Inspiron 15 3521

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 inside your computer

Safety instructions

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

WARNING: Before working inside your computer, read the safety information that is shipped with your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

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

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

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

CAUTION: You should only perform troubleshooting and repairs as authorized or directed by the Dell technical assistance team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. See the safety instructions that is shipped with the product or at www.dell.com/regulatory_compliance.

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

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

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

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

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

Before working inside your computer

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.

5. Remove any media card and optical disc from your computer, if applicable.
6. After the computer is unplugged, press and hold the power button for 5 seconds to ground the system board.

   CAUTION: Place the computer on a flat, soft, and clean surface to avoid scratches on the display.

7. Place the computer face 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 notebook to avoid electrostatic discharge (ESD) damage.
- After removing any system component, carefully place the removed component on an anti-static mat.
- Wear shoes with non-conductive rubber soles to reduce the chance of getting electrocuted.

Standby power

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

Unplugging, pressing and holding the power button for 15 seconds should discharge residual power in the system board.

Bonding

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

Electrostatic discharge—ESD protection

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

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

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

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

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

Perform the following steps to prevent ESD damage:

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

ESD field service kit

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

Components of an ESD field service kit

The components of an ESD field service kit are:

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

ESD protection summary

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

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.

After working inside your computer

About this task

NOTE: 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.

BitLocker

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress, and the system will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system reinstall. For more information about this subject, see Knowledge Article: updating the BIOS on Dell systems with BitLocker enabled.

The installation of the following components triggers BitLocker:

- Hard disk drive or solid state drive
- System board

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Removing and installing components

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

Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver #0
- Plastic scribe

Screw list

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

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

NOTE: Screw color may vary with the configuration ordered.

Table 1. Screw list

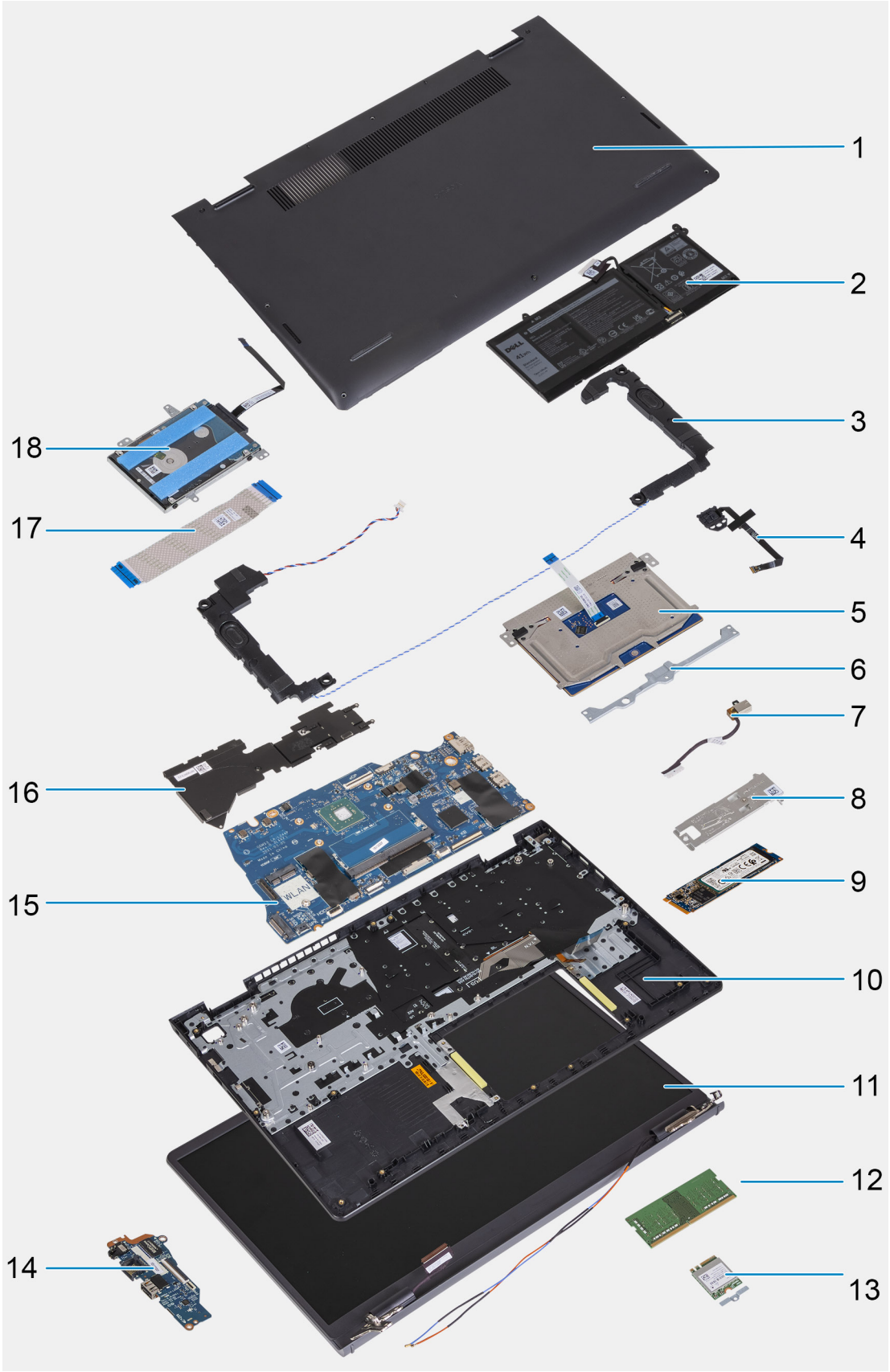
Component	Screw type	Quantity	Screw image
Base cover	• M2x5 • Captive screw	• 6 • 2	
3-cell battery/4-cell battery	M2x3	3/4	
M.2 2230/2280 solid-state drive	M2x2	1	
2.5-inch hard-disk drive 2.5-inch hard-disk drive bracket	M2x3.5 M3x3	4 4	
Wireless-card	M2x3.5	1	

