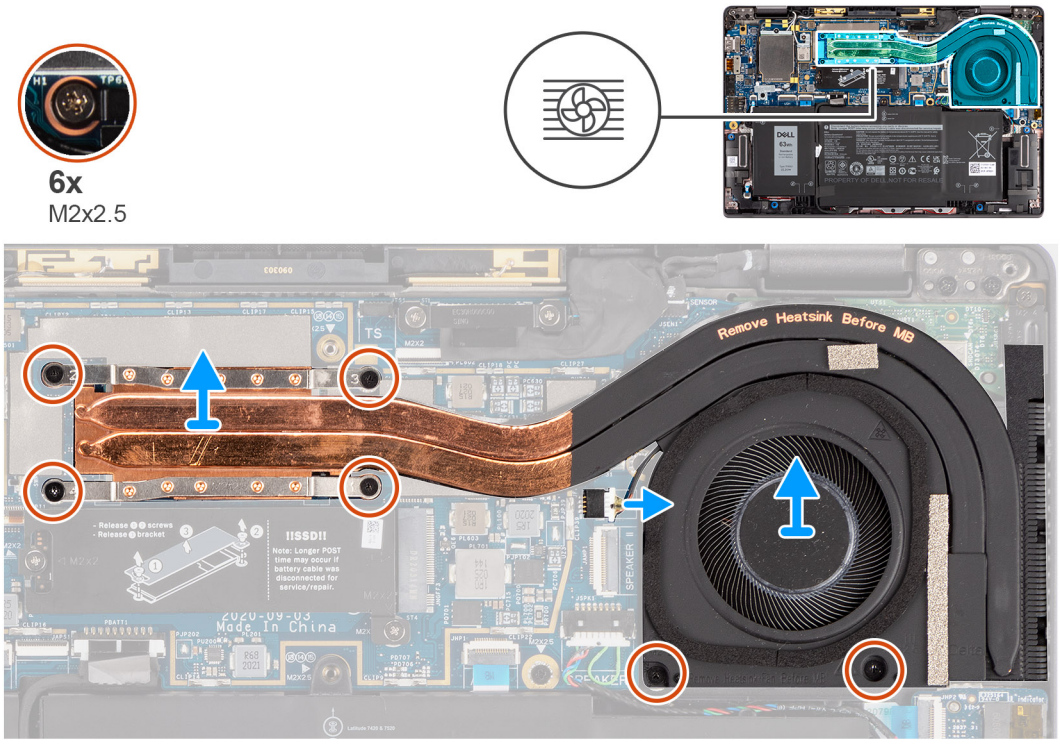
Removing the heatsink assembly

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the microSD card.
3. Enter the service mode.
4. Remove the base cover.

About this task

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



Steps

1. Disconnect the fan cable from the system board.
2. Remove the two (M2x2.5) screws on the fan case and the four (M2x2.5) screws (in reverse order, 4->3->2->1) that secure the heatsink to the computer.
3. Lift the heatsink assembly from the computer.

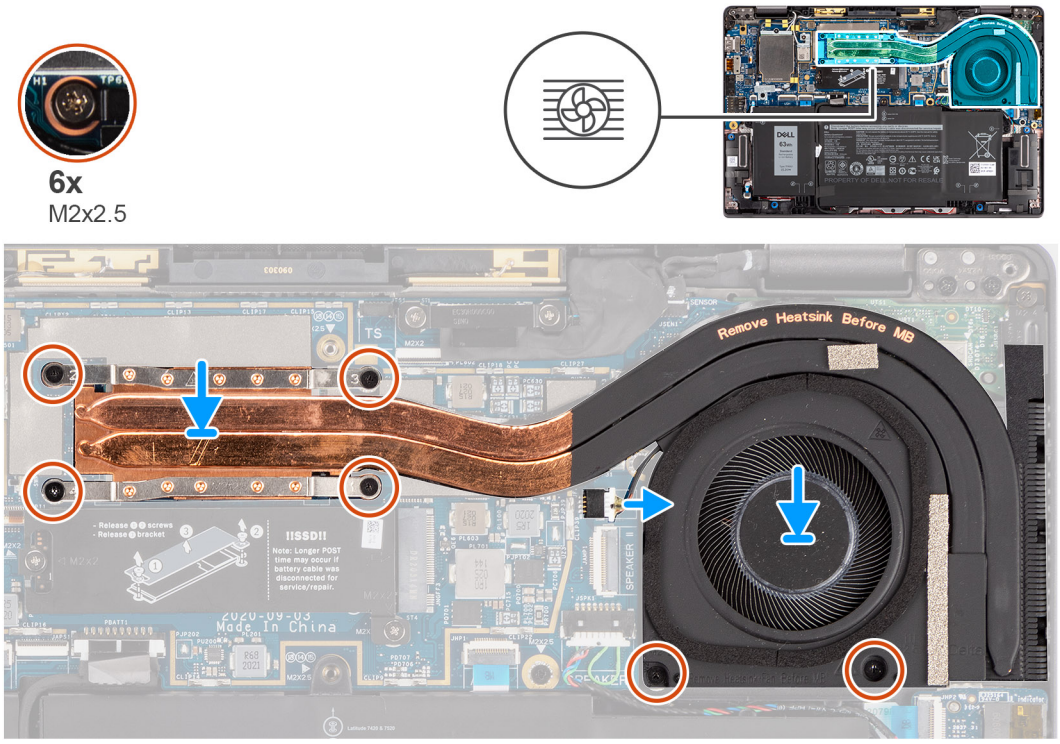
Installing the heatsink assembly

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 heatsink assembly and provides a visual representation of the installation procedure.



Steps

1. Align and place the heatsink assembly into its slot in the computer.
2. Replace the two (M2x2.5) screws on the fan casing and four (M2x2.5) screws (in sequential order, 1->2->3->4) to secure the heatsink assembly to the computer.
3. Connect the fan cable to the system board.

Next steps

1. Install the base cover.
2. Install the microSD card.
3. **NOTE:** Plug-in AC before powering up your computer.

   Follow the procedure in after working inside your computer.

Palmrest antenna module

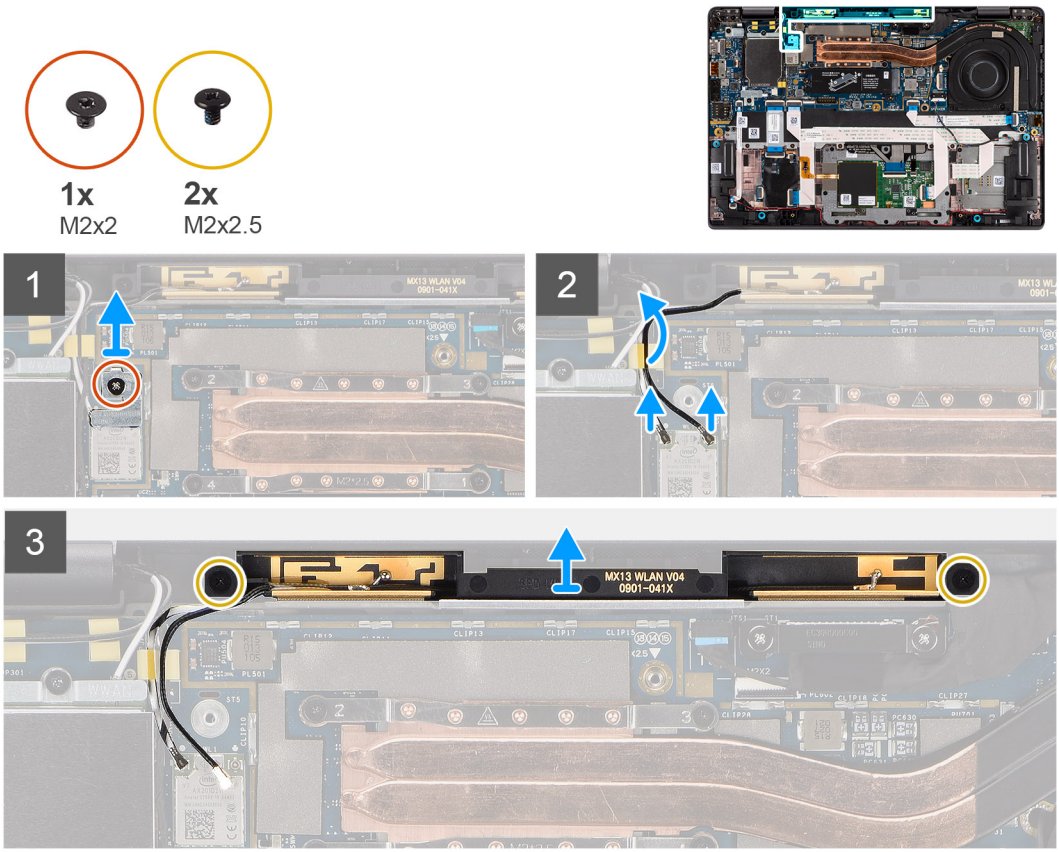
Removing the palmrest antenna module

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the microSD card.
3. Remove the base cover.

About this task

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



Steps

1. Remove the (M2x2) screw that secures the palmrest bracket to the system board.
2. Disconnect and unroute the antenna cables connected to the WLAN module on the system board.
3. Remove the two (M2x2.5) screws that secure the palmrest antenna module to the system.
4. Lift the palmrest antenna module away from the system.

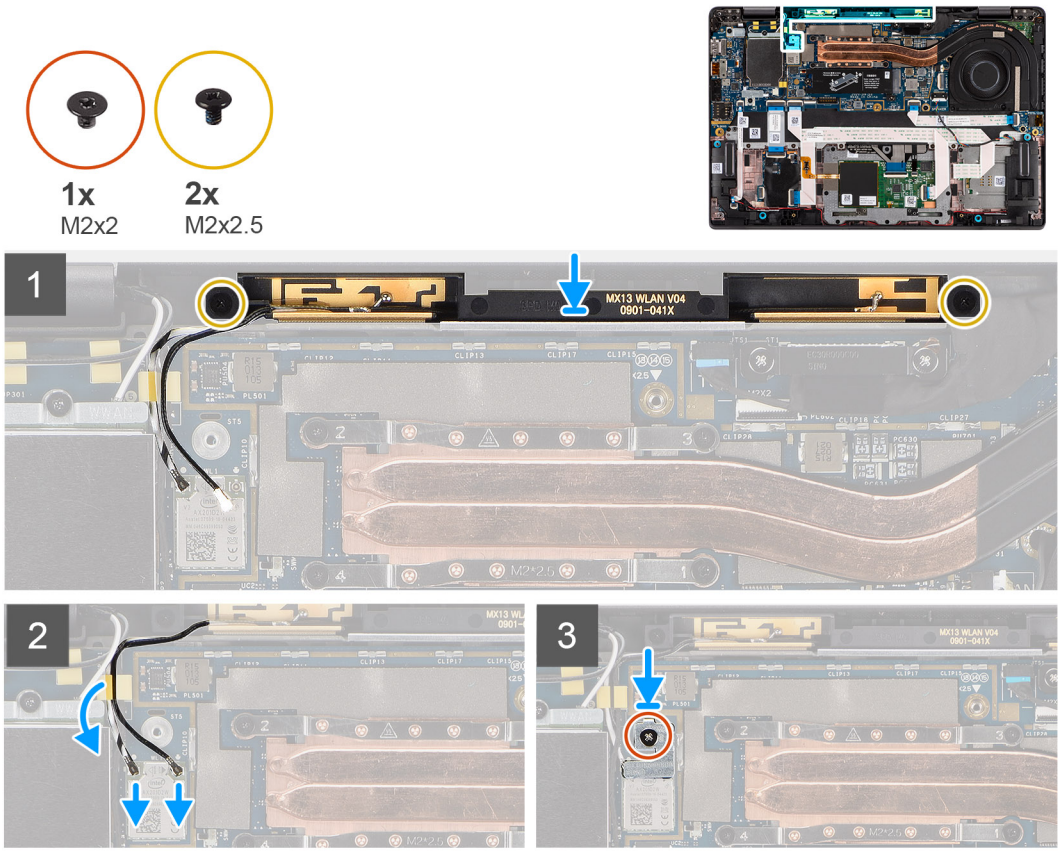
Installing the palmrest antenna module

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 palmrest antenna module and provides a visual representation of the installation procedure.



Steps

1. Place the palmrest antenna module on the system and replace the two (M2x2.5) screws that secure it to the system.
2. Reroute the antenna cables through the routing channel and connect them to the WLAN module on the system board.
3. Replace the (M2x2) screw that secures the WLAN bracket to the system board.

