Vostro 3405

Service Manual

Regulatory Model: P132G
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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.

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 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.

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.

Lifting equipment

Adhere to the following guidelines when lifting heavy weight equipment:

CAUTION: Do not lift greater than 50 pounds. Always obtain additional resources or use a mechanical lifting device.

1. Get a firm balanced footing. Keep your feet apart for a stable base, and point your toes out.
2. Tighten stomach muscles. Abdominal muscles support your spine when you lift, offsetting the force of the load.
3. Lift with your legs, not your back.
4. Keep the load close. The closer it is to your spine, the less force it exerts on your back.
5. Keep your back upright, whether lifting or setting down the load. Do not add the weight of your body to the load. Avoid twisting your body and back.
6. Follow the same techniques in reverse to set the load down.

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 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.

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.

After working inside your computer

About this task

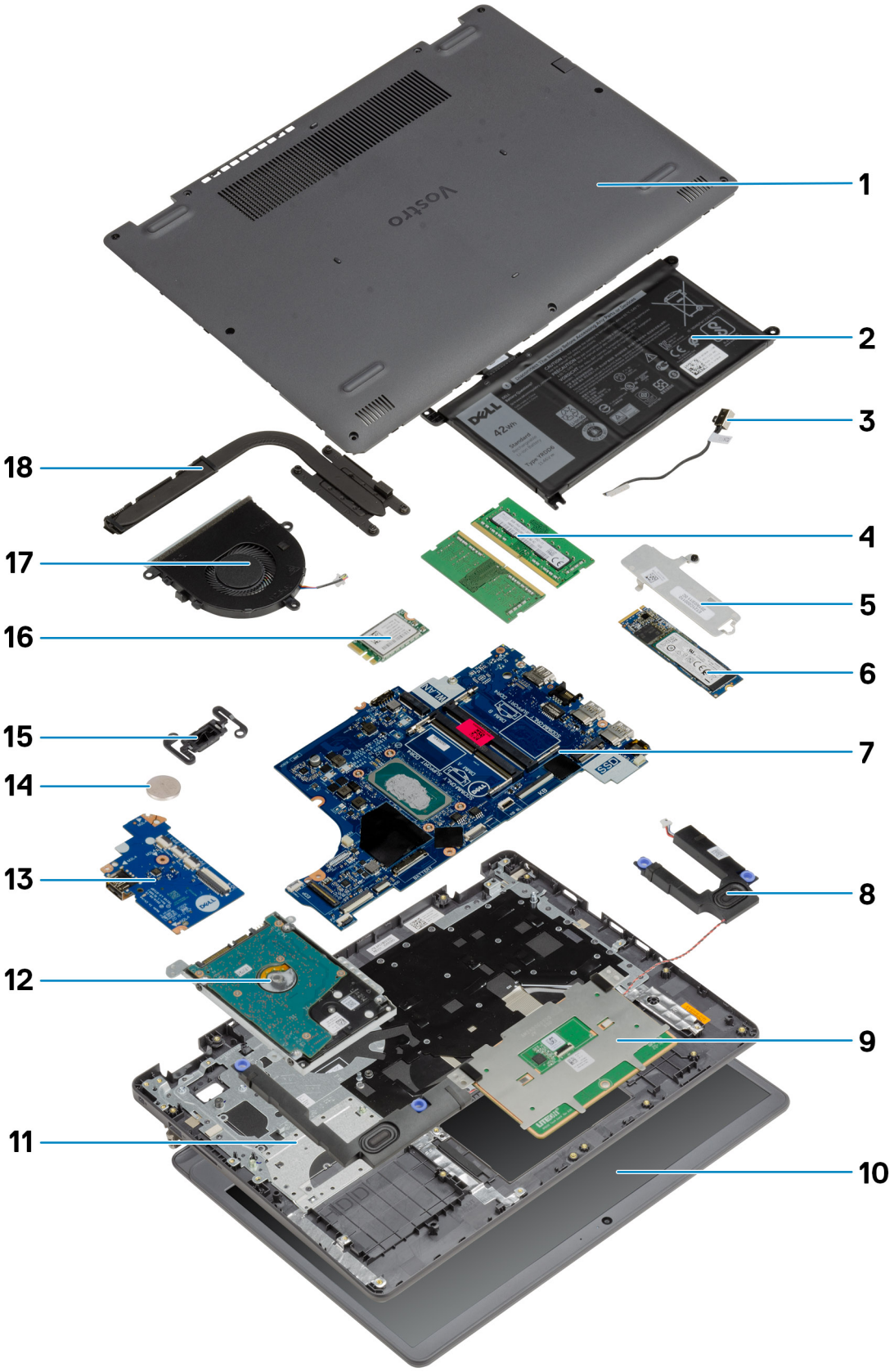
CAUTION: Leaving stray or loose screws inside your computer may severely damage your computer.

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

Exploded View



1. Base cover
2. Battery
3. DC-in Port
4. Memory modules
5. Solid-State Drive bracket
6. Solid-State Drive
7. System Board
8. Speakers
9. Touchpad
10. Display Assembly
11. Palmrest Assembly
12. HDD Assembly
13. IO Board
14. Coin Cell Battery
15. Power Button Module
16. WLAN Card
17. Fan Assembly
18. Heatsink assembly

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.

3

Disassembly and reassembly

Topics:

- Secure Digital Card
- Base cover
- Battery
- Solid-state drive
- Wireless card
- I/O board
- Coin-cell battery
- Hard drive
- Memory modules
- Speakers
- Heat sink
- Fan
- Power button
- Display assembly
- Display bezel
- Display panel
- Camera
- Touchpad
- System board
- Power-adapter port
- Palm-rest and keyboard assembly

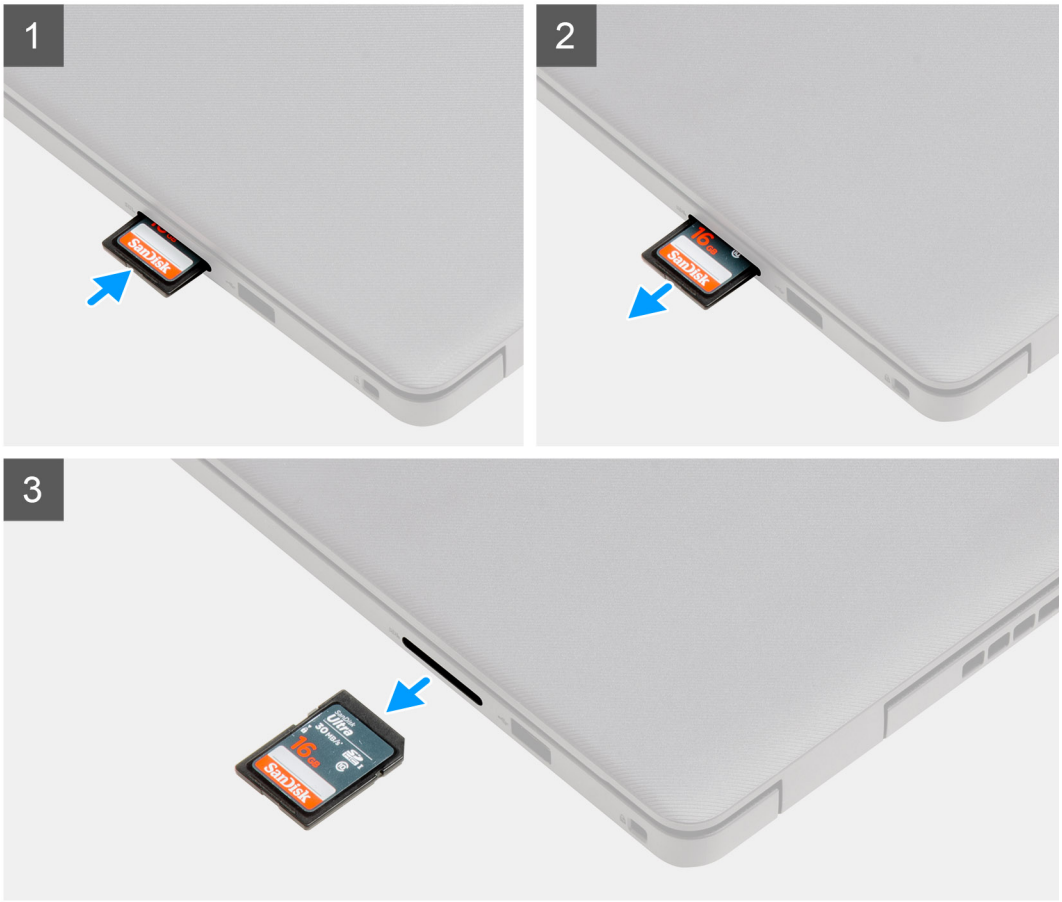
Secure Digital Card

Removing the Secure Digital card

Prerequisites

1. Follow the procedure in Before working inside your computer

About this task



Steps

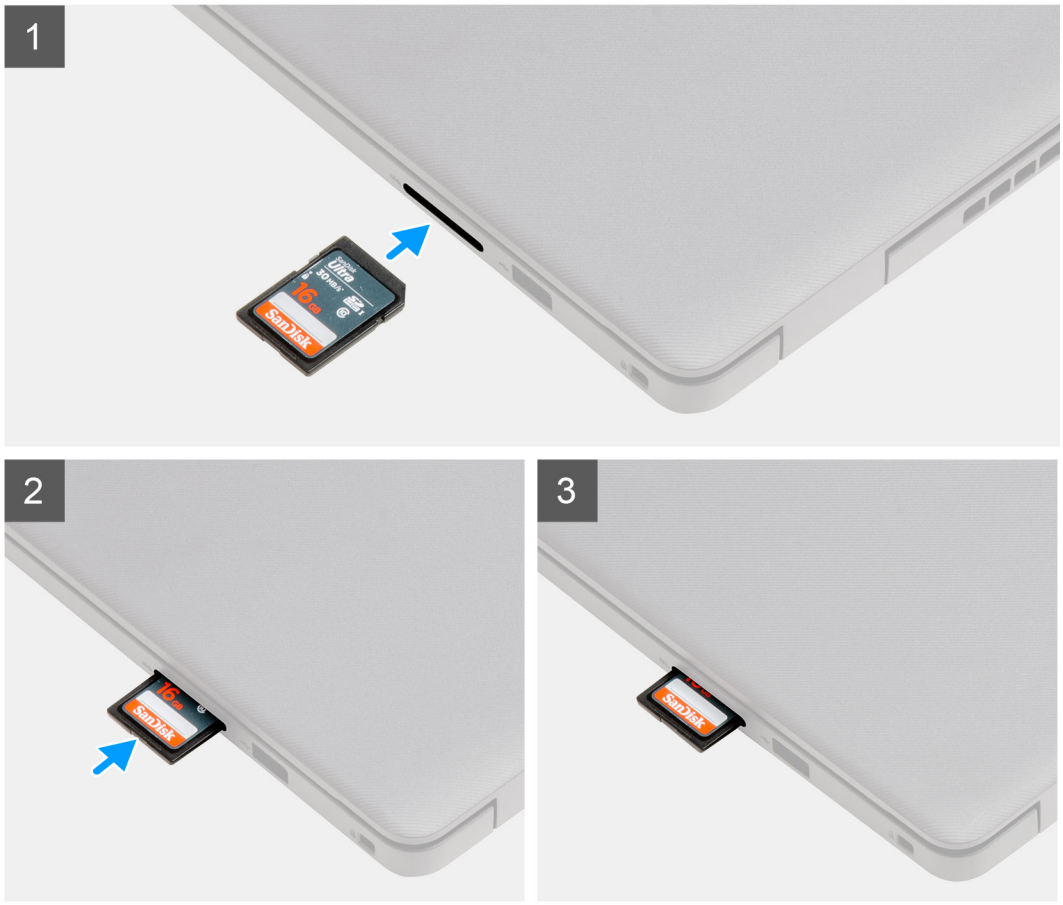
1. Push the secure digital card to release it from the computer.
2. Slide the secure digital card out of the computer.

Installing the Secure Digital card

Prerequisites

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

About this task



Steps

Slide the secure digital into the slot until it clicks into place.

Next steps

1. Follow the procedure in after working inside your computer

Base cover

Removing the base cover

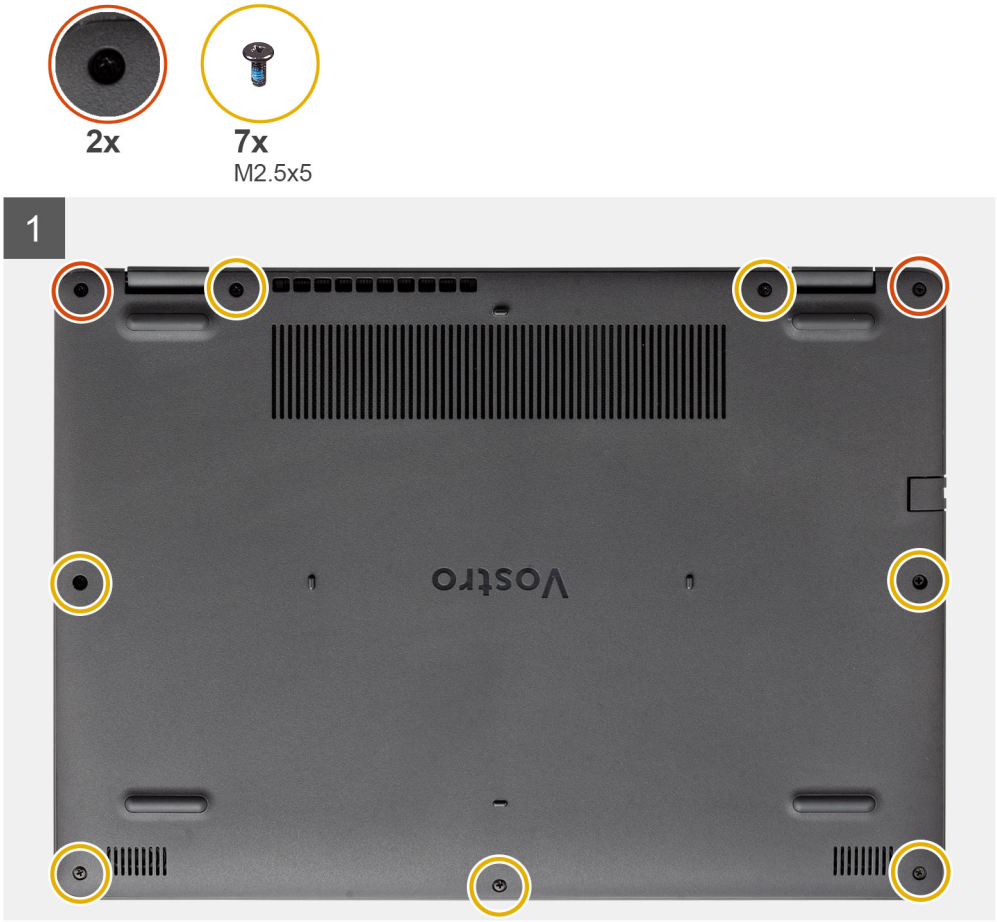
Prerequisites

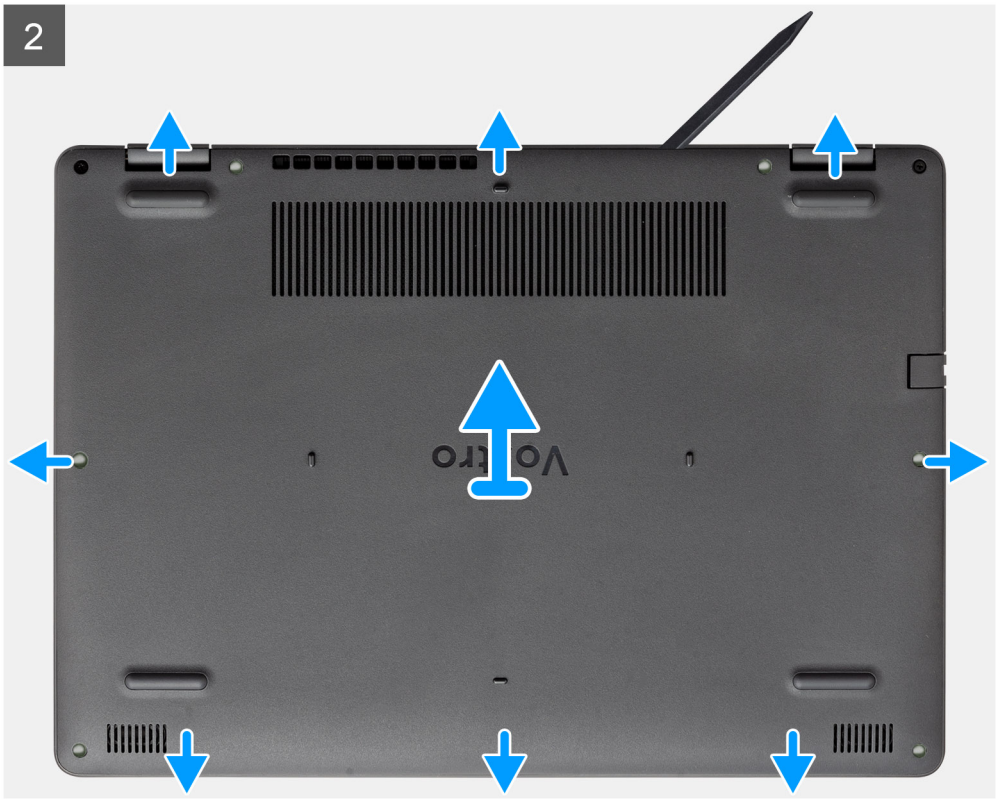
1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.

About this task

NOTE: Before removing the base cover, ensure that there is no SD card installed in the SD card slot on your computer.

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




2

3
Disconnect The Battery Before Accessing Any Parts or Devices
DELL
Battery Questions?
CAUTION Do not expose the battery to temperatures above 65 °C (149 °F).
See the manual for safety instructions.
PRÉCAUTION Ne pas soumettre la batterie à des températures supérieures
à 65 °C (149 °F). Voir le manuel pour des instructions de sécurité.
VORSICHT Der Akku darf niemals Temperaturen über 65 °C ausgesetzt
werden. Sicherheitsanweisungen finden Sie im Handbuch.
42Wh
Standard
Rechargeable
Li-ion Battery
Type YRDD6
11.46V
IS 16046(Part 2)/IEC 62133-2

Steps

1. Remove the seven screws (M2.5x5) that secure the base cover to the palm-rest and keyboard assembly.
2. Loosen the two captive screws.
3. Using a plastic scribe, pry the base cover from the bottom left and continue to work on the sides to open the base cover.
4. Lift and slide the base cover off the palm-rest and keyboard assembly.
5. Disconnect the battery cable from the system board.
6. Press and hold the power button for five seconds to ground the computer and drain the flea power.