Table 1. Screw list (continued)

Component	Screw type	Quantity	Screw image
System board thermal plate	• M2x5 • M2x3	• 2 • 4	
Touchpad bracket Touchpad	• M2x2 • M2x2	• 3 • 2	
Display assembly	M2.5x5	4	
Display hinges	M2.5x3.8	6	
System board	• M2x2 • M2x3.5	• 1 • 3	
I/O daughter-board	M2x3.5	3	
Power button	M2x2	1	
Power button with optional fingerprint reader	M2x2	1	
Power-adapter port	M2.5x5	2	

Major components of Inspiron 15 3521

The following image shows the major components of Inspiron 15 3521.



1. Base cover
2. Battery
3. Speakers
4. Power button assembly
5. Touchpad assembly
6. Touchpad-assembly bracket
7. Power-adapter port
8. M.2 solid-state drive shield

9. M.2 solid-state drive
10. Palm-rest and keyboard assembly
11. Display assembly
12. Memory module
13. Wireless card with wireless-card bracket
14. I/O daughter-board
15. System board
16. System board thermal plate
17. I/O daughter-board flexible flat cable
18. Hard-disk drive

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.

Secure Digital (SD) Card

Removing the secure digital card

Prerequisites

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

About this task

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





Steps

1. Push the secure digital card to release it from the secure digital card slot.
2. Slide and remove the secure digital card from the system.

Installing the secure digital card

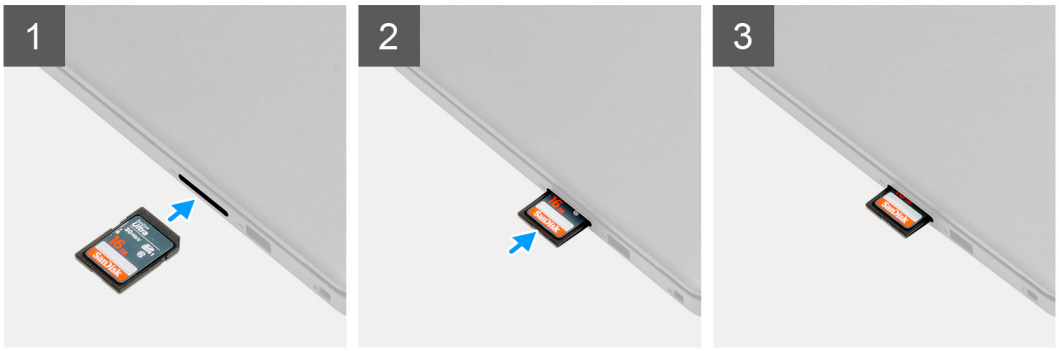
Prerequisites

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 secure digital card and provide a visual representation of the installation procedure.





Steps

Slide the secure digital card into the secure digital card 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 secure digital card.

About this task

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

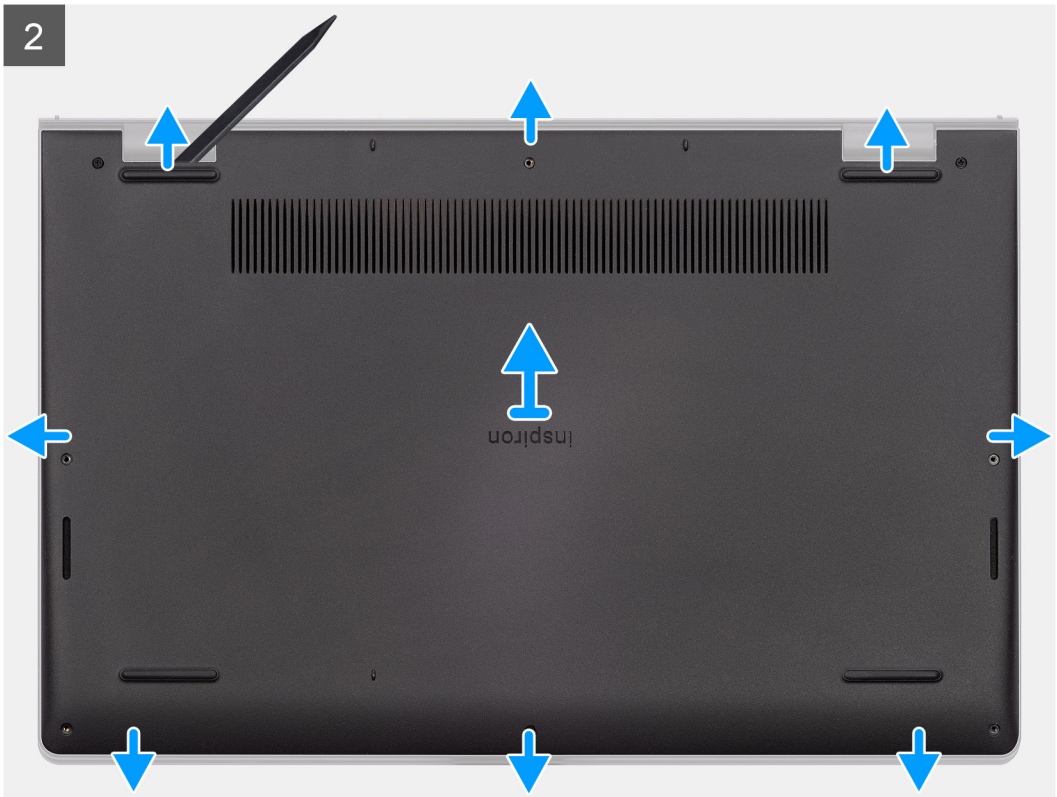
The following images indicate the location of the base cover and provide a visual representation of the removal procedure.