Next steps

1. Install the base cover.
2. Install the microSD card.
3. Follow the procedure in after working inside your computer.

Display assembly

Removing the display assembly

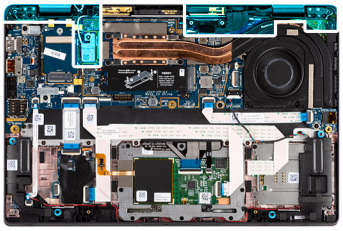
Prerequisites

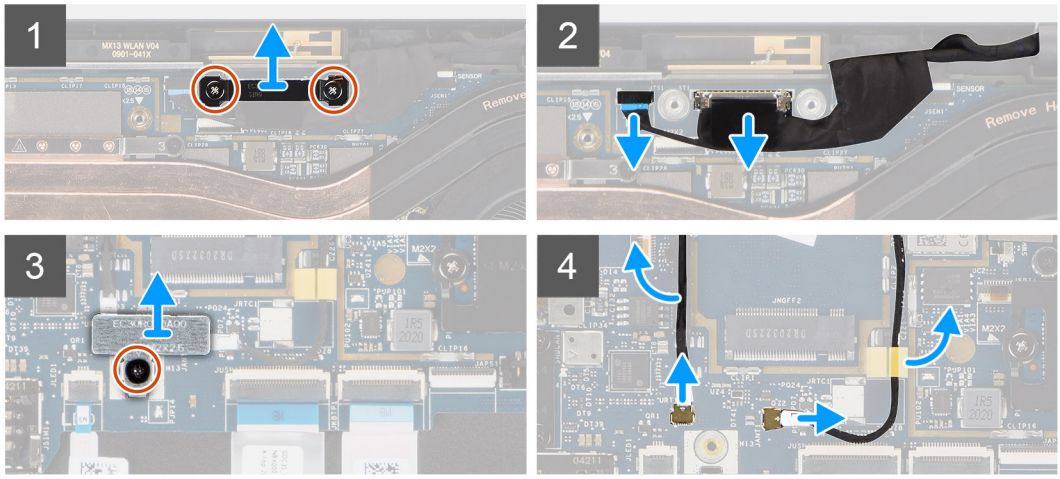
1. Follow the procedure in before working inside your computer.
2. Remove the microSD card.
3. Enter the service mode.
4. Remove the base cover.
5. Remove the WWAN card.

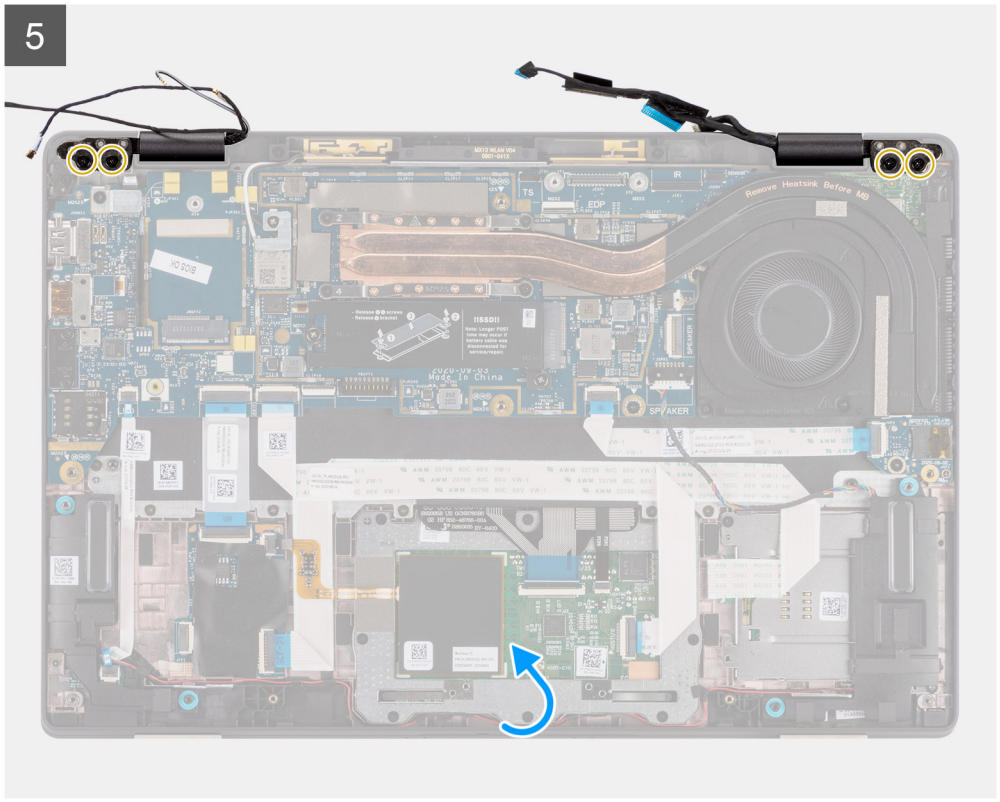
About this task

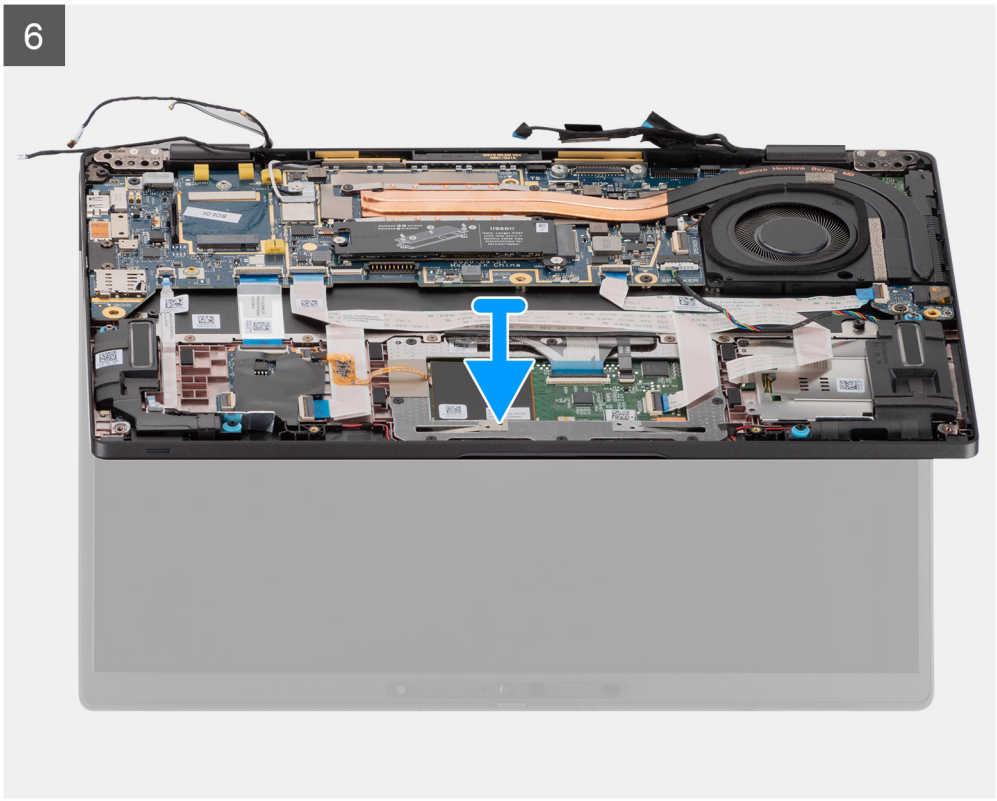
The following images indicate the location of the display assembly and provide a visual representation of the removal procedure.

3x
M2x2
4x
M2.5x5




1
2
3
4


5



Steps

1. Remove the two (M2x2) securing the display cable bracket to the system board.
2. Lift to remove the display cable bracket from the computer.
3. Disconnect the display, camera, touch screen, sensor board cables from the system board and release them from cable guiding tabs.
4. Open the display lid to 90º angle and remove the four (M2.5x5) screws securing the hinges to the palmrest assembly.
5. Remove the display assembly from the computer.

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

Figure 1. Display assembly with antennae cables

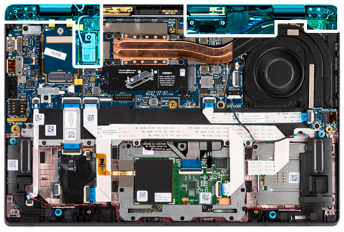
Installing the display assembly

Prerequisites

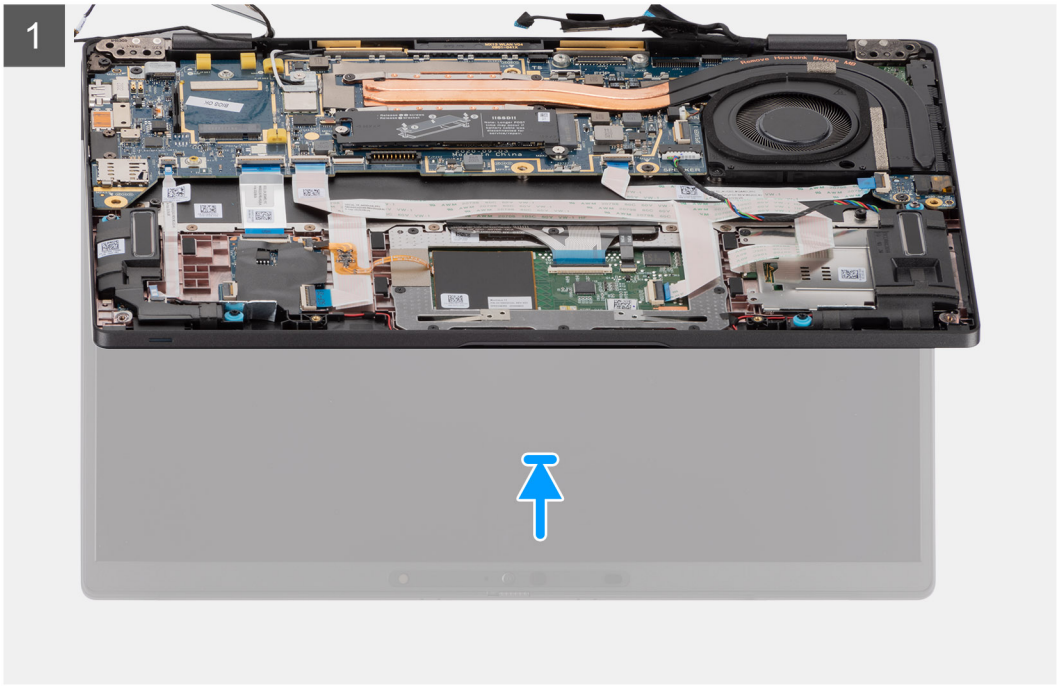
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

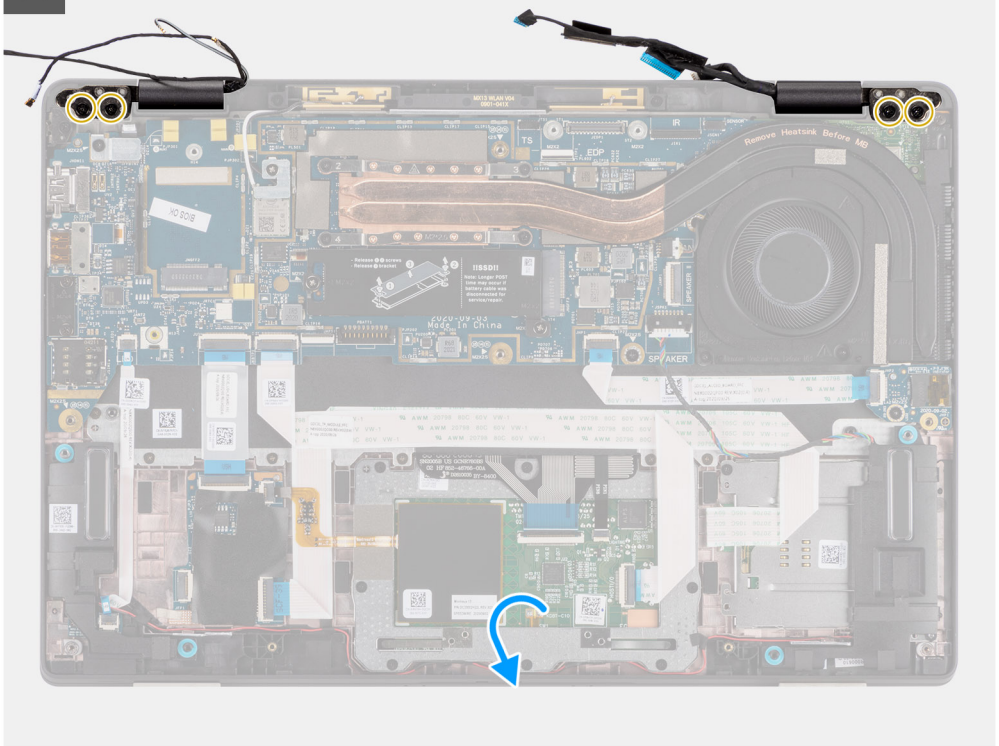
The following image indicates the location of the display assembly and provides a visual representation of the installation procedure.