Installing the base cover

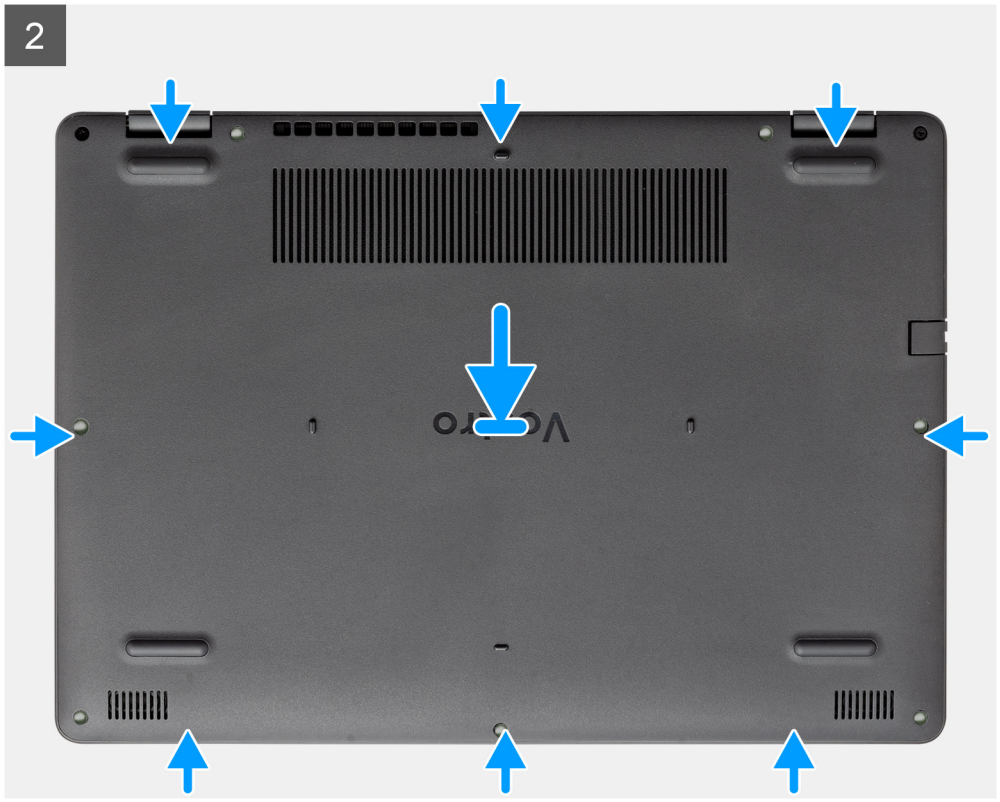
Prerequisites

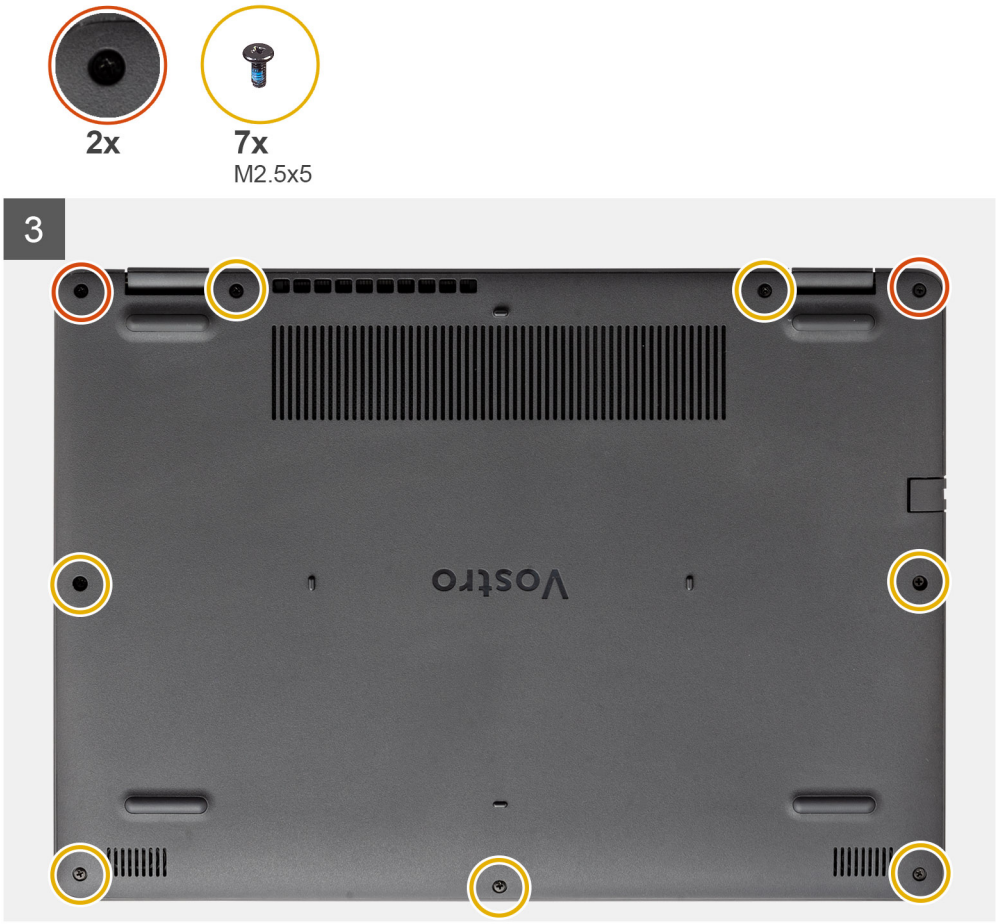
If you are replacing a component, remove the existing component before performing the installation process.

About this task

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

1
Disconnect The Battery Before Accessing Any Parts or Devices
DELL
42Wh
Standard
Rechargeable
Li-ion Battery
Type YRDD6
11.46V
CAUTION Do not expose the battery to temperatures above 65 °C (149 °F).
See the manual for safety instructions.
PRÉCAUTION Ne pas soumettre la batterie à des températures supérieures à 65 °C (149 °F). Voir le manuel pour des instructions de sécurité.
VORSICHT Der Akku darf niemals Temperaturen über 65 °C ausgesetzt werden. Sicherheitsanweisungen finden Sie im Handbuch.
IS 16046(Part 2)/IEC 62133-2


2



Steps

1. Connect the battery cable to the connector on the system board.
2. Place and snap the base cover into place on the palm-rest and keyboard assembly.
3. Tighten the two captive screws on the base cover.
4. Replace the seven screws (M2.5x5) that secure the base cover to the palm-rest and keyboard assembly.

Next steps

1. Install the SD card.
2. 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.**
- **Swollen batteries should not be used and should be replaced and disposed properly. For guidelines on how to handle and replace swollen Lithium-ion batteries, see Handling swollen Lithium-ion batteries.**

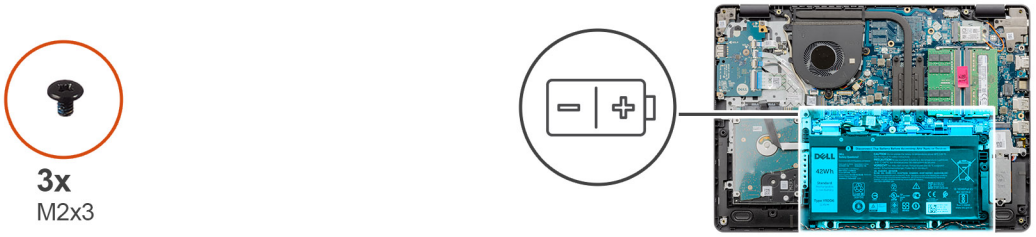
Removing the battery

Prerequisites

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

About this task

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



Steps

1. Disconnect the battery cable from the system board, if applicable.
2. Remove the three screws (M2x3) that secure the battery to the palm-rest and keyboard assembly.
3. Lift the battery off the palm-rest and keyboard assembly.

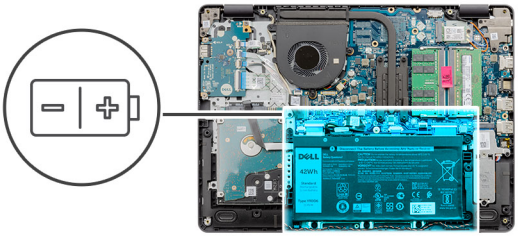
Installing the battery

Prerequisites

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

About this task

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



Steps

1. Place the battery on the palm-rest and keyboard assembly.

   NOTE: When installing the battery into the system, insert the tab at the bottom left corner of the battery into the hook on the bottom side of the palm rest.

2. Align the screw holes on the battery to the screw holes on the palm-rest and keyboard assembly.
3. Replace the three screws (M2x3) that secure the battery to the palm-rest and keyboard assembly.
4. Connect the battery cable to the connector on the system board.

Next steps

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

Solid-state drive

Removing the M.2 2230 solid-state drive

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Disconnect the battery.

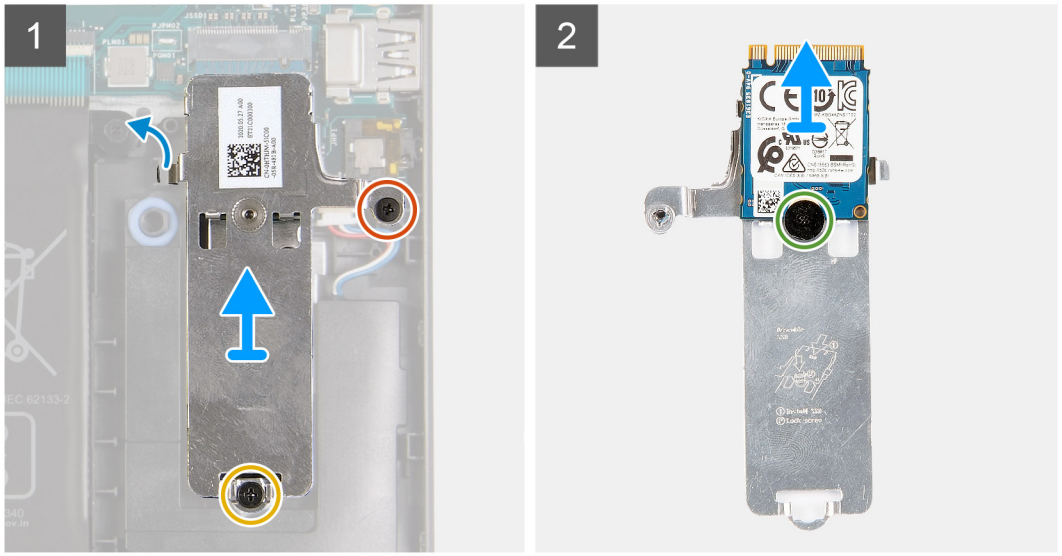
About this task

NOTE: This procedure applies only to computers shipped with an M.2 2230 solid-state drive installed.

NOTE: The M.2 card installed on your computer will depend on the configuration ordered. Supported card configurations on the M.2 card slot:

- M.2 2230 solid-state drive + 2230 mounting bracket
- M.2 2280 solid-state drive

The following images indicate the location of the M.2 2230 solid-state drive and provides a visual representation of the removal procedure.



Steps

1. Loosen the single captive screw and remove the single (M2x2.2) screw that secures SSD thermal plate to the palmrest, to lift it out of the system.
2. Slide and remove the M.2 2230 mounting bracket off the system board.
3. Turn the thermal plate over and remove the single (M2x2) screw securing the M.2 2230 SSD to the thermal plate.
4. Slide and remove the M.2 2230 solid-state drive off the mounting bracket.

Installing the M.2 2230 solid-state drive

Prerequisites

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

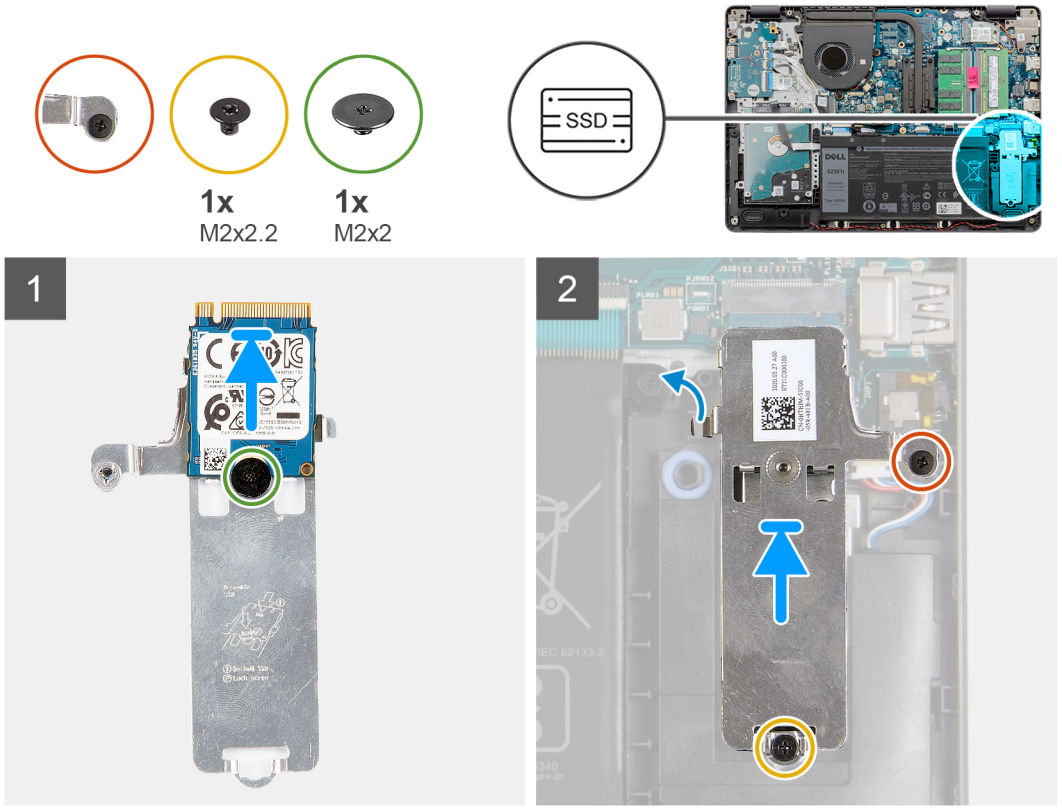
About this task

NOTE: This procedure applies if you are installing a M.2 2230 solid-state drive.

NOTE: The M.2 card installed on your computer will depend on the configuration ordered. Supported card configurations on the M.2 card slot:

- M.2 2230 solid-state drive + 2230 mounting bracket
- M.2 2280 solid-state drive

The following images indicate the location of the M.2 2230 solid-state drive and provides a visual representation of the installation procedure.



Steps

1. Place the solid-state drive into the thermal plate and install the single (M2x2) screw.
2. Align the notch on the M.2 2230 solid-state drive with the tab on the M.2 card slot on the system board.
3. Slide the M.2 2230 solid-state drive into the M.2 card slot on the system board.
4. Replace the single (M2x2.2) screw and tighten the single captive screw to secures the thermal plate to the palmrest.

Next steps

1. Reconnect the battery.
2. Install the base cover.
3. Install the SD card.
4. Follow the procedure in After working inside your computer.

Removing the M.2 2280 solid-state drive

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Disconnect the battery.

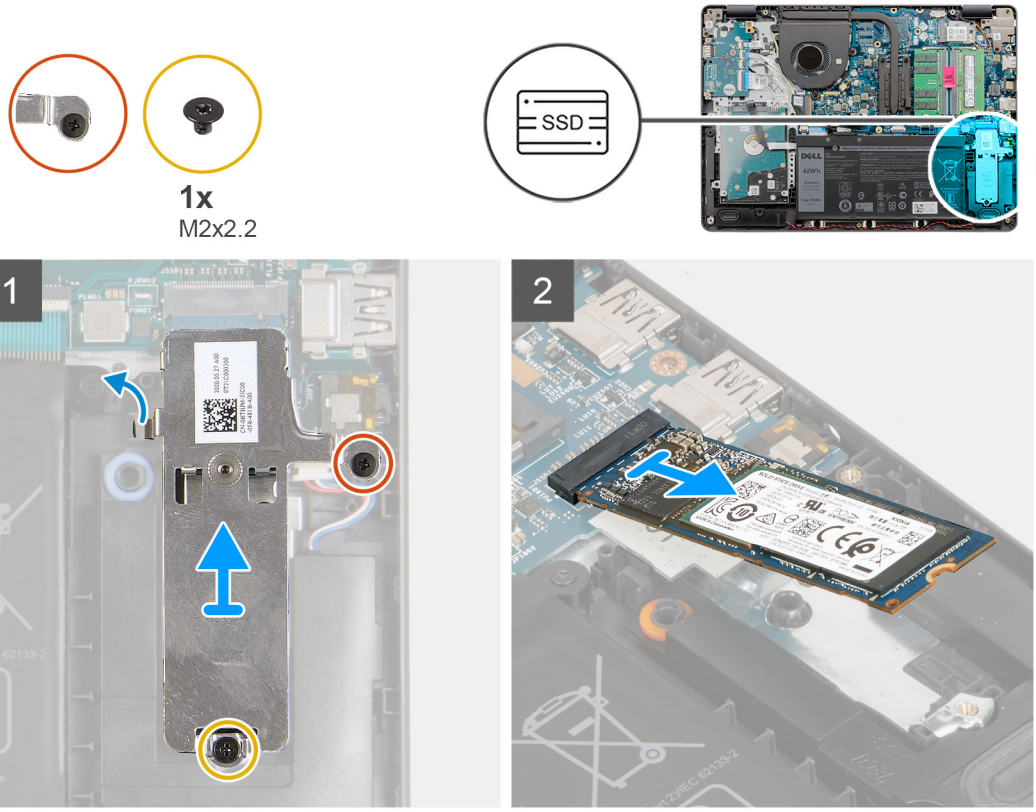
About this task

NOTE: This procedure applies only to computers shipped with a M.2 2280 solid-state drive installed.

NOTE: The M.2 card installed on your computer will depend on the configuration ordered. Supported card configurations on the M.2 card slot:

- M.2 2230 solid-state drive + 2230 mounting bracket
- M.2 2280 solid-state drive

The following images indicate the location of the M.2 2280 solid-state drive and provides a visual representation of the removal procedure.



Steps

1. Loosen the single captive screw and remove the single(M2x2.2) screws that secure the M.2 thermal shield to the palm-rest and keyboard assembly.
2. Lift the M.2 thermal shield from the palm-rest and keyboard assembly.

3. Slide and remove the M.2 2280 solid-state drive from the M.2 card slot on the system board.

Installing the M.2 2280 solid-state drive

Prerequisites

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

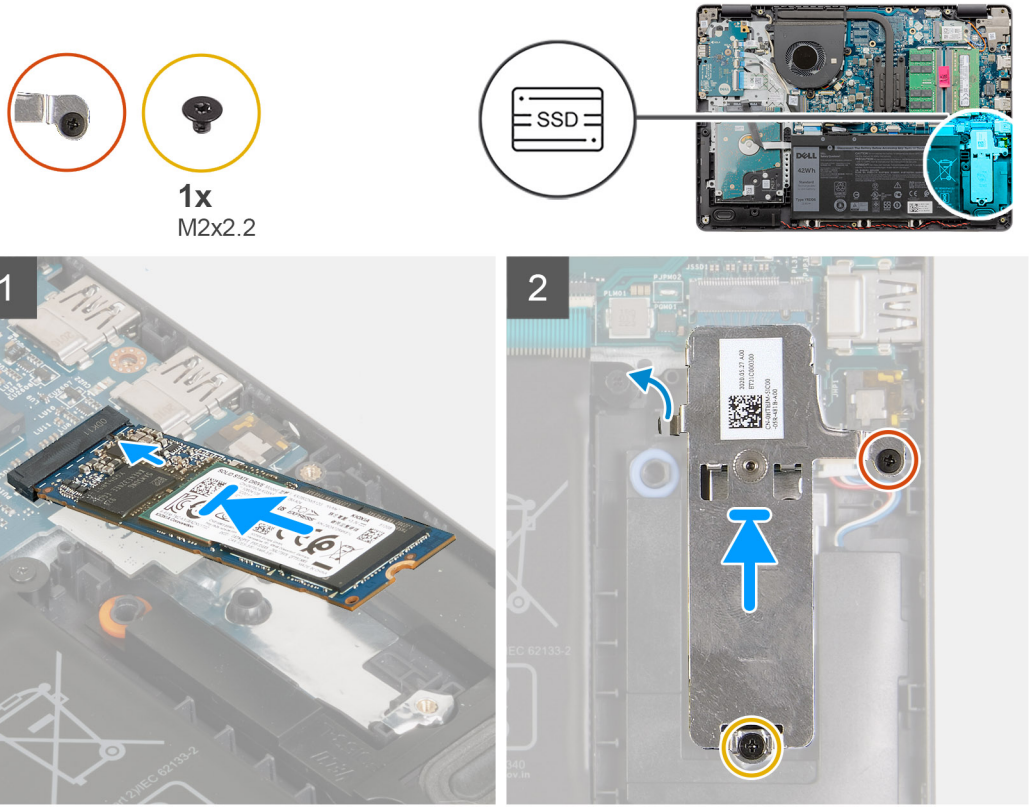
About this task

NOTE: This procedure applies if you are installing a M.2 2280 solid-state drive.

NOTE: The M.2 card installed on your computer will depend on the configuration ordered. Supported card configurations on the M.2 card slot:

- M.2 2230 solid-state drive + 2230 mounting bracket
- M.2 2280 solid-state drive

The following images indicate the location of the M.2 2280 solid-state drive and provides a visual representation of the installation procedure.



Steps

1. Align the notch on the M.2 2280 solid-state drive with the tab on the M.2 card slot on the system board.
2. Slide the M.2 2280 solid-state drive into the M.2 card slot on the system board.
3. Place the M.2 thermal shield on the M.2 2280 solid-state drive.
4. Align the screw holes on the M.2 thermal shield with the screw holes on the palm-rest and keyboard assembly.
5. Replace the single (M2x2.2) screw and tighten the single captive screw that secures the M.2 thermal shield to the palm-rest and keyboard assembly.