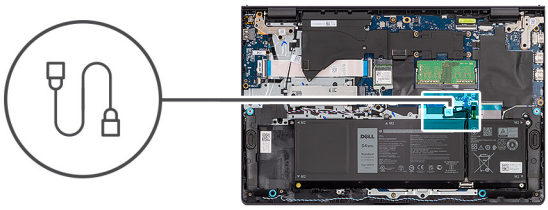


1



2

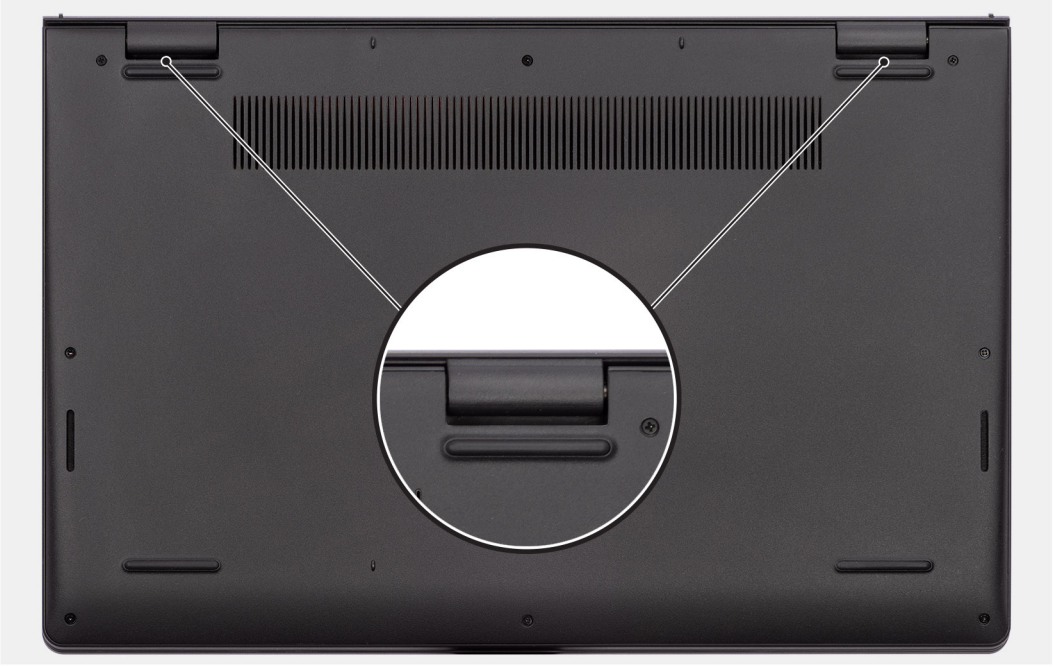






Steps

1. Remove the six screws (M2x5) that secure the base cover to the palm-rest and keyboard assembly.
2. Loosen the two captive screws that secure the base cover to the palm-rest and keyboard assembly.
3. Using a plastic scribe, pry open the base cover starting from the recesses, which are located in the U-shaped indents at the top edge of the base cover, near the hinges.



4. Pry open the top side of the base cover and continue working on the left and right sides to open the base cover.
5. Lift and remove the base cover off the palm-rest and keyboard assembly.
6. Use the pull tab to disconnect the battery cable from the connector system board.