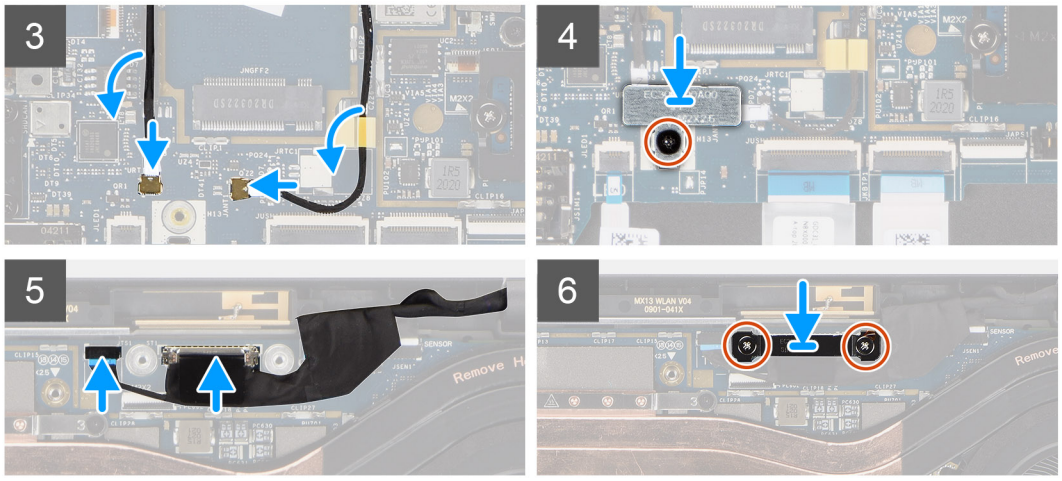


1



2





Steps

1. Align and place the display assembly at a convenient angle to the bottom chassis.
2. Replace the four (M2.5x5) screws securing the hinges to the bottom chassis.
3. Route the display cable along the guiding tabs and connect the display, camera, touch screen, sensor board cables to the system board.
4. Align and place the display cable bracket on the connector on the system board.
5. Install the two (M2x2) screws securing the display cable bracket to the system board.

Next steps

1. Install the WWAN card.
2. Install the base cover.
3. Install the microSD card.
4. **NOTE:** Plug-in AC before powering up your computer.

   Follow the procedure in after working inside your computer.

Audio board

Removing the audio board

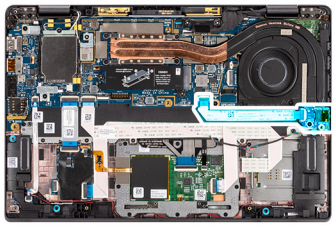
Prerequisites

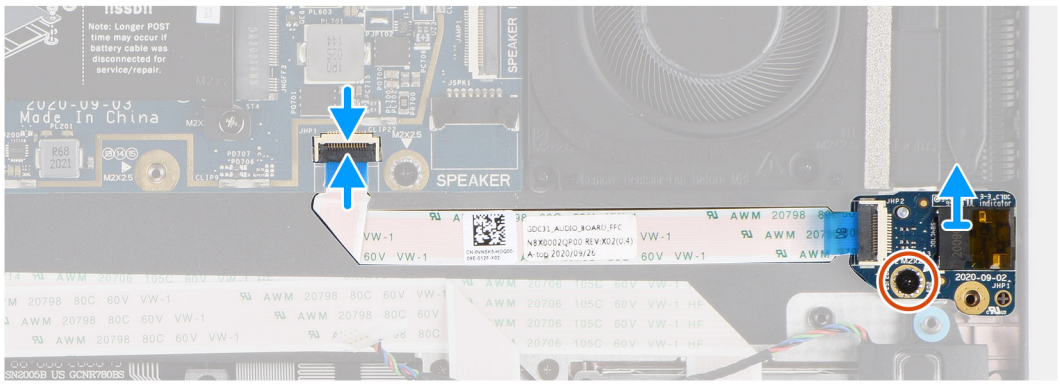
1. Follow the procedure in before working inside your computer.
2. Enter the service mode.
3. Remove the microSD card.
4. Remove the base cover.
5. Remove the battery.

About this task

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

1x
M2x2.5





Steps

1. Disconnect and peel the audio board FFC from the system board.
2. Remove the M2x2.5 screw that secures the audio board to the computer.
3. Lift and remove the audio board from the computer.

Installing the audio board

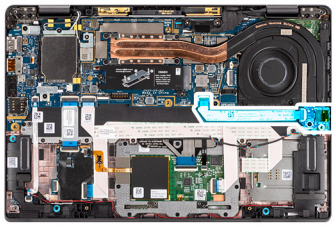
Prerequisites

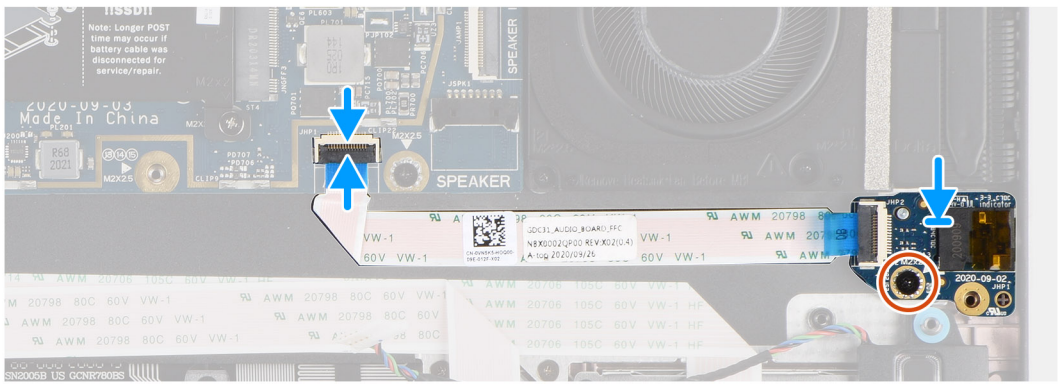
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

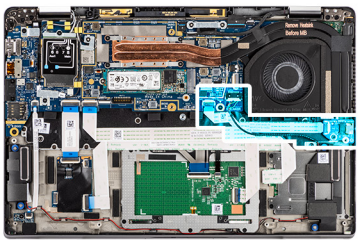
The following image indicates the location of the audio board and provides a visual representation of the installation procedure.

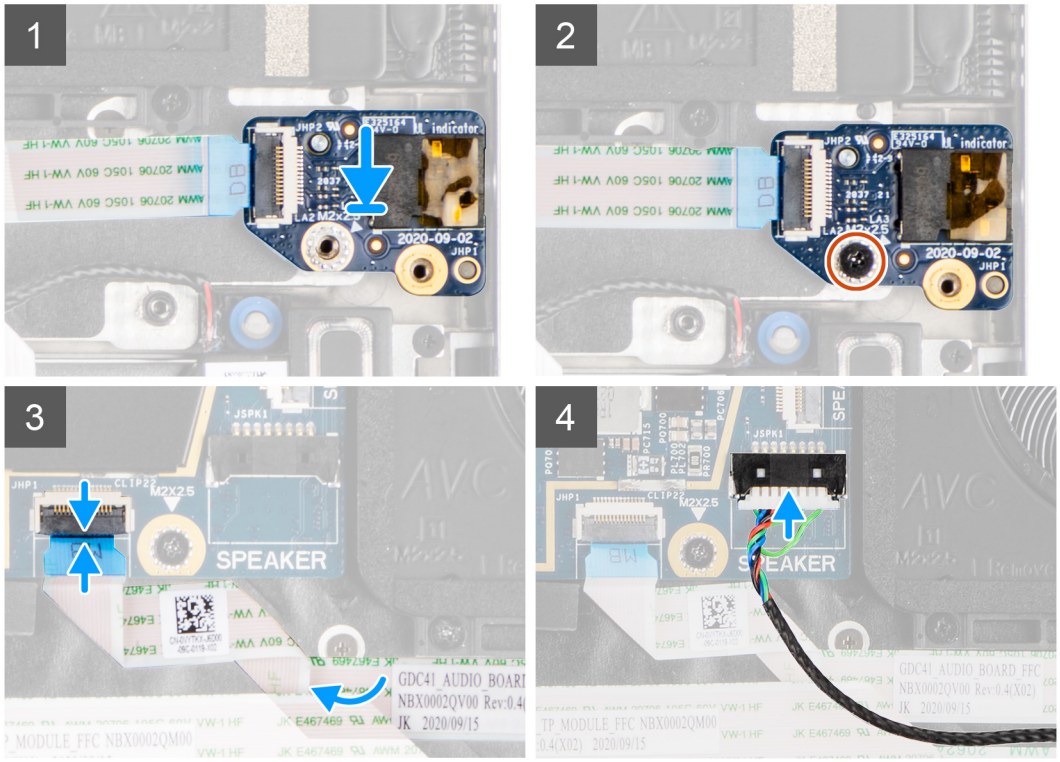
1x
M2x2.5





1x
M2x2.5





Steps

1. Align and replace the audio board into its slot in the computer.
2. Replace the M2x2.5 screw to secure the audio board to the computer.
3. Connect the audio board FFC to the system board.

Next steps

1. Install the battery.
2. Install the base cover.
3. Follow the procedure in after working inside your computer.

Speakers

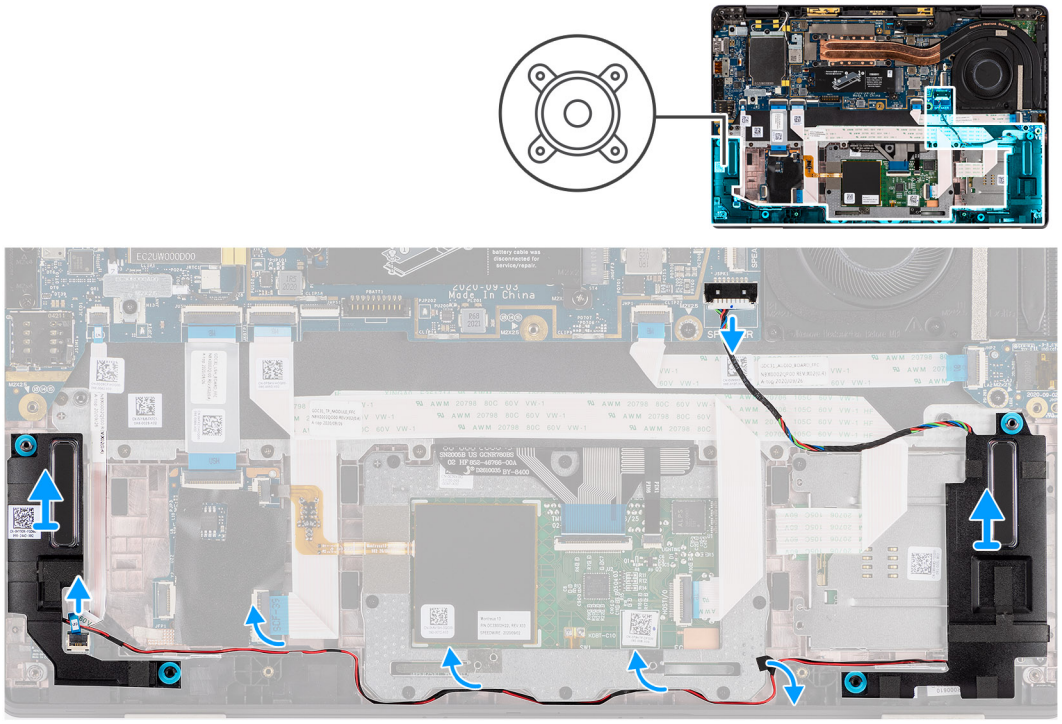
Removing the speakers

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the microSD card.
3. Remove the base cover.
4. Remove the battery.

About this task

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



Steps

1. Release the cable from the tabs on the palmrest assembly.
2. Lift and remove the speakers from the computer chassis.

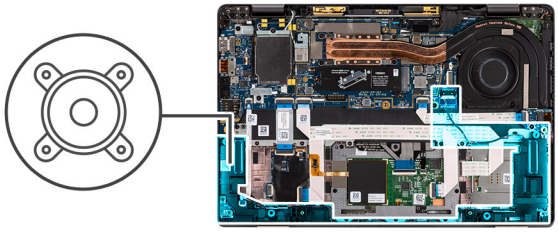
Installing the speaker

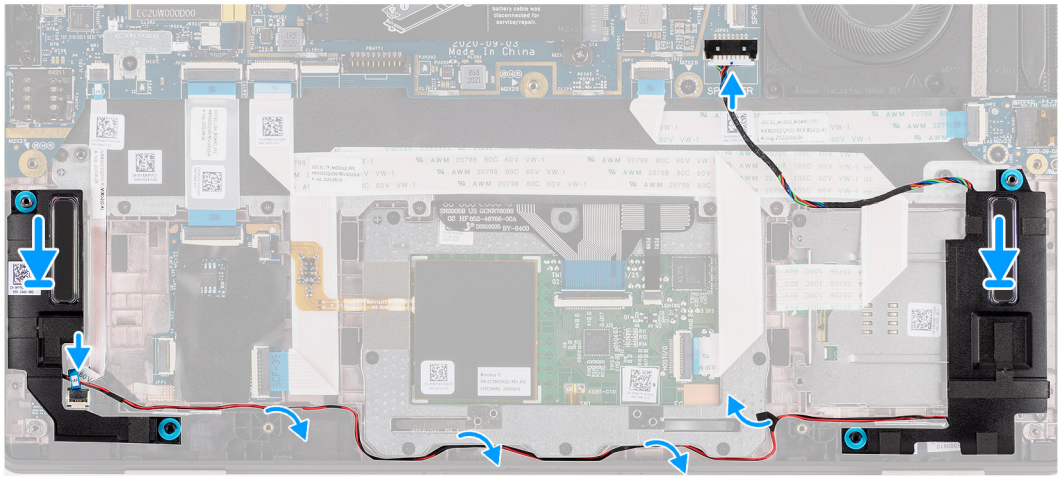
Prerequisites

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 speaker and provides a visual representation of the installation procedure.