Next steps

1. Reconnect the battery.

2. Install the base cover.
3. Install the SD card.
4. Follow the procedure in After working inside your computer.

Wireless card

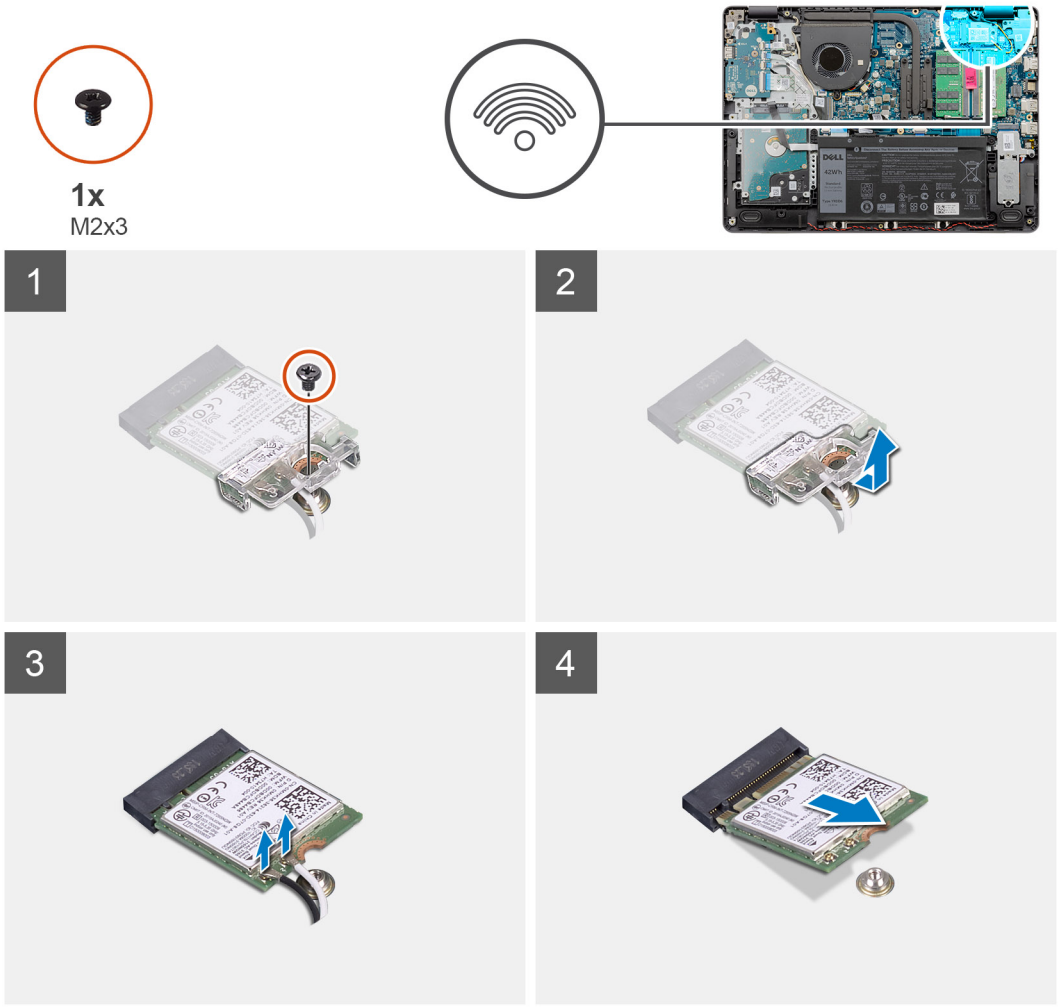
Removing the wireless card

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Disconnect the battery.

About this task

The following images indicate the location of the wireless card and provides a visual representation of the removal procedure.



Steps

1. Remove the screw (M2x3) that secures the wireless card bracket to the system board.
2. Lift the wireless card bracket off the left I/O-board.
3. Disconnect the antenna cables from the wireless card.

4. Slide and remove the wireless card from the M.2 card slot on the system board.

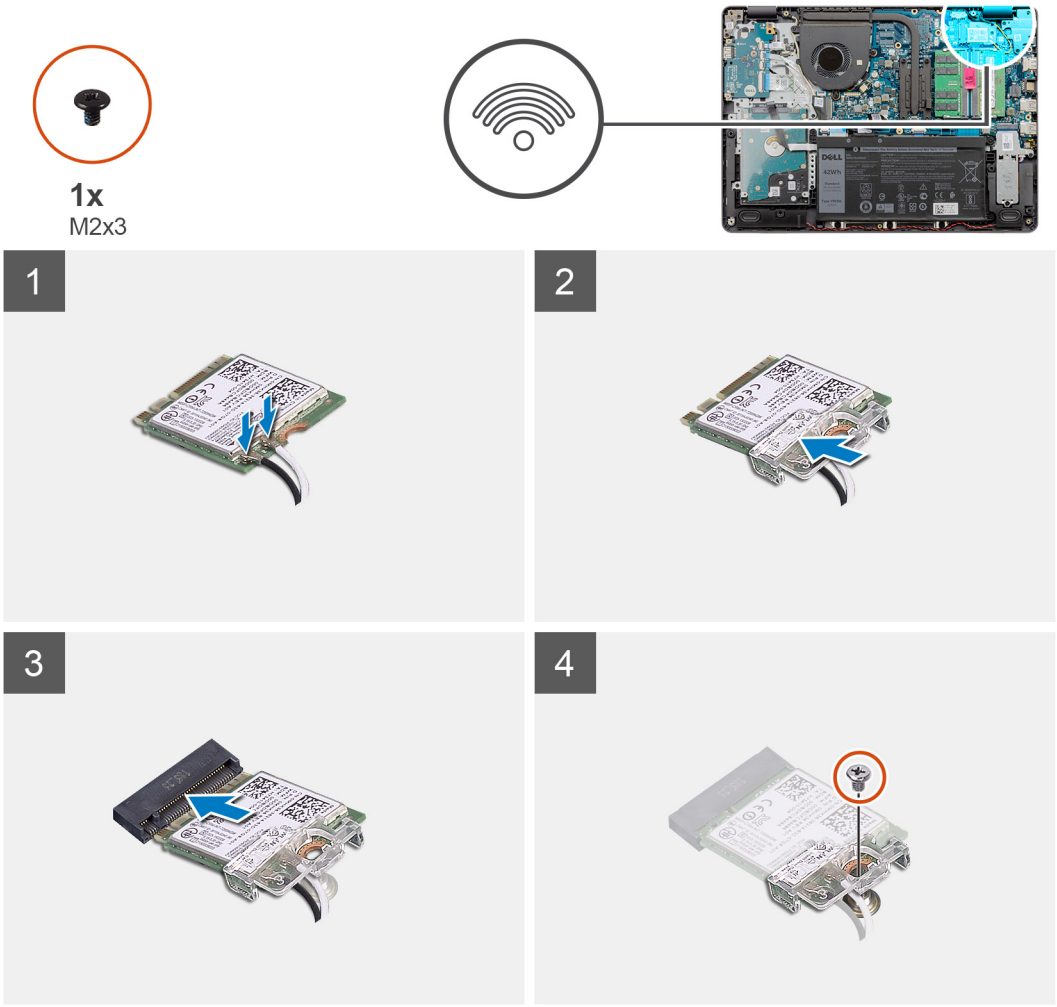
Installing the wireless card

Prerequisites

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

About this task

The following images indicate the location of the wireless card and provides a visual representation of the installation procedure.



Steps

1. Connect the antenna cables to the wireless card.

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

   Table 1. Antenna-cable color scheme

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

2. Slide the wireless card into the M.2 card slot on the system board.
3. Place the wireless card bracket on the wireless card.

4. Replace the screw (M2x3) that secures the wireless card bracket to the system board.

Next steps

1. Reconnect the battery.
2. Install the base cover.
3. Install the SD card.
4. Follow the procedure in After working inside your computer.

I/O board

Removing the I/O board

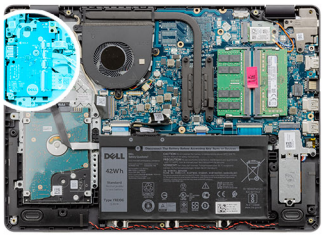
Prerequisites

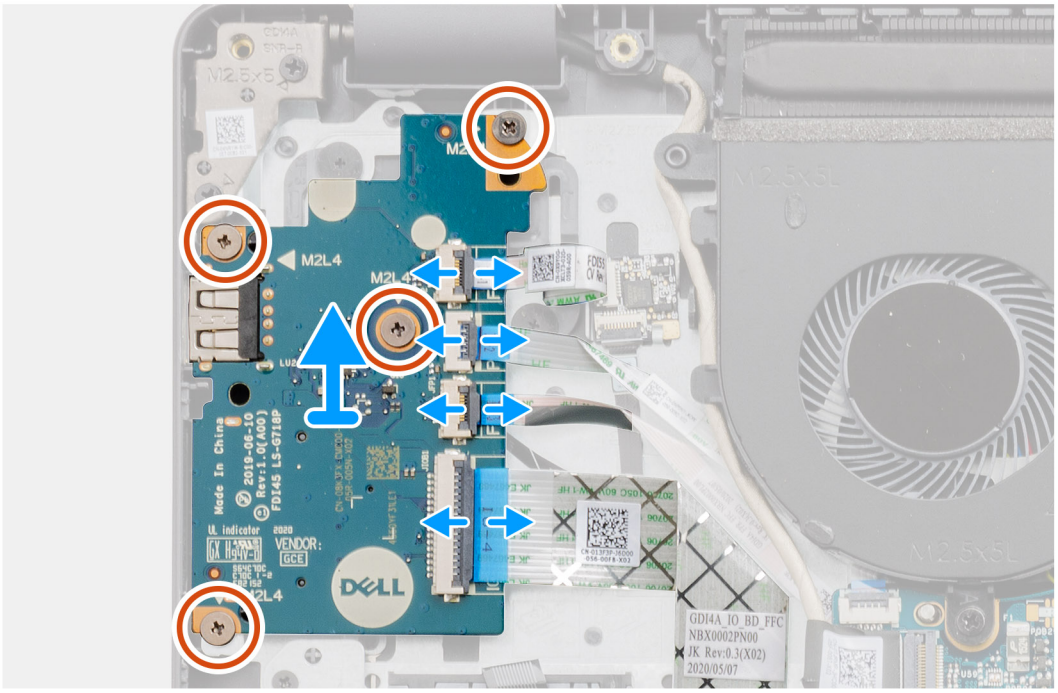
1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Disconnect the battery.

About this task

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

4x
M2x4





Steps

1. Open the latch and disconnect the fingerprint-reader board cable from the I/O board, if applicable.

2. Open the latch and disconnect the I/O-board power cable from the I/O board.
3. Open the latch and disconnect the fingerprint-reader cable from the I/O board, if applicable.
4. Open the latch and disconnect the I/O-board cable from the I/O board.
5. Remove the four screws (M2x4) that secure the I/O board to the palm-rest and keyboard assembly.
6. Lift the I/O board off the palm-rest and keyboard assembly.

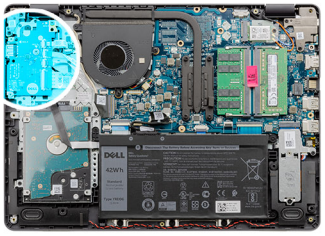
Installing the IO board

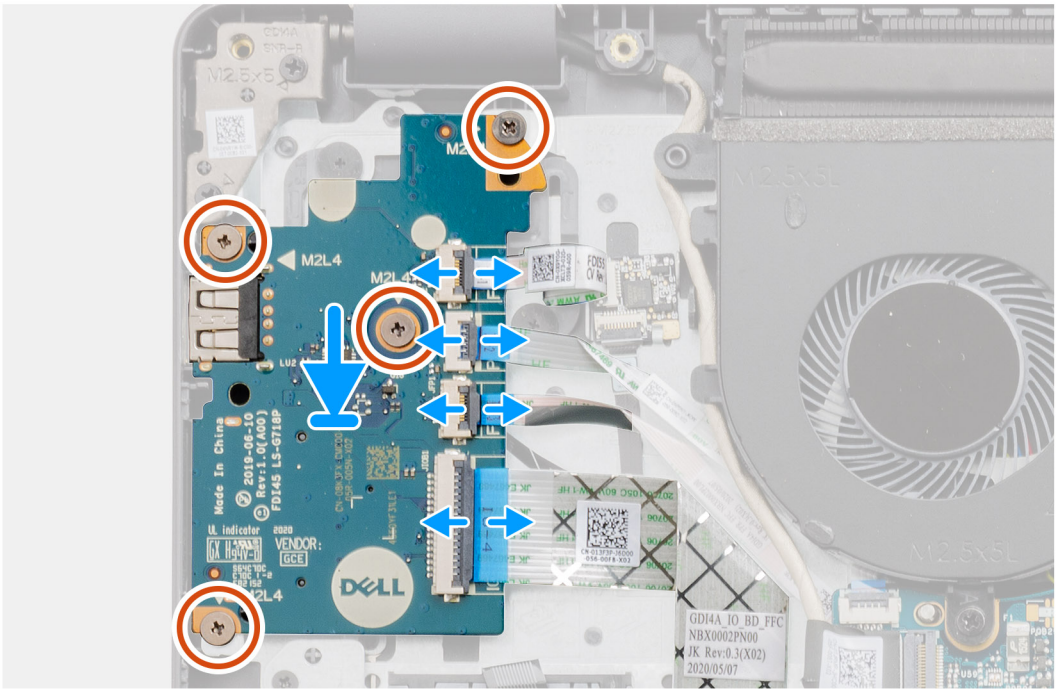
Prerequisites

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

About this task

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





Steps

1. Place the I/O board on the palm-rest and keyboard assembly.
2. Align the screw holes on the I/O board to the screw holes on the palm-rest and keyboard assembly.
3. Replace the four screws (M2x4) that secure the I/O board to the palm-rest and keyboard assembly.
4. Connect the fingerprint-reader board cable to the connector on the I/O board and close the latch, if applicable.
5. Connect the I/O-board power cable to the connector on the I/O board and close the latch.
6. Connect the fingerprint-reader cable to the connector on the I/O board and close the latch, if applicable.
7. Connect the I/O-board cable to the connector on the I/O board and close the latch.

Next steps

1. Install the battery.
2. Install the base cover.
3. Reconnect the SD card.
4. Follow the procedure in After working inside your computer.

Coin-cell battery

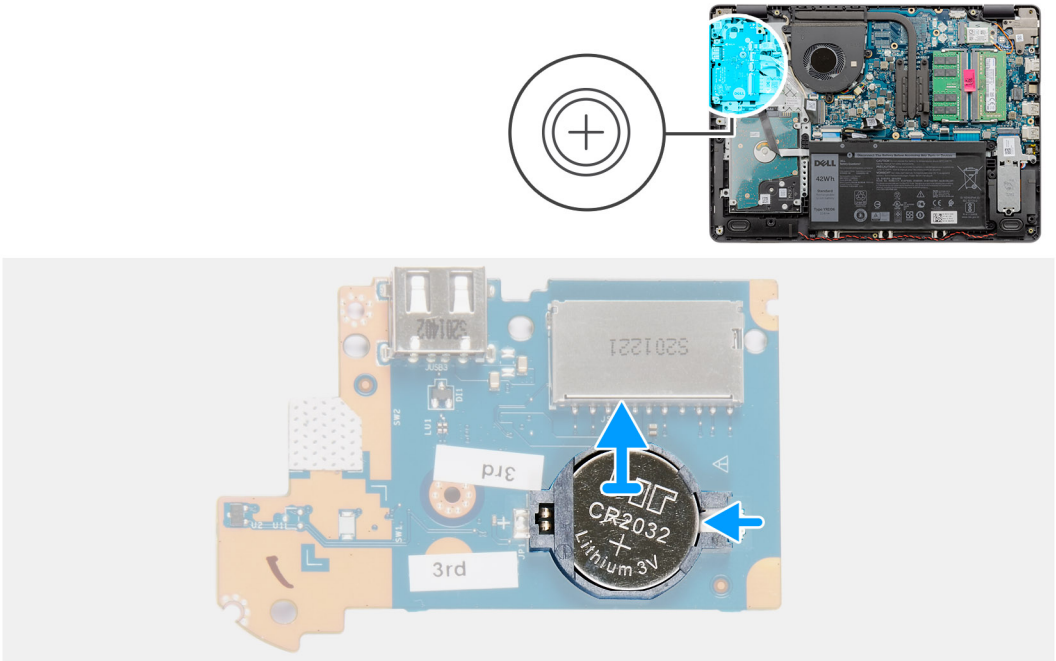
Removing the coin-cell battery

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Disconnect the battery.
5. Remove the IO board.

About this task

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



Steps

1. Flip the I/O board over.
2. Push on the securing clip to release the coin-cell battery from its holder on the I/O board.
3. Lift the coin-cell battery from its holder on the I/O board.

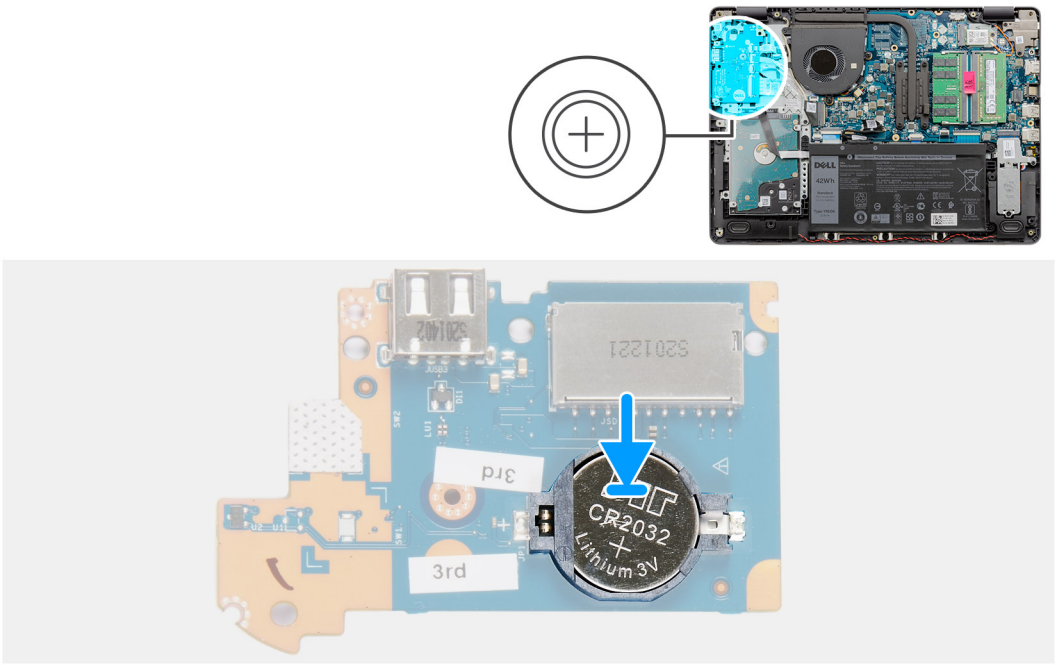
Installing the coin-cell battery

Prerequisites

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

About this task

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



Steps

1. Place the coin-cell battery into the coin-cell battery holder on the I/O board with the plus sign facing up.
2. Press down on the coin-cell battery to lock it in place in the coin-cell battery holder.

Next steps

1. Install the IO board.
2. Reconnect the battery.
3. Install the base cover.
4. Install the SD card.
5. Follow the procedure in After working inside your computer.