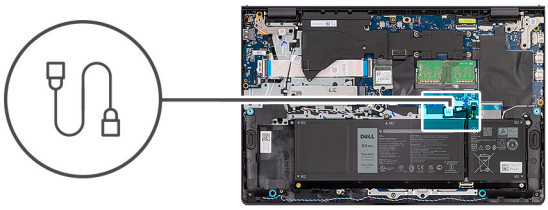
Installing the base cover

Prerequisites

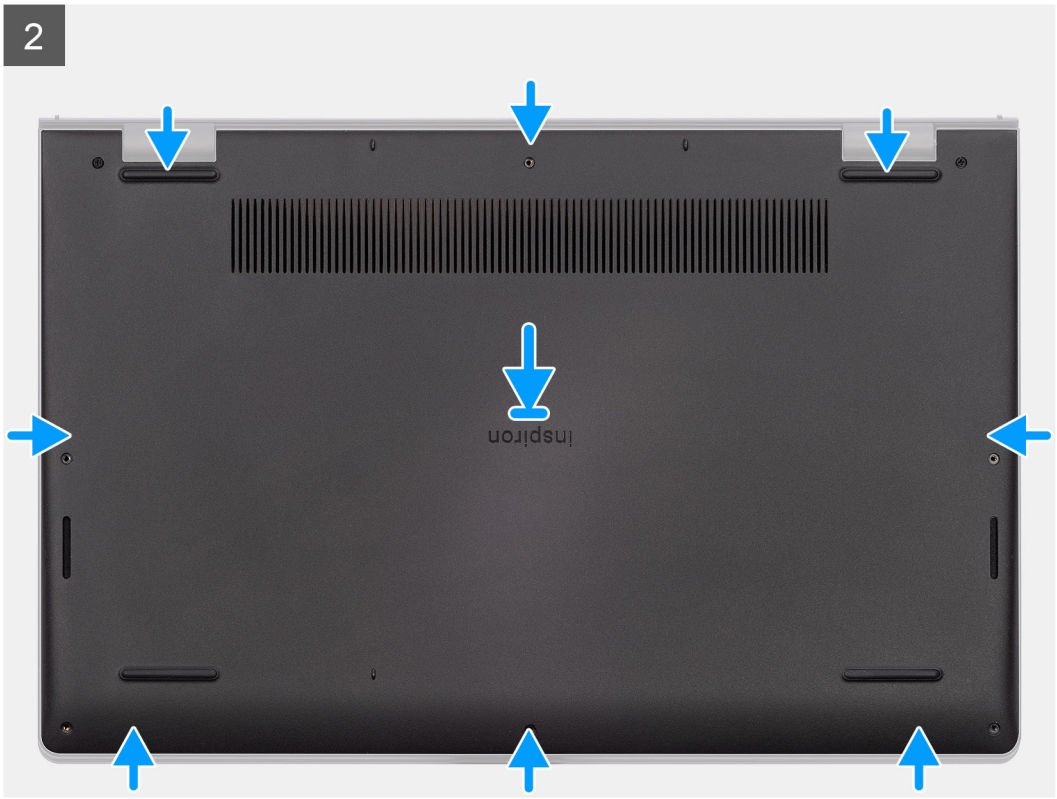
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

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











Steps

1. Connect the battery cable to the connector on the system board.
2. Place the base cover on top of the palm-rest and keyboard assembly.
3. Align the screw holes on the base cover with the screw holes on the palm-rest and keyboard assembly, and snap the base cover latches into place.
4. Tighten the two captive screws to secure the base cover to the palm-rest and keyboard assembly.
5. Replace the six screws (M2x5) to secure the base cover to the palm-rest and keyboard assembly.

Next steps

1. Install the secure digital 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.**

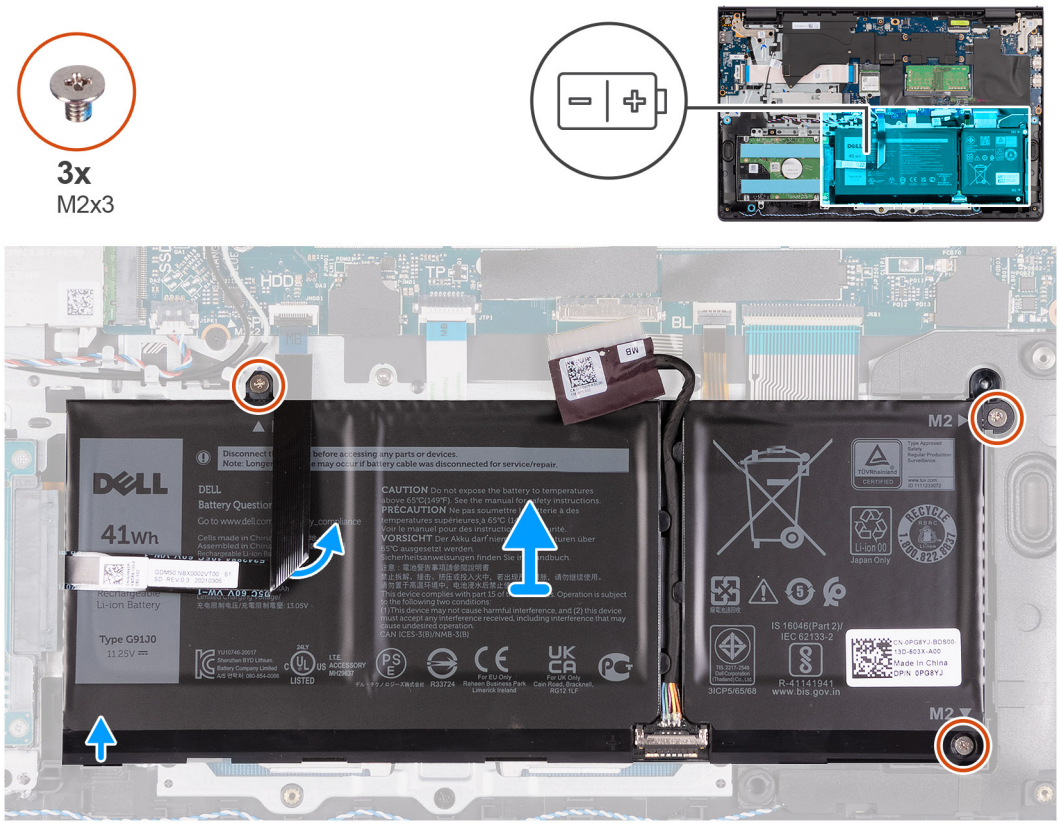
Removing the 3-cell battery

Prerequisites

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

About this task

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



Steps

1. Remove the three screws (M2x3) that secure the 3-cell battery to the palm-rest and keyboard assembly.
2. Lift the 3-cell battery along with the battery cable off the palm-rest and keyboard assembly.