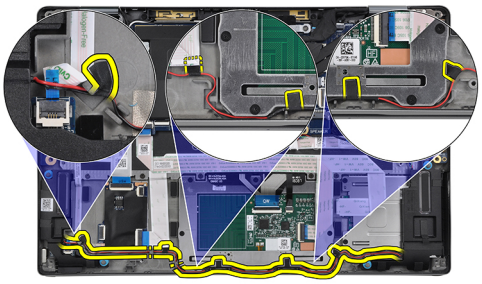




Steps

1. Replace the speaker into the slot in the computer.
2. Route the speaker cable along the cable guides on the palmrest assembly.

   NOTE: While replacing the speakers, route the speaker cable into the routing channels along the bottom side of the palmrest assembly.



Route the speaker cable over the LED board FFC and secure it in place with tape adhered to the palmrest and touchpad.

Next steps

1. Install the battery.
2. Install the base cover.
3. Install the microSD card.
4. Follow the procedure in after working inside your computer.

SmartCard reader

Removing the smart card reader

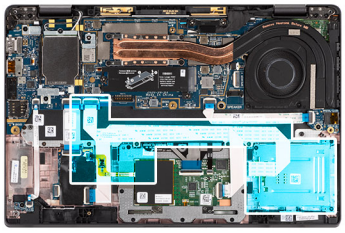
Prerequisites

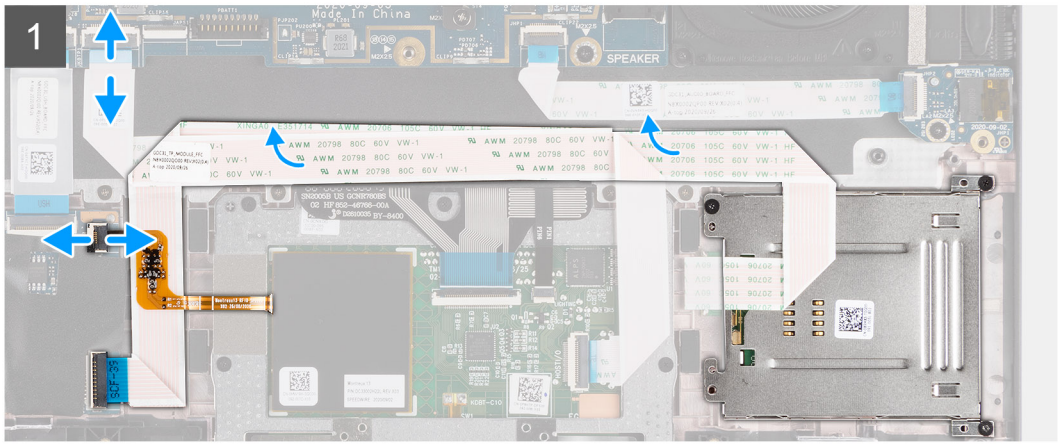
1. Follow the procedure in before working inside your computer.
2. Remove the microSD card.
3. Remove the base cover.
4. Remove the battery.
5. Remove the speaker.

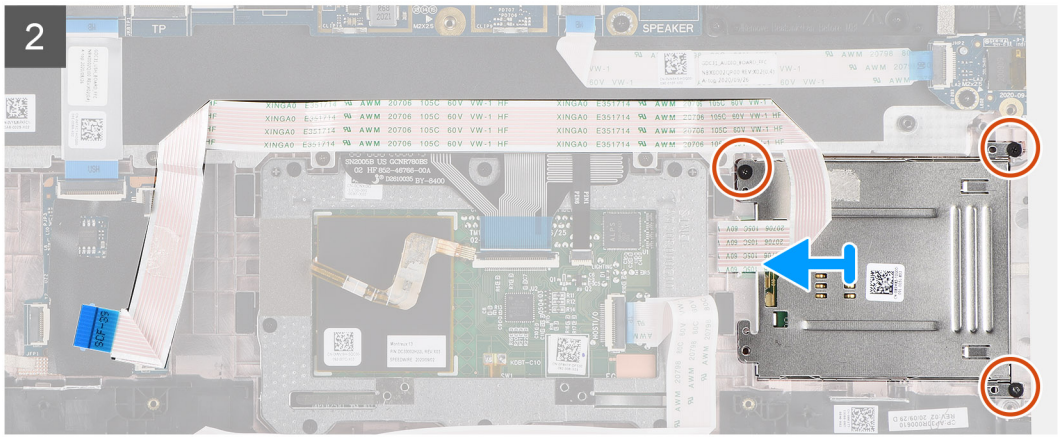
About this task

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

3x
M2x2.5







Steps

1. Disconnect the touchpad module and peel the FFC cable from over the touchpad module.
2. Disconnect the smart card reader and NFC module cables from the USH board.

3. Remove the three (M2x2.5) screws and slide the smart card reader out from its slot in the chassis.

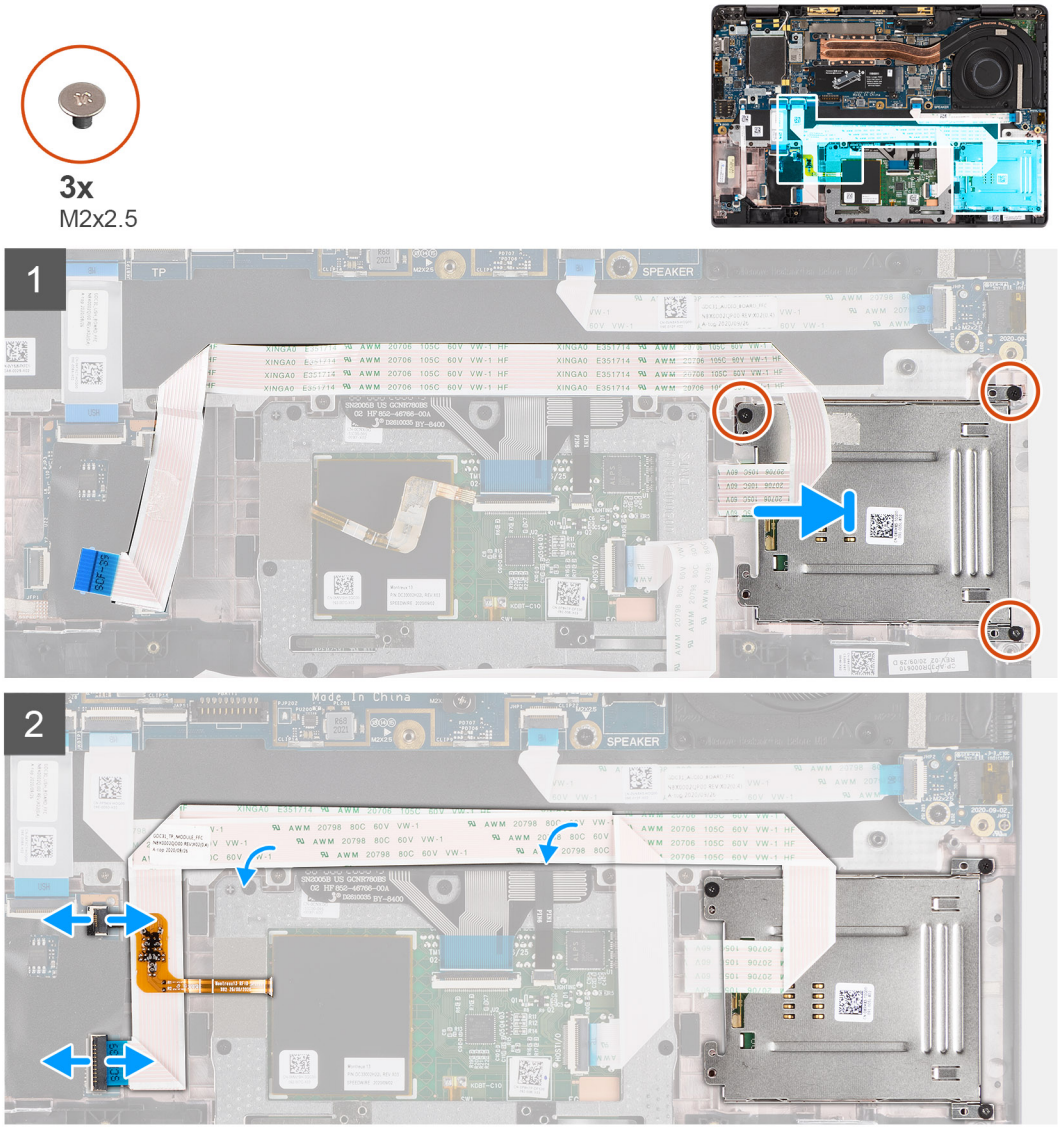
Installing the smart card reader

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. Slide the smart card reader into its slot in the computer chassis and secure it using the three (M2x2.5) screws.
2. Adhere the smart card reader and NFC module cable and connect it to the USH board.
3. Adhere the touchpad FFC cable along the sides of the touchpad module and connect it to the system board.

Next steps

1. Install the speaker.

2. Install the battery.
3. Install the base cover.
4. Install the microSD card.
5. Follow the procedure in after working inside your computer.

System board

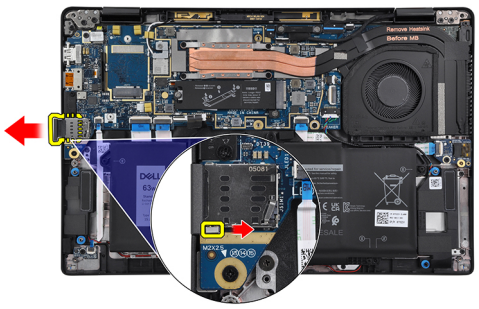
Removing the system board

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Enter the service mode.
3. Remove the microSD card.
4. Remove the SIM card.
5. Remove the base cover.
6. Remove the solid-state drive.
7. Remove the battery.
8. Remove the WWAN card.
9. Remove the heatsink assembly.

CAUTION: Remove the heatsink assembly before removing the system board as there are two (M2x3) screws underneath the heatsink that secures the system board to the computer.

NOTE: For configurations shipped with a carbon fiber palmrest and without WWAN antennas, the dummy SIM card tray must removed from the system before removing the system board.



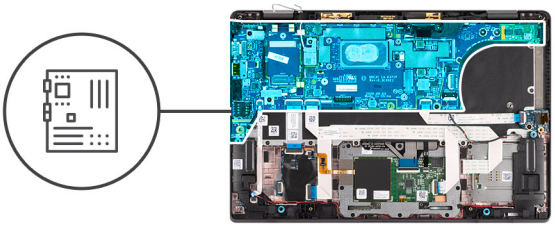
To remove the dummy SIM card tray, push the release latch inwards and then slide dummy card tray out of the computer.