Hard drive

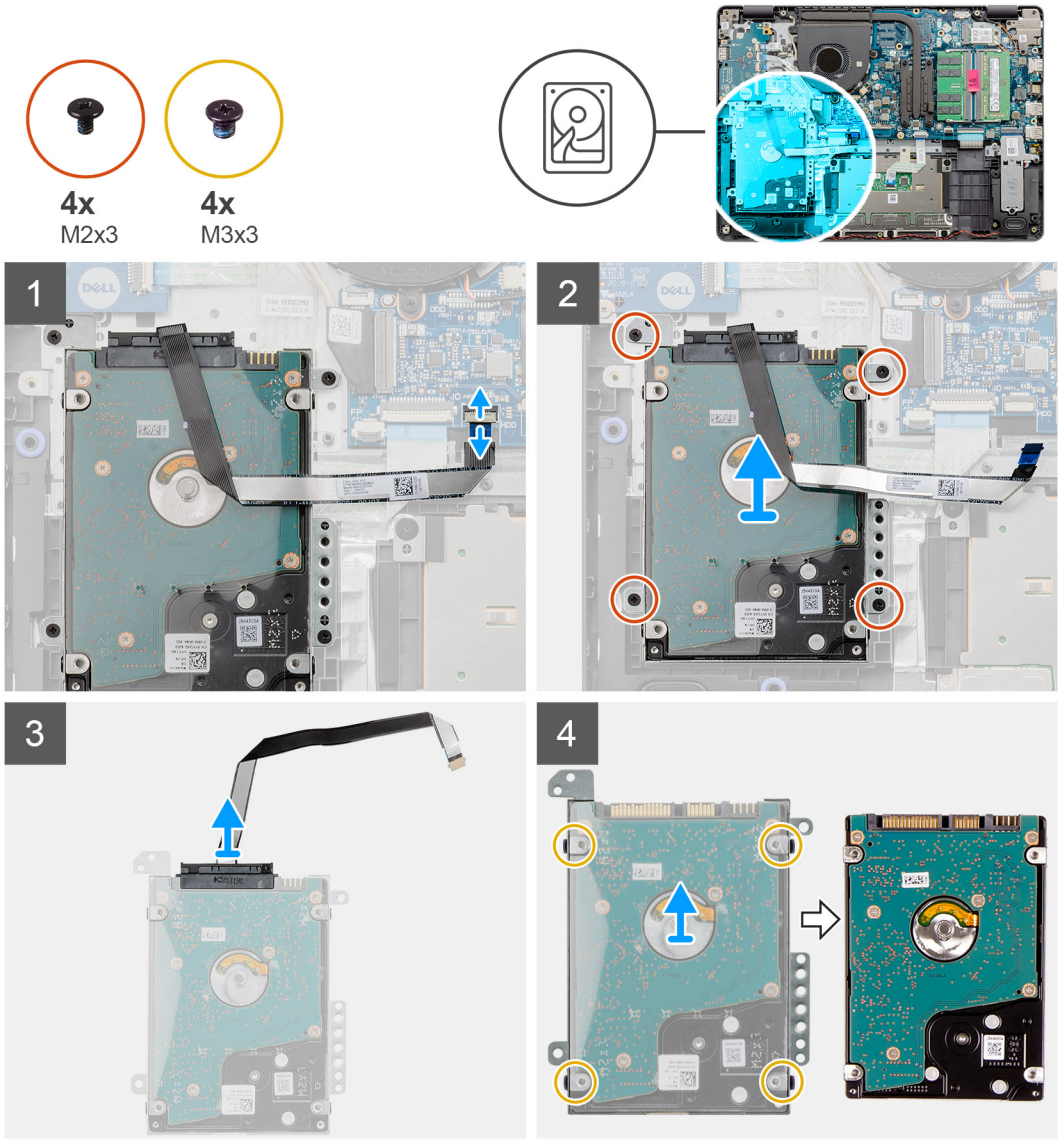
Removing the hard drive

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Disconnect the battery.

About this task

The following images indicate the location of the hard drive and provides a visual representation of the removal procedure.



Steps

1. Disconnect the hard-drive cable from the system board.
2. Remove the four screws (M2x4) that secure the hard-drive assembly to the palm-rest and keyboard assembly.
3. Lift the hard-drive assembly and its cable from the palm-rest and keyboard assembly.
4. Disconnect the hard-drive cable from the hard drive.
5. Remove the four screws (M3x3) that secure the hard-drive bracket to the hard drive.
6. Slide and remove the hard-drive bracket from the hard drive.

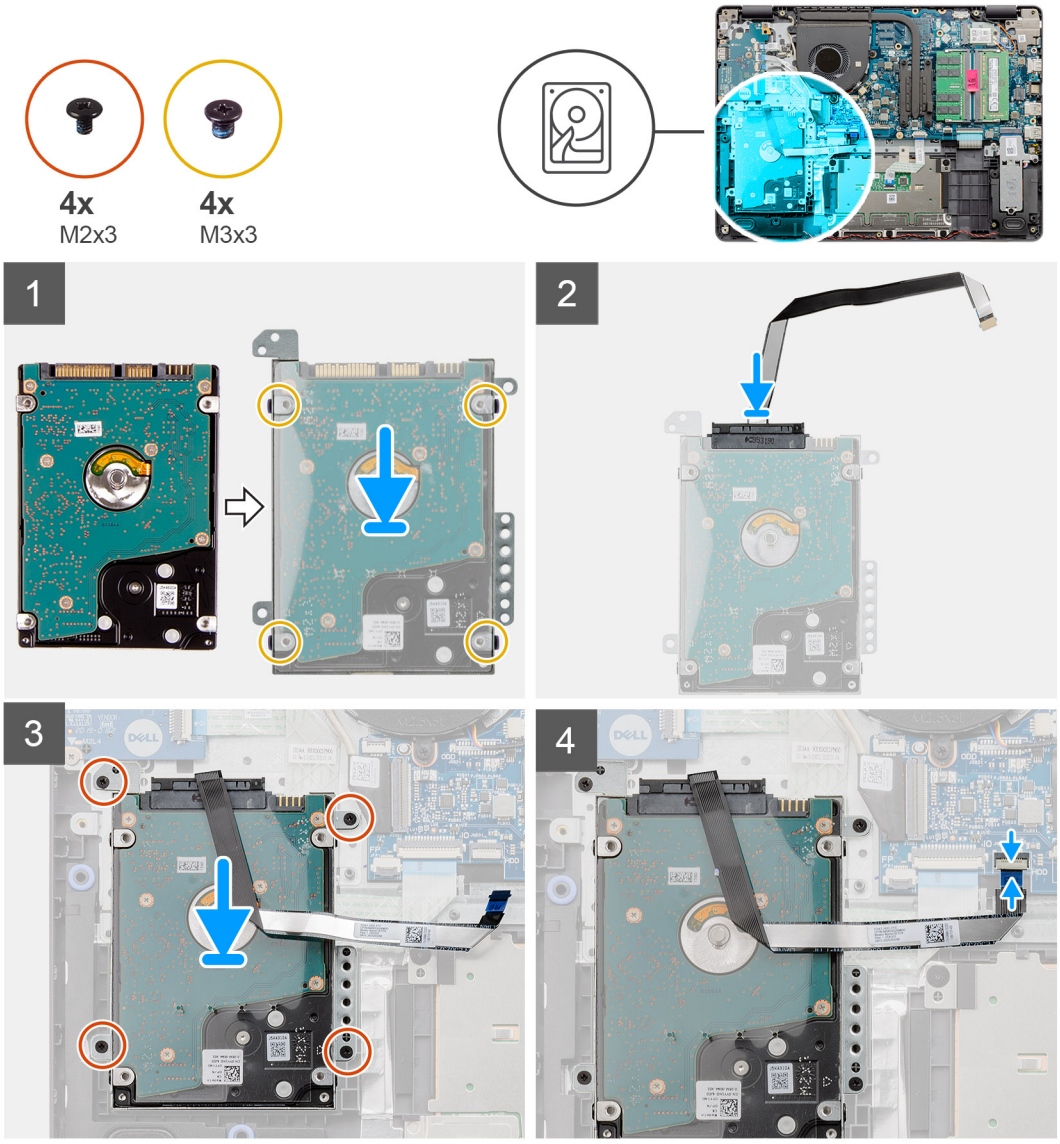
Installing the hard drive

Prerequisites

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

About this task

The following images indicate the location of the hard drive and provides a visual representation of the installation procedure.



Steps

1. Place and slide the hard drive into the hard-drive bracket.
2. Align the screw holes on the hard-drive bracket with the screw holes on the hard drive.
3. Replace the four screws (M3x3) that secure the hard-drive bracket to the hard drive.
4. Connect the hard-drive cable to the hard drive.
5. Place the hard-drive assembly on the palm-rest and keyboard assembly.
6. Align the screw holes on the hard-drive assembly to the screw holes on the palm-rest and keyboard assembly.
7. Replace the four screws (M2x3) that secure the hard-drive assembly to the palm-rest and keyboard assembly.
8. Connect the hard-drive cable to the connector on the system board.

Next steps

1. Reconnect the battery.
2. Install the base cover.
3. Install the SD card.
4. Follow the procedure in After working inside your computer.

Memory modules

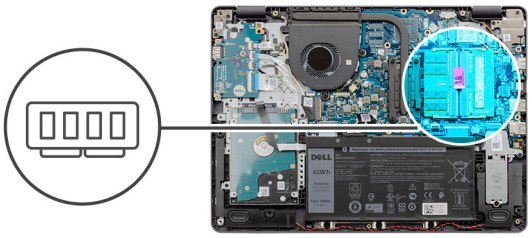
Removing the memory modules

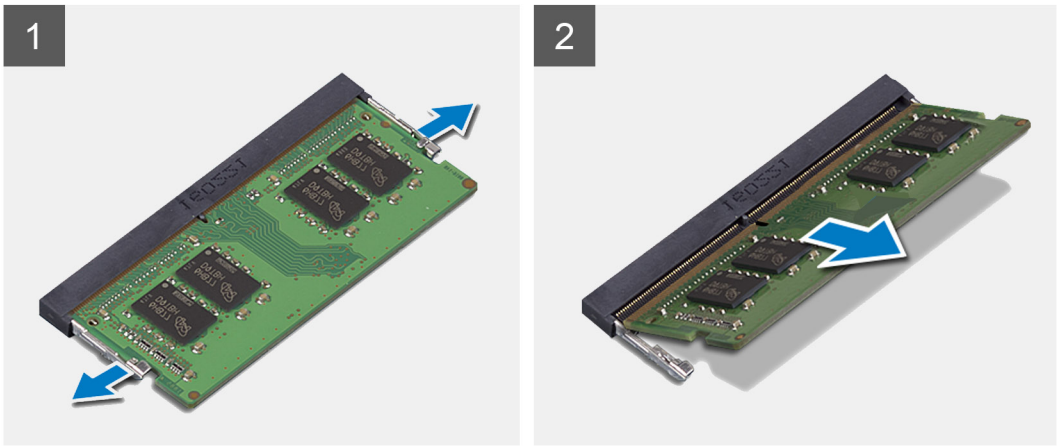
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Disconnect the battery.

About this task

The following images indicate the location of the memory modules and provides a visual representation of the removal procedure.





Steps

1. Use your fingertips to carefully spread apart the securing-clips on each end of the memory-module slot until the memory module pops up.
2. Lift at an angle and remove the memory module from its slot on the system board.
3. Repeat the procedure above for the second memory module.

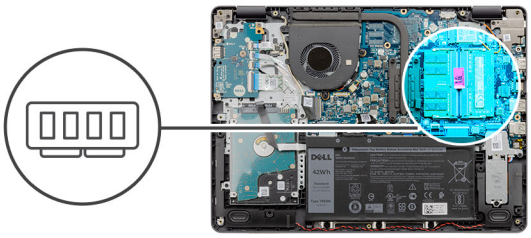
Installing the memory modules

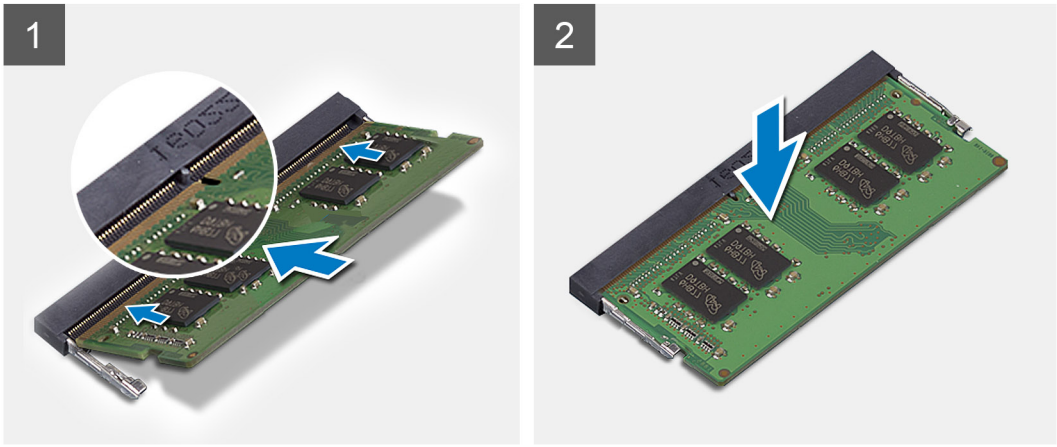
Prerequisites

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

About this task

The following images indicate the location of the memory modules and provides a visual representation of the installation procedure.





Steps

1. Align the slot on the memory module with the notch on the memory module slot on the system board.
2. Slide the memory module into the slot on the system board.
3. Press down on the memory module to snap it into place.
4. Ensure that the securing clips have locked the memory module into place.

   NOTE: If the securing clips are not locking the memory module into place remove the memory module from the slot and repeat steps 1 to 3.

5. Repeat the procedure above for the second memory module.

Next steps

1. Reconnect the battery.
2. Install the base cover.
3. Install the SD card.
4. Follow the procedure in After working inside your computer.

Speakers

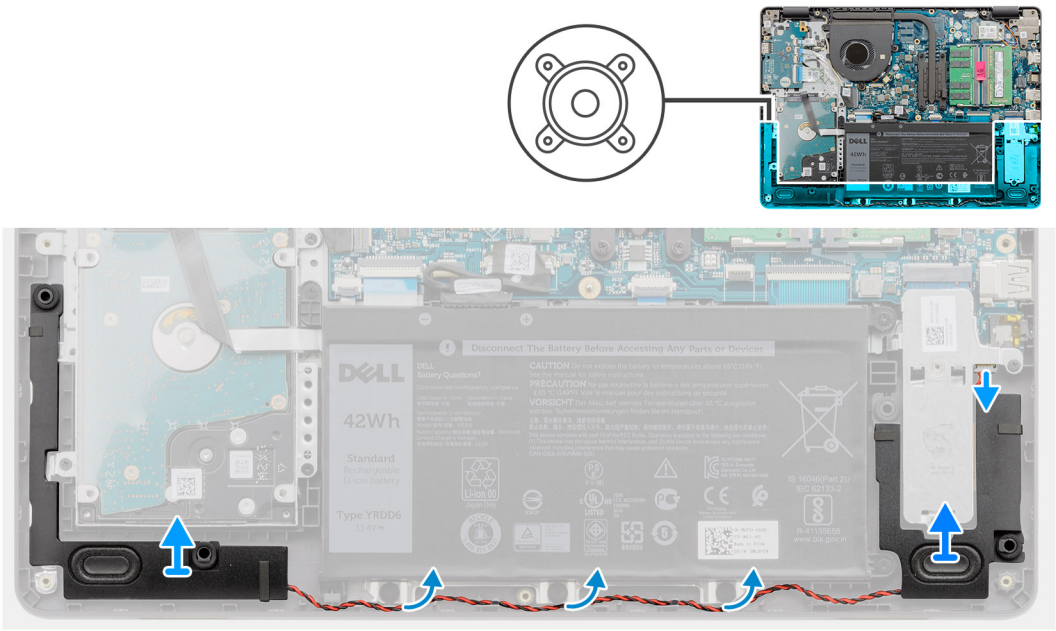
Removing the speakers

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Disconnect the battery.
5. Remove the M.2 2230 solid-state drive.
6. Remove the M.2 2280 solid-state drive.

About this task

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



Steps

1. Disconnect the speaker cable from the system board.
2. Remove the speaker cable from the routing guides on the palm-rest and keyboard assembly.
3. Lift the speakers along with its cable off the palm-rest and keyboard assembly.

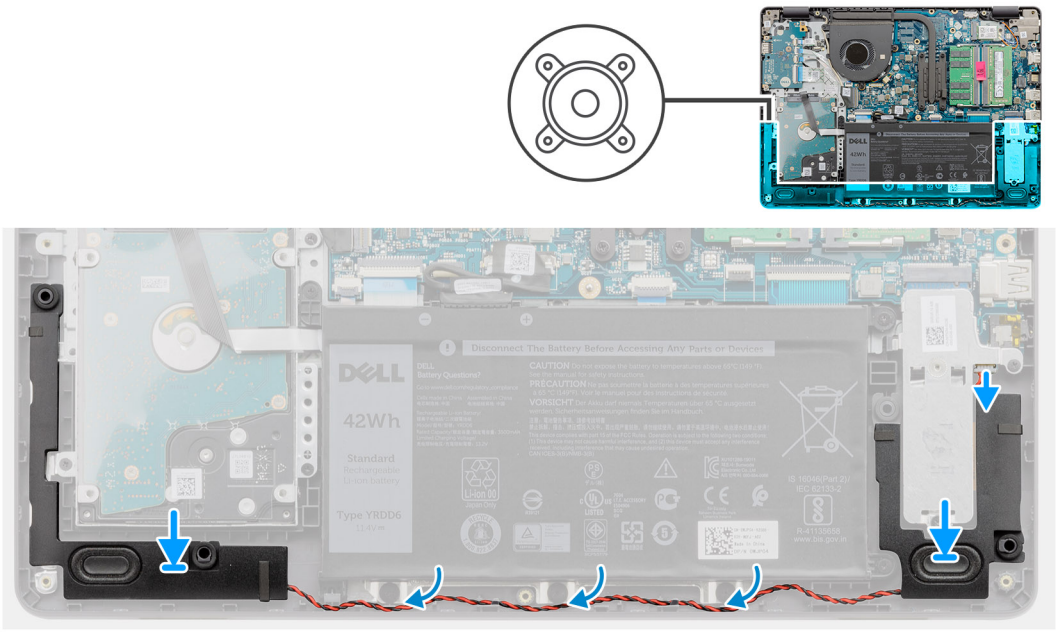
Installing the speakers

Prerequisites

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

About this task

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



Steps

1. Using the alignment posts, place the speakers on the palm-rest and keyboard assembly.

   NOTE: Ensure that the alignment posts are threaded through the rubber grommets on the speaker.

2. Route the speaker cable through the routing guides on the palm-rest and keyboard assembly.
3. Connect the speaker cable to the system board.

Next steps

1. Install the M.2 2230 solid-state drive.
2. Install the M.2 2280 solid-state drive.
3. Reconnect the battery.
4. Install the base cover.
5. Install the SD card.
6. Follow the procedure in After working inside your computer.

Heat sink

Removing the heat sink

Prerequisites

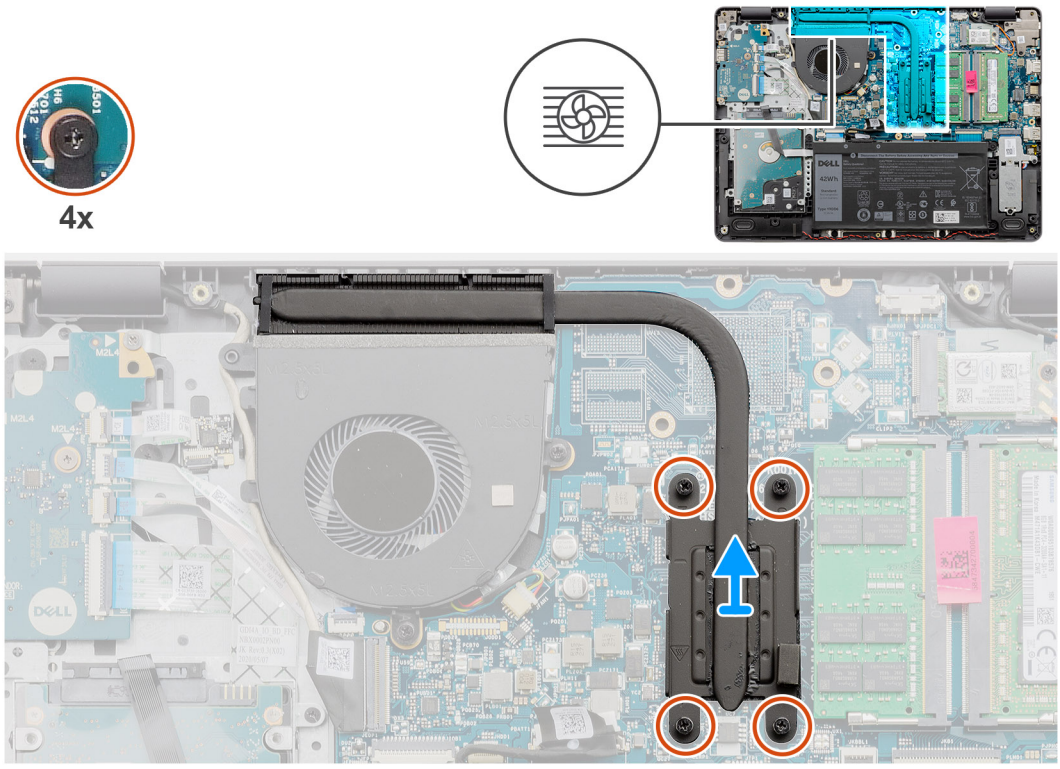
1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Disconnect the battery.

About this task

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

NOTE: For maximum cooling of the processor, do not touch the heat transfer areas on the heat sink. The oils in your skin can reduce the heat transfer capability of the thermal grease.

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



Steps

1. In reverse sequential order (4>3>2>1) loosen the four captive screws that secure the heat sink to the system board.

   NOTE: The number of screws varies depending on the configuration ordered.