NOTE: Before removing the 3-cell battery, disconnect and remove the hard-drive flexible flat cable from its connector on the system board to avoid tugging of the 3-cell battery on the hard-drive flexible flat cable.

3. Disconnect and remove the battery cable from the 3-cell battery.

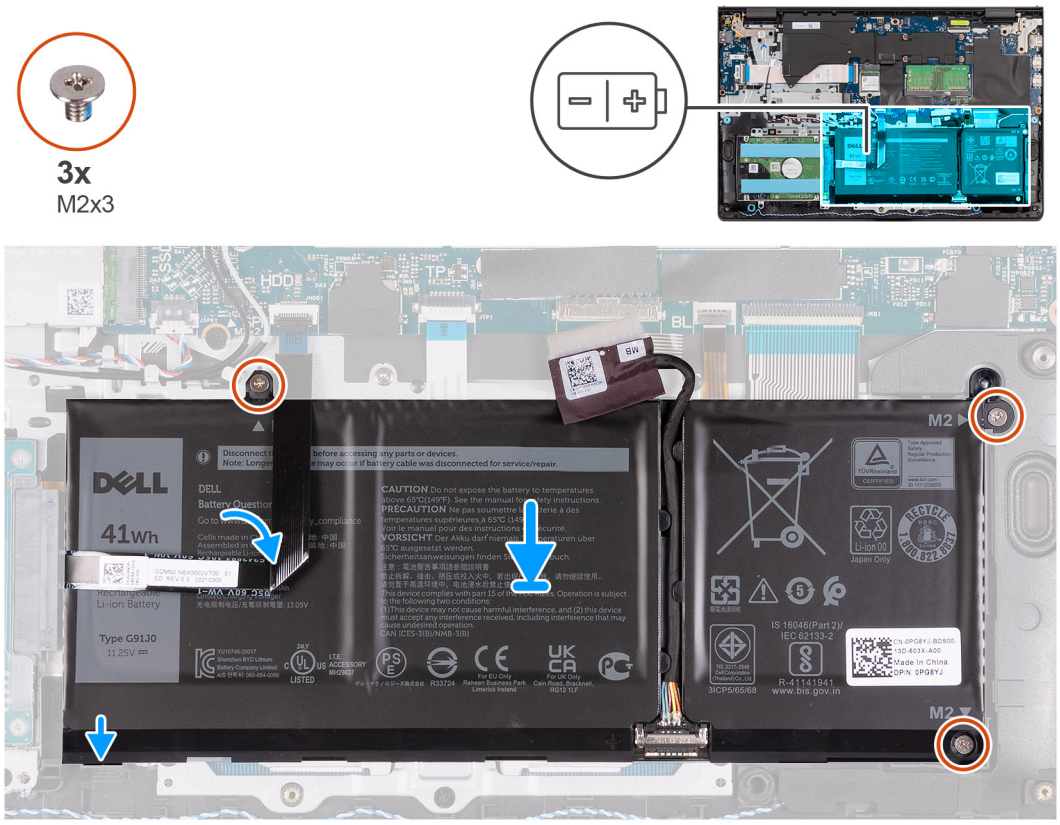
Installing the 3-cell battery

Prerequisites

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

About this task

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



Steps

1. Connect the battery cable to the 3-cell battery.
2. Place the 3-cell battery along with the battery cable on the palm-rest and keyboard assembly.

   NOTE: Connect the hard drive flexible flat cable to its connector on the system board after placing the 3-cell battery, in its slot on the palm-rest and keyboard assembly, to avoid tugging of the 3-cell battery on the hard drive flexible flat cable.

3. Align the screw holes on the 3-cell battery to the screw holes on the palm-rest and keyboard assembly.
4. Replace the three screws (M2x3) to secure the 3-cell battery to the palm-rest and keyboard assembly.