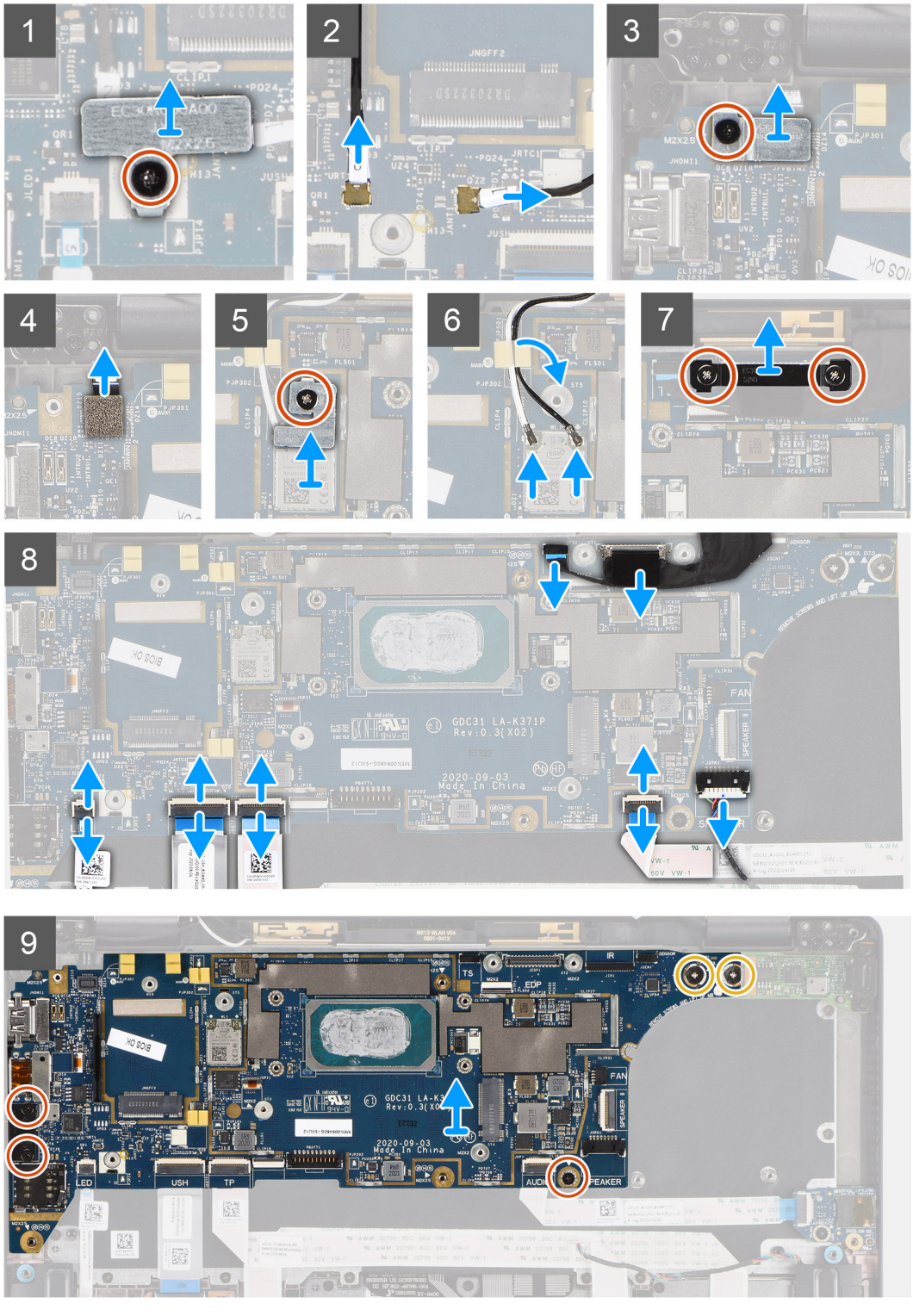
NOTE: For non-WWAN configurations, remove the WWAN card shield and WWAN card bracket before removing the system board.

About this task

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

9x
M2x3
2x
M2x4




1
2
3
4
5
6
7
8
9
GDC31 LA-K371P
Rev:0.3(X02)
2020-09-03
Made In China
BIOS OK
FAN
SPEAKER
LED
USH
TP

Steps

1. Remove the M2x2.5 screw and lift the WWAN antenna cable bracket.
2. Disconnect the WWAN antenna cable and release the cable from the rubber guides on the system board.
3. Remove the single (M2x2.5) screw from the finger print reader bracket and remove the bracket from the computer.
4. Disconnect the fingerprint reader FPC from the system board.
5. Remove the single (M2x2) screw and lift the bracket from the antenna cables.
6. Disconnect the WLAN antenna cables from the WLAN module on the system board.
7. Remove the two (M2x2) screws securing the display cable bracket to the system board.
8. Lift to remove the display cable bracket from the computer.
9. Disconnect the display, camera, touch screen, sensor board cables from the system board and unroute them from guiding tabs.
10. Disconnect the speakers board FPC, audio board FFC, touchpad FFC, USH board FFC and, LED board FFC from the system board.
11. Remove the single (M2x2.5) screw (For computer configuration with fingerprint reader on power button) or two (M2x2.5) screws (For computer configuration without fingerprint reader), two (M2x4) screws, and two (M2x3) screws securing the system board in place.
12. Carefully slide the system board out of the computer.

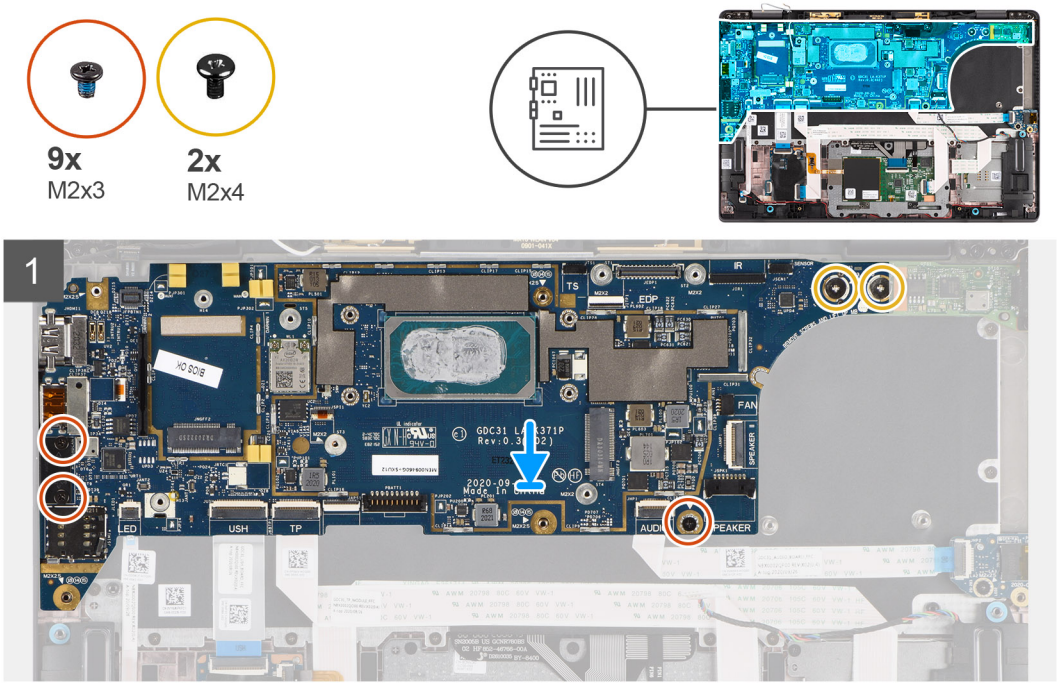
Installing the system board

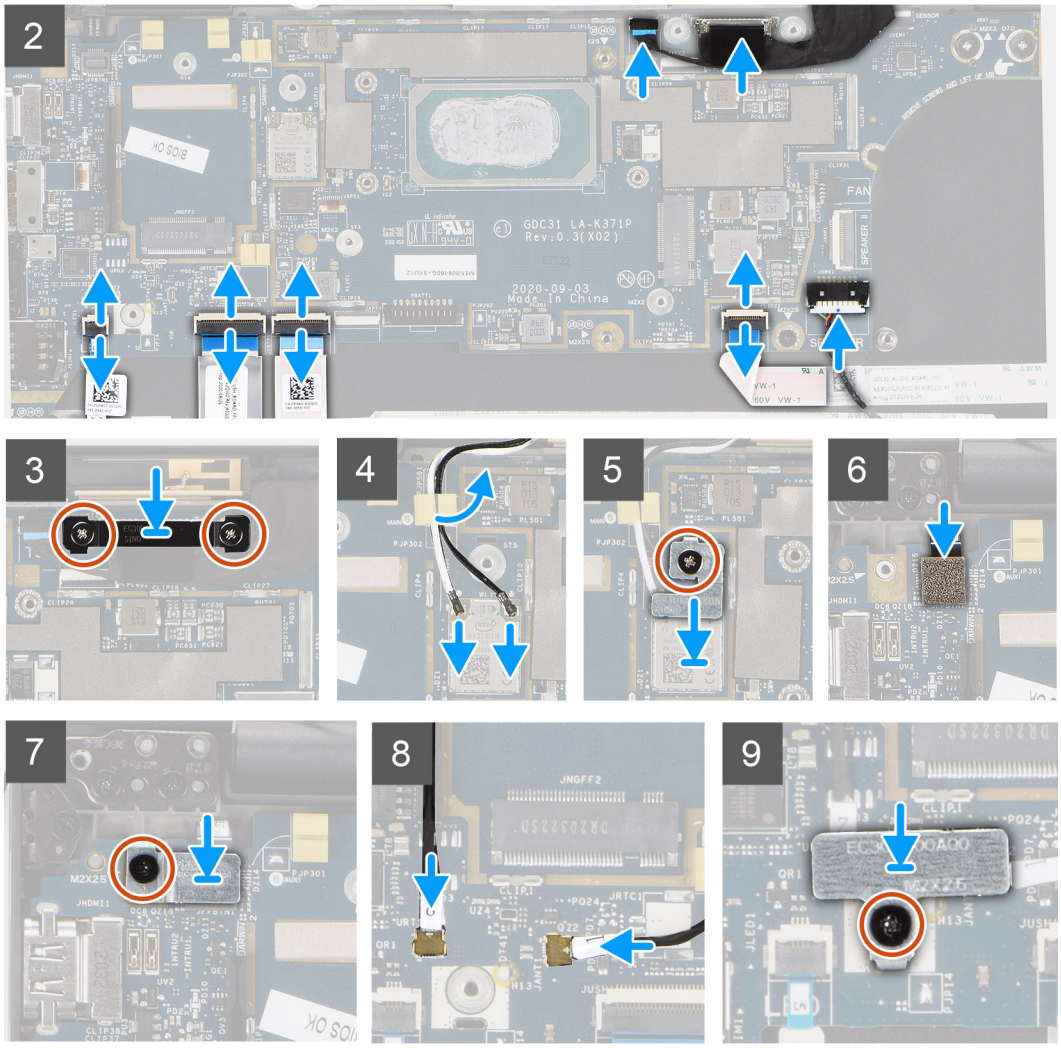
Prerequisites

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.





Steps

1. Replace the system board into the computer chassis and tighten it using the single (M2x2.5) screw (for computer configuration with fingerprint reader on power button) or two (M2x2.5) screws (for computer configuration without fingerprint reader), two (M2x4) screws, and two (M2x3) screws securing the system board in place.
2. Connect the speakers board FPC, tweeter cable, audio board FFC, touchpad FFC, USH board FFC and, LED board FFC to the system board.
3. Connect the display, camera, touch screen and, sensor board cables to the system board and route them along the guiding tabs.
4. Replace the display cable bracket on the system board and secure it using the two (M2x2) screws.
5. Connect the WLAN antenna cables to the WLAN module on the system board.
6. Replace the WLAN antenna bracket and secure it to the system board using the single (M2x2) screw.
7. Connect the fingerprint reader FPC to the system board.
8. Replace the finger print reader bracket and secure to the system board using the single (M2x2.5) screw.
9. Route the WWAN antenna cables along the rubber guides on the system board and connect it to the WWAN card.
10. Place the WWAN antenna cable bracket and replace the M2x2.5 screw.

Next steps

1. Install the heatsink assembly.
2. Install the battery.
3. Install the WWAN card.
4. Install the solid-state drive.
5. Install the base cover.

6. Install the SIM card.
7. Install the microSD card.
8. **NOTE:** Plug-in AC before powering up your computer.

   Follow the procedure in after working inside your computer.

I/O board

Removing the I/O board

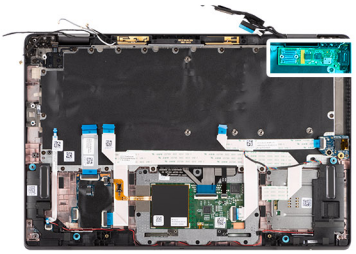
Prerequisites

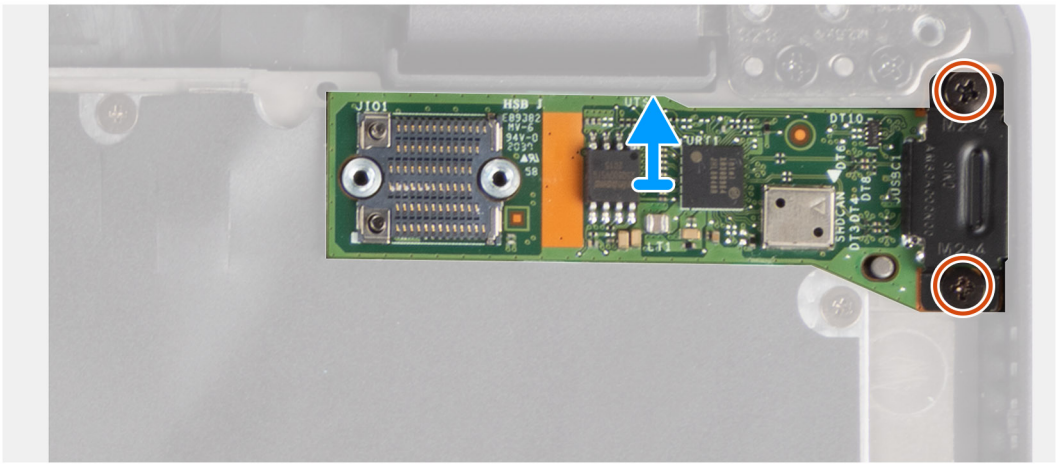
1. Follow the procedure in before working inside your computer.
2. Enter the service mode.
3. Remove the microSD card.
4. Remove the SIM card.
5. Remove the base cover.
6. Remove the solid-state drive.
7. Remove the WWAN card.
8. Remove the battery.
9. Remove the heatsink assembly.
10. Remove the system board.

