Latitude 7310

Service Manual

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DELL Technologies

Notes, cautions, and warnings

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

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

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

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1

Working on your computer

Safety instructions

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

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

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

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

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

CAUTION: You should only perform troubleshooting and repairs as authorized or directed by the Dell technical support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. See the safety instructions that is shipped with the product or at Dell Regulatory Compliance Home Page.

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

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

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

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

NOTE: The color of your computer and certain components may differ from what is shown in this document.

Working inside your computer

Before working inside your computer

About this task

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

Steps

1. Save and close all open files and exit all open applications.
2. Shut down your computer. Click **Start** > **Power** > **Shut down**.

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

3. Disconnect your computer and all attached devices from their electrical outlets.
4. Disconnect all attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.

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

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

Electrostatic discharge—ESD protection

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

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

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

Perform the following steps to prevent ESD damage:

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

ESD Field Service kit

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

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

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

ESD Packaging

All ESD-sensitive devices must be shipped and received in static-safe packaging. Metal, static-shielded bags are preferred. However, you should always return the damaged 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 computer, or inside an anti-static bag.

Components of an ESD Field Service kit

The components of an ESD Field Service kit are:

- **Anti-Static Mat** – The anti-static mat is dissipative and parts can be placed on it during service procedures. When using an anti-static mat, your wrist strap should be snug and the bonding wire should be connected to the anti-static mat and to any bare metal on the computer being worked on. Once deployed properly, service parts can be removed from the ESD bag and placed directly on the anti-static mat. ESD-sensitive items are safe in your hand, on the anti-static mat, in the computer, or inside an ESD bag.
- **Wrist Strap and Bonding Wire** – 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, anti-static 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 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 bonding-wire of the wrist-strap 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.

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

After working inside your computer

About this task

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

Steps

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

2

Removing and installing components

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

Recommended tools



The procedures in this document require the following tools:

- Phillips #0 screwdriver
- Phillips #1 screwdriver
- Plastic scribe: Recommended for field technicians.

NOTE: The #0 screw driver is for screws 0-1 and the #1 screw driver is for screws 2-4.

Screw list

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

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

NOTE: Screw color may vary with the configuration ordered.

Table 1. Screw list

Component	Secured to	Screw type	Quantity	Screw image
1. SSD thermal plate 2. SSD 3. eDP bracket 4. Keyboard	1. System board 2. System board 3. System board 4. Keyboard support bracket	M2x2	1. 1 2. 1 3. 1 4. 2	
1. WLAN antenna bracket 2. Fan cage 3. Heatsink assembly 4. Wireless antenna module 5. Fingerprint bracket 6. I/O board (with FPR) 7. I/O board (without FPR)	1. System board 2. Palmrest assembly 3. System board 4. System board 5. Palmrest assembly 6. Palmrest assembly 7. Palmrest assembly 8. Palmrest assembly 9. Palmrest assembly 10. Palmrest assembly	M2x2.5	1. 1 2. 1 3. 4 4. 2 5. 1 6. 1 7. 2 8. 2 9. 4 10. 1	

Table 1. Screw list (continued)

Component	Secured to	Screw type	Quantity	Screw image
8. Power button 9. Smart card reader 10. System board 11. Optional palmrest antenna	11. Palmrest assembly		11. 2	
Hinges	Palmrest assembly	M2.5x4	4	
F-beam FPC	I/O daughterboard	M2x3.5	2	
USB Type-C bracket	System board	M2x5	3	
Keyboard 1. Carbon Fiber 2. Aluminum	Palmrest assembly	M1.6x2	_ 1. 17 2. 21	

Base cover

Removing the base cover

Prerequisites

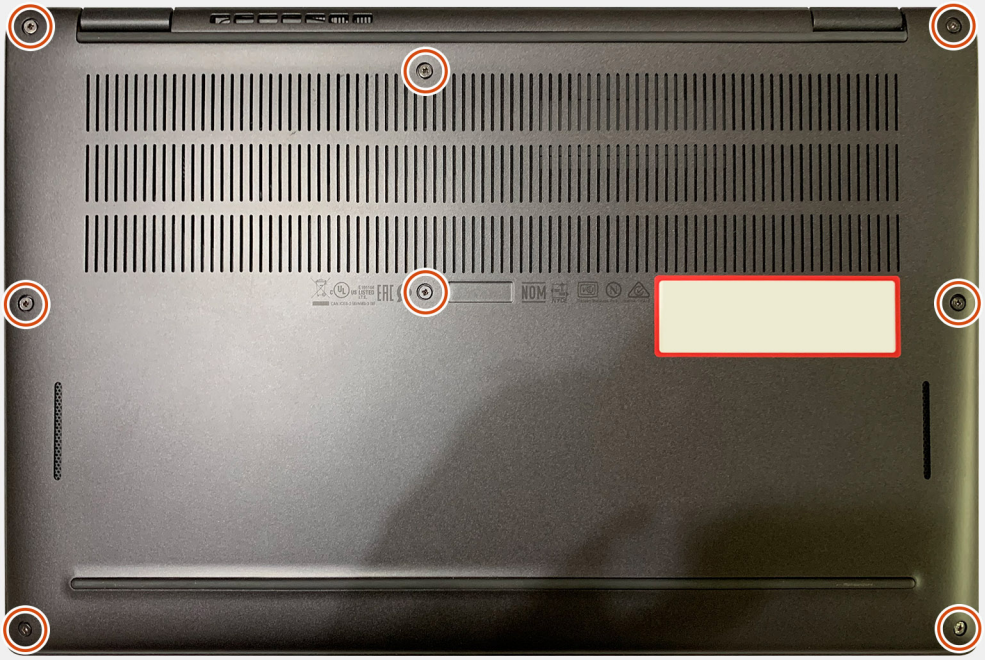
1. Follow the procedure in Before working inside your computer.

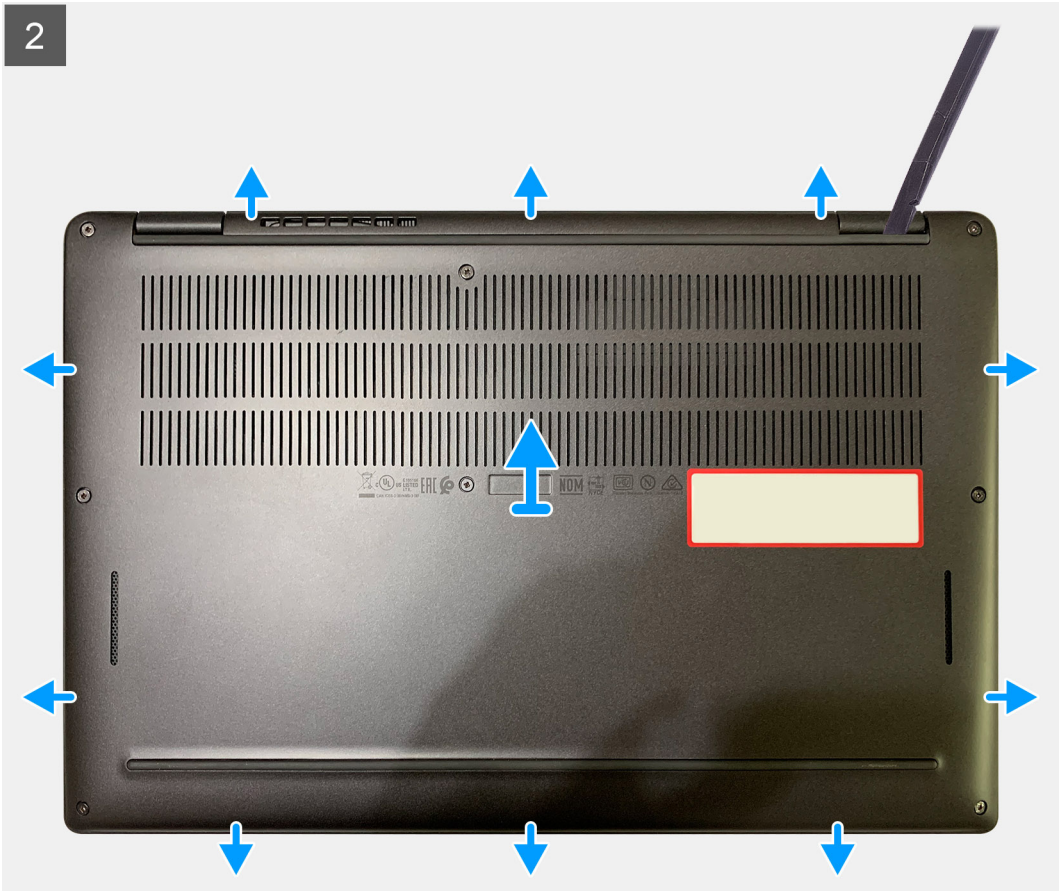
About this task

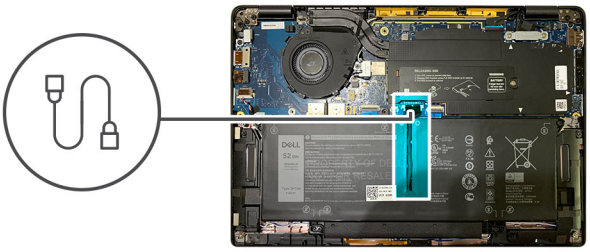
The following images indicate the location of the base cover and provide a visual representation of the removal procedure.



1




2




RELEASING SSD
WARNING
BATTERY

Steps

1. Loosen the eight captive screws that secure the base cover to the palmrest assembly.
2. Starting from the top-left corner, use a plastic scribe to pry the base cover outwards to release the base cover from the palm-rest assembly.
3. Pry the base cover and remove it from the palm-rest and keyboard assembly.

   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.

4. Use the pull-tab and disconnect the battery from the system board.

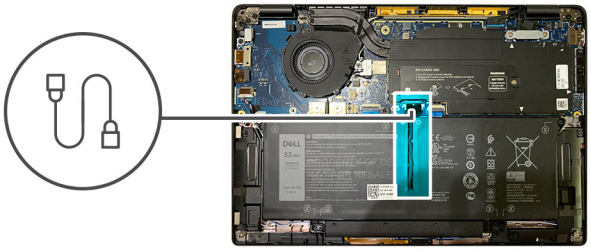
Installing the base cover

Prerequisites

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

About this task

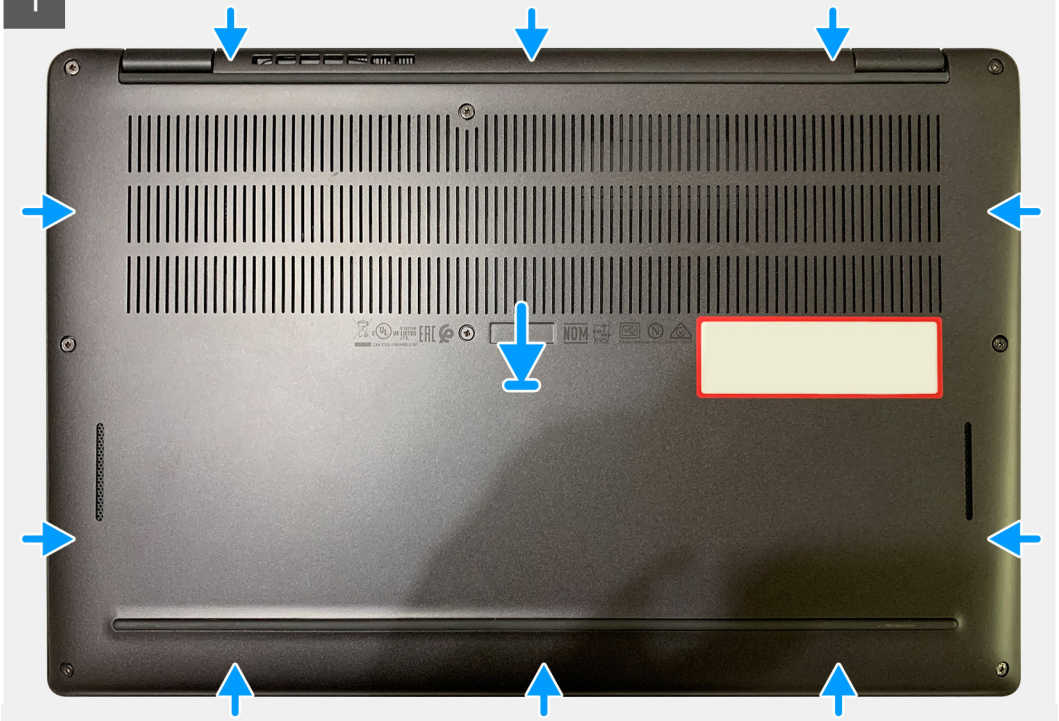
The following images indicate the location of the base cover and provide a visual representation of the installation procedure.



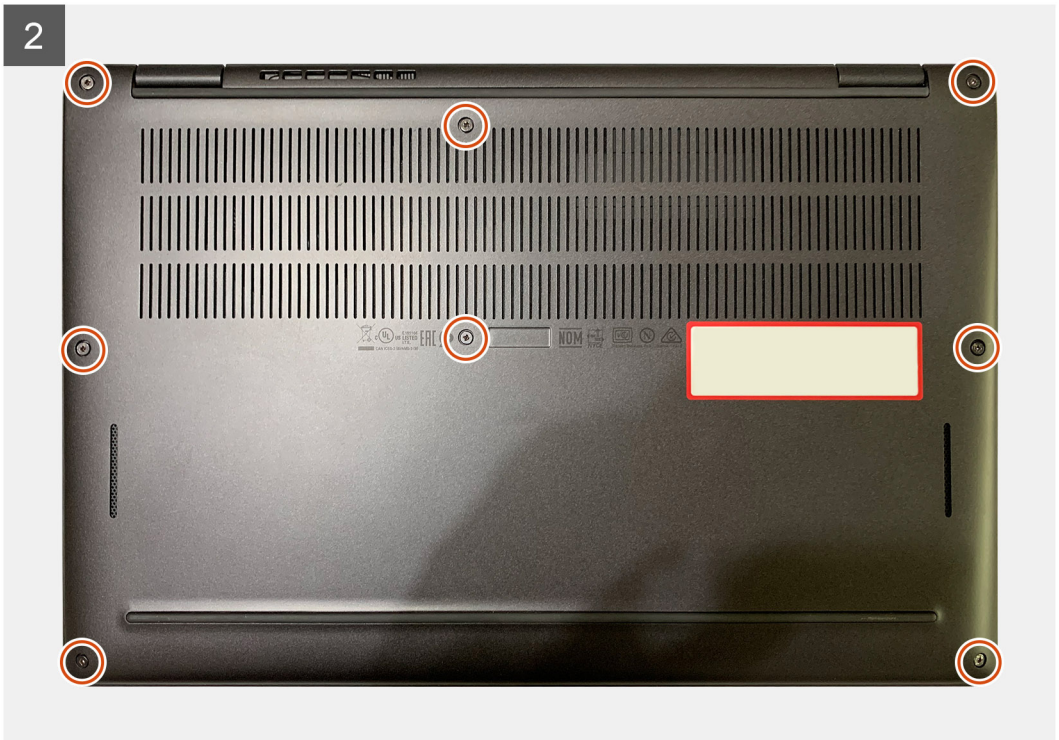




1



2



Steps

1. Connect the battery cable to the system board.
2. Align the screw holes on the base cover with the screw holes on the palmrest assembly, and then snap the base cover into place.
3. Tighten the eight captive screws that secure the base cover to the palmrest assembly.

Next steps

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

Battery

Rechargeable Li-ion battery precautions

CAUTION:

- **Exercise caution when handling rechargeable Li-ion batteries.**
- **Discharge the battery completely before removing it. Disconnect the AC power adapter from the computer and operate the computer solely on battery power—the battery is fully discharged when the computer no longer turns on when the power button is pressed.**
- **Do not crush, drop, mutilate, or penetrate the battery with foreign objects.**
- **Do not expose the battery to high temperatures, or disassemble battery packs and cells.**
- **Do not apply pressure to the surface of the battery.**
- **Do not bend the battery.**
- **Do not use tools of any kind to pry on or against the battery.**
- **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 computer components.**
- **If the battery gets stuck inside your computer as a result of swelling, do not try to release it as puncturing, bending, or crushing a rechargeable Li-ion battery can be dangerous. In such an instance, contact Dell technical support for assistance. See Contact Support at Dell Support Site.**
- **Always purchase genuine batteries from Dell Site or authorized Dell partners and resellers.**
- **Swollen batteries should not be used and should be replaced and disposed properly. For guidelines on how to handle and replace swollen rechargeable Li-ion batteries, see Handling swollen rechargeable Li-ion batteries.**

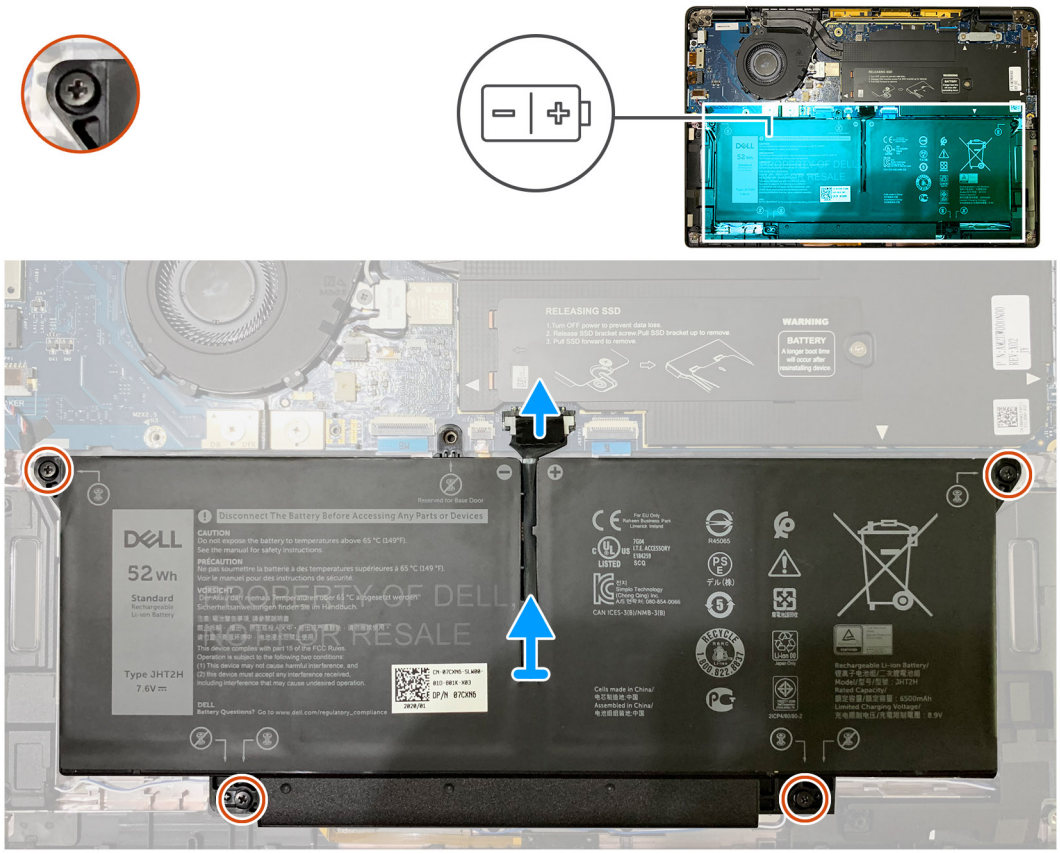
Removing the battery

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. Base cover

About this task

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



Steps

1. Using the pull tab, remove the battery cable from connector the system board.
2. Loosen the four captive screws that secure the base cover to the palmrest assembly.
3. Lift and remove the battery from the system unit.