Next steps

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

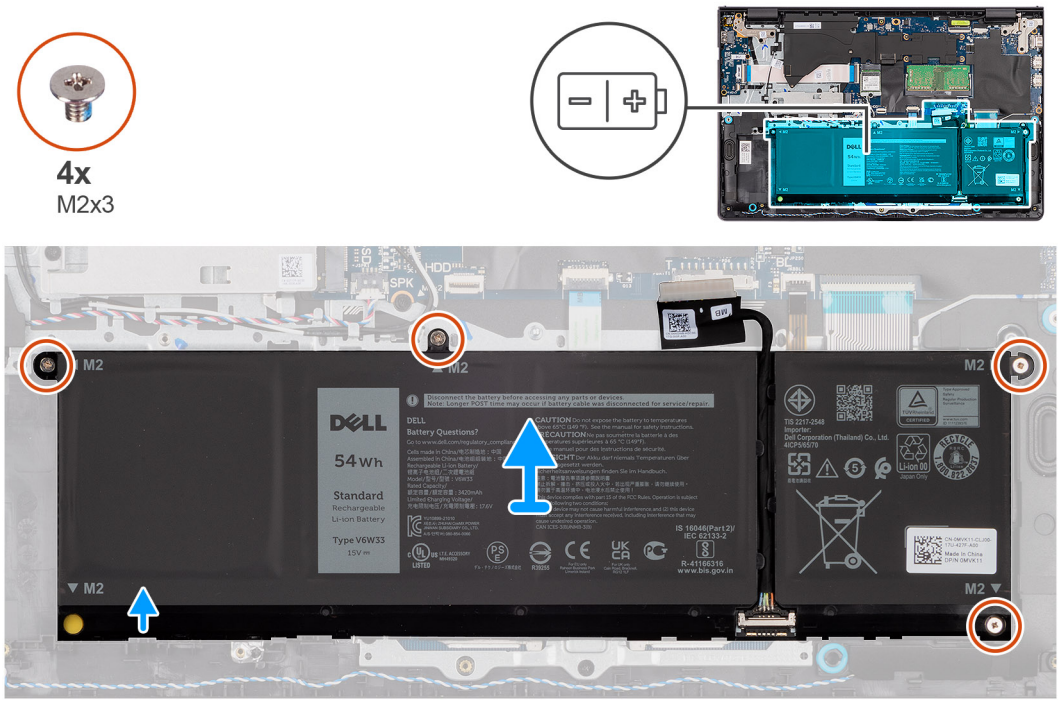
Removing the 4-cell battery

Prerequisites

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

About this task

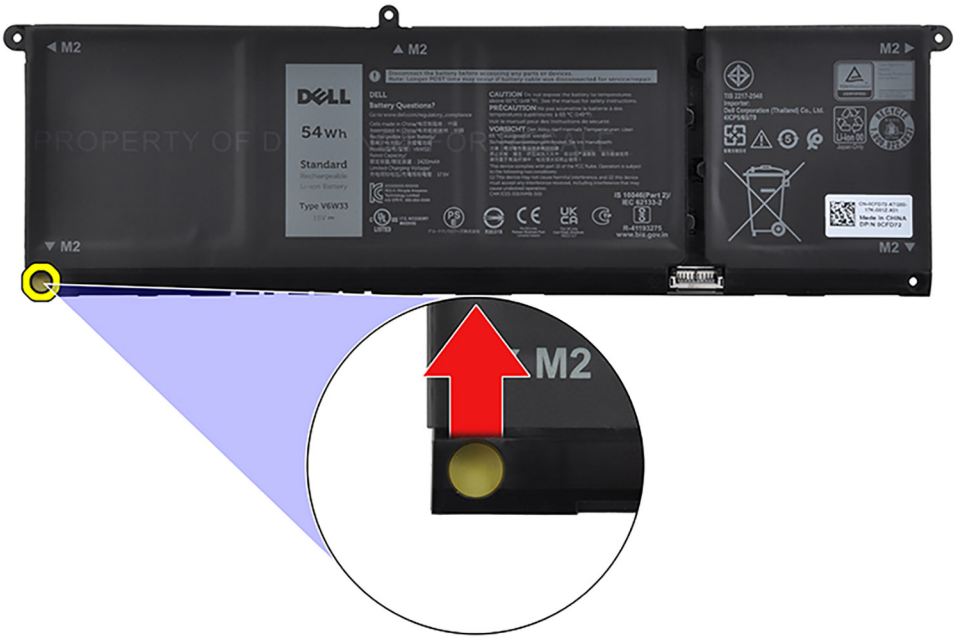
The following image indicates the location of the 4-cell battery and provides a visual representation of the removal procedure.



Steps

1. Remove the four screws (M2x3) that secure the 4-cell battery to the palm-rest and keyboard assembly.
2. Lift the 4-cell battery along with the battery cable off the palm-rest and keyboard assembly.
3. Disconnect and remove the battery cable from the 4-cell battery.
4. Carefully push and remove the battery rubber stopper out of the bottom-left screw hole of the 4-cell battery.

NOTE: When replacing the 4-cell battery, use a plastic scribe to push upward through the bottom-left screw hole to remove the battery rubber stopper and transfer it to the new replacement 4-cell battery.