About this task

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

2x
M2x4





Steps

1. Remove the two (M2x4) screws that secure the I/O board to the computer.
2. Lift and remove the I/O board from the computer.

Installing the I/O board

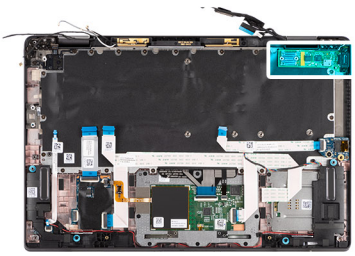
Prerequisites

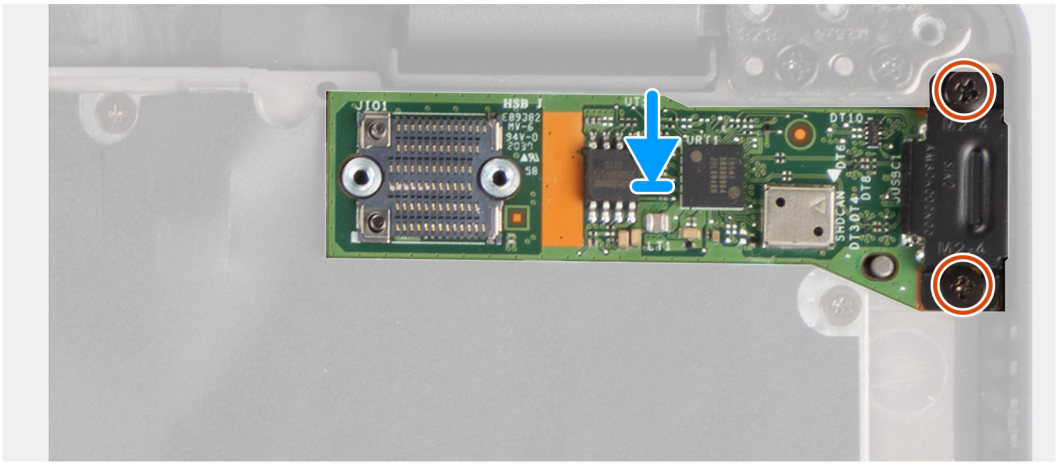
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

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

2x
M2x4





Steps

1. Replace the I/O board into its slot in the computer.
2. Secure the I/O board to the computer using two (M2x4) screws.

Next steps

1. Install the system board.
2. Install the heatsink assembly.
3. Install the battery.
4. Install the WWAN card.
5. Install the solid-state drive.
6. Install the base cover.
7. Install the SIM card.
8. Install the microSD card.
9. **NOTE:** Plug-in AC before powering up your computer.

   Follow the procedure in after working inside your computer.

Power button with fingerprint reader

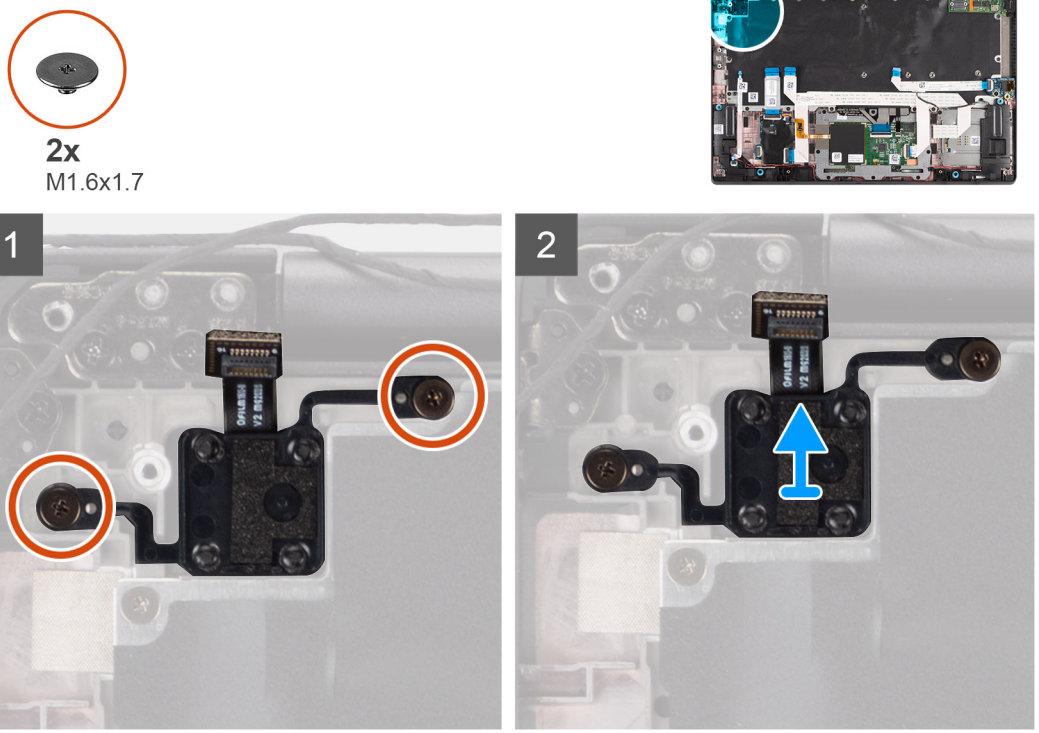
Removing the power button with fingerprint reader

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Enter the service mode.
3. Remove the microSD card.
4. Remove the SIM card.
5. Remove the base cover.
6. Remove the solid-state drive.
7. Remove the WWAN card.
8. Remove the battery.
9. Remove the heatsink assembly.
10. Remove the system board.

About this task

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



Steps

1. Remove the two (M1.6x1.7) screws securing the power button with fingerprint reader to the computer.
2. Lift and remove the power button with fingerprint reader from the computer.

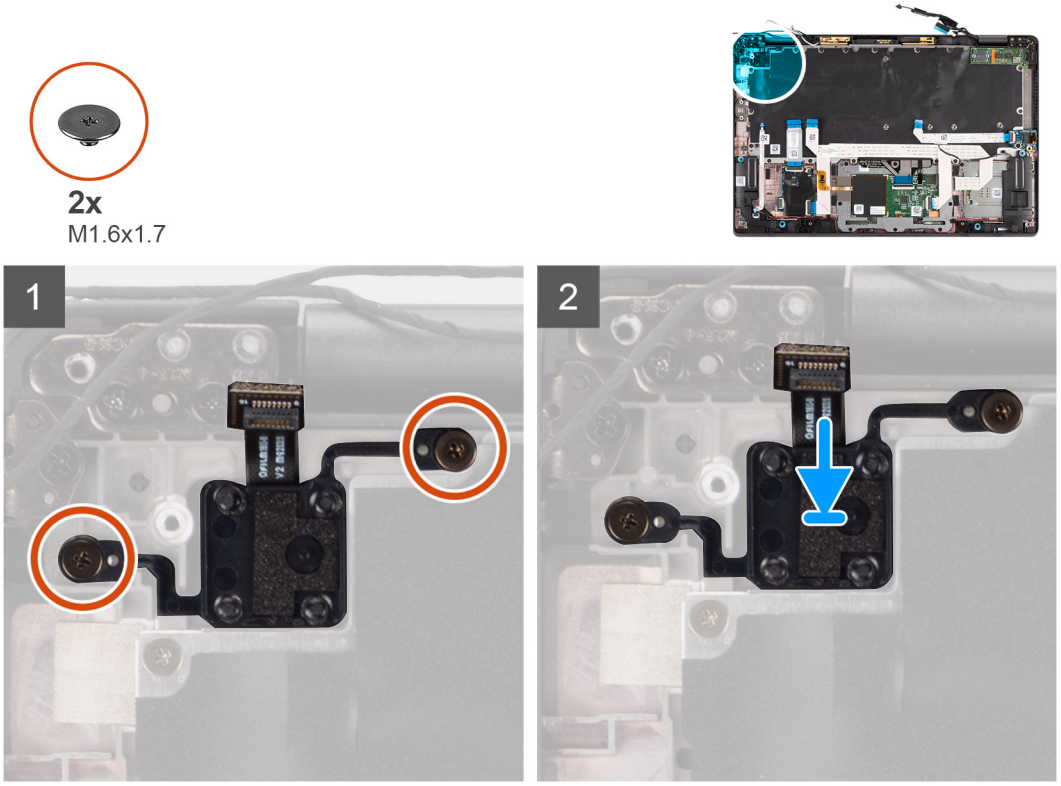
Installing the power button with fingerprint reader

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 power button with fingerprint reader and provides a visual representation of the installation procedure.



Steps

1. Replace the power button with fingerprint reader into its slot in the computer.
2. Secure the power button with fingerprint reader to the computer using the two (M1.6x1.7) screws.

Next steps

1. Install the system board.
2. Install the heatsink assembly.
3. Install the battery.
4. Install the WWAN card.
5. Install the solid-state drive.
6. Install the base cover.
7. Install the SIM card.
8. Install the microSD card.
9. **NOTE:** Plug-in AC before powering up your computer.

   Follow the procedure in after working inside your computer.

Keyboard

Removing the keyboard

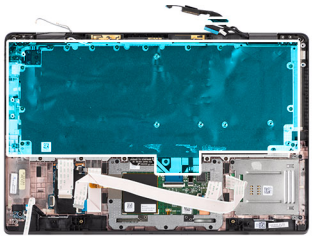
Prerequisites

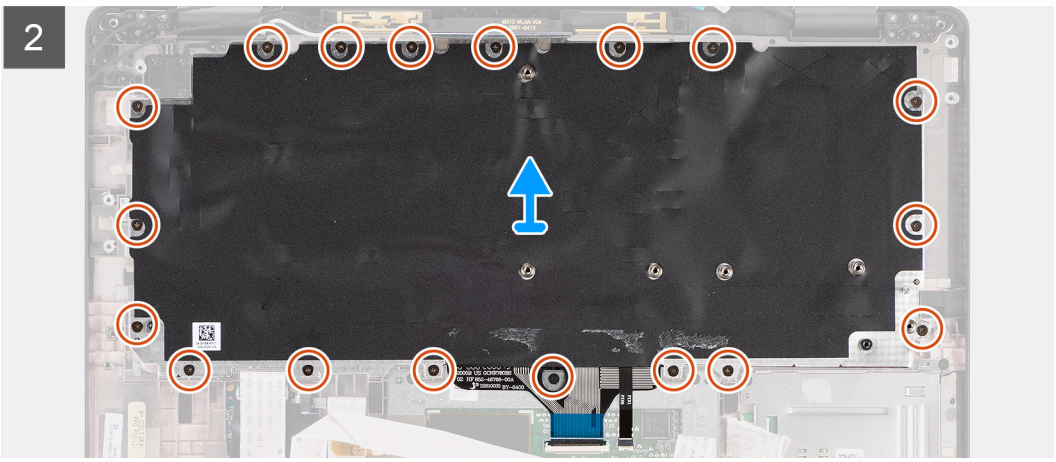
1. Follow the procedure in before working inside your computer.
2. Remove the microSD card.
3. Remove the base cover.
4. Remove the solid-state drive.
5. Remove the WWAN card.
6. Remove the battery.
7. Remove the heatsink assembly.
8. Remove the audio board.
9. Remove the system board.
10. Remove the I/O board.

About this task

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

18x
M1.6X1.7





2x
M2x2

Steps

1. Peel the LED board FFC, USH board FFC, touchpad FFC and SmartCard reader FFC from the back of the keyboard.
2. Disconnect the keyboard FPC and keyboard backlight FPC from the touchpad module.
3. Remove the 18 (M1.6x1.7) screws that secure the keyboard assembly to the computer.
4. Carefully lift the keyboard assembly to remove it from the computer.
5. Remove the two (M2x2) screws securing the keyboard to the keyboard support plate.
6. Separate the keyboard from the keyboard support plate.