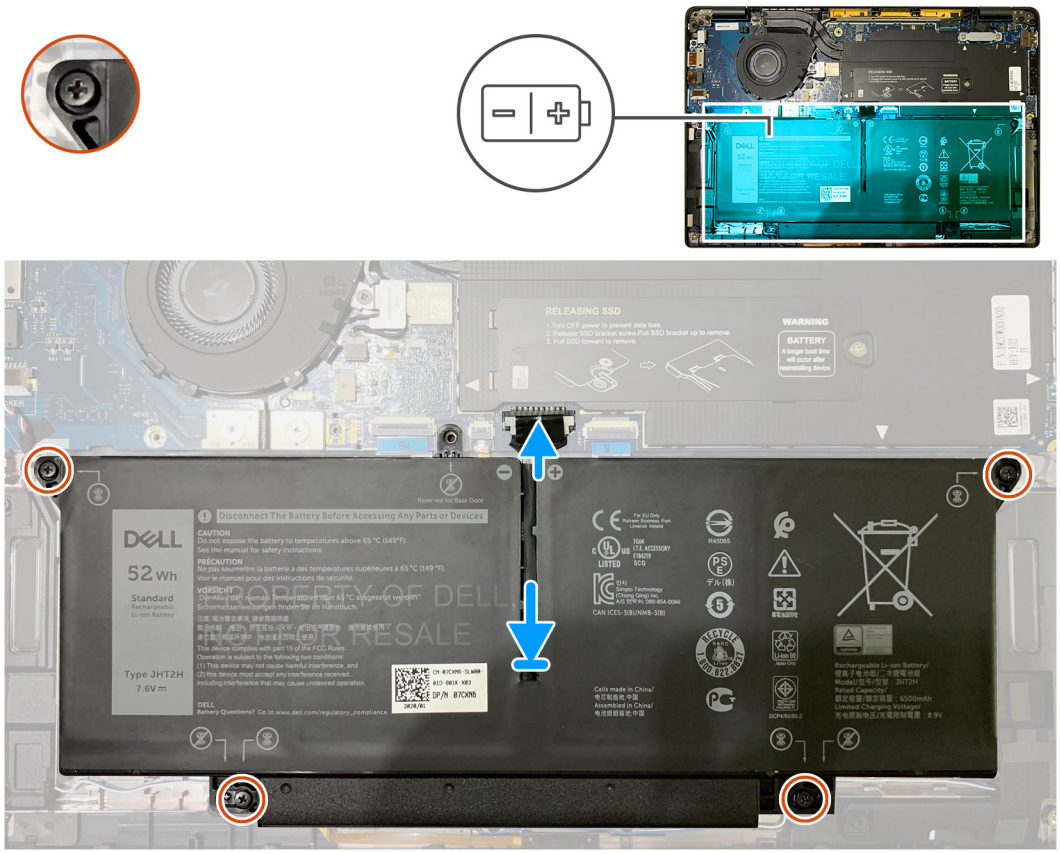
Installing the battery

Prerequisites

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

About this task

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



Steps

1. Align the screw holes on the battery with the screw holes on the palmrest assembly, and then snap the battery into place.
2. Tighten the four captive screws that secure the battery to the palmrest assembly.
3. Replace the battery cable to connector on the system board.

Next steps

1. Install the:
   a. Base cover.
2. Follow the procedure in After working inside your computer.

Solid-state drive

Removing the solid state drive

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. Base cover
3. Disconnect the battery cable

About this task

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

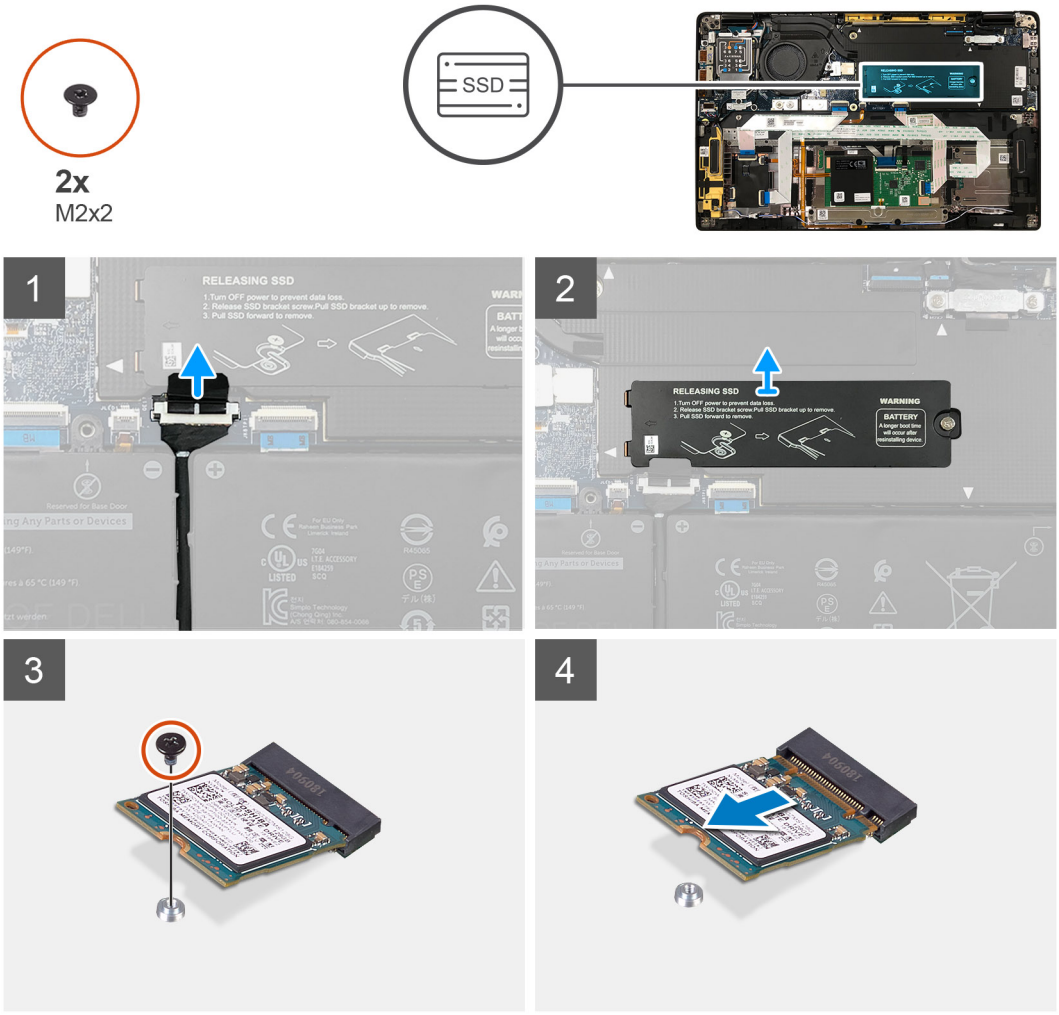


Figure 1. 2230 SSD

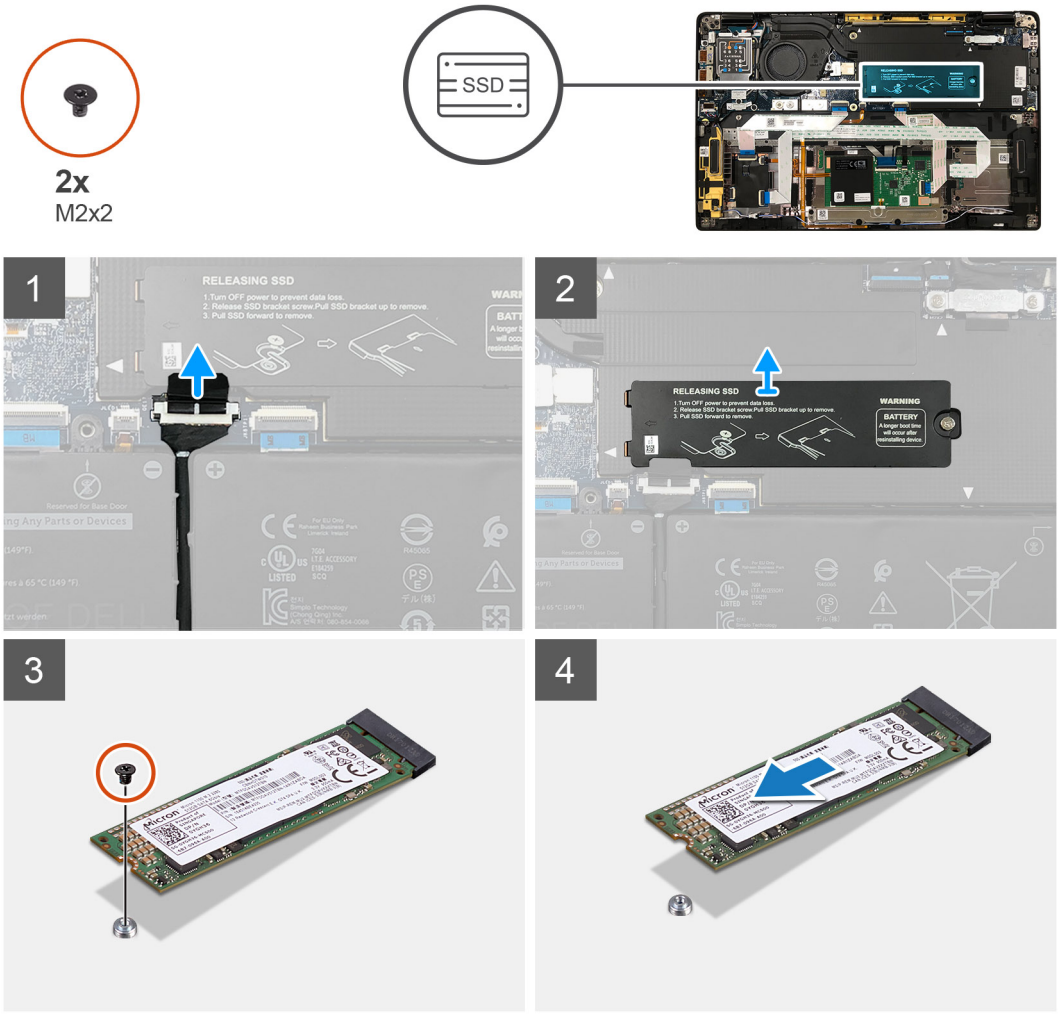


Figure 2. 2280 SSD

Steps

1. Remove the single M2x2 screw that secures the SSD thermal plate to the system board and lift to remove it from over the SSD.
2. Remove the single M2x2 screw that secures the SSD to the system board.
3. Slide the SSD out from the M.2 slot on the system board.

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

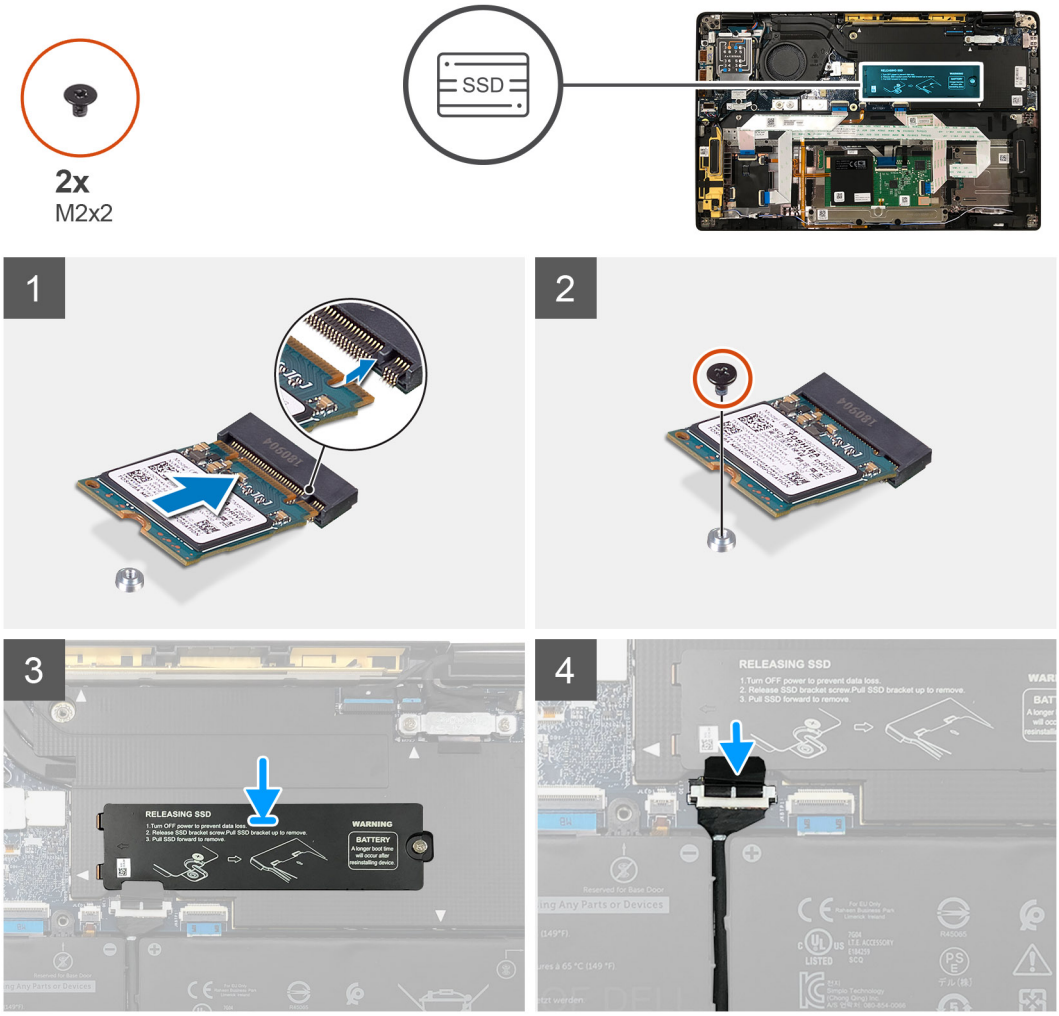


Figure 3. 2230 SSD

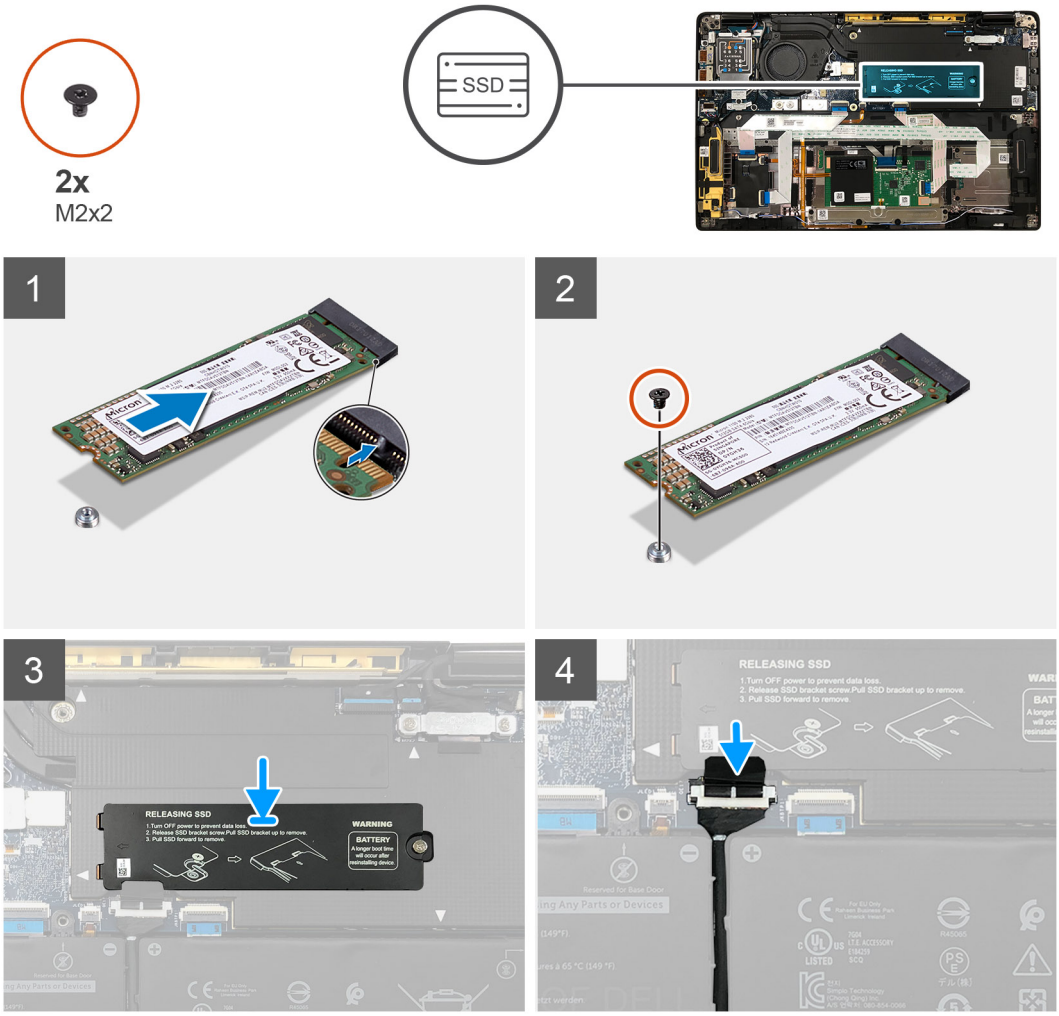
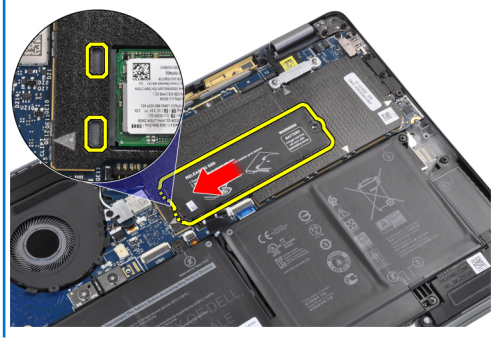