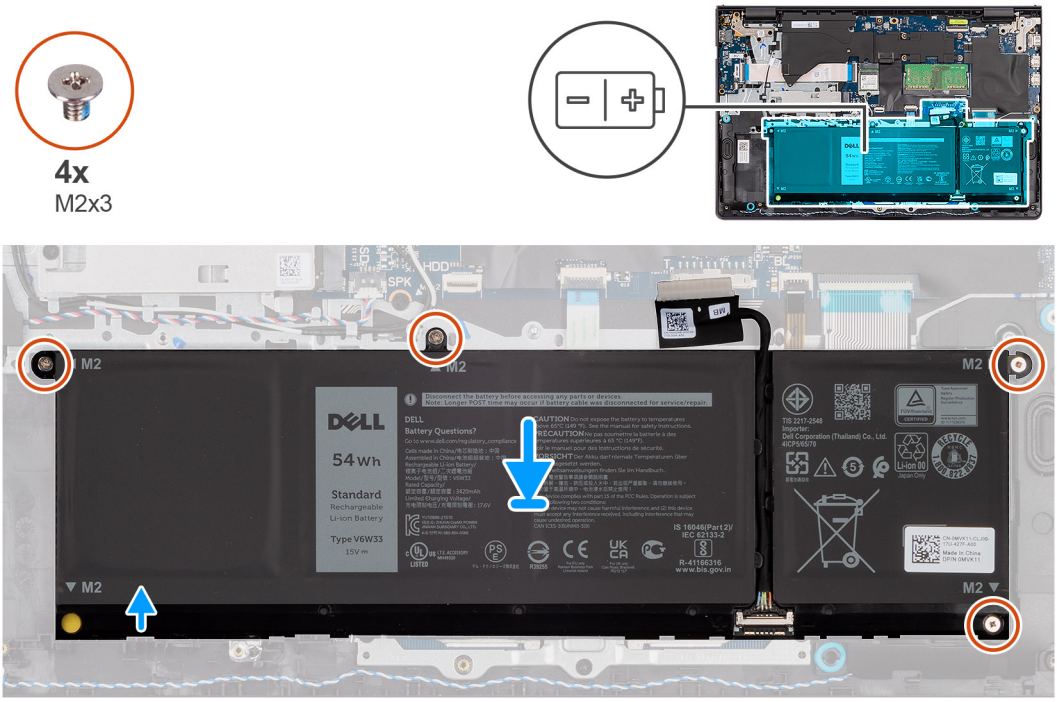
Installing the 4-cell battery

Prerequisites

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

About this task

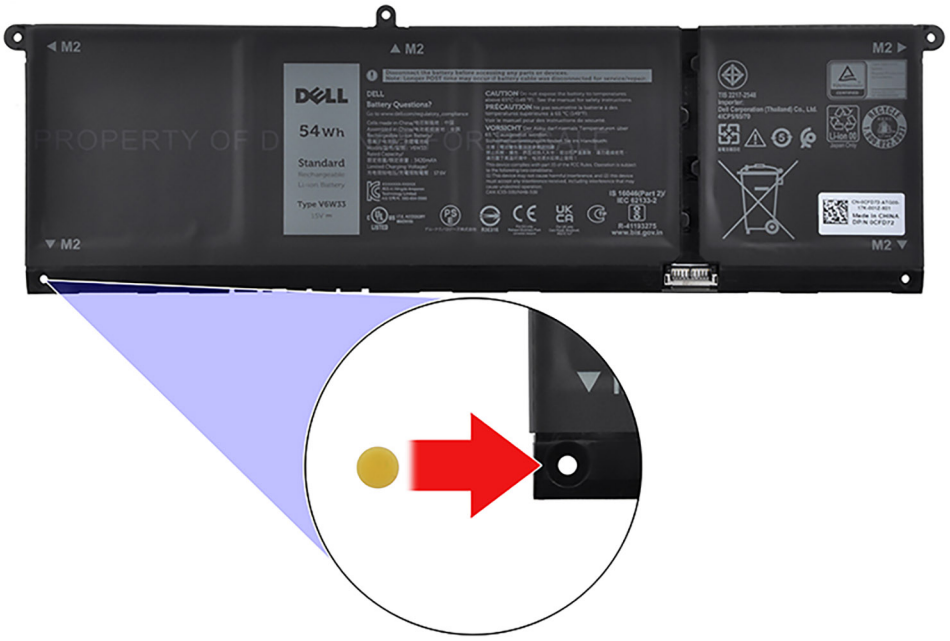
The following image indicates the location of the 4-cell battery and provides a visual representation of the installation procedure.



Steps

1. Carefully push and insert the battery rubber stopper into the bottom-left screw hole of the 4-cell battery.

NOTE: When replacing the 4-cell battery, use a plastic scribe to push downward into the bottom-left screw hole to insert the battery rubber stopper into the slot on the new replacement 4-cell battery.



2. Connect the battery cable to the 4-cell battery.
3. Place the 4-cell battery along with the battery cable on the palm-rest and keyboard assembly.
4. Align the screw holes on the 4-cell battery to the screw holes on the palm-rest and keyboard assembly.
5. Replace the four screws (M2x3) to secure the 4-cell battery to the palm-rest and keyboard assembly.

Next steps

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

Memory module

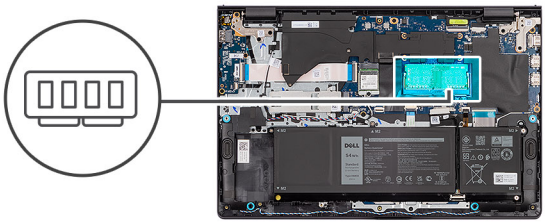
Removing the memory module

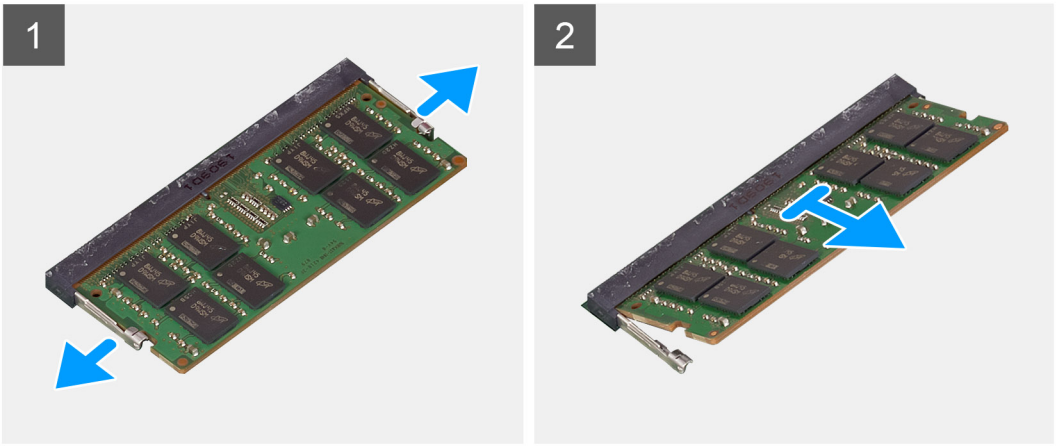
Prerequisites

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

About this task

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





Steps

1. Using a plastic scribe, carefully pry the memory-module retention clips, securing the memory module to its slot, until the memory module pops-up.
2. Lift at an angle and remove the memory module from the memory-module slot on the system board.