Installing the keyboard

Prerequisites

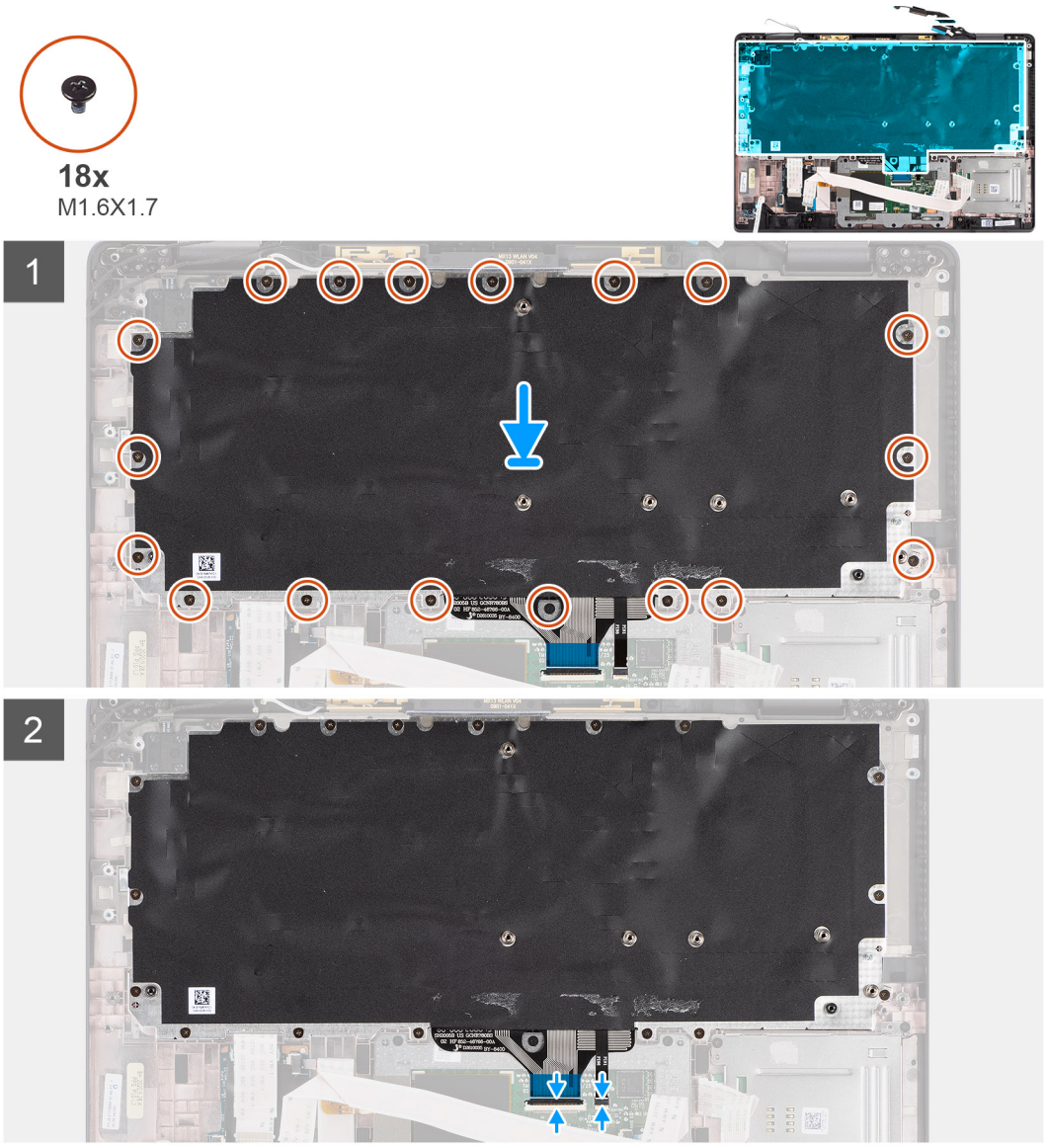
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

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

2x
M2x2

Esc
F1
F2
F3
F4
F5
F6
F7
F8
F9
prt sc
F10
home
F11
end
F12
insert
delete
backspace
tab
caps lock
enter
shift
ctrl
fn
alt
US



Steps

1. Align and place the keyboard on the keyboard support plate and secure it using the two (M2x2) screw.
2. Replace the keyboard assembly in to its slot in the computer.
3. Connect the keyboard FPC and keyboard backlight FPC to the touchpad module.
4. Replace the 18 (M1.6x1.7) screws that secure the keyboard assembly to the computer.
5. Adhere the LED board FFC, USH board FFC , touchpad FFC and, SmartCard reader FFC to the back of the keyboard.

Next steps

1. Install the I/O board.
2. Install the system board.
3. Install the audio board.
4. Install the heatsink assembly.
5. Install the battery.
6. Install the WWAN card.
7. Install the solid-state drive.
8. Install the base cover.
9. Install the microSD card.
10. Follow the procedure in after working inside your computer.

Palmrest assembly

Removing the palmrest assembly

Prerequisites

1. Follow the procedure in before working inside your computer.
2. Remove the microSD card.
3. Remove the SIM card
4. Remove the base cover.
5. Remove the solid-state drive.
6. Remove the WWAN card.
7. Remove the battery.
8. Remove the heatsink assembly.
9. Remove the display assembly.
10. Remove the speaker.
11. Remove the smart card reader.
12. Remove the audio board.
13. Remove the system board.
14. Remove the I/O board.
15. Remove the power button with finger print reader.
16. Remove the keyboard.

Steps

After performing the pre-requisite steps, you are left with the palmrest assembly.

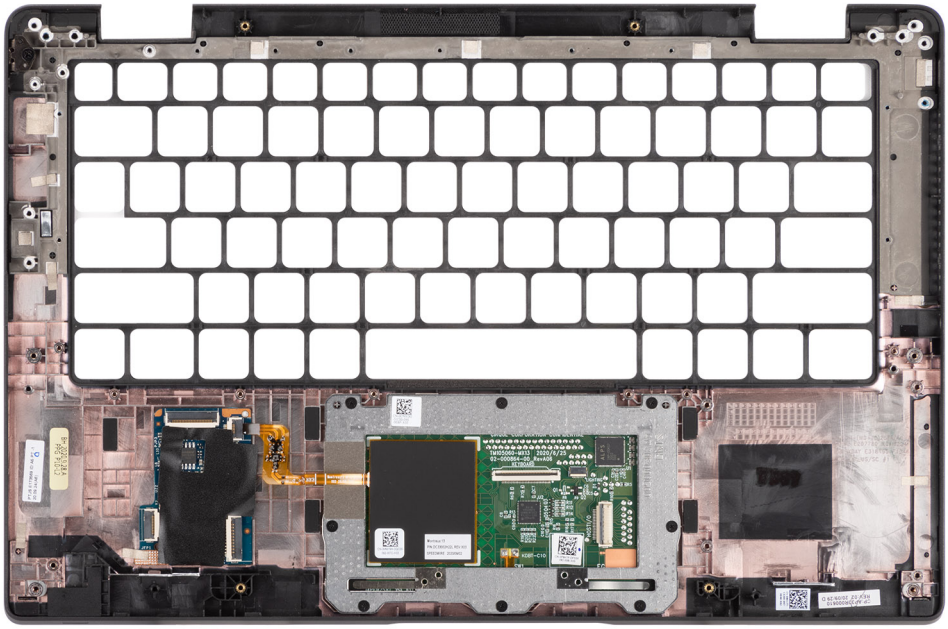
Installing the palmrest assembly

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 palmrest assembly and provides a visual representation of the installation procedure.



Steps

1. Place the palmrest assembly on a flat surface.
2. Transfer over the components to the new palmrest assembly.

Next steps

1. Install the keyboard.
2. Install the power button with finger print reader.
3. Install the I/O board.
4. Install the system board.
5. Install the audio board.
6. Install the smart card reader.
7. Install the speaker.
8. Install the display assembly.
9. Install the heatsink assembly.
10. Install the battery.
11. Install the WWAN card.
12. Install the solid-state drive.
13. Install the base cover.
14. Install the SIM card
15. Install the microSD card.
16. 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:

- Downloading Windows drivers

Downloading Windows drivers

Steps

1. Turn on the notebook.
2. Go to **Dell.com/support**.
3. Click **Product Support**, enter the Service Tag of your notebook, and then click **Submit**.

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

4. Click **Drivers and Downloads**.
5. Select the operating system installed on your notebook.
6. Scroll down the page and select the driver to install.
7. Click **Download File** to download the driver for your notebook.
8. After the download is complete, navigate to the folder where you saved the driver file.
9. Double-click the driver file icon and follow the instructions on the screen.

4

System setup

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

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

Use the BIOS Setup program for the following purposes:

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

Topics:

- BIOS overview
- Entering BIOS setup program
- Navigation keys
- Boot Sequence
- System setup options
- Updating the BIOS in Windows
- System and setup password
- Clearing BIOS (System Setup) and System 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 setup program

About this task

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

Boot menu

Press <F12> when the Dell logo appears to initiate a one-time boot menu with a list of the valid boot devices for the system. Diagnostics and BIOS Setup options are also included in this menu. The devices listed on the boot menu depend on the bootable devices in the system. This menu is useful when you are attempting to boot to a particular device or to bring up the diagnostics for the system. Using the boot menu does not make any changes to the boot order stored in the BIOS.

The options are:

- UEFI Boot:
  - Windows Boot Manager
- Other Options:
  - BIOS Setup
  - BIOS Flash Update
  - Diagnostics
  - Change Boot Mode Settings

Navigation keys

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

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

Boot Sequence

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

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

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

- Removable Drive (if available)
- STXXXX Drive

  NOTE: XXXX denotes the SATA drive number.
- Optical Drive (if available)
- SATA Hard Drive (if available)
- Diagnostics

  NOTE: Choosing **Diagnostics**, displays the **SupportAssist** screen.

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

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 2. System setup options—System information menu

Overview	
Latitude 7320	
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.

Table 2. System setup options—System information menu (continued)

Overview	
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.
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 3. 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 option is not enabled.
Secure Boot Mode	Enable or disable to change the secure boot mode options. By default, the **Deployed Mode** is 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 4. 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. 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.

Table 4. System setup options—Integrated Devices menu (continued)

Integrated Devices	
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 5. 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	
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.

Table 5. System setup options—Storage menu (continued)

Storage	
	By default, the **Secure Digital (SD) Card Read-Only Mode** option is not enabled.

Table 6. 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 7. 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). 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 8. 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 9. 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.

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

Security	
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 10. 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.
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.

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

Passwords	
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	Enable or disable to change system and hard drive password without the need for admin password. By default, the option is disabled.
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 11. 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.
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 12. 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 13. 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.
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 14. System setup options—Pre-boot Behavior menu

Pre-boot Behavior	
Adapter Warnings	

Table 14. System setup options—Pre-boot Behavior menu (continued)

Pre-boot Behavior	
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 15. 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)	
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 16. 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.

Table 16. System setup options—Performance menu (continued)

Performance	
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 17. 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 in Windows

Prerequisites

It is recommended to update your BIOS (System Setup) when you replace the system board or if an update is available. For laptops, ensure that your computer battery is fully charged and connected to a power before initiating a BIOS update.

About this task

NOTE: If BitLocker is enabled, it must be suspended prior to updating the system BIOS, and then re enabled after the BIOS update is completed.

Steps

1. Restart the computer.
2. Go to **Dell.com/support**.
   - Enter the **Service Tag** or **Express Service Code** and click **Submit**.
   - Click **Detect Product** and follow the instructions on screen.

3. If you are unable to detect or find the Service Tag, click **Choose from all products**.
4. Choose the **Products** category from the list.

   NOTE: Choose the appropriate category to reach the product page.

5. Select your computer model and the **Product Support** page of your computer appears.
6. Click **Get drivers** and click **Drivers and Downloads**.
   The Drivers and Downloads section opens.
7. Click **Find it myself**.
8. Click **BIOS** to view the BIOS versions.
9. Identify the latest BIOS file and click **Download**.
10. Select your preferred download method in the **Please select your download method below** window, click **Download File**.
    The **File Download** window appears.
11. Click **Save** to save the file on your computer.
12. Click **Run** to install the updated BIOS settings on your computer.
    Follow the instructions on the screen.

Updating BIOS on systems with BitLocker enabled

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress and the system will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system re-install. For more information on this subject, see Knowledge Article: https://www.dell.com/support/article/sln153694

Updating your system BIOS using a USB flash drive

About this task

If the computer cannot load into Windows but there is still a need to update the BIOS, download the BIOS file using another computer and save it to a bootable USB flash drive.

NOTE: You must use a bootable USB flash drive. For more information, see the knowledge base article SLN143196.

Steps

1. Download the BIOS update .exe file to another computer.
2. Copy the .exe file onto the bootable USB flash drive.
3. Insert the USB flash drive into the computer that requires the BIOS update.
4. Restart the computer and press F12 when the Dell logo appears to display the One Time Boot Menu.
5. Using arrow keys, select **USB Storage Device** and press Enter.
6. The computer restarts to a Diag C:\> prompt.
7. Run the file by typing the complete filename and press Enter.
8. The BIOS Update Utility is displayed. Follow the on-screen instructions.