Figure 4. 2280 SSD

Steps

1. **NOTE:** Install the M.2 2230 SSD to the SSD bracket so that the top side of the SSD (with the sticker) is facing up.

   Align the notch and slide the solid-state drive into the M.2 slot of the system board.
2. Push the SSD to align the screw holes on the system board and replace the single M2x2 screw securing it to the system board.
3. **NOTE:** Slide the SSD plate into place over the SSD so that the tabs on the SSD plate fit into the openings on the system board shielding cover.



Replace the SSD thermal plate on top of the SSD and secure it using the single M2x2 screw to the system board.

CAUTION: A thermal pad is included with the SSD plate and must always be adhered to the plate. If in the process of replacing the SSD, the pad is separated from the plate or gets adhered to the SSD, technicians must re-adhere the thermal pad to the SSD plate before re-installing the plate to the system.

NOTE: System will be reboot 2-3 times automatically within 1 min, after SSD/ WWAN card and battery cable is re-connected.

Next steps

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

1. Connect the battery cable
2. Install the:
   a. Base cover
3. RTC reset cycle
4. Follow the procedure in After working inside your computer.

WWAN card

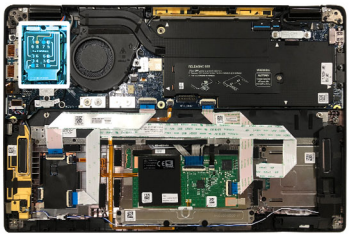
Removing the WWAN card

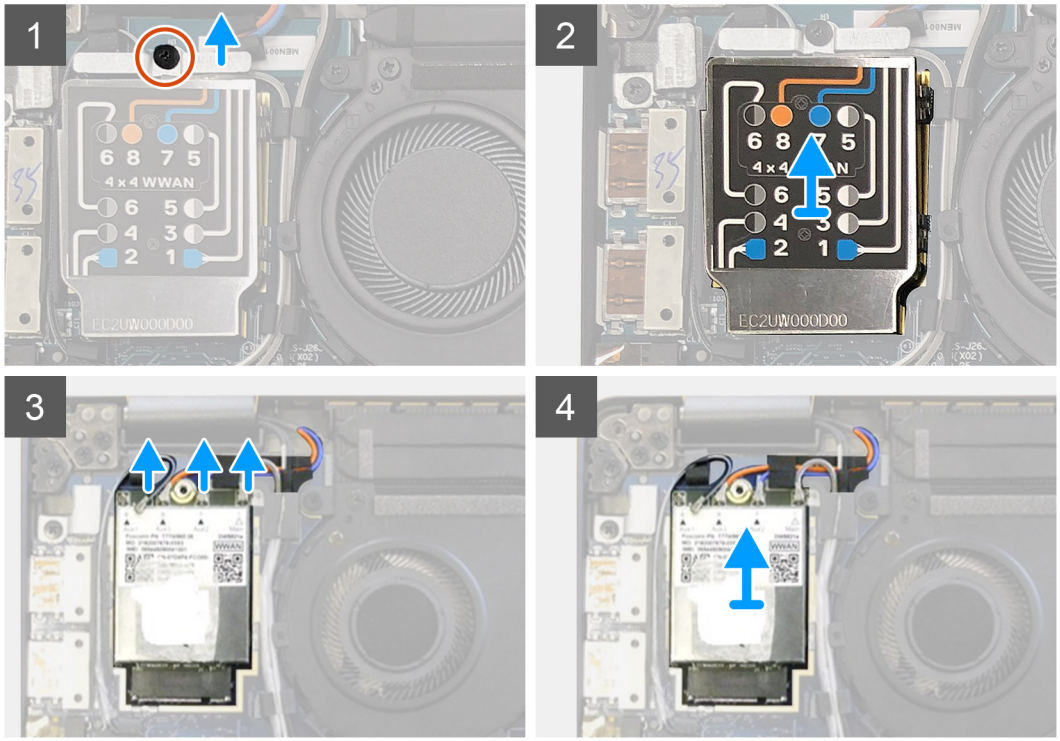
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. Base cover
3. Disconnect the battery cable

About this task

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





Steps

1. Remove the single M2x2.5 screw securing the WWAN bracket to the WWAN card.
2. Pry off the WWAN shielding cover from the top-left side of the shielding cover.
3. Disconnect the antenna cables from the WWAN card.
4. Lift and remove the WWAN card from its slot on the I/O board.

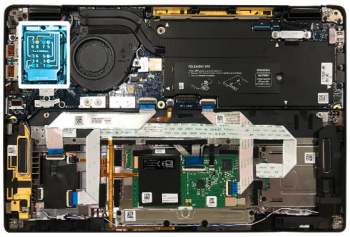
Installing the WWAN card

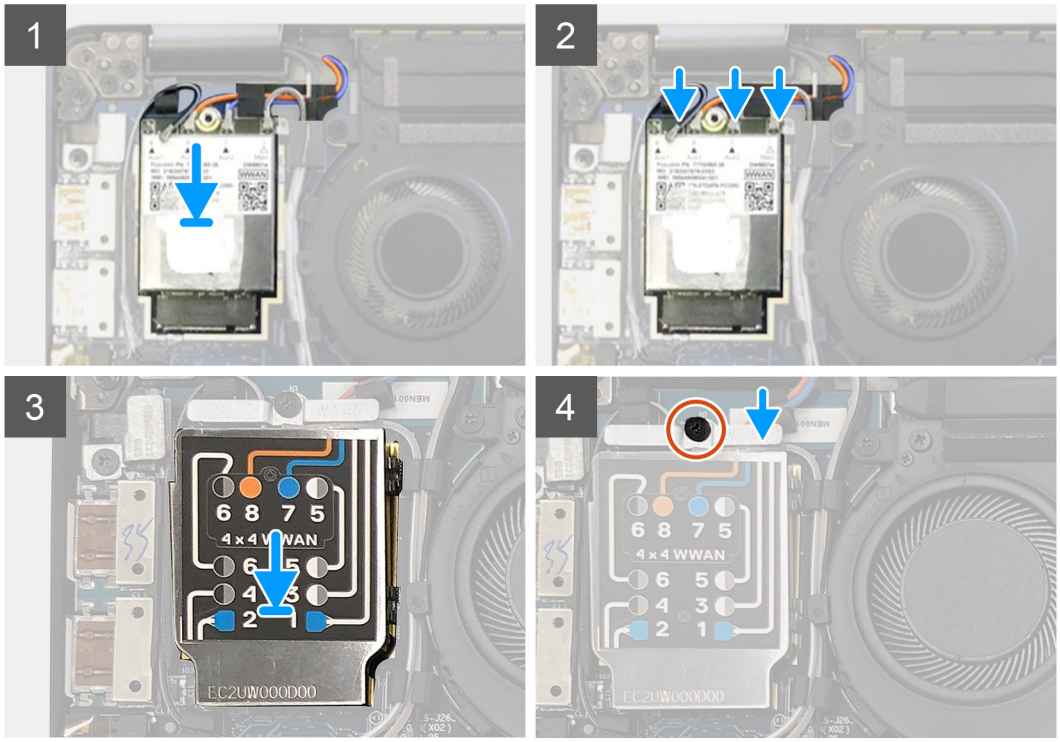
Prerequisites

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

About this task

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





Steps

1. Replace the WWAN card into its slot on the I/O board and connect the antennae cables.
2. Replace the WWAN shielding cover on top of the WWAN card.

NOTE: For models shipped with WWAN antennas, the WWAN antenna connections on the WWAN card are numbered and color-coded. Connect the antennas to the correct pins on the WWAN card in accordance with the label on the WWAN card shielding cover.

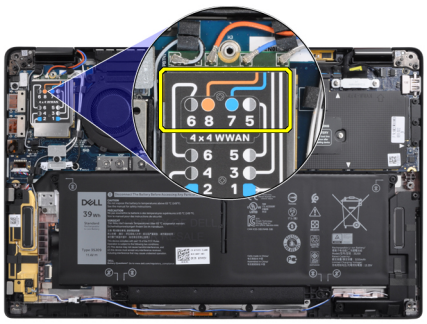


Table 2. WWAN antenna cable connection guide

Cable Pin Number	Antenna Cable
5	Gray/White Main
6	Black/Gray Auxiliary

Table 2. WWAN antenna cable connection guide (continued)

Cable Pin Number	Antenna Cable
7	Blue Auxiliary
8	Orange Auxiliary

3. Replace the WWAN bracket on top of the antennae cables.
4. Replace the single M2x2.5 screw securing it to the I/O board.

NOTE: System will be reboot 2-3 times automatically within 1 min, after SSD/ WWAN card and battery cable is re-connected.

Next steps

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

1. Connect the battery cable
2. Install the:
   a. Base cover
3. RTC reset cycle
4. Follow the procedure in After working inside your computer.

WLAN antennae bracket

Removing the WLAN antenna bracket

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. Base cover
3. Disconnect the battery cable

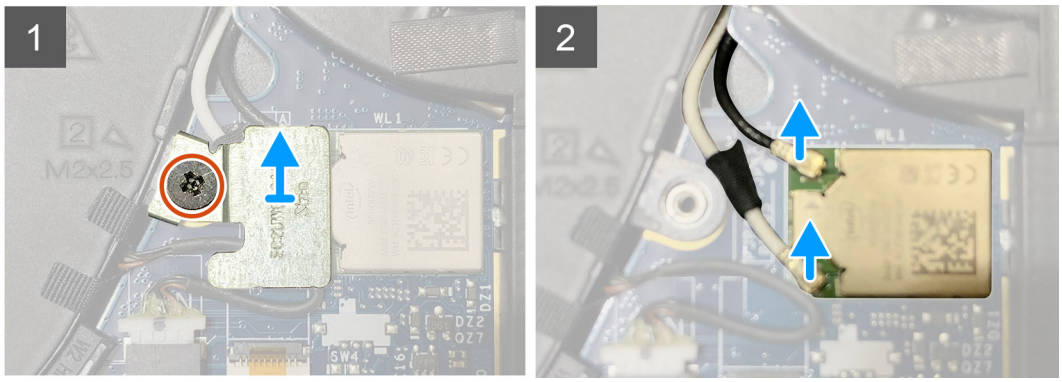
About this task

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



2x
M2x2.5





Steps

1. Remove the two M2x2.5 screws that secure the WLAN antenna bracket to the system board.
2. Lift and remove the WLAN antenna bracket from over the antennae connectors.
3. Disconnect the antenna cable from WLAN module on the system board.

Installing the WLAN antenna bracket

Prerequisites

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

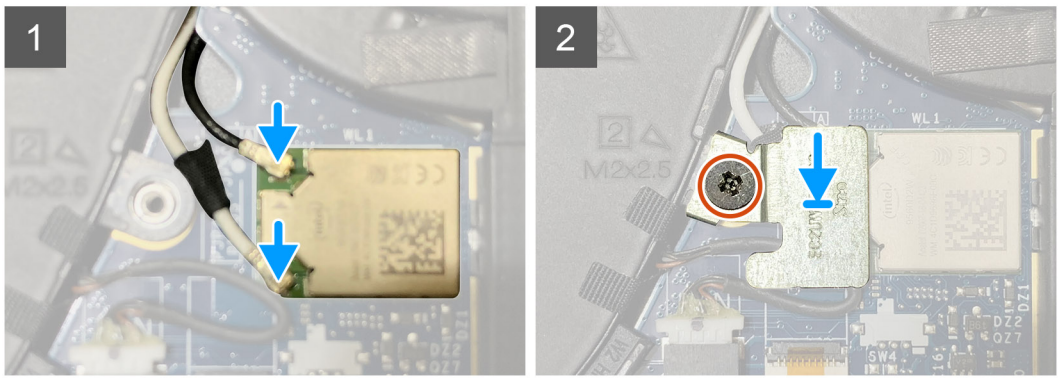
About this task

The following images indicate the location of the WLAN antenna bracket and provide a visual representation of the installation procedure.



2x
M2x2.5





Steps

1. Connect the antenna cable to the WLAN module on the system board.

   NOTE: The antenna cable connectors are fragile and utmost care should be taken while replacing them.

   Table 3. Antenna cable guide

Cable color	Connector
White cable (Main)	White triangle (△) on the WLAN module of the system board
Black cable (Aux)	Solid triangle (▲) on the WLAN module of the system board

2. Align and replace the WLAN antenna bracket on top of the antenna connectors.
3. Replace the single M2x2.5 screws securing the WLAN antenna bracket to the system board.

Next steps

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

1. Connect the battery cable
2. Install the:
   a. Base cover
3. RTC reset cycle
4. Follow the procedure in After working inside your computer.

Palmrest antenna (Optional)

Removing the Palmrest antenna (optional)

Prerequisites

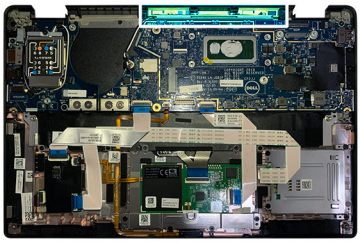
1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. Base cover
   b. WLAN antenna bracket

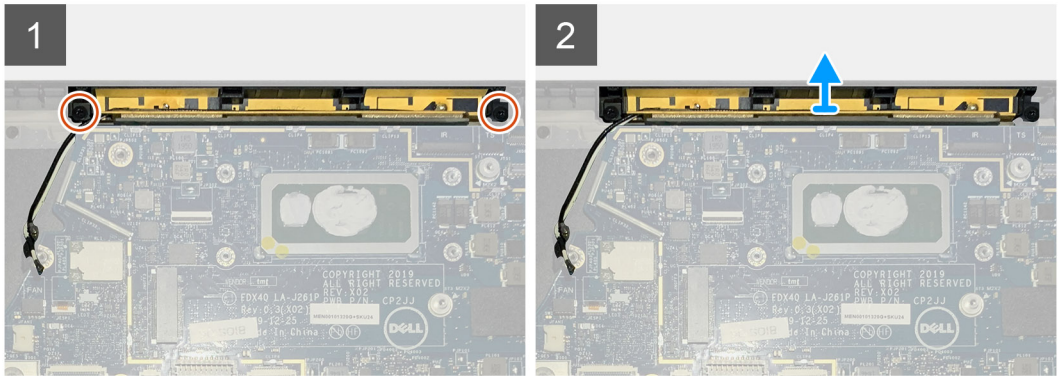
About this task

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



2x
M2x2.5





Steps

1. Disconnect and un-thread the WWAN antenna cables.
2. Remove the two M2x2.5 screws securing the WLAN antenna to the palmrest assembly.
3. Remove the palmrest antenna from the palmrest assembly.