2. Lift the heat sink from the system board.

Installing the heat sink

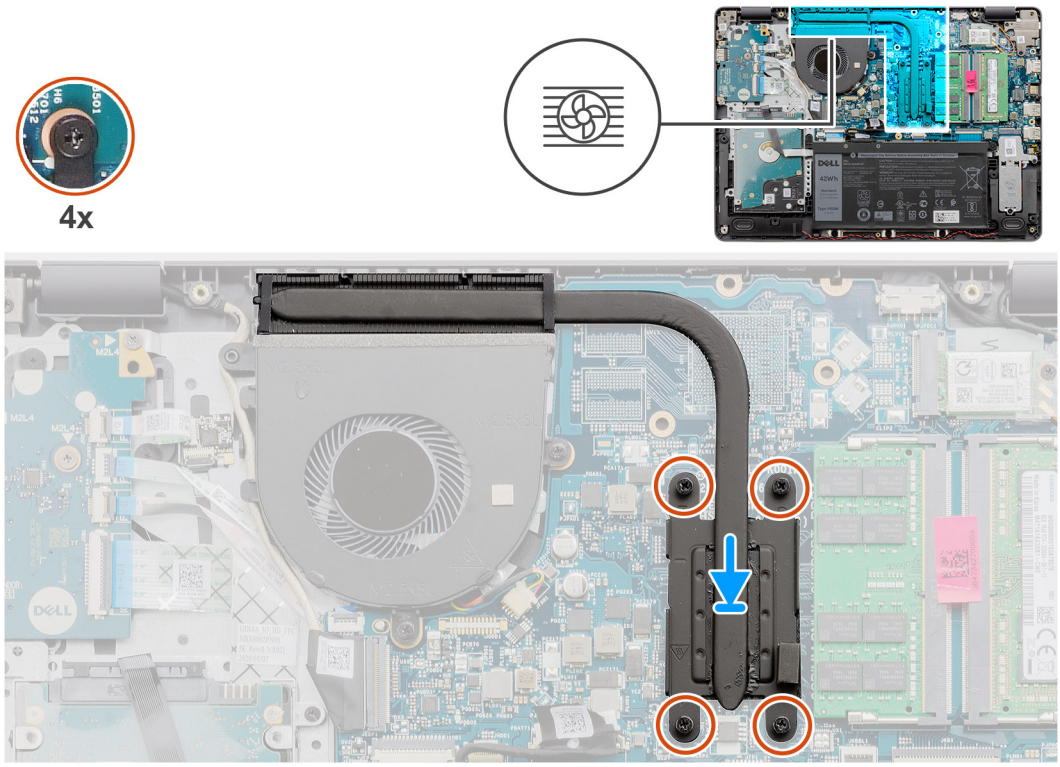
Prerequisites

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

About this task

NOTE: If either the system board or the heat sink is replaced, use the thermal grease provided in the kit to ensure that thermal conductivity is achieved.

The following images indicate the location of the heat sink and provides a visual representation of the installation procedure.



Steps

1. Place the heat sink on the system board.
2. In sequential order (1>2>3>4) tighten the four captive screws that secure the heat sink to the system board.

   NOTE: The number of screws varies depending on the configuration ordered.

Next steps

1. Reconnect the battery.
2. Install the base cover.
3. Install the SD card.
4. Follow the procedure in After working inside your computer.

Fan

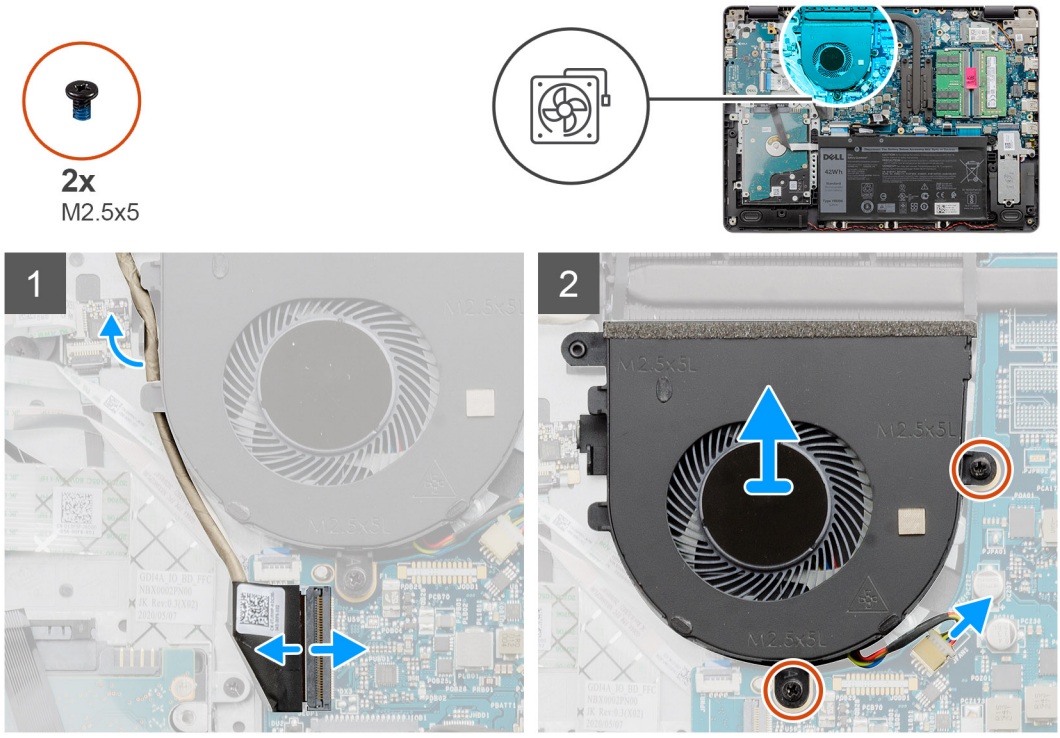
Removing the fan

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Disconnect the battery.

About this task

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



Steps

1. Remove the two screws (M2.5x5) that secure the fan to the palm-rest and keyboard assembly.
2. Disconnect the fan cable from the system board.
3. Lift the fan from the palm-rest and keyboard assembly.

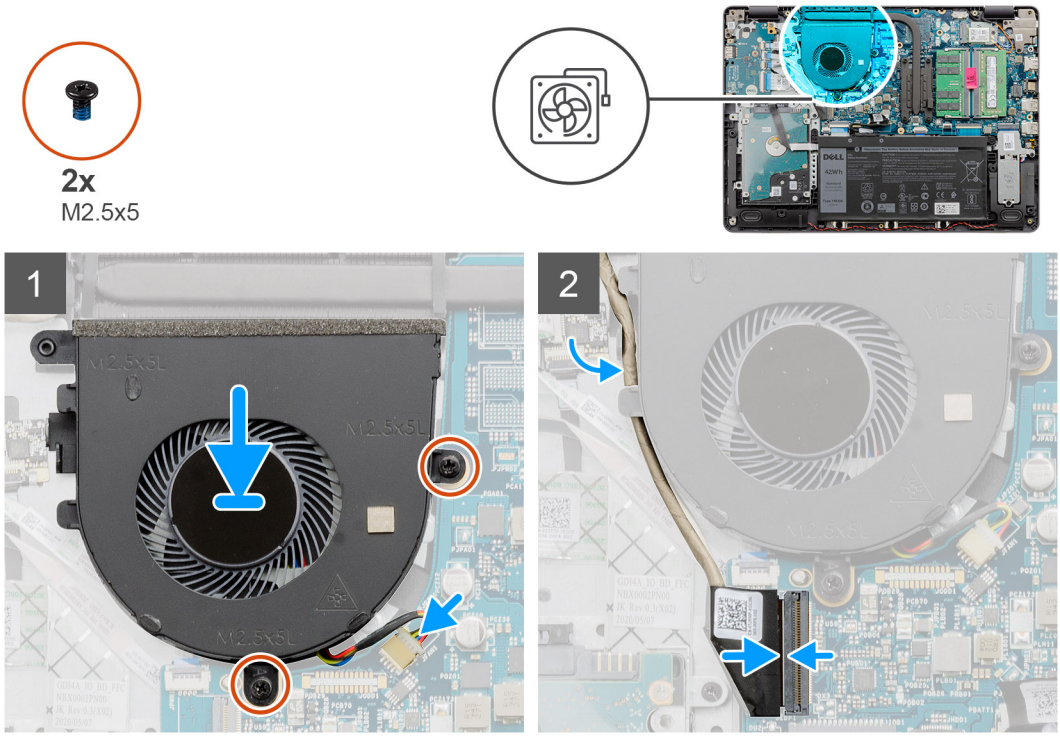
Installing the fan

Prerequisites

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

About this task

The following images indicate the location of the fan and provides a visual representation of the installation procedure.



Steps

1. Place the fan on the palm-rest and keyboard assembly.
2. Align the screw holes on the fan to the screw holes on the palm-rest and keyboard assembly.
3. Replace the two screws (M2.5x5) that secure the fan to the palm-rest and keyboard assembly.
4. Connect the fan cable to the connector on the system board.

Next steps

1. Reconnect the battery.
2. Install the base cover.
3. Install the SD card.
4. Follow the procedure in After working inside your computer.

Power button

Removing the power-button with optional fingerprint reader

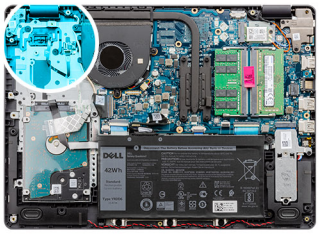
Prerequisites

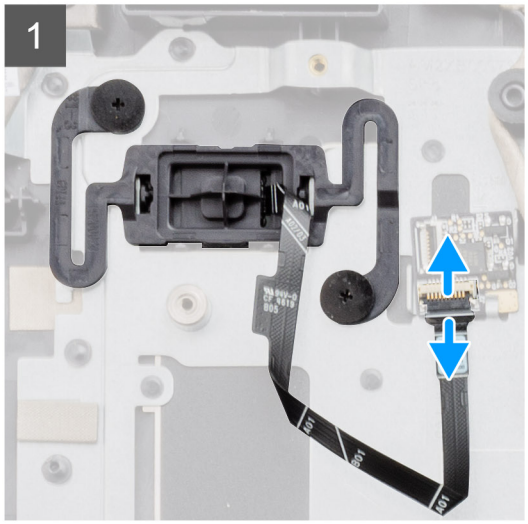
1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Remove the battery.
5. Remove the IO board.

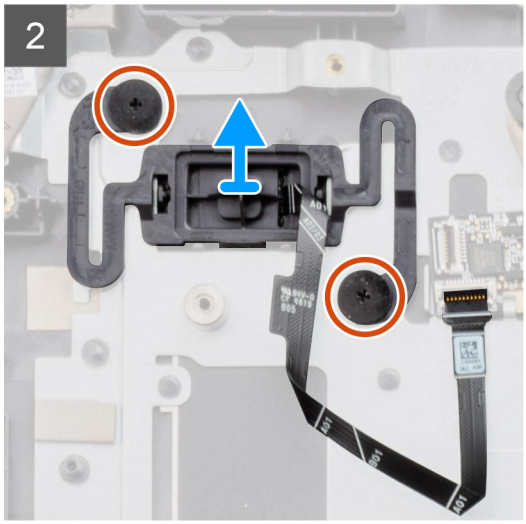
About this task

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

2x
M2x2







Steps

1. Remove the two screws (M2x2) that secure the power-button with optional fingerprint reader to the palm-rest and keyboard assembly.
2. Open the latch and disconnect the power-button cable from the fingerprint-reader board, if applicable.
3. Peel the tape that secures the power-button cable to the palm-rest and keyboard assembly, if applicable.
4. Lift the power-button, along with its cable, off the palm-rest and keyboard assembly.

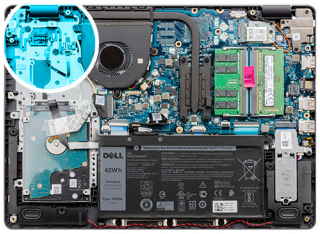
Installing the power button

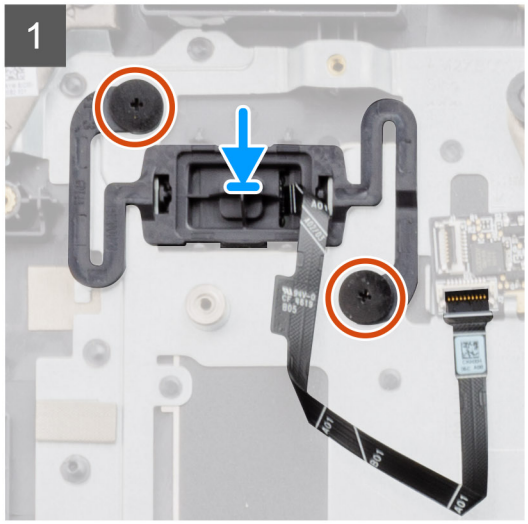
Prerequisites

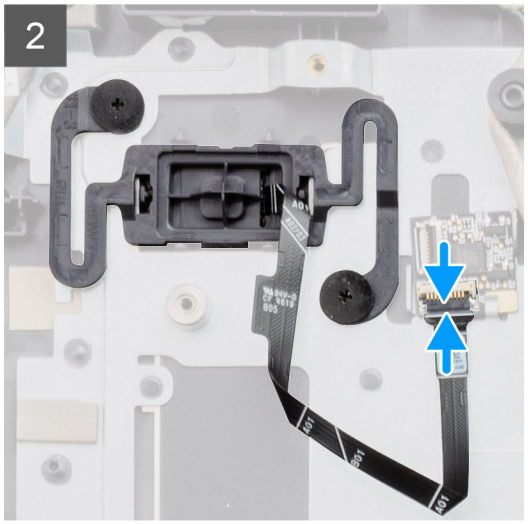
If you are replacing a component, remove the existing component before performing the installation process.

About this task

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







Steps

1. Using the alignment posts, place the power-button into its slot on the palm-rest and keyboard assembly.
2. Replace the two screws (M2x2) that secure the power-button to the palm-rest and keyboard assembly.
3. Connect the power-button cable to the fingerprint-reader board and close the latch, if applicable.
4. Adhere the tape that secures the power-button cable to the palm-rest and keyboard assembly, if applicable.

Next steps

1. Install the IO board.
2. Install the battery.
3. Install the base cover.
4. Install the SD card.
5. Follow the procedure in After working inside your computer.

Display assembly

Removing the display assembly

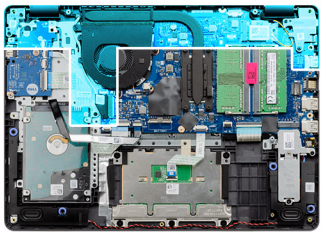
Prerequisites

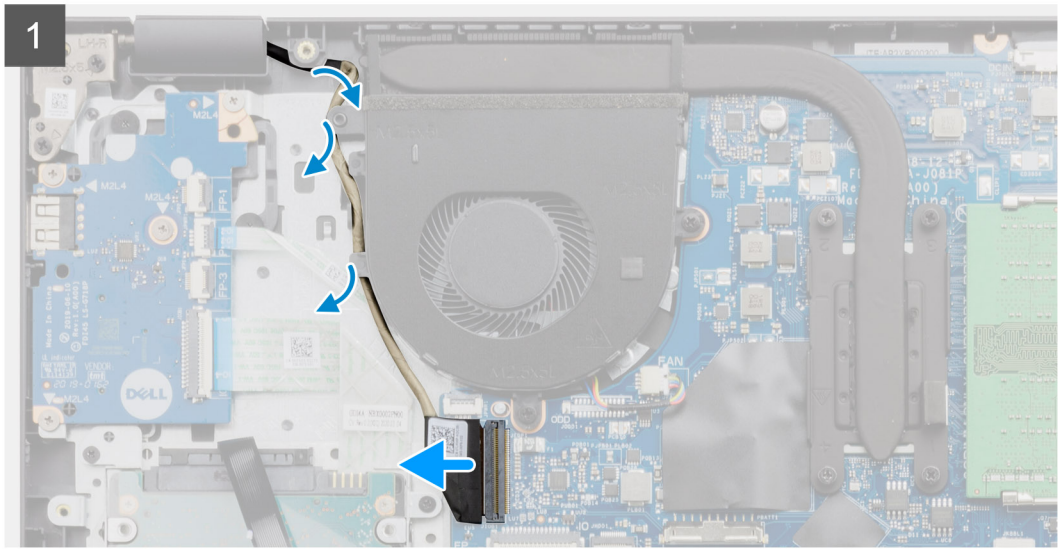
1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Remove the battery.
5. Remove the wireless card.

About this task

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

4x
M2.5x5





Steps

1. Disconnect the display cable from the system board.
2. Remove the display cable from the routing guides on the palm-rest and keyboard assembly.
3. Open the display and place the computer with the lid open at the edge of a stable elevation with the display hanging downwards.
4. Remove the six screws (M2.5x5) that secure the display hinges to the palm-rest and keyboard assembly.
5. Lift the display assembly from the palm-rest and keyboard assembly.

Installing the display assembly

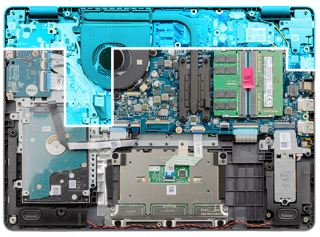
Prerequisites

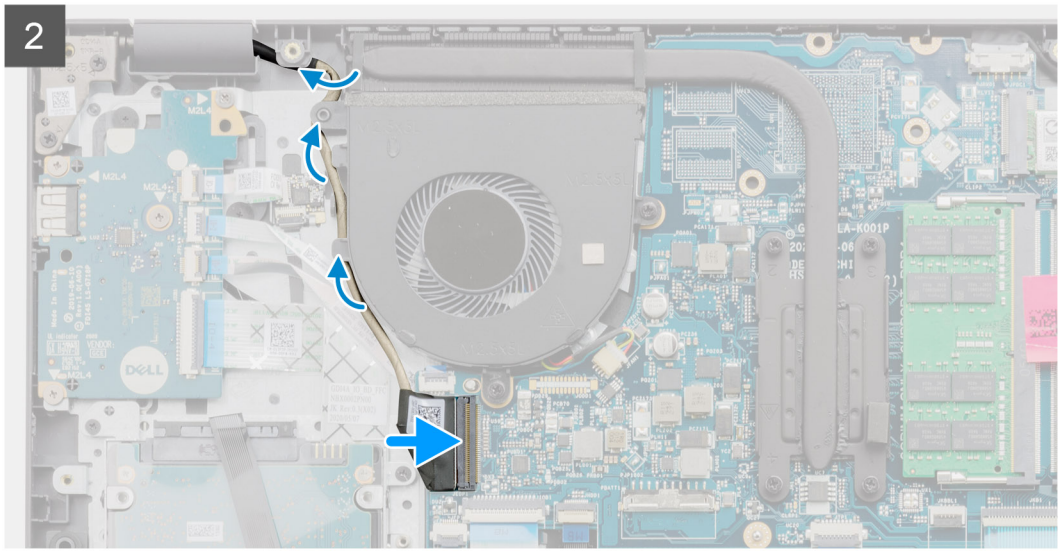
If you are replacing a component, remove the existing component before performing the installation process.

About this task

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

4x
M2.5x5





Steps

1. Place the display assembly on the palm-rest and keyboard assembly.
2. Align the screw holes on the display hinges with the screw holes on the palm-rest and keyboard assembly.
3. Replace the 6 screws (M2.5x5) that secure the display hinges to the palm-rest and keyboard assembly.
4. Route the display cable through the routing guides on the palm-rest and keyboard assembly.
5. Connect the display cable to the connector on the system board.

Next steps

1. Install the wireless card.
2. Install the battery.
3. Install the base cover.
4. Install the SD card.
5. Follow the procedure in After working inside your computer.

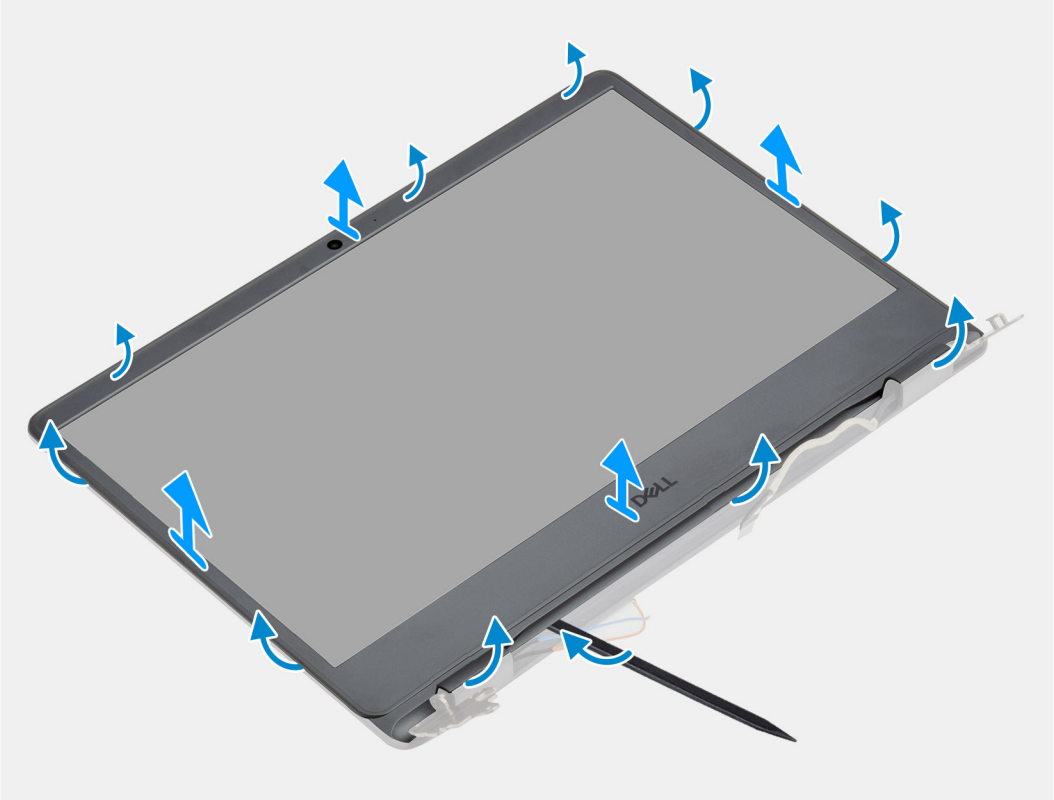
Display bezel

Removing the display bezel

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Remove the battery.
5. Remove the display assembly.