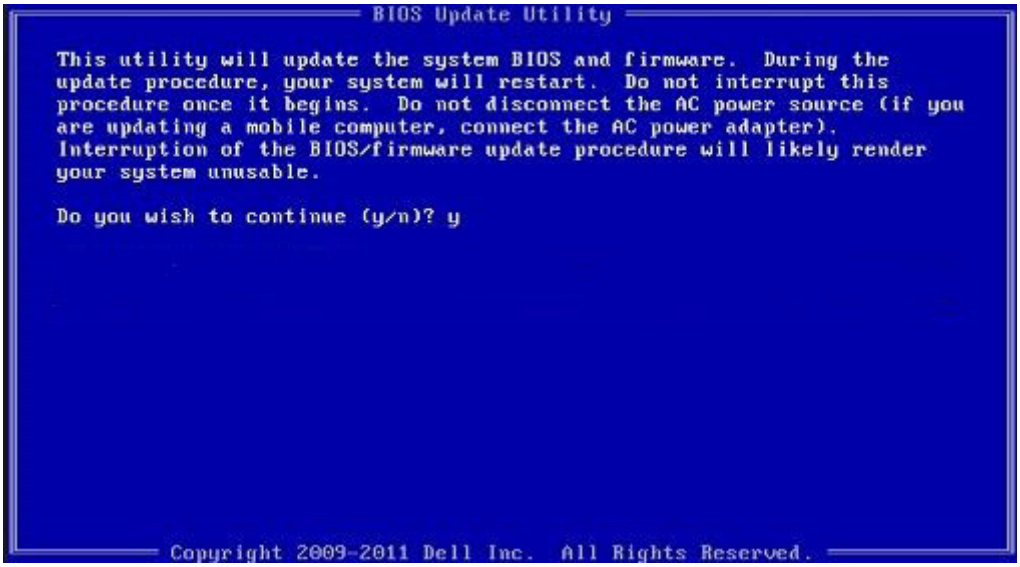


Figure 2. DOS BIOS Update Screen

System and setup password

Table 18. System and setup password

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

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

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

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

NOTE: System and setup password feature is disabled.

Assigning a system setup password

Prerequisites

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

About this task

To enter the system setup, press F2 immediately after a power-on or reboot.

Steps

1. In the **System BIOS** or **System Setup** screen, select **Security** and press **Enter**.
   The **Security** screen is displayed.
2. Select **System/Admin Password** and create a password in the **Enter the new password** field.
   Use the following guidelines to assign the system password:
   - A password can have up to 32 characters.
   - The password can contain the numbers 0 through 9.

- Only lower case letters are valid, upper case letters are not allowed.
- Only the following special characters are allowed: space, (”), (+), (,), (-), (.), (/), (;), ([), (\), (]), (`).

3. Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
4. Press **Esc** and a message prompts you to save the changes.
5. Press **Y** to save the changes.
   The computer reboots.

Deleting or changing an existing system setup password

Prerequisites

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

About this task

To enter the System Setup, press **F2** immediately after a power-on or reboot.

Steps

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

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

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

Clearing BIOS (System Setup) and System passwords

About this task

NOTE: To conduct a BIOS and System password reset, you must call the Dell Tech Support number in your region.

Steps

1. Key in your computer's service tag number into the locked BIOS/system setup screen.
2. Convey the code generated to the Dell Tech Support agent.
3. The Dell Tech Support agent will provide a 32 character Master System Password that can be used to access the locked BIO/system setup.

5

Troubleshooting

Topics:

- Recovering the operating system
- Backup media and recovery options
- Dell SupportAssist Pre-boot System Performance Check diagnostics
- Diagnostic LED behavior
- Real-Time Clock (RTC Reset)
- Flashing BIOS (USB key)
- Flashing the BIOS
- WiFi power cycle
- BIOS recovery
- M-BIST
- LCD Built-in Self Test (BIST)

Recovering the operating system

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

Dell SupportAssist OS Recovery is a standalone tool that is preinstalled in all Dell computers installed with Windows 10 operating system. It consists of tools to diagnose and troubleshoot issues that may occur before your computer boots to the operating system. It enables you to diagnose hardware issues, repair your computer, back up your files, or restore your computer to its factory state.

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

For more information about the Dell SupportAssist OS Recovery, see *Dell SupportAssist OS Recovery User's Guide* at www.dell.com/support.

Backup media and recovery options

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

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

- Run tests automatically or in an interactive mode
- Repeat tests
- Display or save test results
- Run thorough tests to introduce additional test options to provide extra information about the failed device(s)
- View status messages that inform you if tests are completed successfully

- View error messages that inform you of problems encountered during testing

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

For more information, see Resolve Hardware Issues With Built-in and Online Diagnostics (SupportAssist ePSA, ePSA or PSA Error Codes) .

Running the SupportAssist Pre-Boot System Performance Check

Steps

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

Diagnostic LED behavior

Table 19. Diagnostic LED behavior

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 & holding down power button.
2	1	CPU failure	• Run the Dell Support Assist/Dell Diagnostics tool. • If problem persists, replace the system board.
2	2	System board failure (included BIOS corruption or ROM error)	• Flash latest BIOS version • If problem persists, replace the system board.
2	3	No memory/RAM detected	• Confirm that the memory module is installed properly. • If problem persists, replace the memory module.

Table 19. Diagnostic LED behavior (continued)

Blinking pattern		Problem description	Suggested resolution
Amber	**White**		
2	4	Memory/RAM failure	• Reset and swap memory modules amongst the slots. • If problem persists, replace the memory module.
2	5	Invalid memory installed	• Reset and swap memory modules amongst the slots. • If problem persists, replace the memory module.
2	6	System board/Chipset Error	Replace the system board.
2	7	LCD failure (SBIOS message)	Replace the LCD module.
2	8	LCD failure (EC detection of power rail failure)	Replace the system board.
3	1	CMOS battery failure	• Reset the CMOS battery connection. • If problem persists, replace the RTS 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 problem persists, replace the system board.
3	4	BIOS Recovery image found but invalid	• Flash latest BIOS version • If problem persists, replace the system board.
3	5	Power rail failure	Replace the system board.
3	6	Flash corruption detected by SBIOS.	Replace the system board.
3	7	Timeout waiting on ME to reply to HECI message.	Replace the system board.

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

Real-Time Clock (RTC Reset)

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

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

Flashing BIOS (USB key)

Steps

1. Follow the procedure from step 1 to step 7 in "Flashing the BIOS" to download the latest BIOS setup program file.
2. Create a bootable USB drive. For more information see the knowledge base article SLN143196 at www.dell.com/support.
3. Copy the BIOS setup program file to the bootable USB drive.
4. Connect the bootable USB drive to the computer that needs the BIOS update.
5. Restart the computer and press **F12** when the Dell logo is displayed on the screen.
6. Boot to the USB drive from the **One Time Boot Menu**.
7. Type the BIOS setup program filename and press **Enter**.
8. The **BIOS Update Utility** appears. Follow the instructions on the screen to complete the BIOS update.

Flashing the BIOS

About this task

You may need to flash (update) the BIOS when an update is available or when you replace the system board.

Follow these steps to flash the BIOS:

Steps

1. Turn on your computer.
2. Go to www.dell.com/support.
3. Click **Product support**, 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** > **Find it myself**.
5. Select the operating system installed on your computer.
6. Scroll down the page and expand **BIOS**.
7. Click **Download** to download the latest version of the BIOS for your computer.
8. After the download is complete, navigate to the folder where you saved the BIOS update file.
9. Double-click the BIOS update file icon and follow the instructions on the screen.

WiFi power cycle

About this task

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

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

Steps

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

BIOS recovery

The BIOS recovery is designed to fix the main BIOS, and cannot work if the boot is damaged. The BIOS recovery will not work in the event of EC corruption, ME corruption, or a hardware related issue. The BIOS recovery image should be available on the unencrypted partition on the drive for BIOS recovery feature.

Rollback BIOS feature

Two versions of the BIOS recovery image are saved on the hard drive:

- Current running BIOS (old)
- To-be-updated BIOS (new)

The old version is already stored on the hard drive. The BIOS adds new version to the hard drive, maintains the old version, and deletes other existing versions. For example, A00 and A02 versions are already on the hard drive, A02 is the running BIOS. The BIOS adds A04, maintains A02, and deletes A00. Having two BIOS version enables the Rollback BIOS feature.

If the recovery file cannot be stored (hard drive is out of space), the BIOS sets a flag to indicate this condition. The flag is reset in the event it later becomes possible to store the recovery file. The BIOS notifies the user during POST and in BIOS Setup, the BIOS recovery is degraded. BIOS recovery through hard drive may not be possible, however BIOS recovery through USB flash drive is still possible.

For USB key: root directory or "\"

BIOS_IMG.rcv: the recovery image stored on the USB key.

BIOS recovery using hard drive

About this task

NOTE: Ensure that you have the previous version and the latest version of the BIOS from the Dell support site available to use.

NOTE: Ensure that you have the file type extensions visible in the operating system (OS).

Steps

1. Browse to the location of the BIOS update executable (.exe) files.
2. Rename the BIOS executable files to **BIOS_PRE.rcv** for the earlier version of the BIOS and **BIOS_CUR.rcv** for the latest version of the BIOS.
   For example, if the latest version's file name is **PowerEdge_T30_1.0.0.exe**, rename it to **BIOS_CUR.rcv** and if the previous version's file name is **PowerEdge_T30_0.0.9.exe**, rename it to **BIOS_PRE.rcv**

   NOTE:
   a. If the hard drive is new, there will be no operating system installed.
   b. If the hard drive has been partitioned at the Dell factory, there will be a **Recovery Partition** available.
3. Disconnect the hard drive and install the hard drive into another system that has a full operational operating system.
4. Start up the system and in the Windows operating system environment follow these steps to copy the BIOS recovery file to the **Recovery Partition**.
   a. Open a Windows Command Prompt window.
   b. At the prompt, type **diskpart** to start the **Microsoft DiskPart**.
   c. At the prompt, type **list disk** to list out the available hard drives.
      Select the hard drive that was installed in Step 3.
   d. At the prompt, type **list partition** to view the available partitions on this hard drive.
   e. Select **Partition 1** which is the **Recovery Partition**. The size of the partition will be 39 MB.
   f. At the prompt, type **set id=07** to set the partition ID.

      NOTE: The partition will be visible to the operating system as **Local Disk (E)** to read and write data.

   g. Create the following folders in **Local Disk (E)**, **E:\EFI\Dell\BIOS\Recovery**.

h. Copy both the BIOS files **BIOS_CUR.rcv** and **BIOS_PRE.rcv** to the recovery folder on **Local Disk (E)**.
i. In the **Command Prompt** window, at the **DISKPART** prompt, type **set id=DE**.
After the executing this command, the partition **Local Disk (E)** will not be accessible by the OS.

5. Shut the system down, remove the hard drive, and install the hard drive into the original system.
6. Start the system up and boot to System Setup, in the **Maintenance** section ensure that **BIOS Recovery from Hard Drive** is enabled in the **BIOS Recovery** section of the setup.
7. Press the power button to shut the system down.
8. Holding the **Ctrl and Esc** keys, press the power button to start the system up. Keep holding the **Ctrl and Esc** keys until the **BIOS Recovery Menu** page is displayed.
Ensure that the **Recover BIOS** radio button is selected and click **Continue** to start the BIOS recovery.

BIOS recovery using USB drive

About this task

NOTE: Ensure that you have the file type extensions visible in the operating system.

NOTE: Ensure that you have downloaded the latest BIOS from the Dell support site and save it on your system.

Steps

1. Browse to the location of the downloaded BIOS update executable (.exe) file.
2. Rename the file to BIOS_IMG.rcv.
For example, if the file name is PowerEdge_T30_0.0.5.exe, rename it to BIOS_IMG.rcv
3. Copy the BIOS_IMG.rcv file to the root directory of the USB key.
4. If not plugged in, plug in the USB drive, restart the system, press F2 to enter the System Setup, and then press power button to shut down the system.
5. Start the system.
6. While the system is starting up, press the **Ctrl+Esc** keys while holding the power button until the **BIOS Recovery Menu** dialog box is displayed.
7. Click **Continue** to start the BIOS recovery process.
NOTE: Ensure that the **Recovery BIOS** option is selected in the **BIOS Recovery Menu** dialog box.
8. Select the path on the USB drive where BIOS recovery file is stored(root directory or "\") and follow the on-screen instructions.

M-BIST

M-BIST (Built In Self-Test) diagnostics tool, featuring improved accuracy in system board failures.

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

How to run M-BIST

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

1. Press and hold both the **M** key on the keyboard and the **power button** to initiate M-BIST.
2. With both the **M** key and the **power button** held down, the battery indicator LED may exhibit two states:
a. OFF: No fault detected with the system board
b. AMBER: Indicates a problem with the system board

LCD Built-in Self Test (BIST)

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

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

How to invoke LCD BIST Test

1. Power off the Dell laptop.
2. Disconnect any peripherals that are connected to the laptop. Connect only the AC adapter (charger) to the laptop.
3. Ensure that the LCD (screen) is clean (no dust particles on the surface of the screen).
4. Press and hold **D** key and **Power on** the laptop to enter LCD built-in self test (BIST) mode. Continue to hold the D key, until you see color bars on the LCD (screen).
5. The screen will display multiple color bars and change colors on the entire screen to red, green, and blue.
6. Carefully inspect the screen for abnormalities.
7. Press **Esc** key to exit.

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

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Getting help

Topics:

- Contacting Dell

Contacting Dell

Prerequisites

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.

About this task

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

Steps

1. Go to **Dell.com/support**.
2. Select your support category.
3. Verify your country or region in the **Choose a Country/Region** drop-down list at the bottom of the page.
4. Select the appropriate service or support link based on your need.