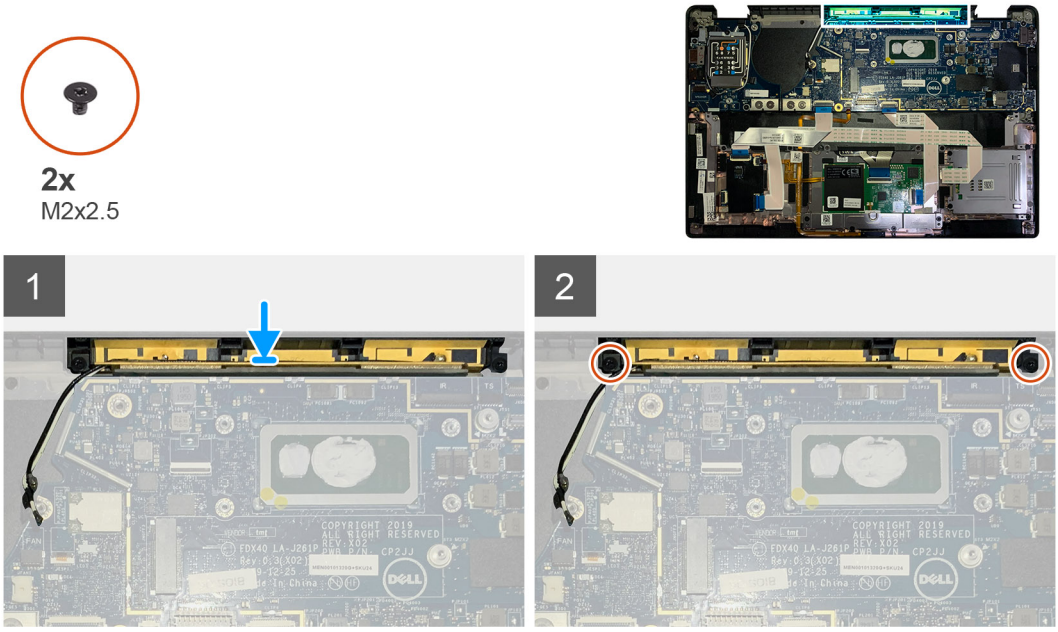
Installing the Palmrest antenna (optional)

Prerequisites

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

About this task

The following images indicate the location of the optional Palmrest antenna and provide a visual representation of the installation procedure.



Steps

1. Install the palmrest antenna into its slot on the palmrest assembly.
2. Route the antenna cables from underneath the system board along the routing channel.
3. Replace the two M2x2.5 screws securing the palmrest antenna to the palmrest assembly.

Next steps

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

1. Install the:
   a. WLAN antenna bracket
   b. Base cover
2. Follow the procedure in After working inside your computer.

Heatsink assembly

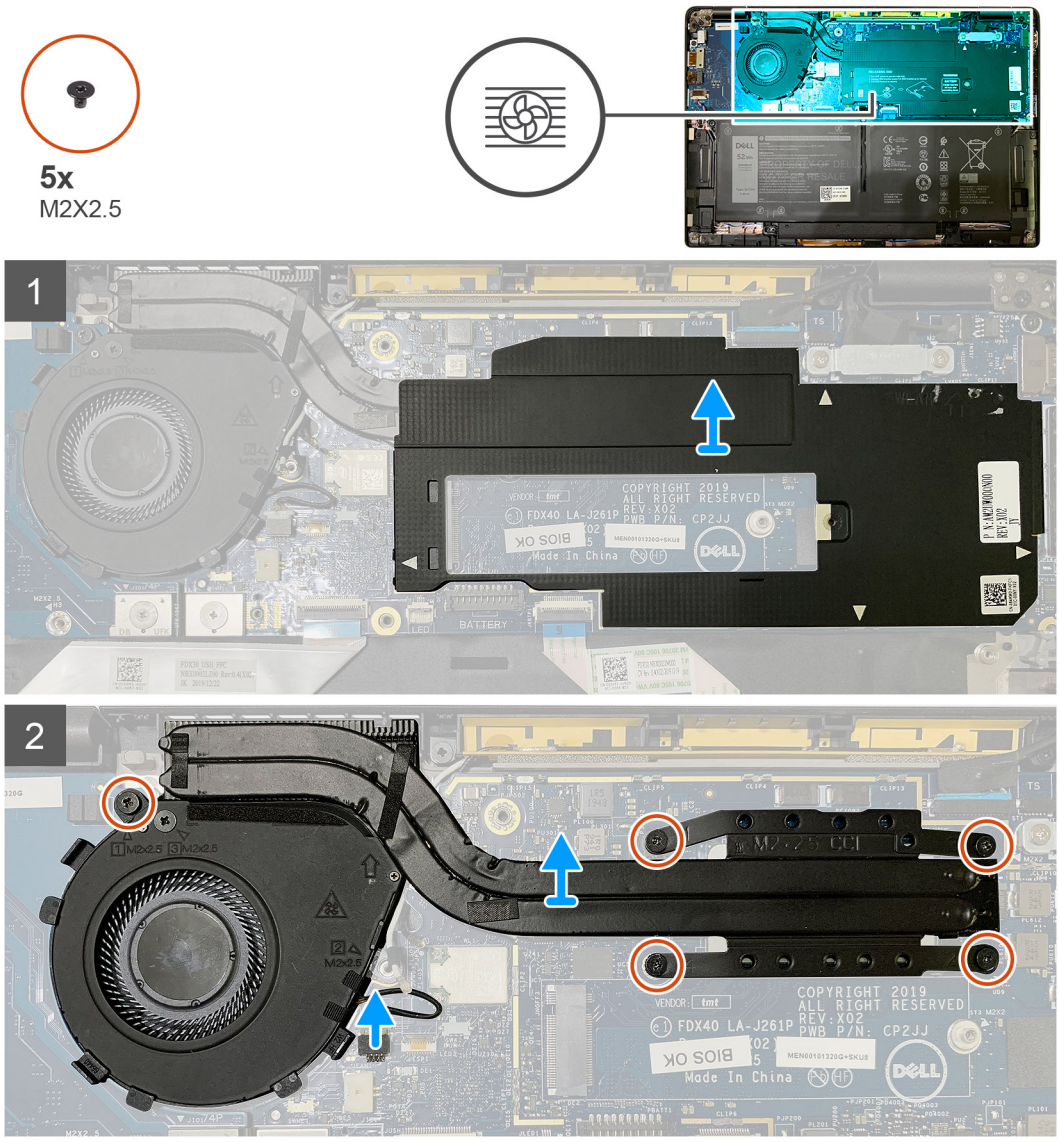
Removing the heatsink assembly

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Loosen and remove the M2x2 screw on the SSD thermal plate
3. Remove the:
   a. 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. Pry and remove the system board shield from over the heatsink assembly.

   NOTE: The white triangles (△) symbol highlights the prying points on the system board shield.

2. Remove the single M2x2.5 screw from the fan case and four M2x2.5 screws in reverse sequence (4>3>2>1).
3. Disconnect the fan connector from the system board.
4. Lift and remove the heatsink assembly from the system board.

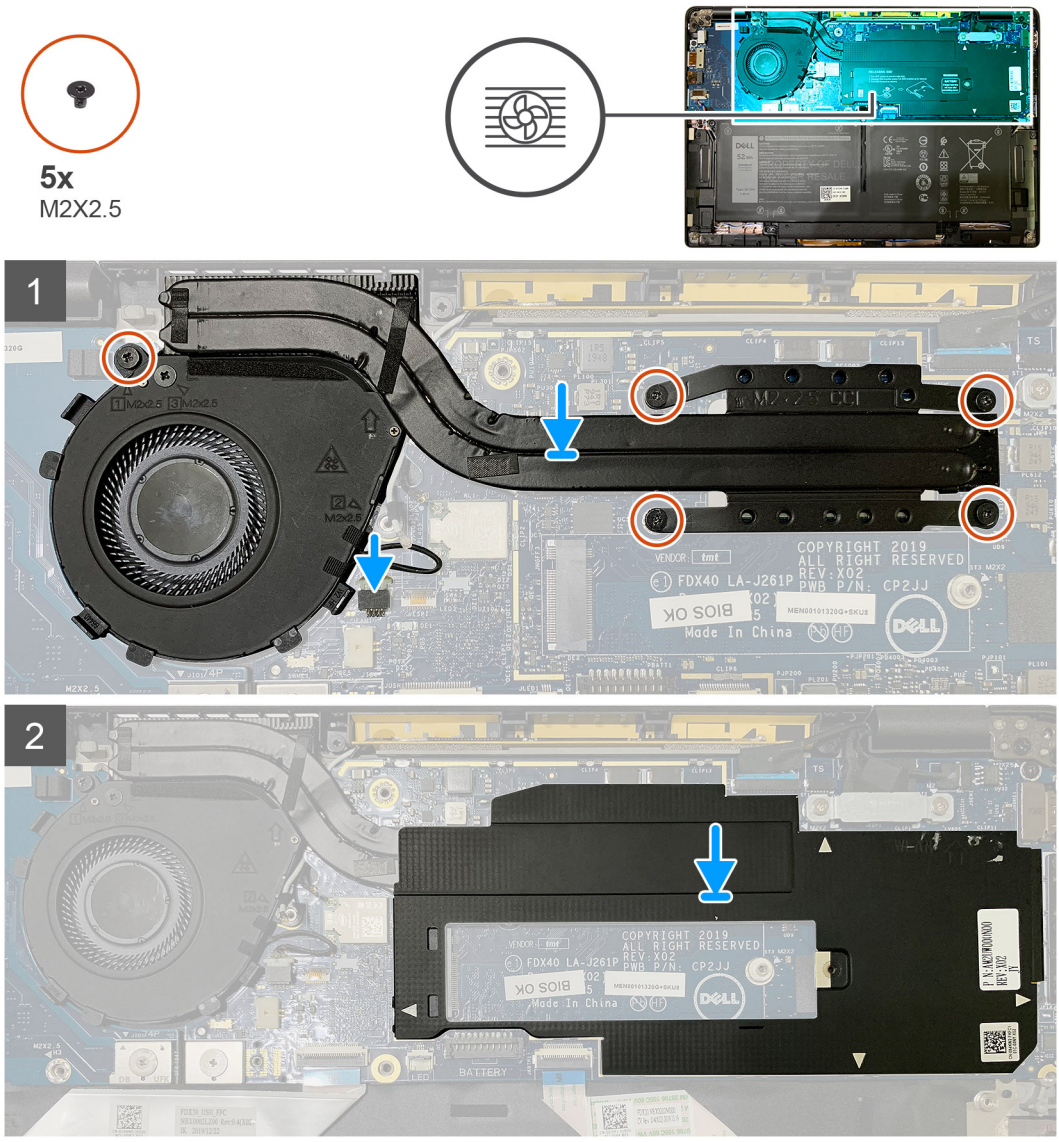
Installing the heatsink assembly

Prerequisites

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

About this task

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



Steps

1. Replace the heatsink assembly into the slot in the palmrest assembly and connect the fan cable to the system board.
2. Replace the single M2x2.5 screw on the fan case and four M2x2.5 screws in sequence (1>2>3>4) securing the heatsink assembly to the system board.
3. Replace the system board shield on top of the heatsink assembly.

Next steps

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

1. Replace and tighten the M2x2 screw on the SSD thermal plate.
2. Install the:
   a. Base cover
3. Follow the procedure in After working inside your computer.

Display assembly

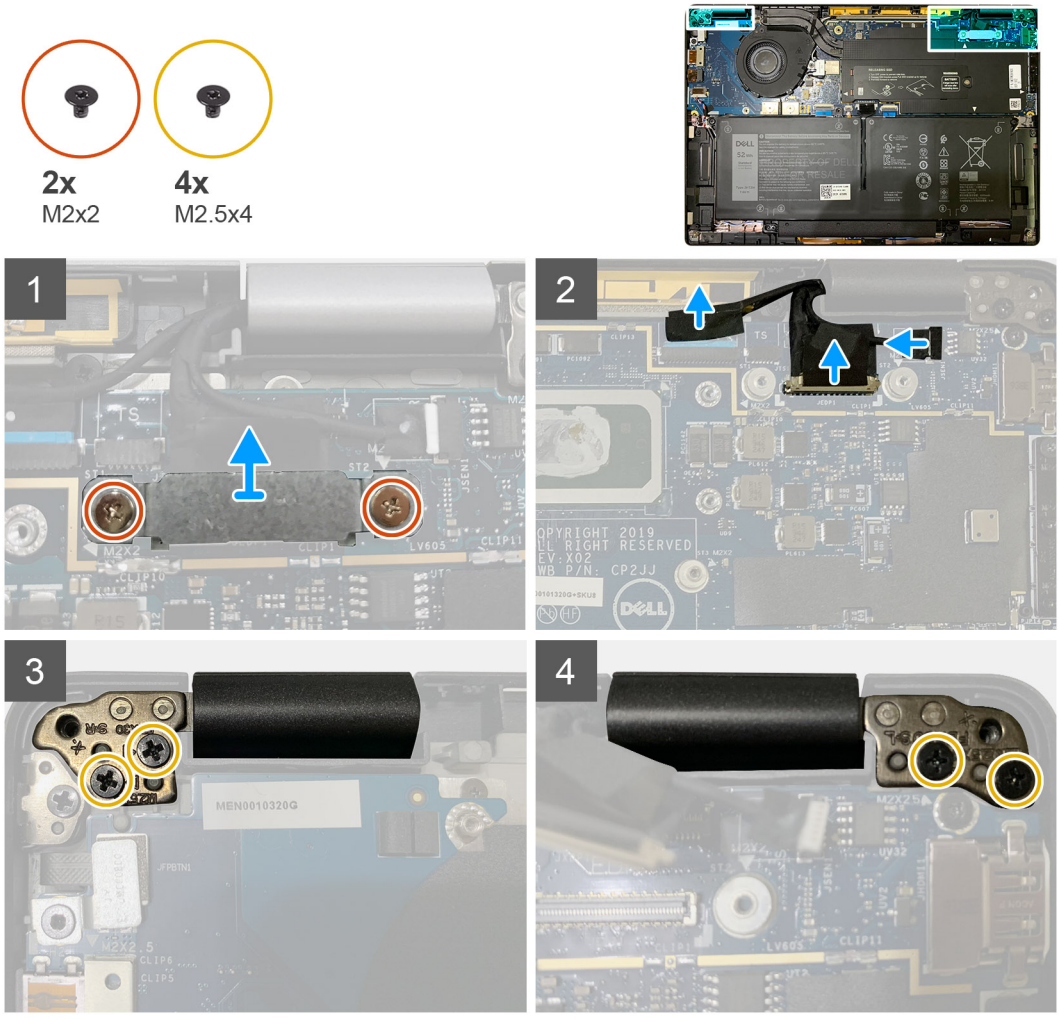
Removing the display assembly

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. Base cover

About this task

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

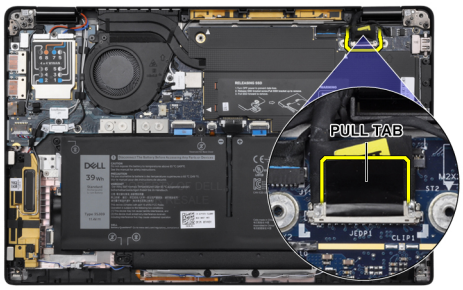


Steps

1. **CAUTION: If the system unit is shipped with WWAN card, remove the WWAN bracket and disconnect the antennae cables.**

   Remove the two M2x2 screws that secures the eDP bracket to the system board and remove it from the system board.
2. Disconnect the eDP cable, touch cable and camera cable from the system board.

   NOTE: The display cable and sensor daughter board cable are bundled together with tape. Disconnect the sensor daughter board cable first followed by the display cable. To disconnect the display cable, pull the pull tab vertically.



3. Remove the two M2.5x4 from both left and right hinges.
4. Fold the LCD at an convenient angle to detach it from the palmrest assembly.

Installing the display assembly

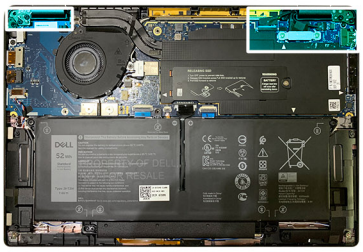
Prerequisites

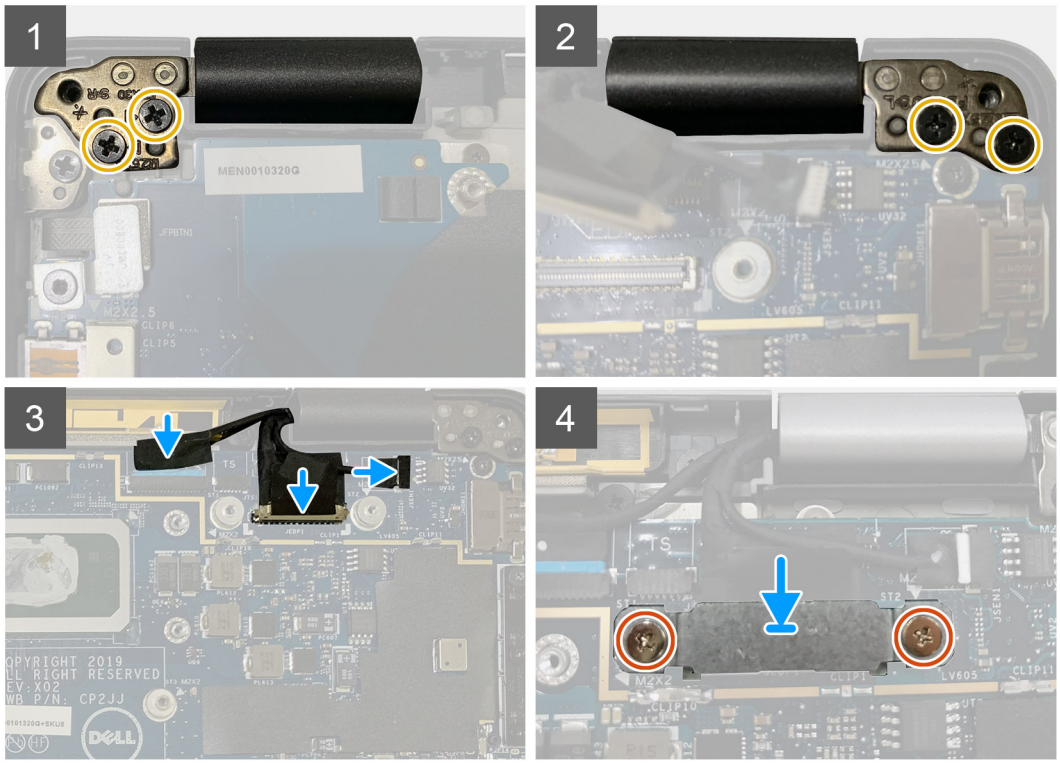
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

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







Steps

1. Align and place the display assembly at an convenient angle and replace the two M2.5x4 screws securing the hinges of the display assembly to the palmrest.
2. Connect the eDP cable, camera cable and touch sensor cable to the system board.