About this task



Steps

1. Pry open the display bezel from the inner edge at the left and right sides of the display assembly.
2. Pry open the display bezel from the inner edge at the top side of the display assembly.
3. Pry open the hinge caps at the bottom side of the display assembly.
4. Pry open the display bezel from the inner edge at the bottom side of the display assembly.
5. Lift and remove the display bezel from the display assembly

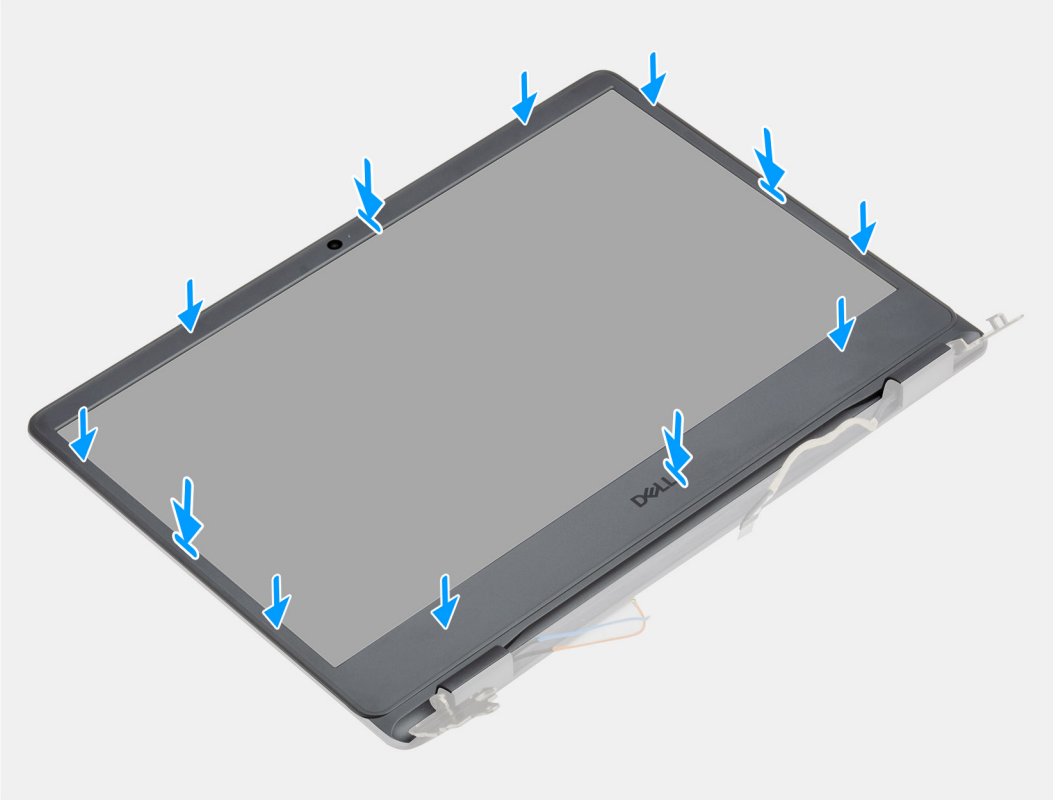
NOTE: CAUTION: DO NOT use a scribe or any other objects to pry up the display bezel in the manners shown in the images below as the pressure applied on the display panel by the scribe will damage the display panel.

Installing the display bezel

Prerequisites

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

About this task



Steps

Align the display bezel with the display back-cover and antenna assembly, and then gently snap the display bezel into place.

Next steps

1. Install the display assembly.
2. Reconnect the battery.
3. Install the base cover.
4. Install the SD card.
5. Follow the procedure in after working inside your computer.

Display panel

Removing the display panel

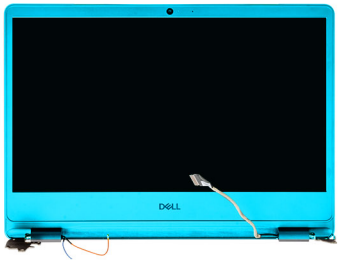
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Remove the wireless card.
5. Remove the display assembly.
6. Remove the display bezel.

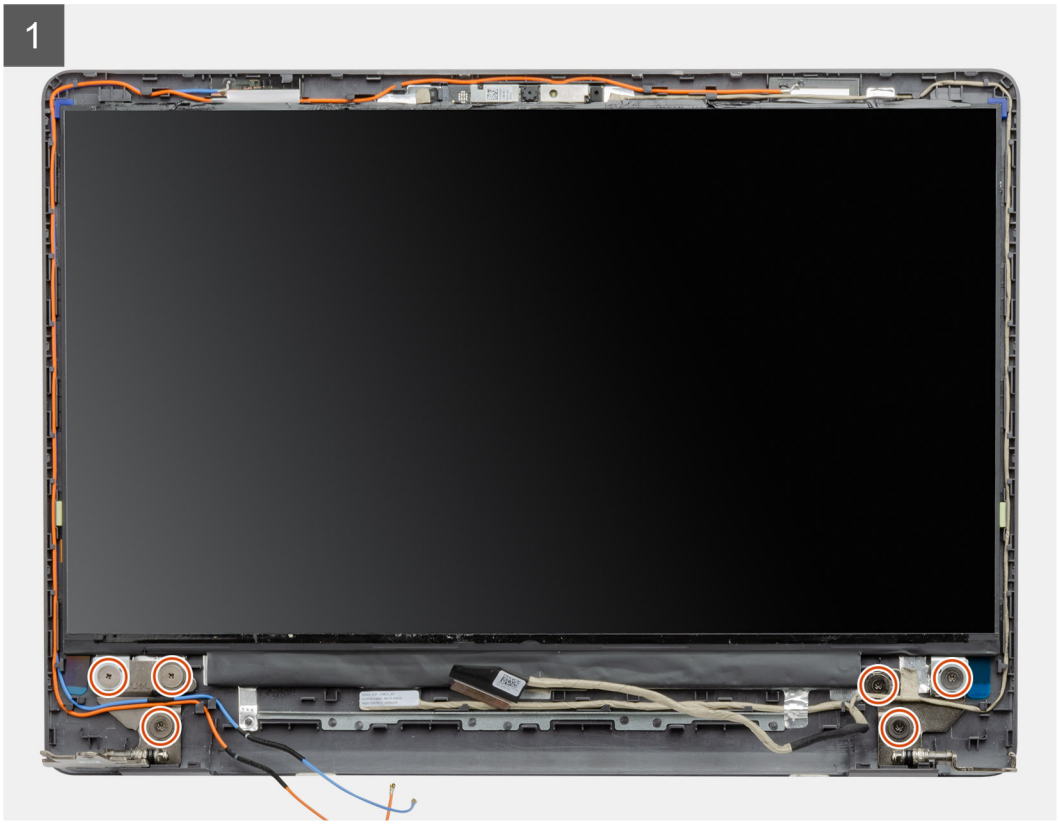
About this task

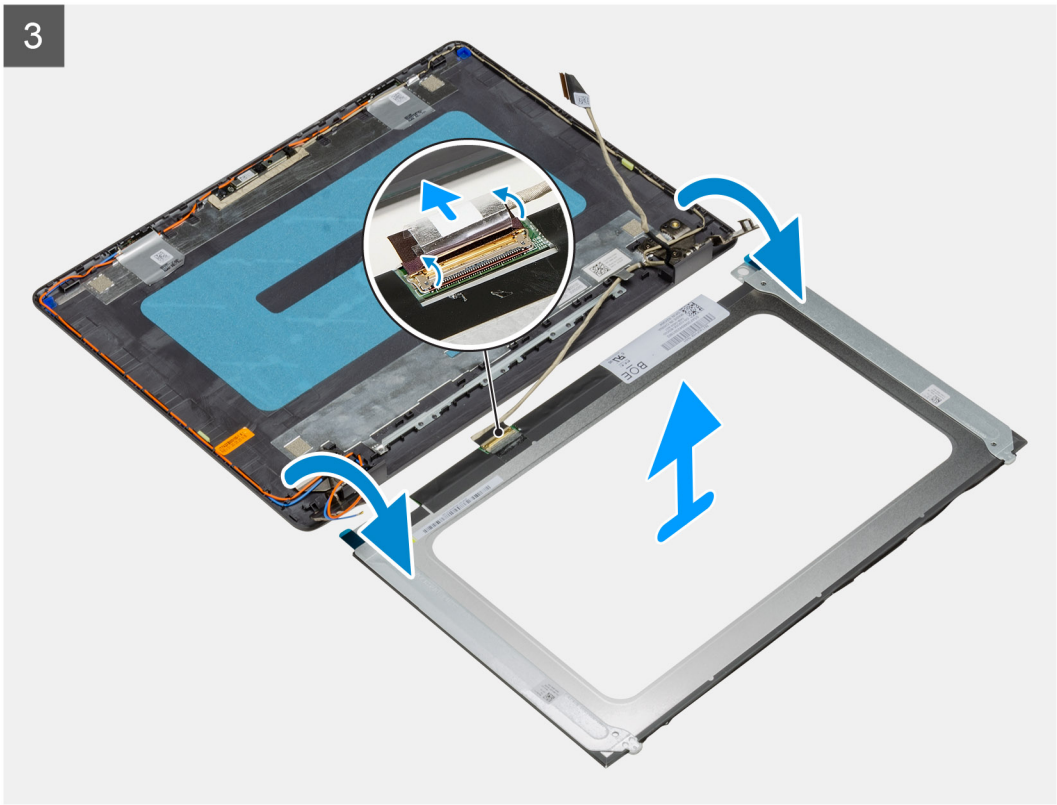
The following images indicate the location of the display panel and provides a visual representation of the removal procedure.

6x
M2.5x2.5



1





Steps

1. Remove the six screws (M2.5x2.5) that secure the display panel to the display assembly.
2. Lift and rotate the display panel forward.

   NOTE: Ensure that the display panel has a smooth and clean surface to rest on to prevent damage.

3. Disconnect the display cable from the display panel.
4. Peel the tape that secures the display-cable connector latch to the display panel.
5. Lift the display-cable latch and disconnect the display cable from the display panel.
6. Lift the display panel off the display assembly.

   NOTE: Do not remove the metal brackets from the panel.

Installing the display panel

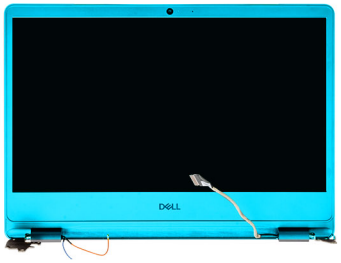
Prerequisites

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

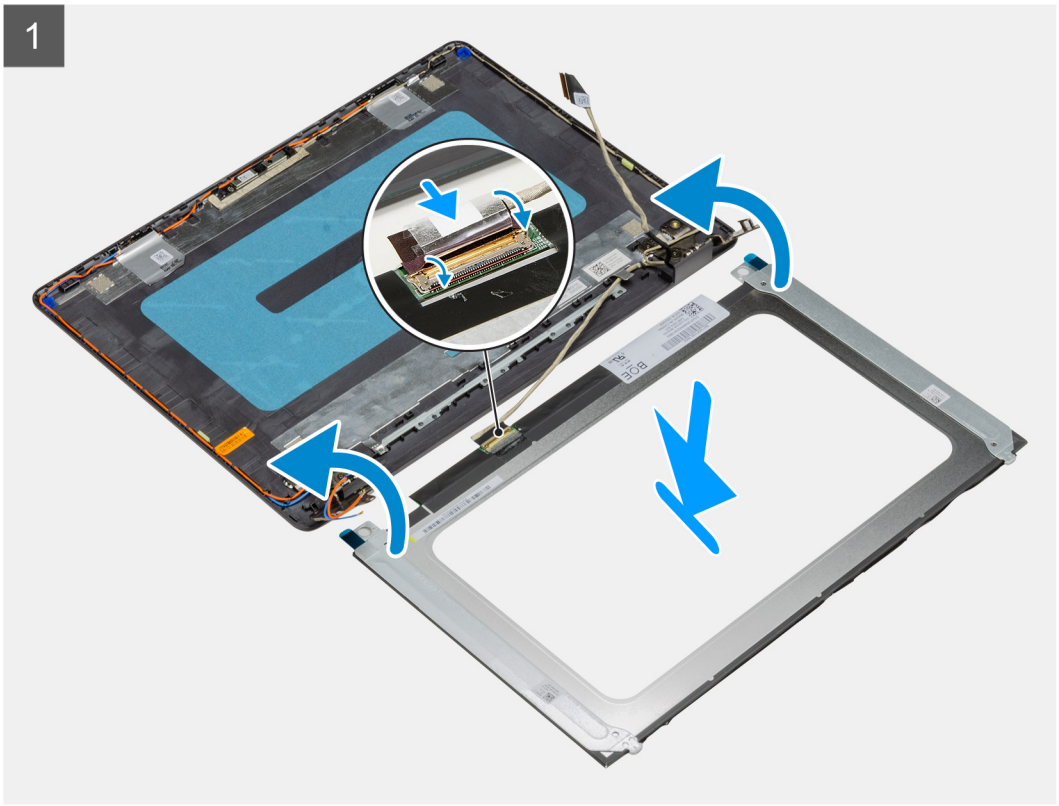
About this task

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

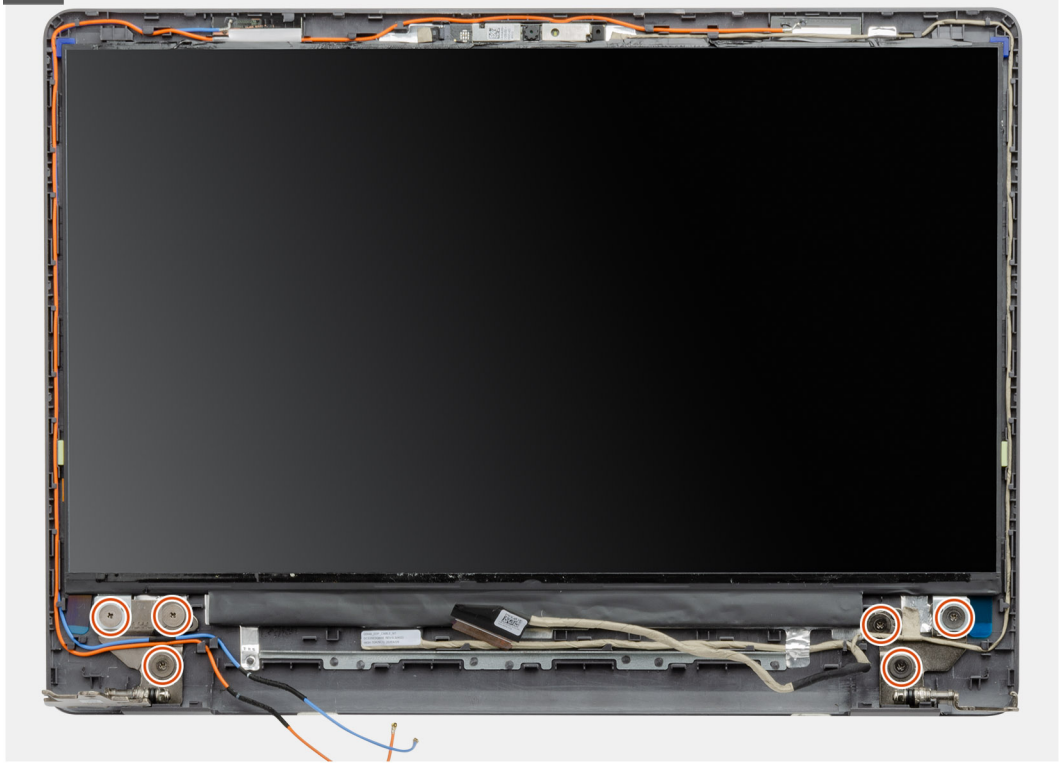
6x
M2.5x2.5



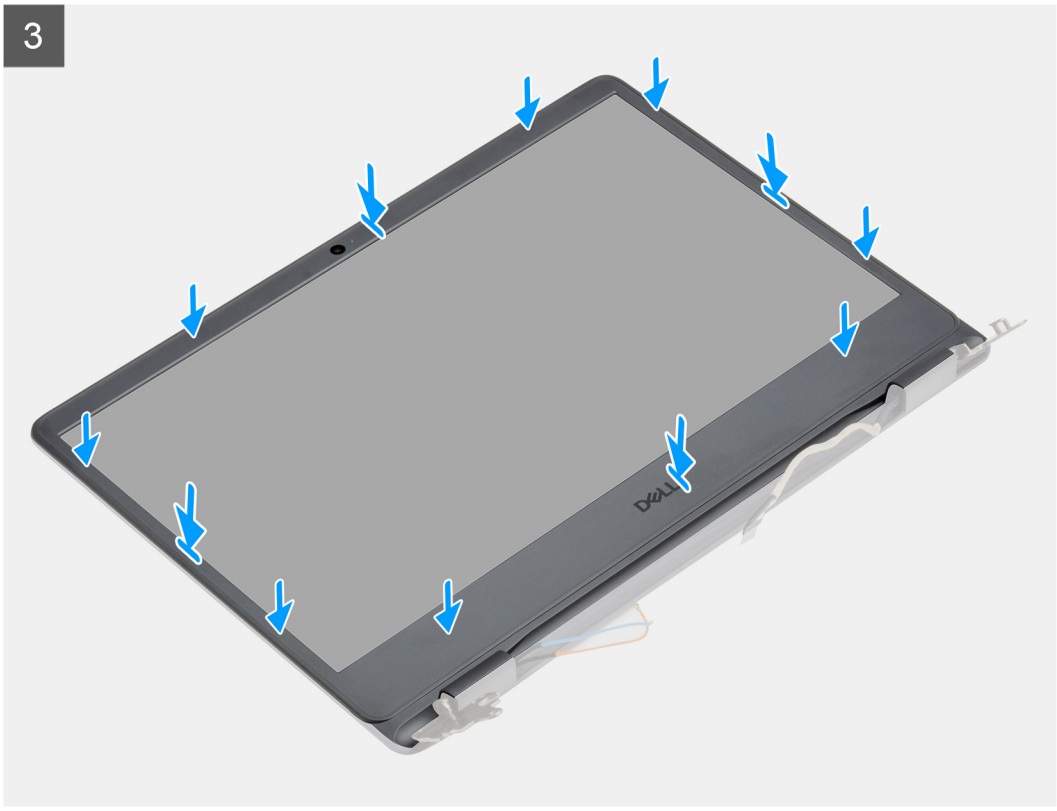
1



2



3



Steps

1. Place the display panel and display assembly on a clean and flat surface.
2. Connect the display cable to the connector on the display panel and close the latch.
3. Adhere the tape that secures the display-cable connector latch to the display panel.

4. Lift and rotate the display panel, then place the display panel on the display assembly.
5. Align the screw holes on the display panel to the screw holes on the display assembly.
6. Replace the six screws (M2.5x2.5) that secure the display panel to the display assembly.
7. Place the display bezel on the display assembly.
8. Align the tabs on the display bezel to the slots on the display assembly.
9. Press down on the display bezel and snap the display bezel in place.

Next steps

1. Install the display bezel.
2. Install the display assembly.
3. Install the wireless card.
4. Install the battery.
5. Install the base cover.
6. Install the SD card.
7. Follow the procedure in After working inside your computer.