   NOTE: The display cable and sensor daughter board cable are bundled together with tape. Connect the display cable first followed by sensor daughter board cable.

3. Replace the eDP bracket on the eDP connector on the system board and replace the two M2x2 screws securing it to the system board.

Next steps

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

1. Install the:
   a. Base cover
2. Follow the procedure in After working inside your computer.

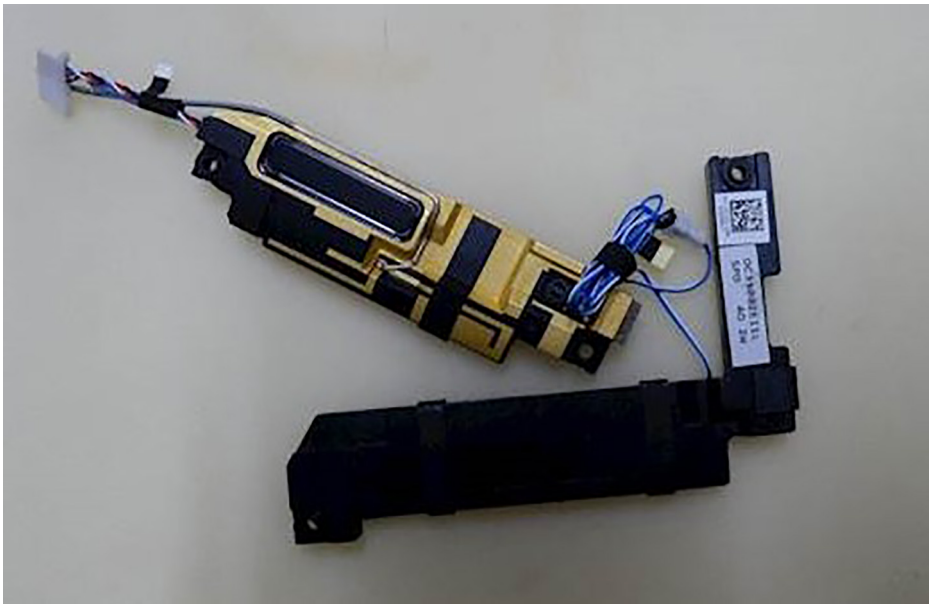
Speakers

Removing the speaker

Prerequisites

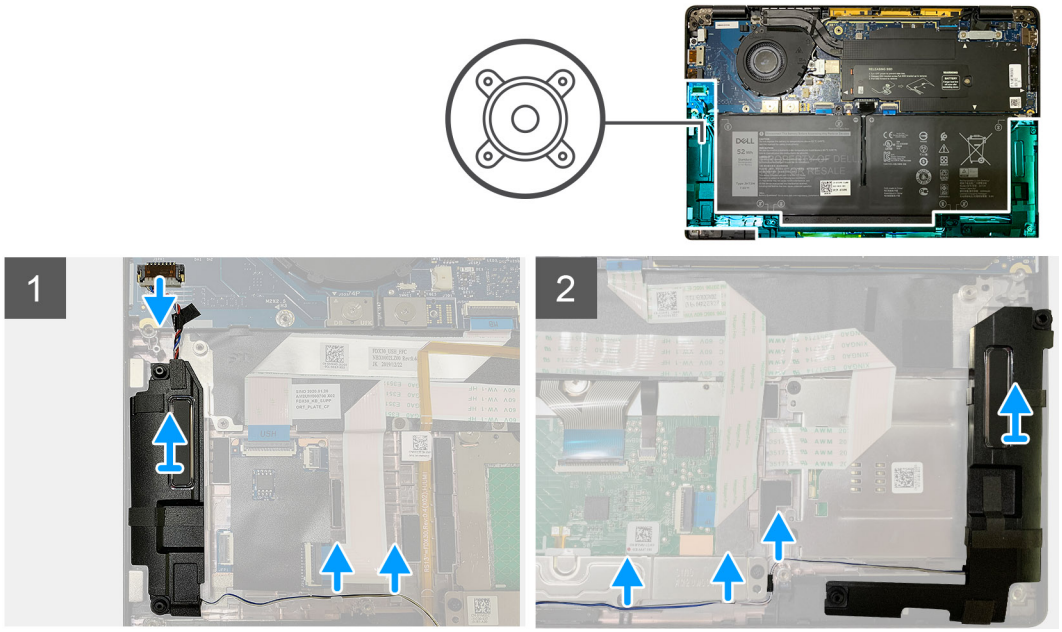
1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. Base cover
   b. Battery
3. Disconnect the WWAN antennae cables.

   NOTE: For systems with 4x4 WWAN, the right speaker is pre-attached with WWAN antenna, and the WWAN antenna cannot be separated from the speaker and must be replaced together.



About this task

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



Steps

1. Disconnect the speaker cable from its connector on the I/O board.
2. Remove the speaker cables from the guide path.

   NOTE: The speaker cable is secured with an insulation tape on the touchpad buttons.

3. Lift and remove the speakers from its slot on the palmrest assembly.

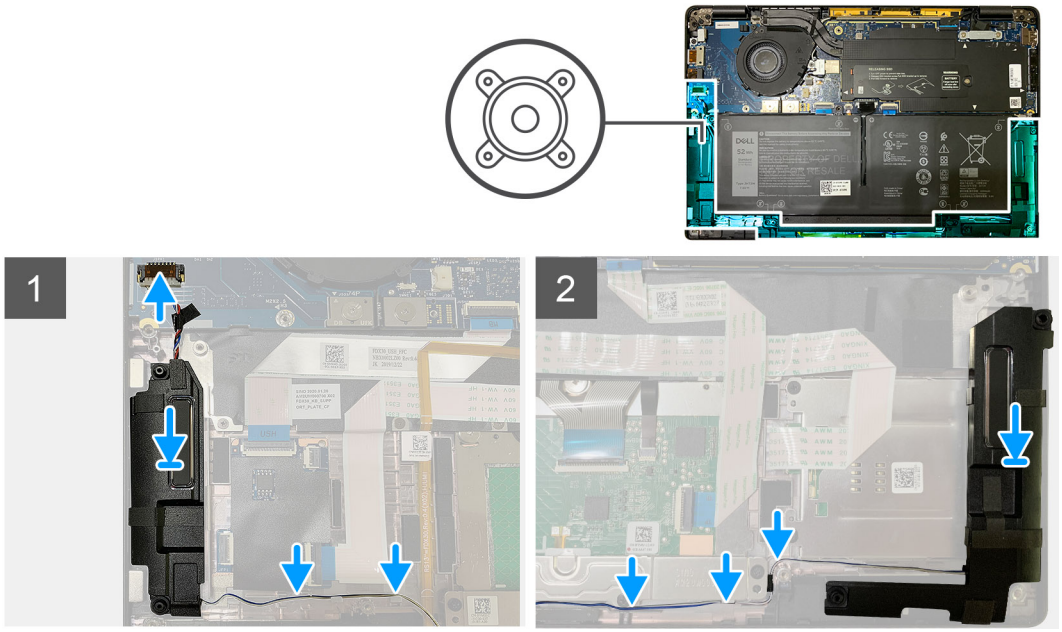
Installing the speaker

Prerequisites

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

About this task

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



Steps

1. Connect the speaker cable to its connector on the I/O board.
2. Align and replace the right speaker into its slot in the palmrest assembly and route the speaker cable along the guide path.

   NOTE: The speaker cable is secured with an insulation tape on the touchpad buttons.

Next steps

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

1. Install the:
   a. Battery
   b. Base cover
2. Connect the WWAN antennae cables.
3. Follow the procedure in After working inside your computer.

Smart card reader

Removing the smart card reader

Prerequisites

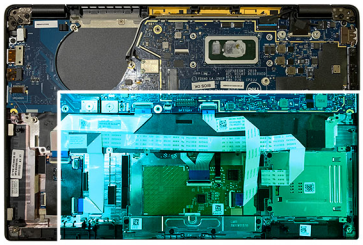
1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. Base cover
   b. Battery
   c. Speakers
3. Loosen and remove the single M2x2 screw on the SSD thermal shield and remove the system board shield.

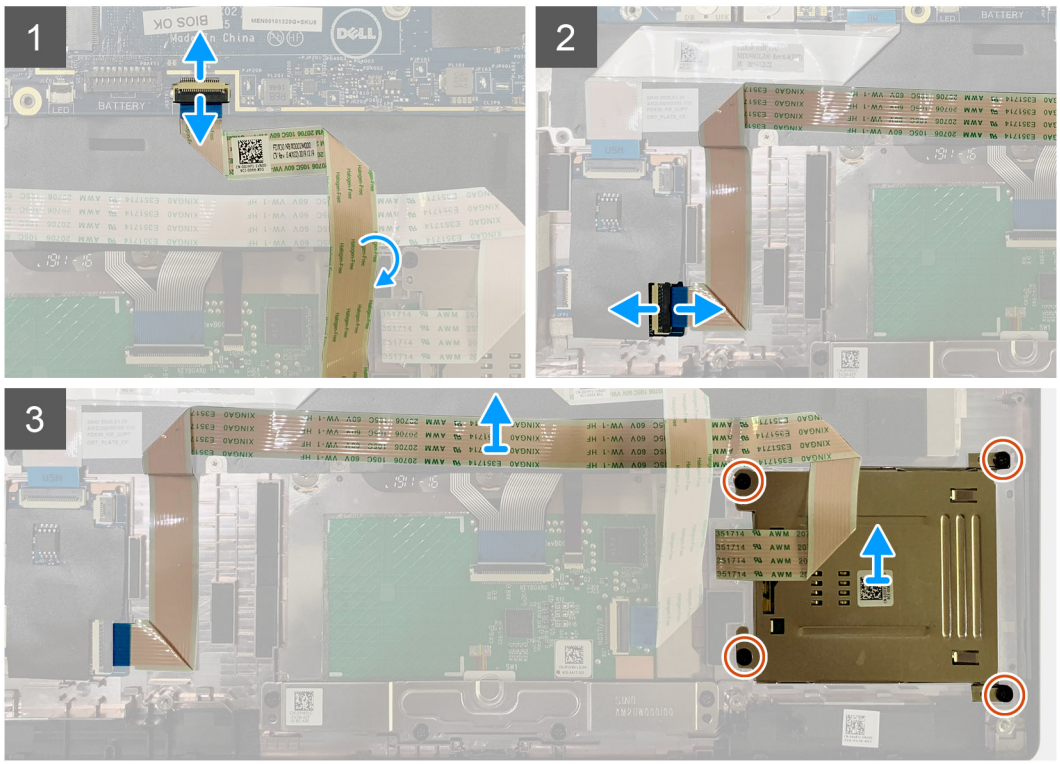
About this task

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



4x
M2x2.5





Steps

1. Disconnect the touchpad cable that is routed over the smart card cable from the system board.
2. Disconnect the smart card reader cable from the USH board.
3. Peel off the smart card reader cable from the palmrest assembly.
4. Remove the four M2x2.5 screws and remove the smart card reader from the palmrest assembly.

Installing the smart card reader

Prerequisites

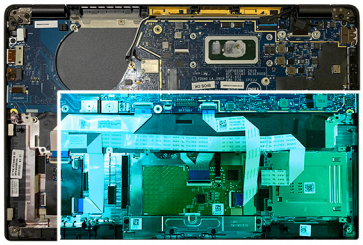
If you are replacing a component, remove the existing component before performing the installation procedure.

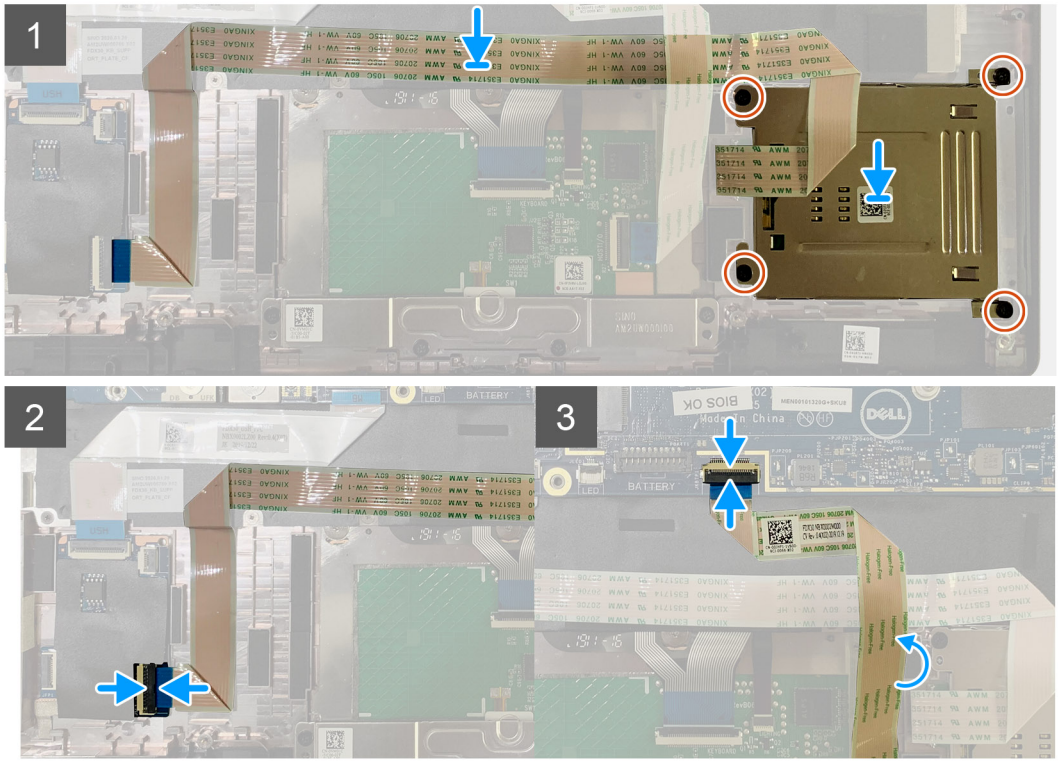
About this task

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



4x
M2x2.5





Steps

1. Replace the smart card reader into its slot on the palmrest assembly.
2. Adhere the smart card cable, routing it on the palmrest assembly.
3. Connect the smart card reader cable to the USH board.
4. Route the touchpad cable from over the smart card reader cable and connect it to the system board.

Next steps

1. Install the:
   a. Speakers
   b. Battery
   c. Base cover
2. Replace and tighten the single M2x2 screw on the SSD thermal shield and replace the system board shield.
3. Follow the procedure in After working inside your computer.

I/O board

Removing the I/O board

Prerequisites

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

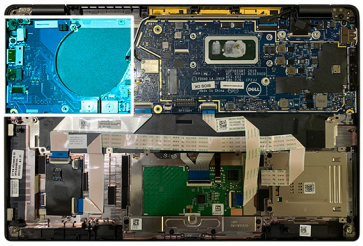
2. Remove the:
   a. Base cover
   b. Battery
   c. WWAN
   d. SSD thermal shield
   e. WLAN antennae bracket
   f. Speakers

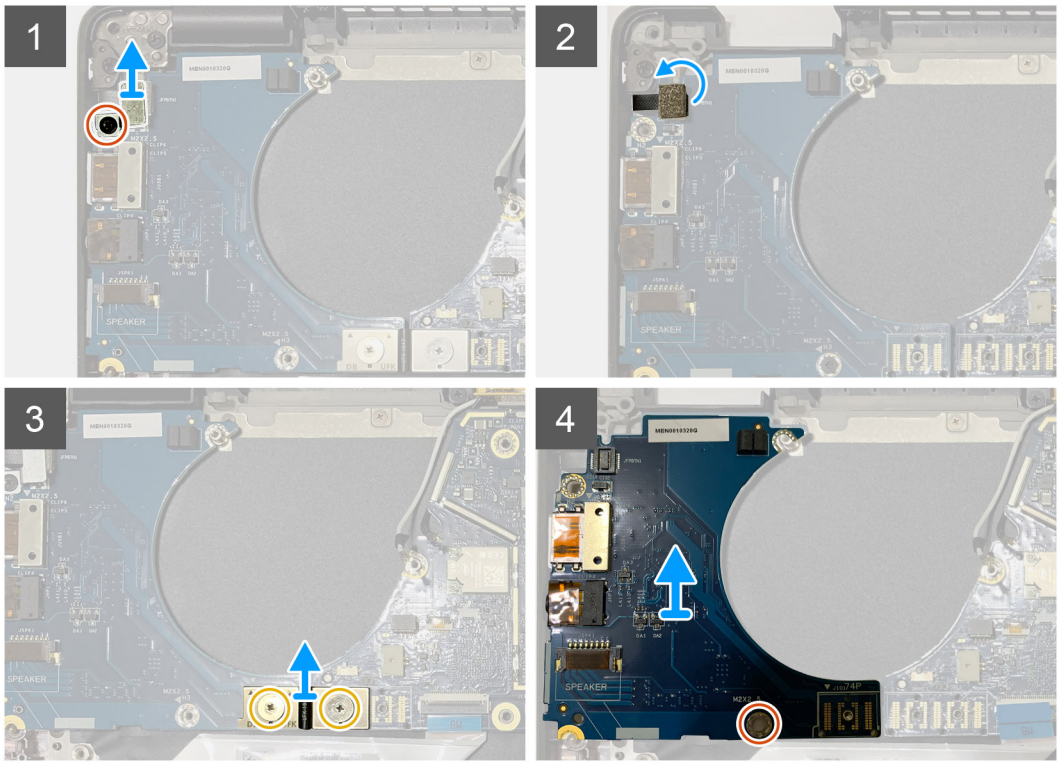
About this task

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

NOTE: For configurations shipped without a WWAN card, a WWAN shield cover and WWAN bracket will be pre-installed to the system. Follow the steps in the WWAN Card section to remove the shield cover and WWAN bracket.







Steps

1. Remove the single M2x2.5 screw and remove the finger print reader bracket from over the power button connector.

   NOTE: System configurations ordered with finger print reader there are two screws securing the finger print reader bracket to the palmrest assembly.

2. Disconnect the power button with finger print reader cable from the I/O daughterboard.

   For system units ordered with WWAN card, disconnect and remove the antennae cables from the WWAN card on the I/O daughterboard.
3. Remove two M2x3.5 screws on the F-beam FPC connector and remove it from the system board.
4. Lift and remove the I/O daughterboard from the system unit.

Installing the I/O board

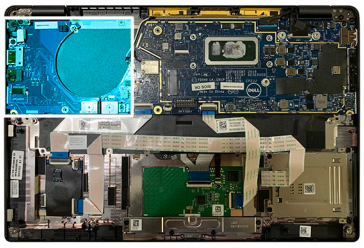
Prerequisites

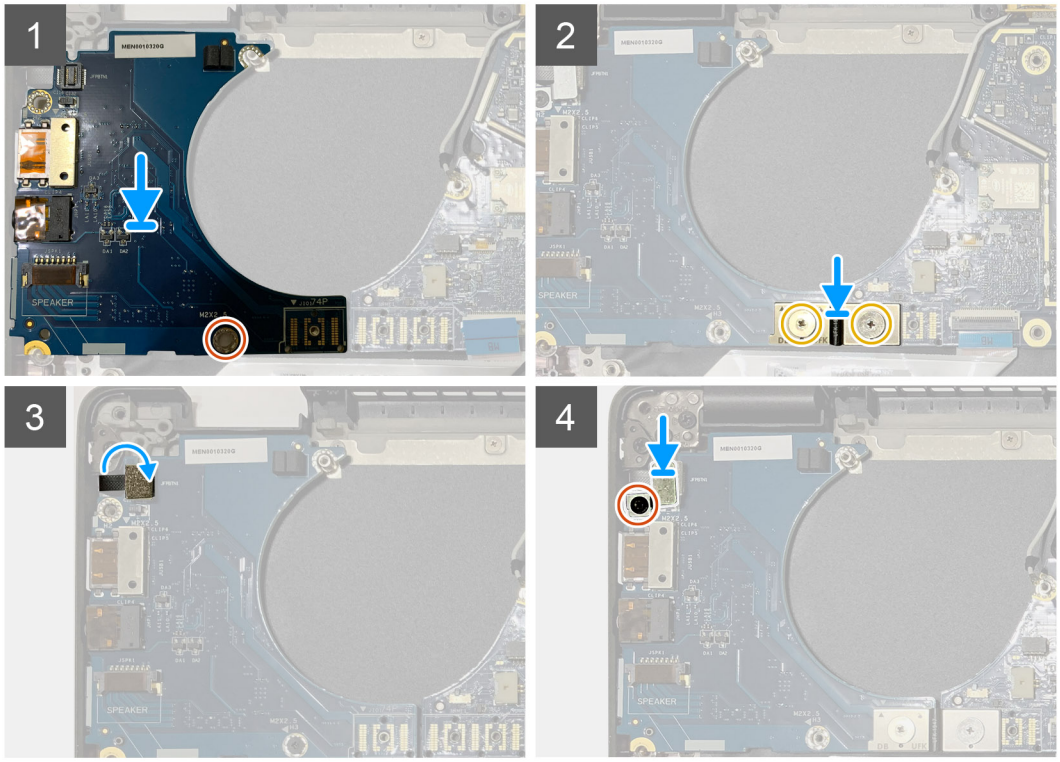
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

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







Steps

1. Align the screw hole with that on the palmrest assembly and replace the I/O daughterboard into its slot on the palmrest assembly.
2. Connect the F-beam FPC connector to the I/O board and secure it using the two M2x3.5 screws.
3. Connect the power button cable to the I/O daughterboard.
4. Replace the two M2x2.5 screws securing the power button to the I/O board.

   NOTE: System configurations ordered with finger print reader there are two screws securing the finger print reader bracket to the palmrest assembly.

Next steps

1. Install the:
   a. Speakers
   b. WLAN antennae bracket

c. SSD thermal shield
d. WWAN card
e. Battery
f. Base cover

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

Power button with fingerprint reader

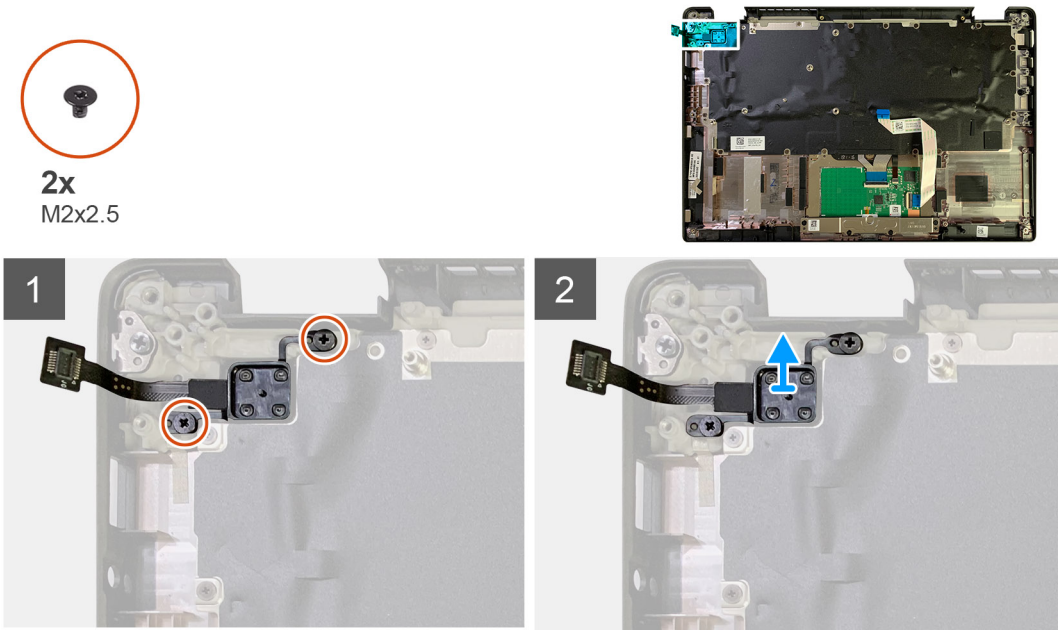
Removing the power button with fingerprint reader

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. Base cover
   b. Battery
   c. WWAN
   d. SSD thermal shield
   e. WLAN antennae bracket
   f. I/O 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 M2x2.5 screws securing the power button with fingerprint reader to the palmrest assembly.
2. Remove the power button with fingerprint reader from its slot in the palmrest assembly.

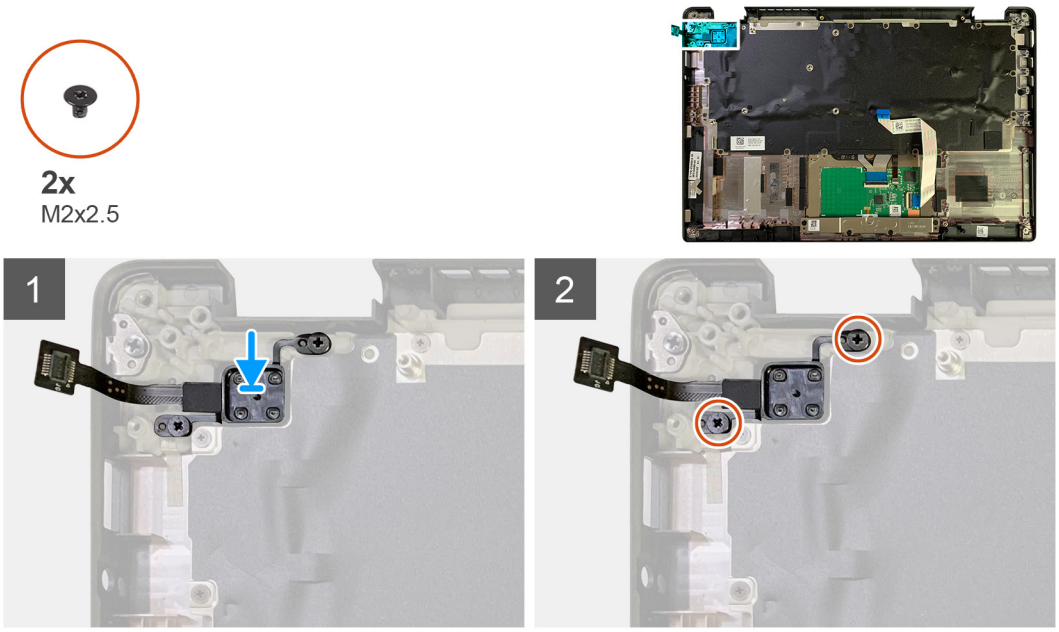
Installing the power button with fingerprint reader

Prerequisites

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

About this task

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



Steps

1. Replace the power button with fingerprint reader into its slot in the palmrest assembly.
2. Replace the two M2x2.5 screws securing power button with fingerprint reader to the palmrest assembly.

Next steps

1. Install the:
   a. I/O board
   b. WLAN antennae bracket
   c. WWAN card
   d. SSD thermal shield
   e. Battery
   f. Base cover
2. Follow the procedure in After working inside your computer.

System board

Removing the system board

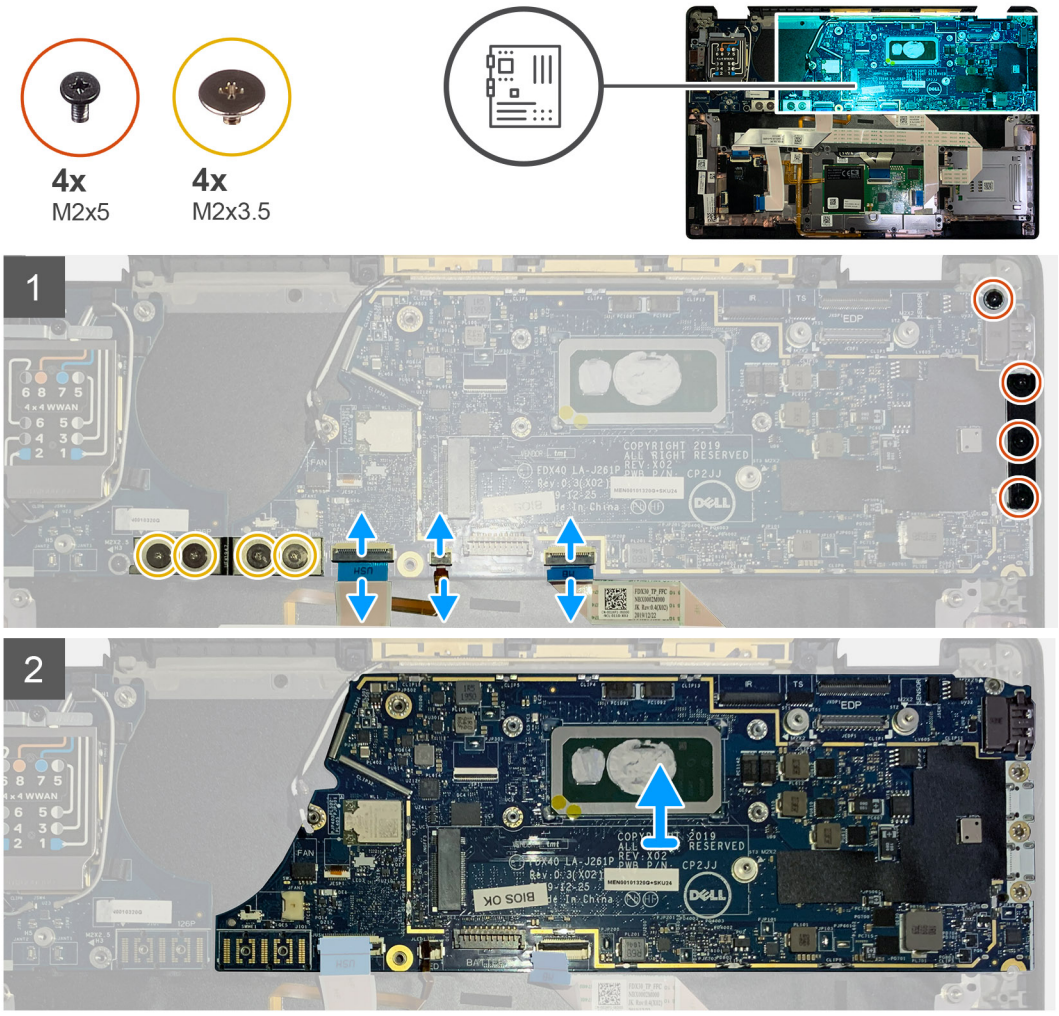
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. Base cover
   b. Battery
   c. Solid state drive
   d. WLAN antennae bracket
   e. Heatsink assembly

   NOTE: System board can be disassembled without having to remove the heatsink assembly.

About this task

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



Steps

1. Remove the four M2x3.5 screws securing the F-beam FPC and remove it from the I/O board.
2. Un-thread the wireless antennae cables.
3. Remove the two M2x2 screws securing the eDP bracket and remove it from the system board.
4. Disconnect the following cables from the system board :
   - IR camera cable (for systems shipped with IR camera)
   - Touchscreen cable (for systems shipped with touchscreen)
   - Display cable
   - Sensor daughterboard cable
   - Touchpad FFC
   - Battery LED FPC
   - USH daughterboard FFC
5. Remove the three M2x5 screws securing the Type-C USB bracket to the system board.
6. Remove the USB Type-C bracket from the system board.
7. Remove the single M2x2.5 screw securing the system board to the palmrest assembly.
8. Remove the system board from the system.

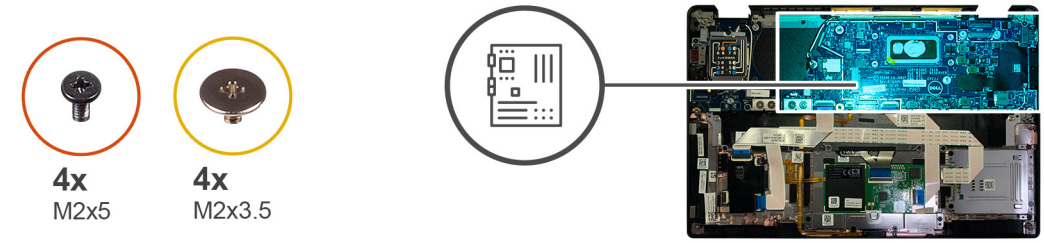
Installing the system board

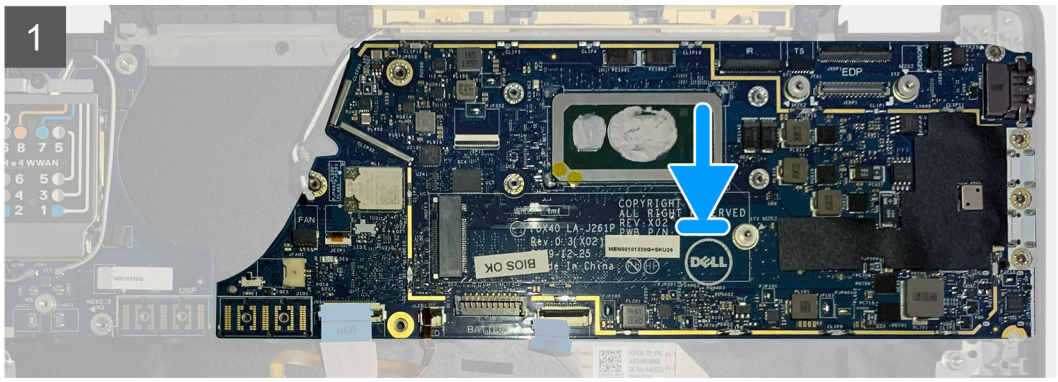
Prerequisites

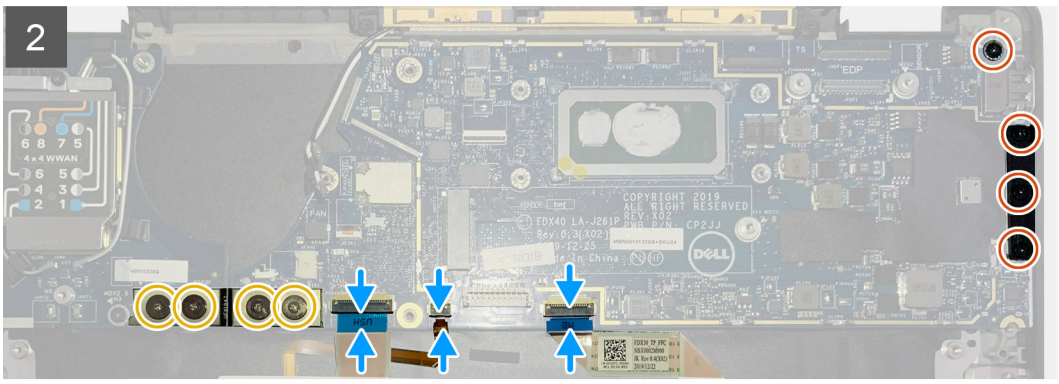
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

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







Steps

1. Align and replace the system board into the palmrest assembly.
2. Replace the single M2x2.5 screw securing the system board to the palmrest assembly.
3. Replace the USB Type-C bracket on the system board and secure it using the three M2x5 screws.
4. Connect the following cables:
   - IR camera cable (for systems shipped with IR camera)
   - Touchscreen cable (for systems shipped with touchscreen)
   - Display cable
   - Sensor daughterboard cable
   - Touchpad FFC
   - Battery LED FPC
   - USH daughterboard FFC
5. Replace the eDP bracket on the display cable connector of the system board and replace the two M2x2 screws securing it to the system board.