Camera

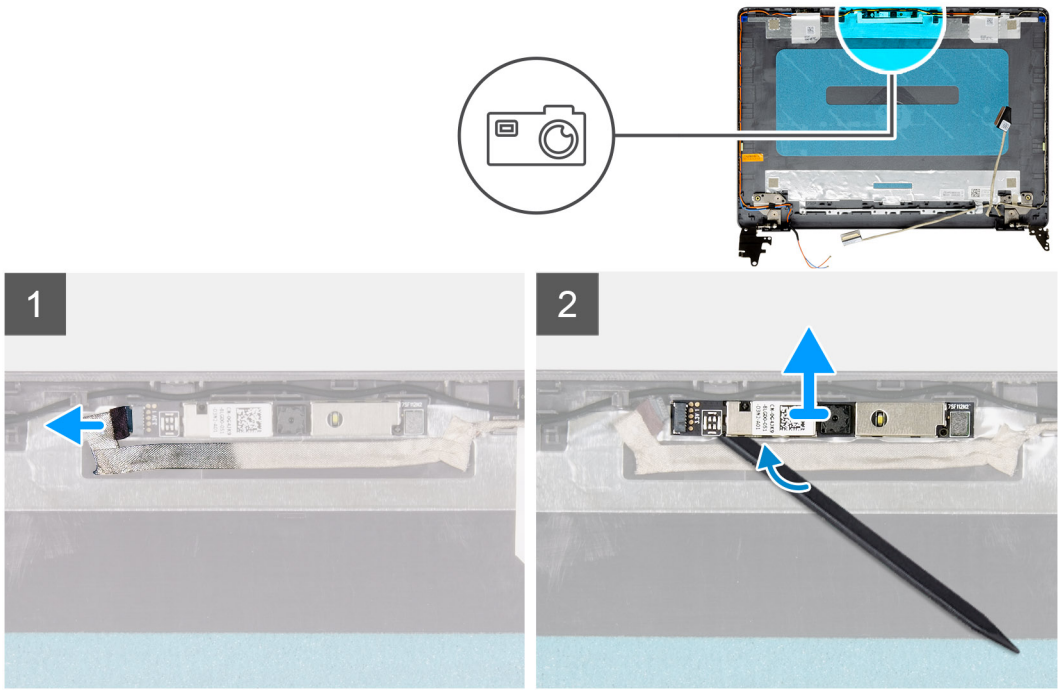
Removing the camera module

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Disconnect the battery .
5. Remove the wireless card.
6. Remove the display assembly.
7. Remove the display panel.
8. Remove the display bezel.

About this task

The following images indicate the location of the camera module and provides a visual representation of the removal procedure.



Steps

1. Using the pull tab, disconnect the camera cable from the camera module.
2. Using a plastic scribe, pry the camera module from the display assembly.
3. Lift the camera off the display assembly.

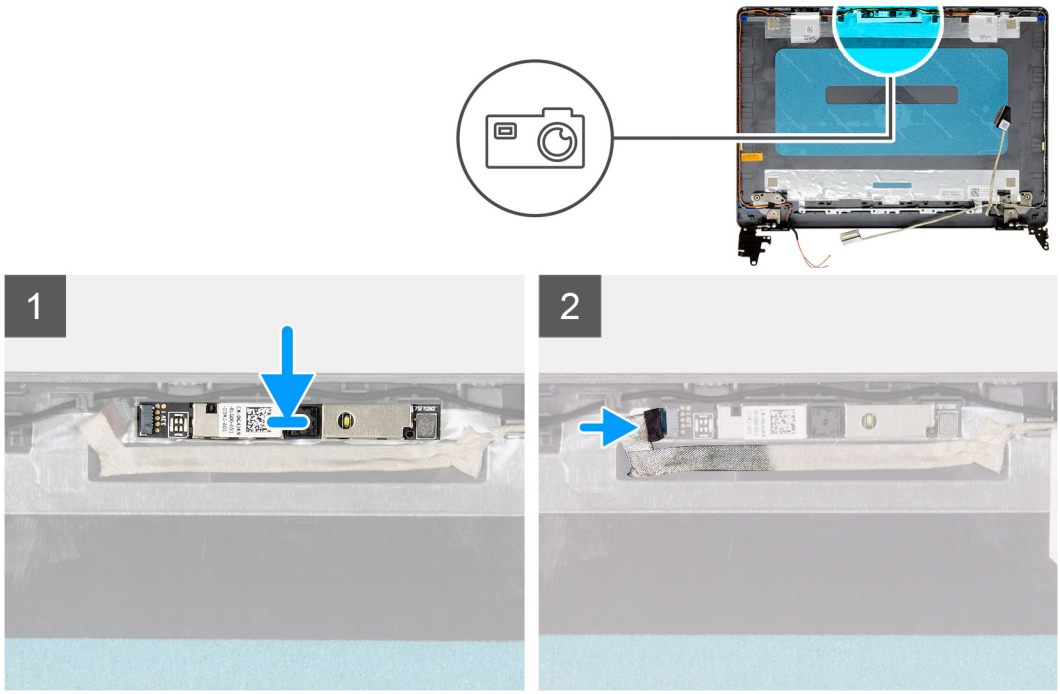
Installing the camera module

Prerequisites

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

About this task

The following images indicate the location of the camera module and provides a visual representation of the installation procedure.



Steps

1. Adhere the camera module in its slot on the display assembly.
2. Connect the camera cable to the camera module.

Next steps

1. Install the display bezel.
2. Install the display panel.
3. Install the display assembly.
4. Install the wireless card.
5. Install the base cover.
6. Install the SD card.
7. Follow the procedure in After working inside your computer.

Touchpad

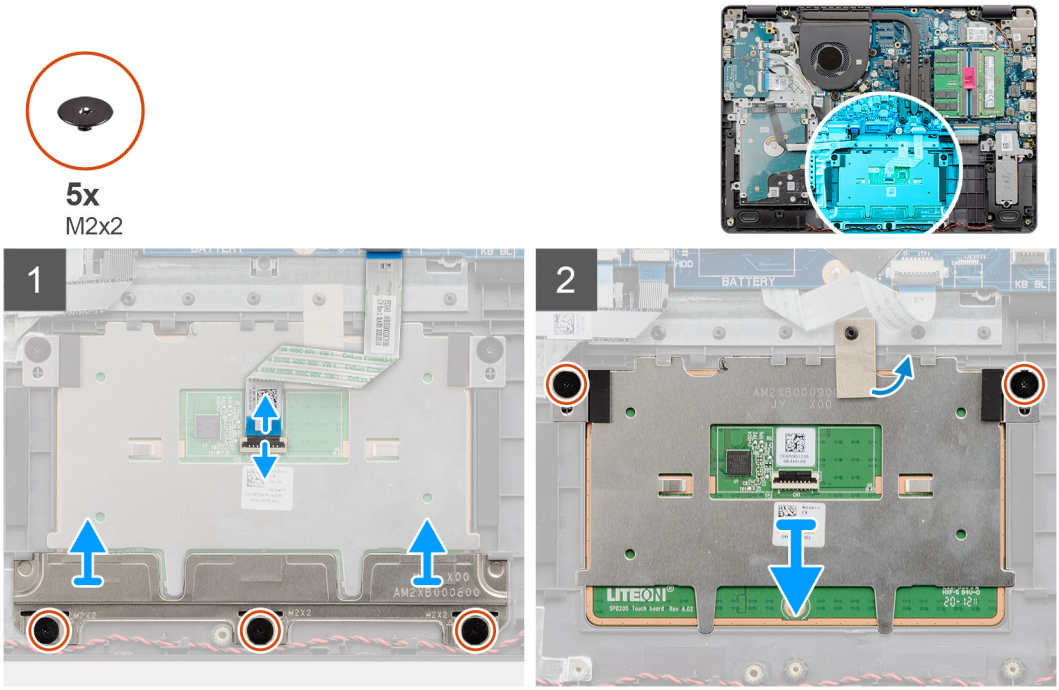
Removing the touchpad

Prerequisites

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

About this task

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



Steps

1. Open the latch and disconnect the touchpad cable from the touchpad.
2. Remove the three screws (M2x2) that secure the touchpad bracket to the palm-rest and keyboard assembly.
3. Lift the touchpad bracket off the touchpad.
4. Remove the two screws (M2x2) that secure the touchpad to the palm-rest and keyboard assembly.
5. Peel the tape that secures the touchpad to the palm-rest and keyboard assembly.
6. Lift the touchpad off the palm-rest and keyboard assembly.

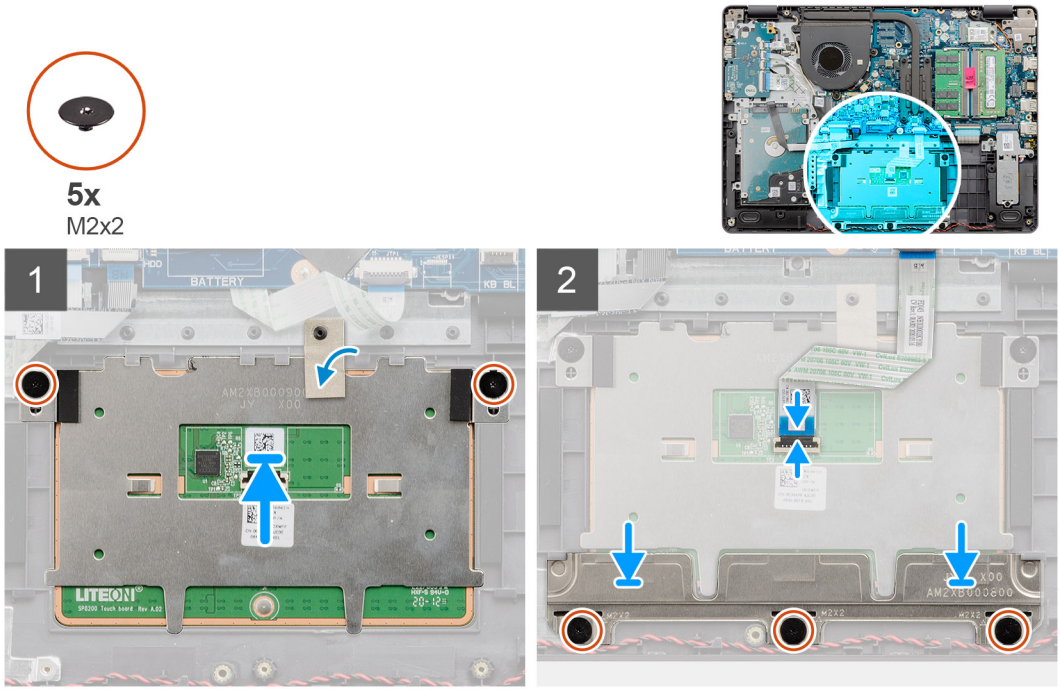
Installing the touchpad

Prerequisites

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

About this task

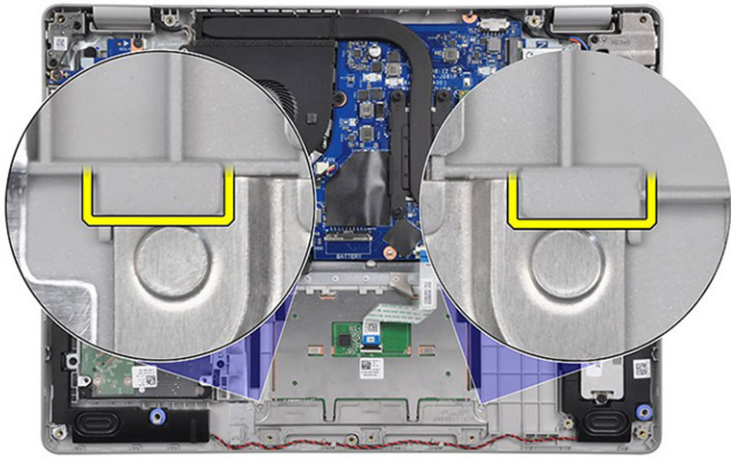
The following images indicate the location of the touchpad and provides a visual representation of the installation procedure.



Steps

1. Place the touchpad into its slot on the palm-rest and keyboard assembly.
2. Align the screw holes on the touchpad to the screw holes on the palm-rest and keyboard assembly.
3. Turn the computer over and open the display to ensure that the touchpad is equally aligned on all sides.
4. Close the display and place the computer in the position shown.
5. Replace the two screws (M2x2) that secure the touchpad to the palm-rest and keyboard assembly.
6. Adhere the tape that secures the touchpad to the palm-rest and keyboard assembly.
7. Place the touchpad bracket on the touchpad.

   NOTE: When installing the touchpad bracket into Vostro 3405, insert its top corners under the two tabs on the palm rest.



8. Align the screw holes on the touchpad bracket to the screw holes on the palm-rest and keyboard assembly.
9. Replace the three screws (M2x2) that secure the touchpad bracket to the palm-rest and keyboard assembly.
10. Connect the touchpad cable to the touchpad and close the latch.

Next steps

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

System board

Removing the system board

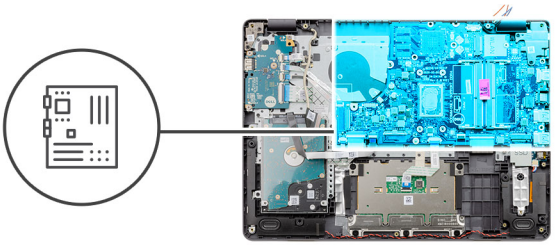
Prerequisites

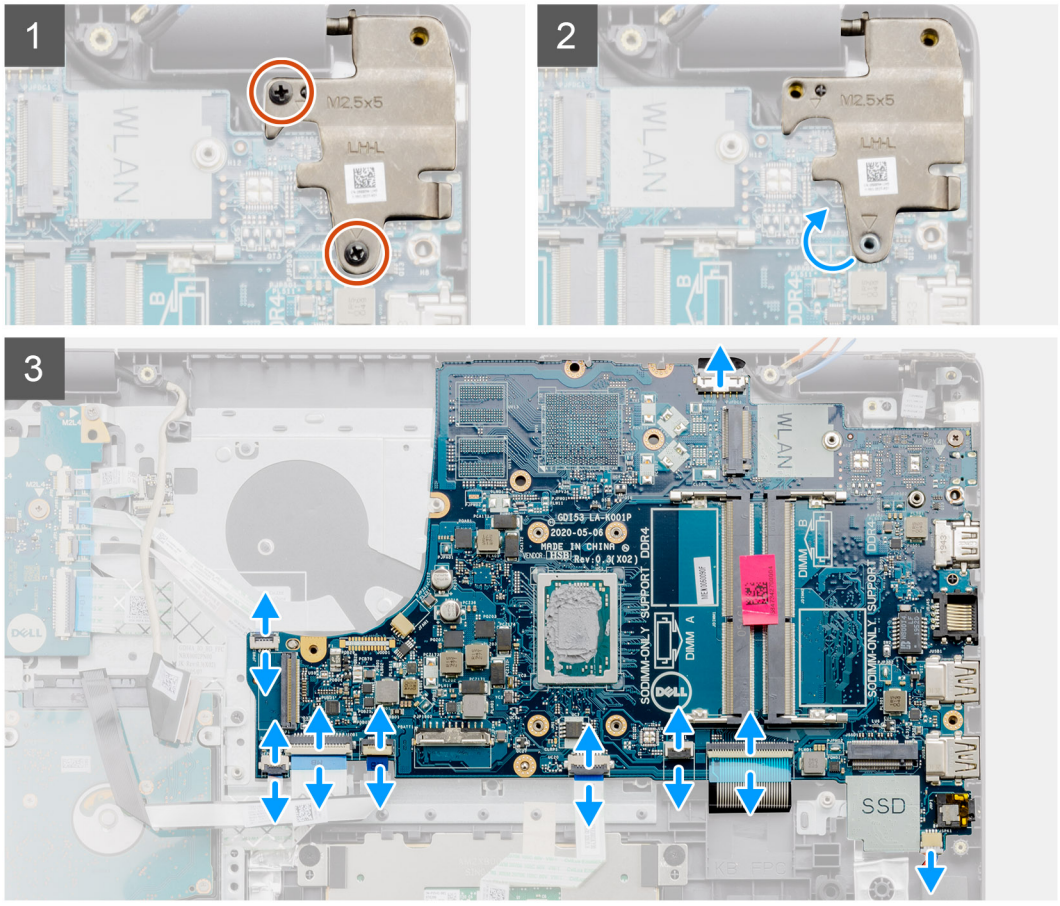
1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Remove the battery.
5. Remove the M.2 2230 solid-state drive.
6. Remove the M.2 2280 solid-state drive.
7. Remove the memory modules.
8. Remove the fan.
9. Remove the heat sink.
10. Remove the wireless card.
11. Remove the display assembly.

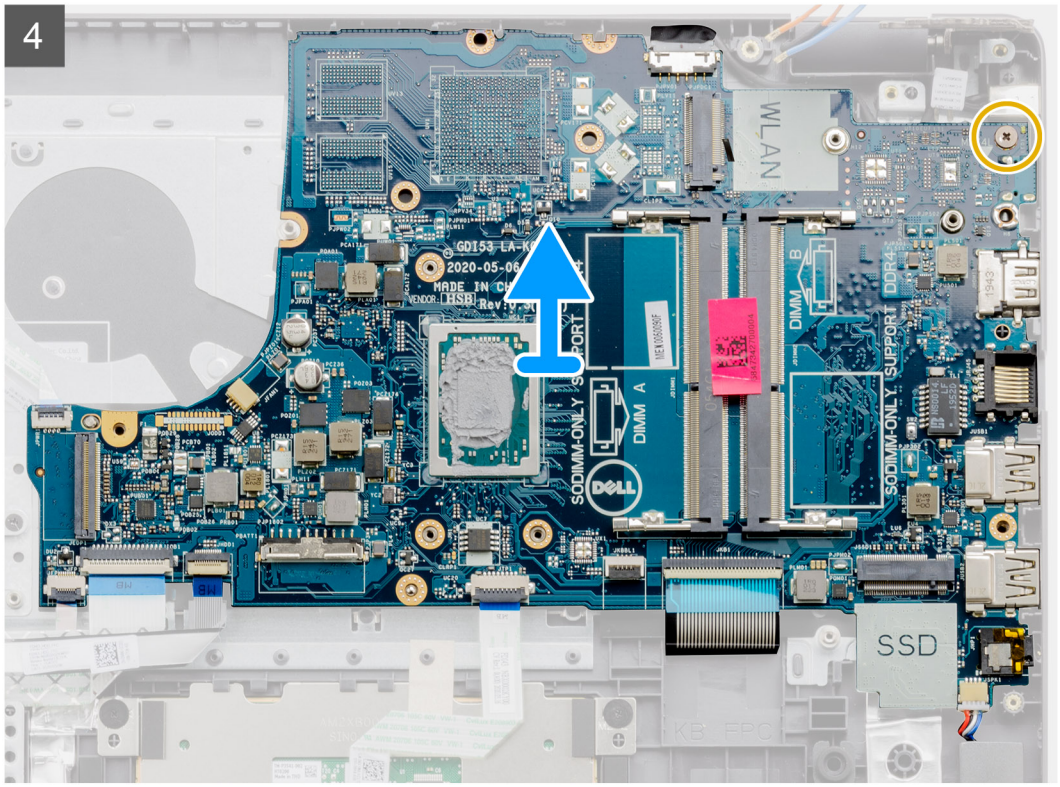
About this task

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

2x
M2.5x5
1x
M2x4




1
M2.5x5
WLAN
2
M2.5x5
WLAN
3
WLAN
SSD
DMM A
SODIMM-ONLY SUPPORT DDR4



Steps

1. Remove the two (M2.5x5) screws from the right hinge.
2. Fold the right hinge up.
3. Disconnect the following cables from the system board:
   a. Speaker cable
   b. Keyboard FFC
   c. Power adapter port cable
   d. Keyboard backlight FFC
   e. Touchpad FFC
   f. Hard drive FFC
   g. IO board FFC
   h. fingerprint reader FFC
   i. power button FFC from the system board
4. Remove the single (M2x4) screw that secures the system board to the palmrest.
5. Carefully lift the system board away from the chassis.