6. Re-route the antennae cable on the system board.
7. Replace the four M2x3.5 screws securing the F-beam FPC to the I/O board.

Next steps

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

1. Install the:
   a. Heatsink assembly
   b. WLAN antennae bracket
   c. Solid state drive
   d. Battery
   e. Base cover
2. 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:
   a. Base cover
   b. Battery
   c. WLAN antennae bracket
   d. Heatsink assembly
   e. I/O Board
   f. System board

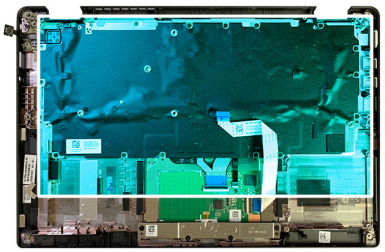
   NOTE: System board can be disassembled without having to remove the heatsink assembly.
3. Loosen and remove the single M2x2 screw on the SSD thermal shield and remove the system board shield.

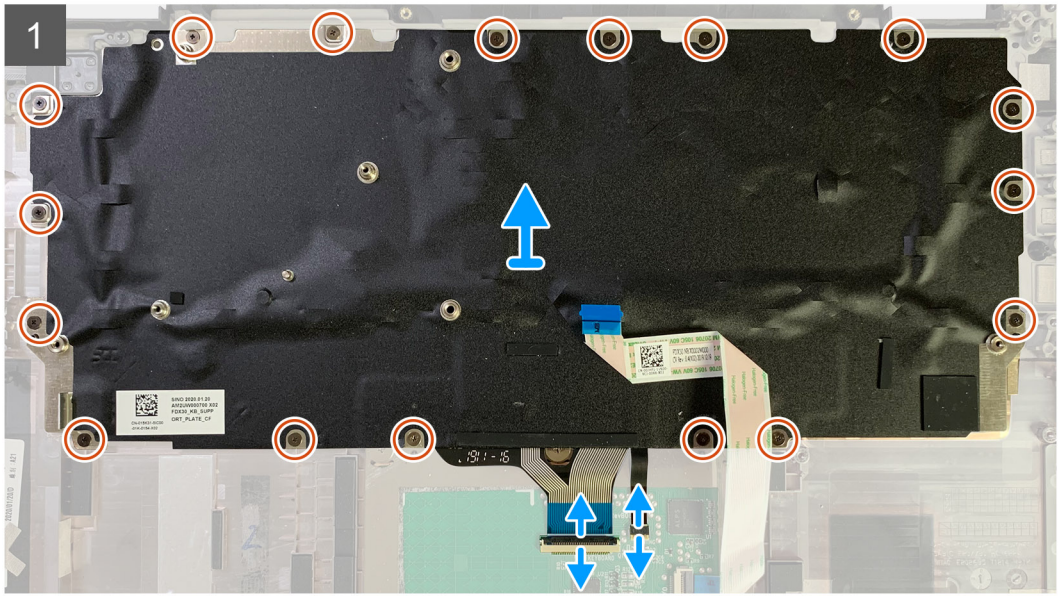
About this task

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



17x
M2X2.5







2x
M2X2



Steps

1. Remove all the M1.6x2 screws securing the keyboard to the palmrest assembly.

   Depending on the configuration the number of screws vary :
   - Aluminum palmrest: 21
   - Carbon Fiber palmrest: 17

2. Disconnect the keyboard and backlight cable from the touchpad module.
3. Remove the two M2x2 screws securing the keyboard to the keyboard plate.

   NOTE: Screws are located below Colon & Semi-colon key and between Capslock, A and Shift keys.

Installing the keyboard

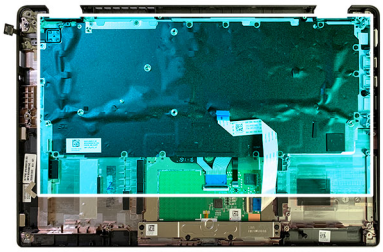
Prerequisites

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

About this task

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

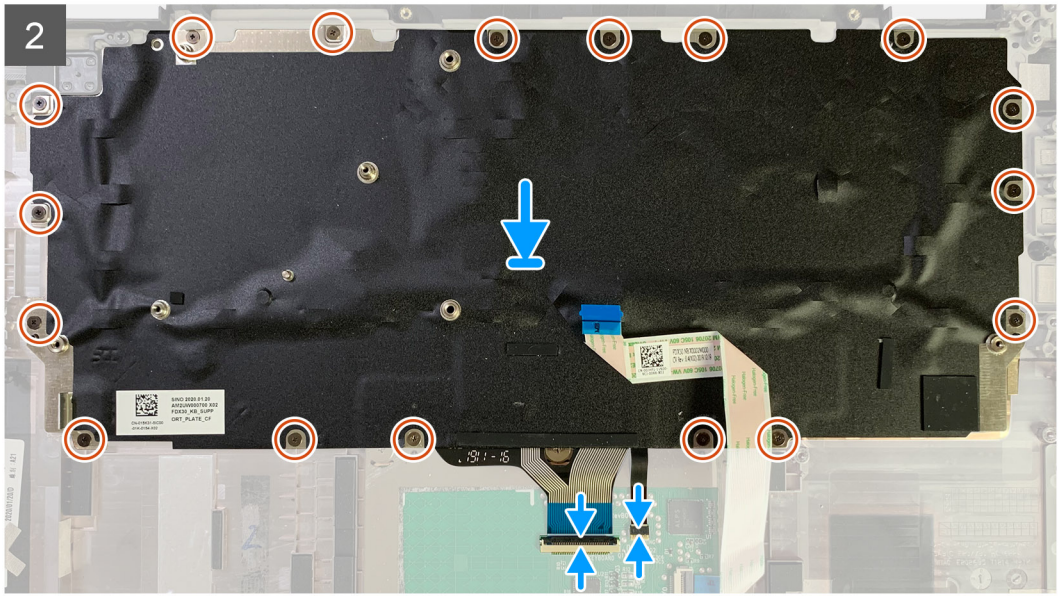








17x
M2X2.5



Steps

1. Align the screw holes on the keyboard support bracket with that on the keyboard and replace the two M2x2 screws.
2. Align the and place the keyboard into its slot in the palmrest assembly.
3. Replace all the M1.6x2 screws securing the keyboard to the palmrest assembly.

   Depending on the configuration the number of screws vary :
   - Aluminum palmrest: 21
   - Carbon Fiber palmrest: 17

Next steps

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

1. Install the:
   a. System board
   b. I/O board
   c. Heatsink assembly
   d. WLAN antennae bracket
   e. Battery
   f. Base cover
2. 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:
   a. Base cover
   b. Battery
   c. Solid state drive
   d. WWAN card
   e. WLAN antenna bracket
   f. Palmrest antenna (optional)
   g. Heatsink assembly
   h. Display assembly
   i. Speakers
   j. Smart card reader
   k. I/O Board
   l. Power button with fingerprint reader
   m. System board
      NOTE: System board can be disassembled without having to remove the heatsink assembly.
   n. Keyboard

About this task

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

Steps

Once all the underlying components are removed, 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 images indicate the location of the palmrest assembly and provide 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

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

1. Install the:
   a. Keyboard
   b. System board
   c. Power button with finger print reader
   d. I/O board
   e. Smart card reader
   f. Speakers
   g. Display assembly
   h. Heatsink assembly
   i. Palmrest antenna (optional)
   j. WLAN antenna bracket
   k. WWAN card
   l. Solid state drive
   m. Battery
   n. Base cover
2. Follow the procedure in After working inside your computer.

3

Troubleshooting

Handling swollen rechargeable Li-ion batteries

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

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

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

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

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

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

Recovering the operating system

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

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

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

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

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 launched by the BIOS internally. The embedded system diagnostics provides options for particular devices or device groups allowing you to:

- Run tests automatically or in an interactive mode.
- Repeat the tests.
- Display or save test results.
- Run thorough tests to introduce additional test options to provide extra information about one or more failed devices.
- View status messages that inform you the tests are completed successfully.
- View error messages that inform you of problems encountered during testing.

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

For more information, see the knowledge base article 000180971.

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 page is displayed.
5. Click the arrow in the lower-right corner to go to the page listing.
   The items that are 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.

Validation Tools

This section contains information on how to validate the SupportAssist ePSA, ePSA or PSA error codes.

Error code verification can be done using below two methods :

- Online Enhanced Preboot System Assessment Validation Tool.
- QR scanning using QR APP on Smart Phone.

Online SupportAssist onboard Diagnostics, ePSA, or PSA Error Codes Validation Tool

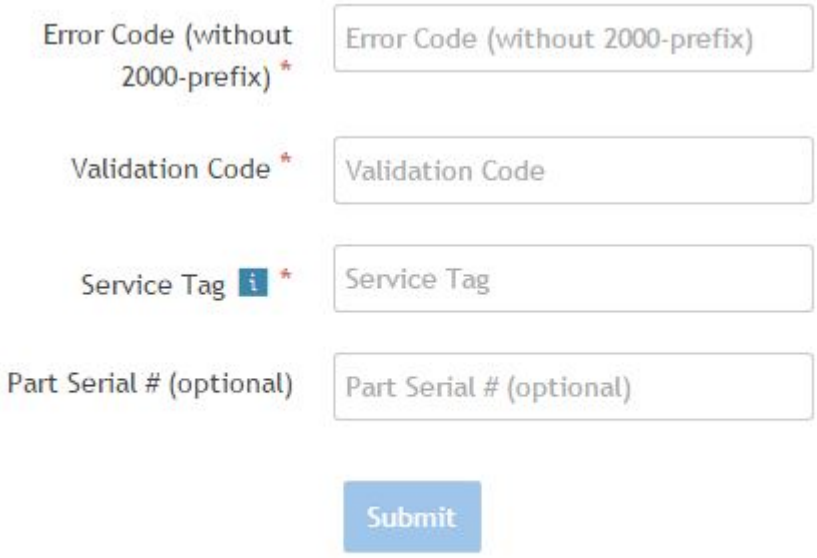
Usage Guide

Steps

1. User to obtain information from the SupportAssist error windows.

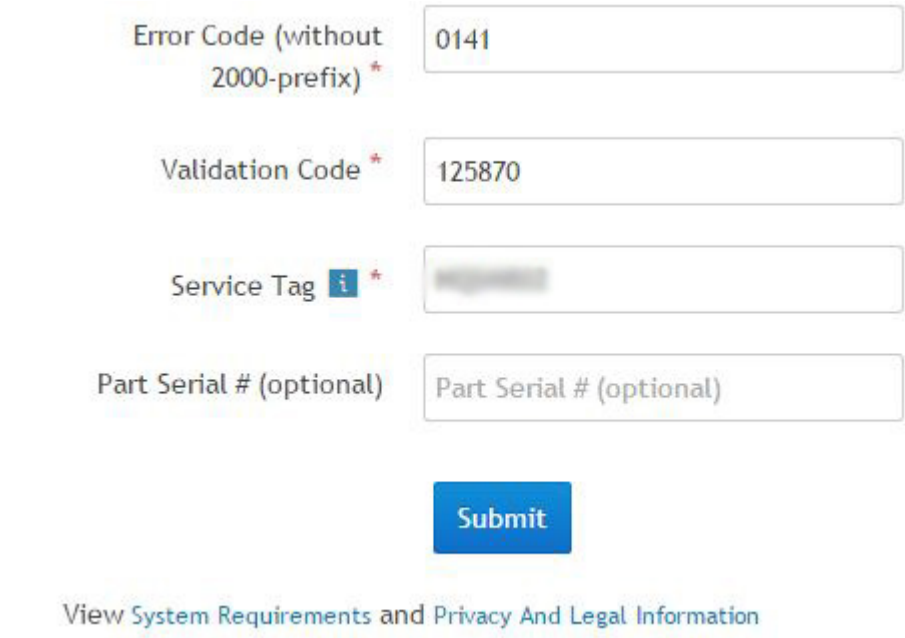


2. Navigate to Dell Support Pre Boot Analysis.
3. Enter error code, validation code, and service tag. Part serial number is optional.



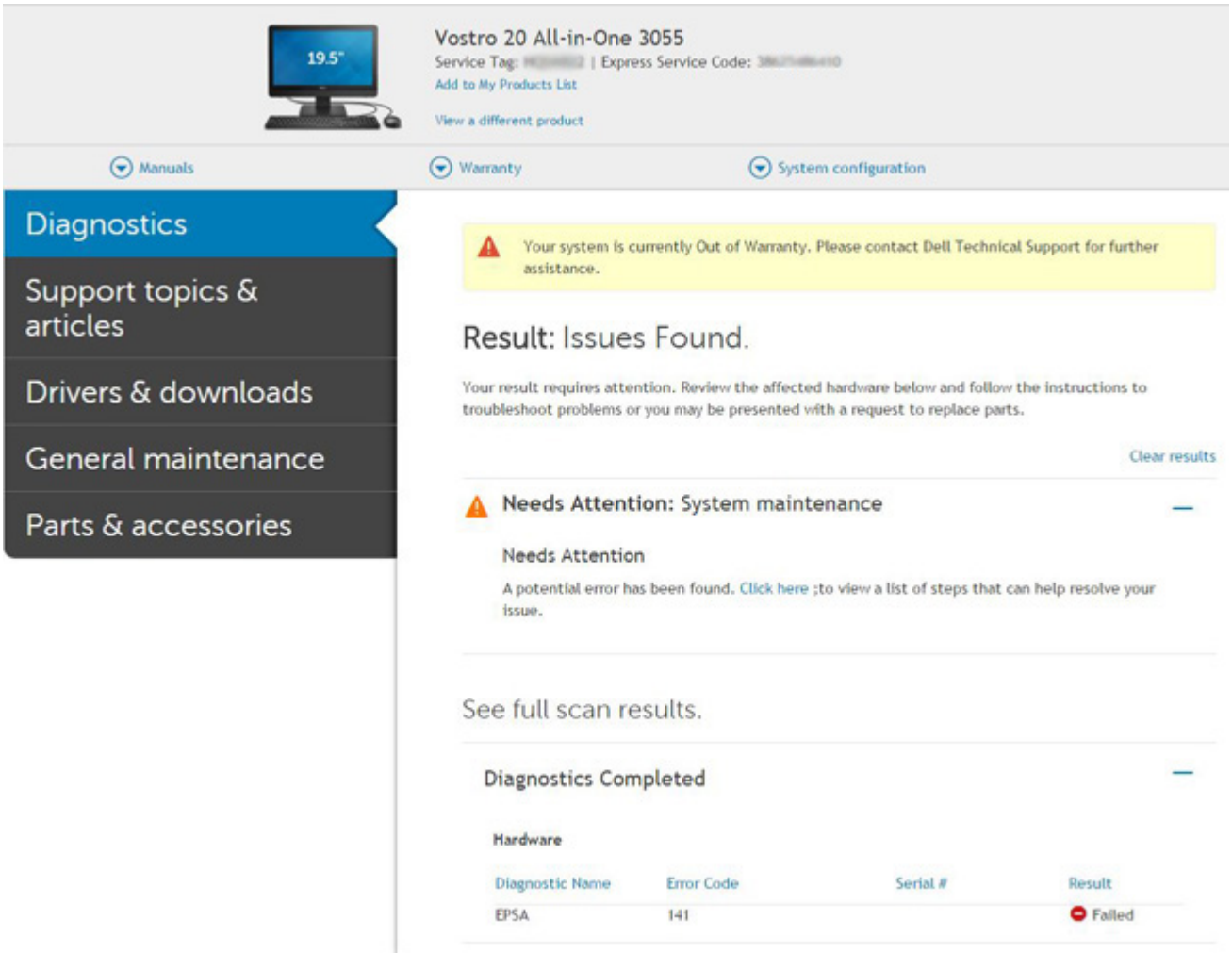
NOTE: For error code, use only the last 3 or 4 digits of the code. (user can enter 0142 or 142 instead of 2000–0142.)

4. Click **Submit** once all the necessary information is entered.



Results

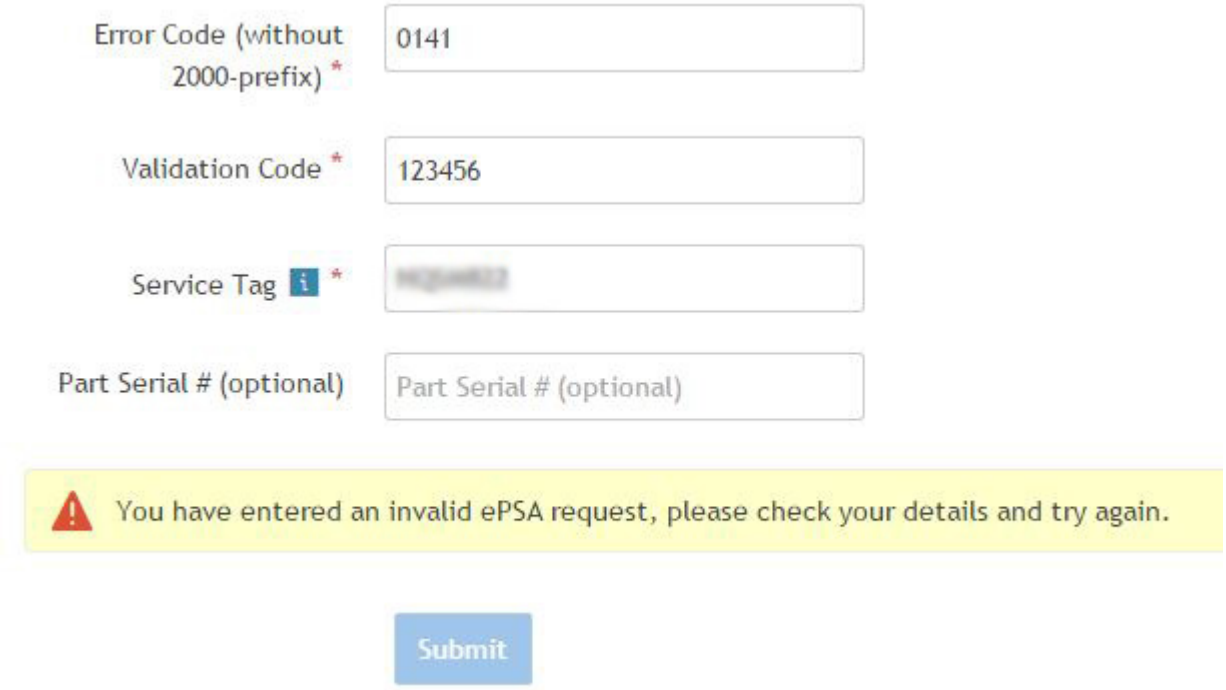
Valid Error Code Example



After entering the correct information, the online tools will direct the user to the above screen which contains information about :

- Confirmation of the error code and result outcome
- Suggested Part Replacement
- If the customer is still covered under Dell Warranty.
- Case reference number if there is an open case under the service tag.

Invalid Error Code Example



QR APP Validation Tool

About this task

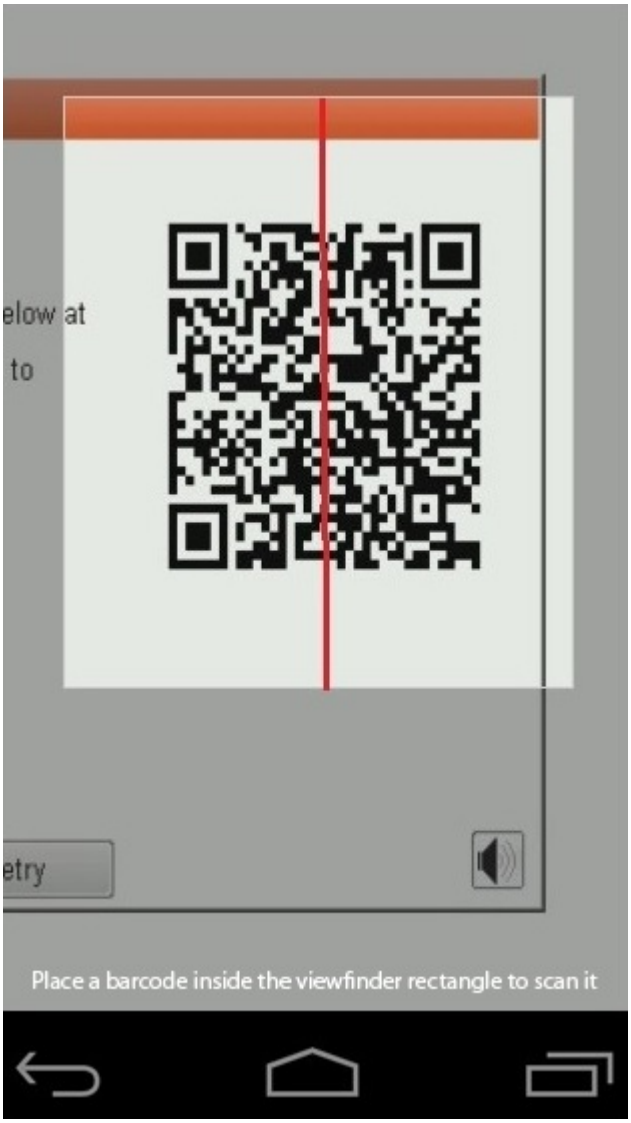
Besides using the online tool, customers can also validate the error code by scanning the QR code with a QR APP on a smartphone.

Steps

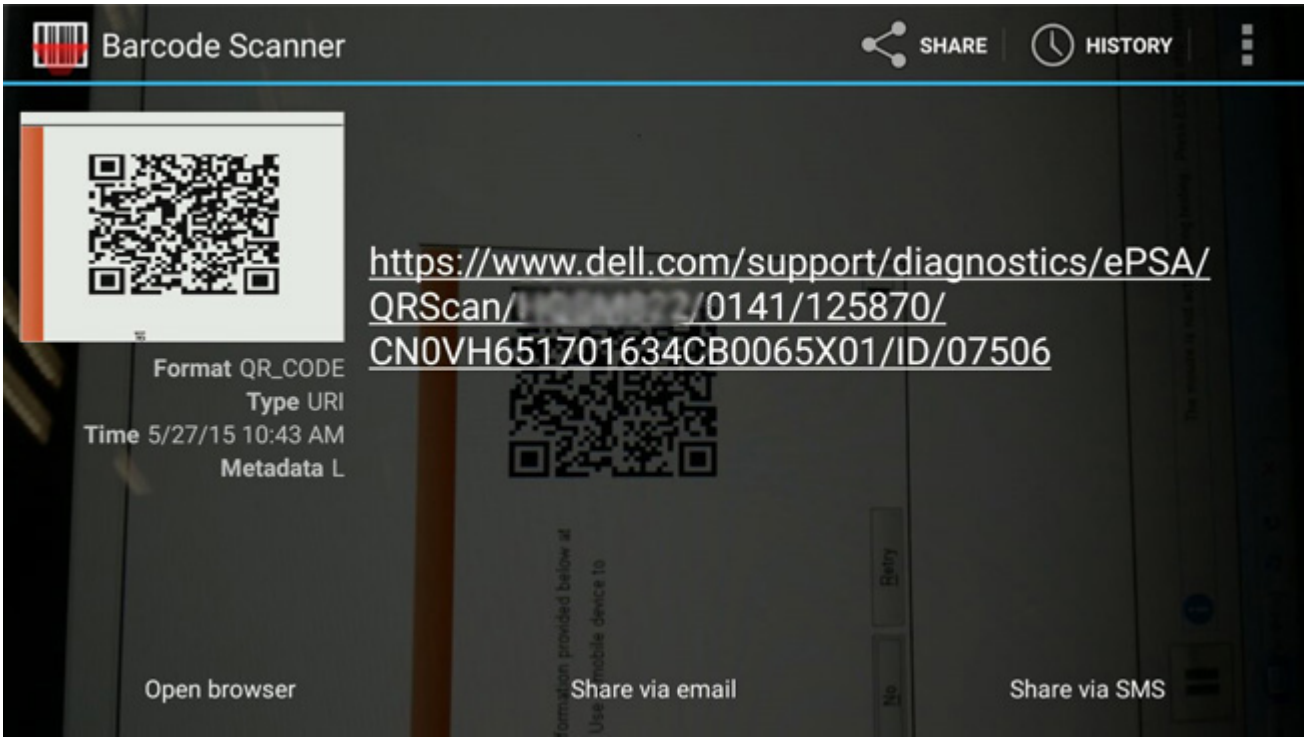
1. User to obtain the QR code from SupportAssist On-board Diagnostics error screen.



2. User can use any QR code scanner application through the smartphone to scan the QR code.



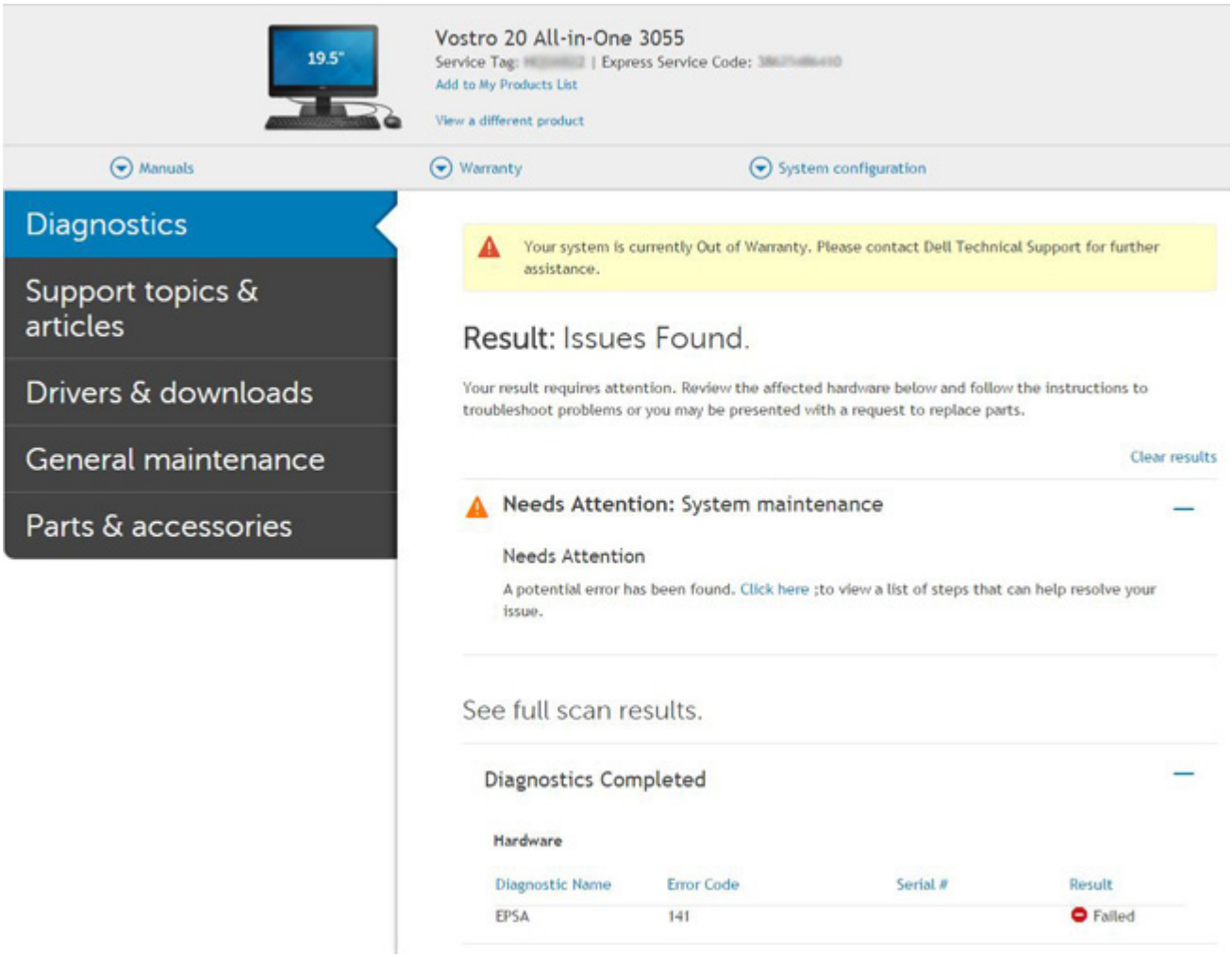
3. The QR code scanner application will scan the code and automatically generate a link. Click the link to proceed.



Results

The link generated will take the customer to the Dell Support website which contains information on:

- Confirmation of the error code and result outcome
- Suggested Part Replacement
- If customer is still covered under Dell Warranty
- Case reference number if there is an open case under the service tag



System diagnostic lights

Battery-status light

Indicates the power and battery-charge status.

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

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

Off

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

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

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

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

Table 4. LED codes

Diagnostic light codes	Problem description	Recommended solution
1,1	TPM detection failure	Replace system board
1,2	SPI flash failure: replace system board	Replace system board
1,5	i-Fuse failure	Replace system board

Table 4. LED codes (continued)

Diagnostic light codes	Problem description	Recommended solution
1,6	Embedded controller failure	Disconnect all power source (AC, battery, coin cell) and drain flea power by pressing & holding down power button.
2,1	CPU failure	Run the Intel CPU diagnostics tools, if the problem still persists, replace the system board.
2,2	System board: BIOS or ROM (Read-Only Memory) failure	Flash latest BIOS version, If problem persists, replace the system board
2,3	No memory or RAM (Random-Access Memory) detected	Confirm that the memory module is installed properly If problem persists, replace the memory module
2,4	Memory or RAM (Random-Access Memory) failure	Reset the memory module If problem persists, replace the memory module
2,5	Invalid memory installed	Reset the memory module, If problem persists, replace the memory module
2,6	System-board or chipset error	Flash latest BIOS version If problem persists, replace the system board
2,7	Display failure	Flash latest BIOS version If problem persists, replace the LCD module
2,8	LCD power rail failure. Replace system board	Replace the system board
3,1	Coinless	Main battery and adapter plug in
3,2	PCI, video card/chip failure	Replace the system board
3,3	Recovery image not found	Flash latest BIOS version If problem persists, replace the system board
3,4	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	System BIOS Flash incomplete	Replace the system board
3,7	Management Engine (ME) error	Replace the system board

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

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

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

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

Updating the BIOS using the USB drive in Windows

Steps

1. Follow the procedure from step 1 to step 6 in Updating the BIOS in Windows to download the latest BIOS Setup program file.
2. Create a bootable USB drive. For more information, search the Knowledge Base Resource at Dell Support Site.
3. Copy the BIOS Setup program file to the bootable USB drive.
4. Connect the bootable USB drive to the computer that needs the BIOS update.
5. Restart the computer and press **F12** .

6. Select the USB drive from the **One Time Boot Menu**.
7. Type the BIOS Setup program filename and press **Enter**.
   The **BIOS Update Utility** appears.
8. Follow the on-screen instructions to complete the BIOS update.

Updating the BIOS in Windows

Steps

1. Go to Dell Support Site.
2. Click **Product support**. In the **Search support** box, enter the Service Tag of your computer, and then click **Search**.

   NOTE: If you do not have the Service Tag, use the SupportAssist to automatically identify your computer. You can also use the product ID or manually browse for your computer model.

3. Click **Drivers & Downloads**. Expand **Find drivers**.
4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. After the download is complete, browse the folder where you saved the BIOS update file.
8. Double-click the BIOS update file icon and follow the on-screen instructions.
   For more information about how to update the system BIOS, search in the Knowledge Base Resource at Dell Support Site.

Backup media and recovery options

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

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.

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.

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

RTC reset and Flea power release

About this task

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

Steps

1. Turn off your computer.
2. Remove the base cover.

   NOTE: The battery must be disconnected from the system board, see Step 2 in Removing the SSD.

3. Press and hold the power button for 15 seconds to drain the flea power.
4. Install the base cover.
5. Turn on your computer.

   NOTE: Performing a flea power also reset the RTC of the system. Update the system time and date at first startup.

4

Getting help and contacting Dell

Self-help resources

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

Table 5. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	Dell Support Site
Dell Support	
Tips	
Contact Support	In Windows search, type `Contact Support`, and press Enter.
Online help for operating system	• Windows: Windows Support Site • Linux: Linux Support Site
Troubleshooting information, user manuals, set up instructions, product specifications, technical help blogs, drivers, software updates, and so on.	Dell Support Site
Dell knowledge base articles for various of system concerns:	1. Go to Dell Support Knowledge Base. 2. Type the subject or keyword in the **Search** box. 3. Click **Search** to retrieve the related articles.
Learn and get more information about your product: • Product specifications • Operating system • Setting up and using your product • Data backup • Troubleshooting and diagnostics • Factory and system restore • BIOS information	Dell provides several online and telephone-based support and service options. If you do not have an active Internet connection, you can find contact information about your purchase invoice, packing slip, bill, or Dell product catalog. • Select **Detect Product**. • Locate your product through the drop-down menu under **View Products**. • Enter the **Service Tag number** or **Product ID** in the search bar. • Once on the product support page, scroll down to the Manuals and Documents section to preview all the Manuals, documents, and other information for your product.

Contacting Dell

Dell provides several online and telephone-based support and service options. If you do not have an active Internet connection, you can find contact information about your purchase invoice, packing slip, bill, or Dell product catalog. Availability varies by country or region and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Go to Dell Support Site.
2. Select your country or region from the drop-down menu on the lower right corner of the page.
3. For **customized support:**
   a. Enter your system Service Tag in the **Enter your Service Tag** field.
   b. Click **submit**.
      - The support page that lists the various support categories is displayed.
4. For **general support:**
   a. Select your product category.
   b. Select your product segment.
   c. Select your product.
      - The support page that lists the various support categories is displayed.
5. For contact details of Dell Global Technical Support, see Contact Support at Dell Support Site.

   NOTE: The Contact Technical Support page is displayed with details to call, chat, or email the Dell Global Technical Support team.

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