Installing the system board

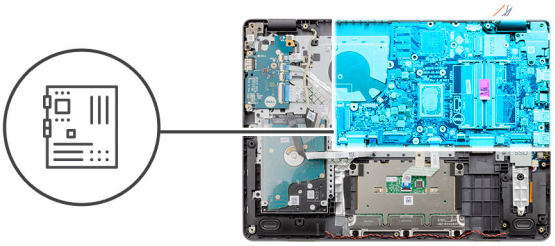
Prerequisites

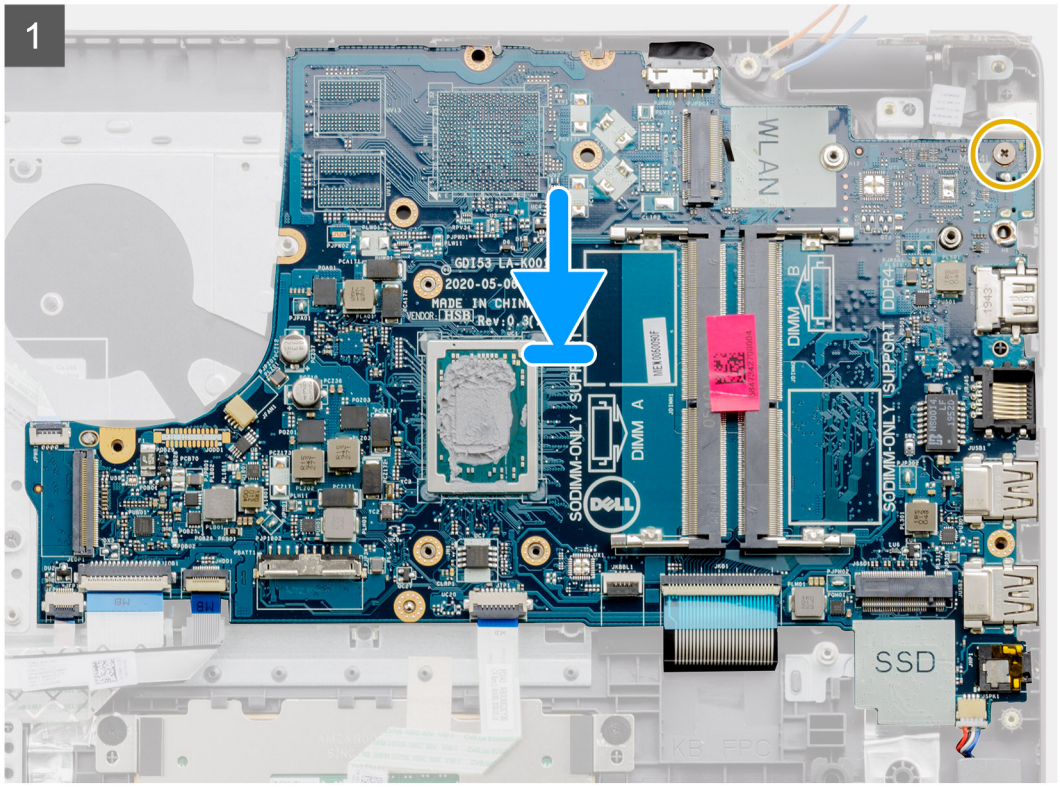
If you are replacing a component, remove the existing component before performing the installation process.

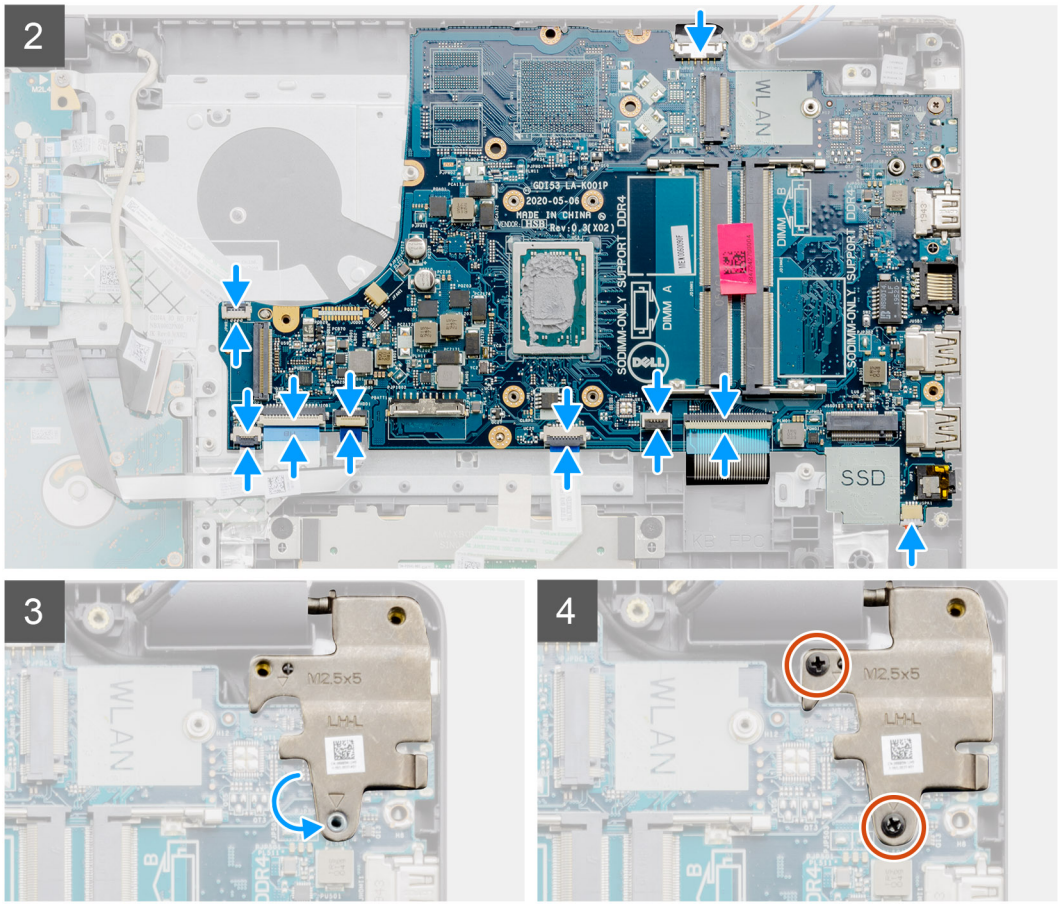
About this task

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

2x
M2.5x5
1x
M2x4




1
WLAN
DIMM B
DDR4
SODIMM-ONLY SUPPORT
DIMM A
SODIMM-ONLY SUPPORT
SSD



Steps

1. Align and place the system board on the palmrest.
2. Replace the single (M2x4) screw that secures the system board to the palmrest.
3. Connect the following cables to the system board:
   a. Speaker cable
   b. Keyboard FFC
   c. Keyboard backlight FFC
   d. Touchpad FFC
   e. Hard drive FFC
   f. IO board FFC
   g. Power adapter port cable
   h. Fingerprint reader FFC
   i. Power button FFC from the system board
4. Fold back the right hinge and install the two (M2.5x5) screws to secure it to the palmrest.

Next steps

1. Install the display assembly.
2. Install the wireless card.
3. Install the heat sink.
4. Install the fan.
5. Install the memory modules.
6. Install the M.2 2230 solid-state drive.
7. Install the M.2 2280 solid-state drive.
8. Install the battery.
9. Install the base cover.
10. Install the SD card.

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

Power-adapter port

Removing the power-adapter port

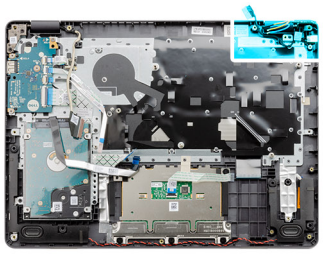
Prerequisites

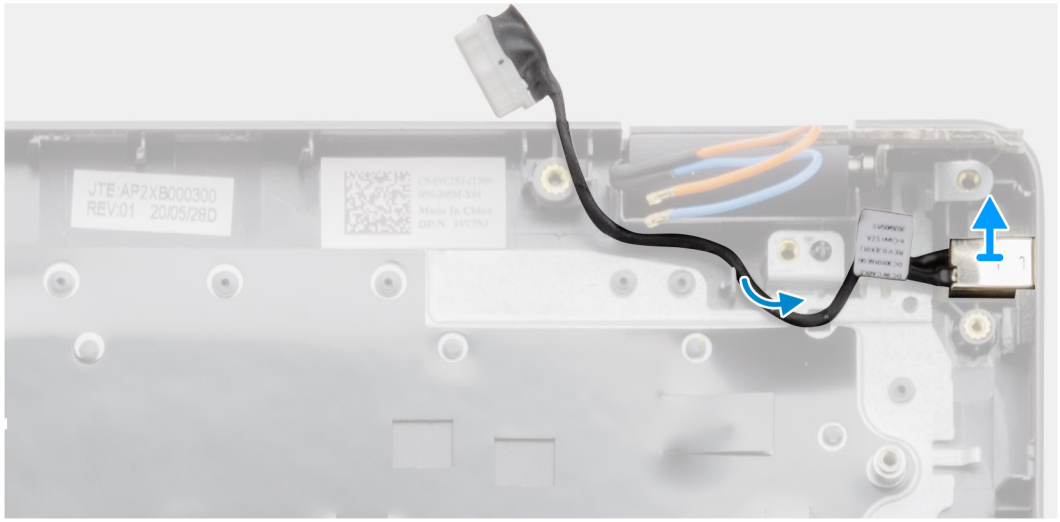
1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Remove the battery.
5. Remove the M.2 2230 solid-state drive.
6. Remove the M.2 2280 solid-state drive.
7. Remove the fan.
8. Remove the wireless card.
9. Remove the display assembly.
10. Remove the system board.

NOTE: The system board can be removed along with the heat sink.

About this task

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





Steps

Lift the power-adapter port from its slot on the palm-rest and keyboard assembly.

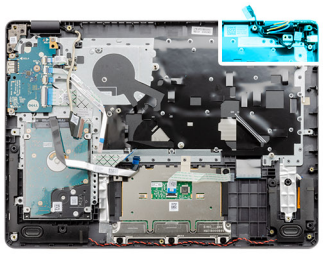
Installing the power-adapter port

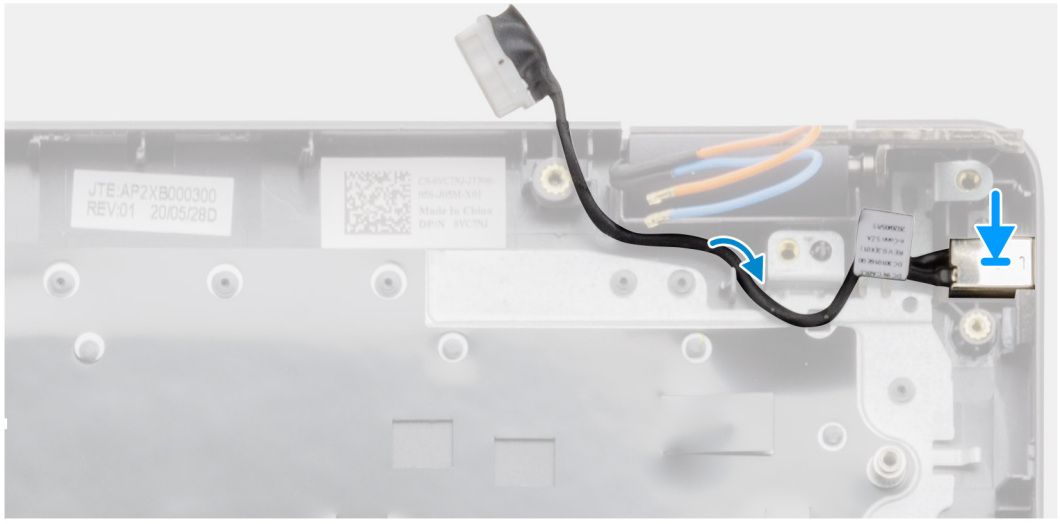
Prerequisites

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

About this task

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





Steps

Place the power-adapter port into its slot on the palm-rest and keyboard assembly.

Next steps

1. Install the system board
2. Install the display assembly.
3. Install the wireless card.
4. Install the fan.
5. Install the M.2 2230 solid-state drive.
6. Install the M.2 2280 solid-state drive.
7. Install the battery.
8. Install the base cover.
9. Install the SD card.
10. Follow the procedure in After working inside your computer.

Palm-rest and keyboard assembly

Removing the palm-rest and keyboard assembly

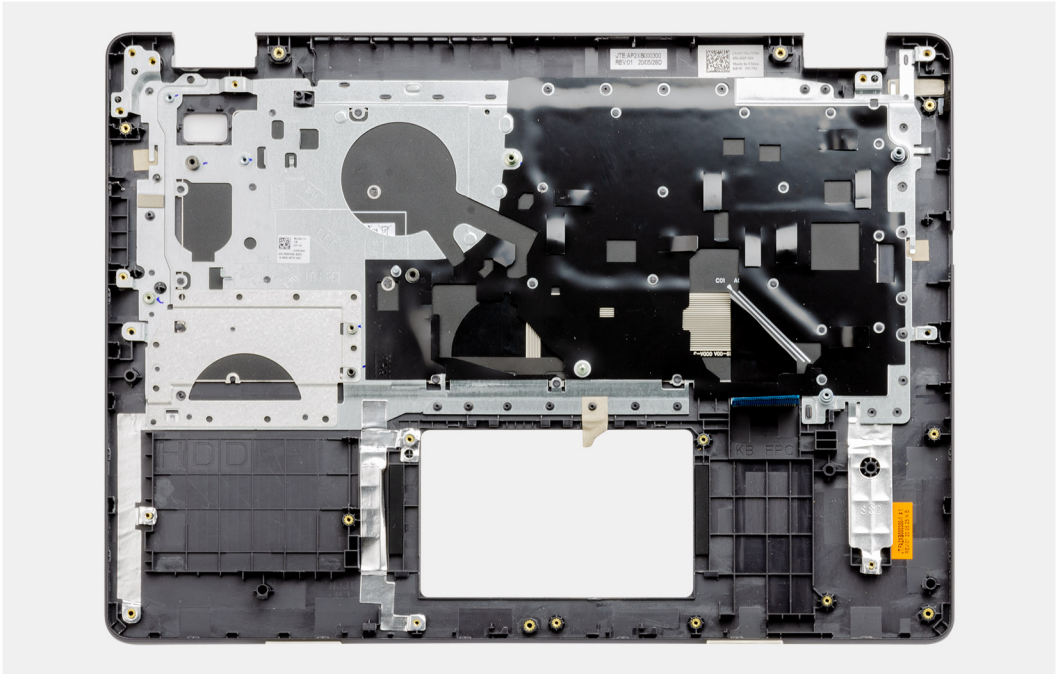
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the SD card.
3. Remove the base cover.
4. Remove the battery.
5. Remove the M.2 2230 solid-state drive.
6. Remove the M.2 2280 solid-state drive.
7. Remove the hard drive.
8. Remove the fan.
9. Remove the wireless card.
10. Remove the display assembly.
11. Remove the touchpad.
12. Remove the speakers.
13. Remove the IO board.
14. Remove the power button.
15. Remove the system board.

    NOTE: The system board can be removed along with the heat sink.
16. Remove the power-adapter port.

About this task

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



Steps

After performing the pre-requisites you are left with the palm-rest and keyboard assembly.

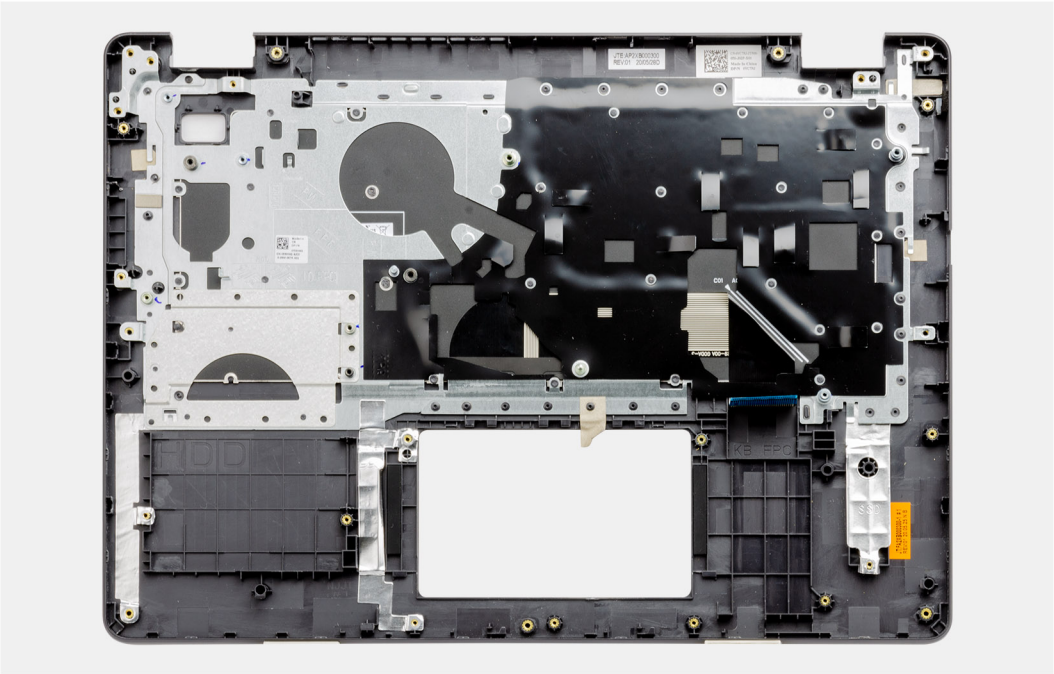
Installing the palm-rest and keyboard assembly

Prerequisites

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

About this task

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



Steps

Place the palm-rest and keyboard assembly on a flat and clean surface and perform the post-requisites to install the palm-rest and keyboard assembly.

Next steps

1. Install the power-adapter port.
2. Install the system board.
3. Install the power button.
4. Install the IO board.
5. Install the speakers.
6. Install the touchpad.
7. Install the display assembly.
8. Install the wireless card.
9. Install the fan.
10. Install the hard drive.
11. Install the M.2 2230 solid-state drive.
12. Install the M.2 2280 solid-state drive.
13. Install the battery.
14. Install the base cover.
15. Install the SD card.
16. Follow the procedure in After working inside your computer.

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Troubleshooting

Topics:

- Handling swollen Lithium-ion batteries
- Dell SupportAssist Pre-boot System Performance Check diagnostics
- System diagnostic lights
- Real-Time Clock (RTC Reset)
- Updating the BIOS in Windows
- Updating the BIOS using the USB drive in Windows
- Backup media and recovery options
- WiFi power cycle
- Drain residual flea power (perform hard reset)

Handling swollen Lithium-ion batteries

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

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

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

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

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

Lithium-ion batteries can swell for various reasons such as age, number of charge cycles, or exposure to high heat. For more information on how to improve the performance and lifespan of the laptop battery and to minimize the possibility of occurrence of the issue, see Dell Laptop Battery - Frequently Asked Questions.

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 https://www.dell.com/support/kbdoc/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 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.

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 2. LED codes

Diagnostic light codes	Problem description	Recommended solutions
2,1	Processor failure	Run the CPU diagnostics tool. If problem 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 and swap memory modules amongst the slots. If problem persists, replace the memory module.
2,5	Invalid memory installed	Reset and swap memory modules among the slots. 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 system board.
3,1	Coin-cell battery failure	Reset the CMOS battery connection. If problem persists, replace the RTC battery.
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	EC ran into power sequencing failure. If problem persists, replace the system board.
3,6	System BIOS Flash incomplete	Flash corruption detected by SBIOS. If problem persists, replace the system board.
3,7	Management Engine (ME) error	Timeout waiting on ME to reply to HECI message. If problem persists, 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.

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.

Updating the BIOS in Windows

Steps

1. Go to www.dell.com/support.
2. Click **Product support**. In the **Search support** box, enter the Service Tag of your computer, and then click **Search**.

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

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

   For more information, see knowledge base article 000124211 at www.dell.com/support.

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, see the knowledge base article 000145519 at www.dell.com/support.
3. Copy the BIOS setup program file to the bootable USB drive.
4. Connect the bootable USB drive to the computer that needs the BIOS update.
5. Restart the computer and press **F12** .
6. Select the USB drive from the **One Time Boot Menu**.
7. Type the BIOS setup program filename and press **Enter**.
   The **BIOS Update Utility** appears.
8. Follow the on-screen instructions to complete the BIOS update.

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.

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.

Drain residual flea power (perform hard reset)

About this task

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

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

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

To drain residual flea power (perform a hard reset)

Steps

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

NOTE: For more information about performing a hard reset, see the knowledge base article 000130881 at www.dell.com/support.

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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 3. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	www.dell.com
My Dell	
Tips	
Contact Support	In Windows search, type `Contact Support`, and press Enter.
Online help for operating system	www.dell.com/support/windows www.dell.com/support/linux
Troubleshooting information, user manuals, setup instructions, product specifications, technical help blogs, drivers, software updates, and so on.	www.dell.com/support
Dell knowledge base articles for a variety of computer concerns.	1. Go to https://www.dell.com/support/home/?app=knowledgebase. 2. Type the subject or keyword in the **Search** box. 3. Click **Search** to retrieve the related articles.
Learn and know the following 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	See *Me and My Dell* at www.dell.com/support/manuals. To locate the *Me and My Dell* relevant to your product, identify your product through one of the following: • 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.

Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see www.dell.com/contactdell.

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

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