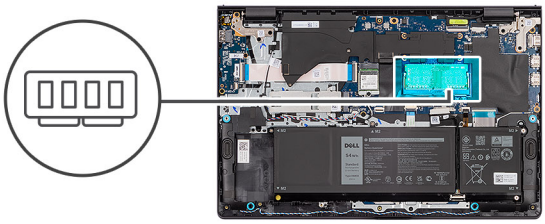
Installing the memory module

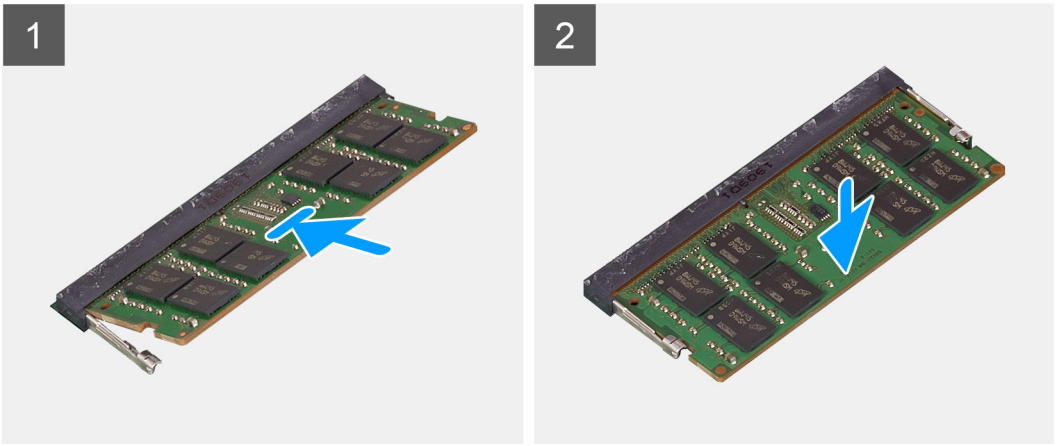
Prerequisites

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 memory module and provide a visual representation of the installation procedure.





Steps

1. Align the notch on the memory module with the tab on the memory-module slot on the system board.
2. Slide the memory module firmly into the memory-module slot at an angle.
3. Press down on the memory module to snap it into place on the system board. Ensure that the memory-module retention clips have locked the memory module into place.

   NOTE: If you do not hear the click, remove the memory module and reinstall it.

Next steps

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

M.2 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 secure digital card.
3. Remove the base cover.

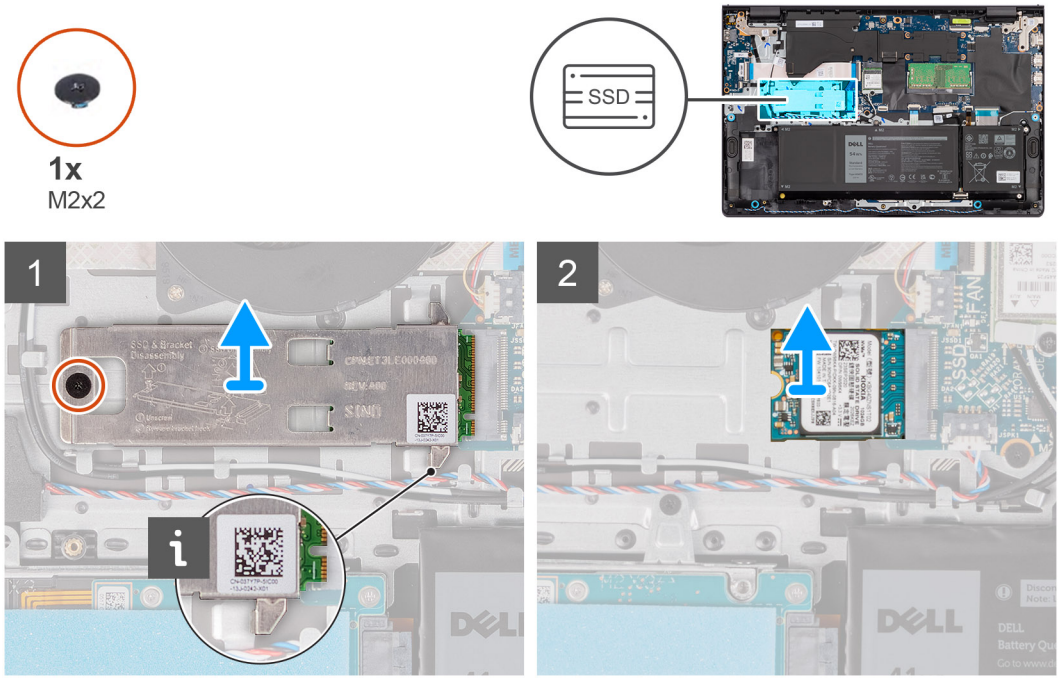
About this task

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

NOTE: The M.2 card that is installed on your system depends on the configuration ordered. Supported card configurations on the M.2 card slot are:

- M.2 2230 solid-state drive
- M.2 2280 solid-state drive

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



Steps

1. Remove the screw (M2x2) that secures the M.2 2230 solid-state drive thermal plate to the palm-rest and keyboard assembly.
2. Slide and lift the M.2 2230 solid-state drive thermal pate off the M.2 2230 solid-state drive.
3. Slide and remove the M.2 2230 solid-state drive from the M.2 card slot on the system board.

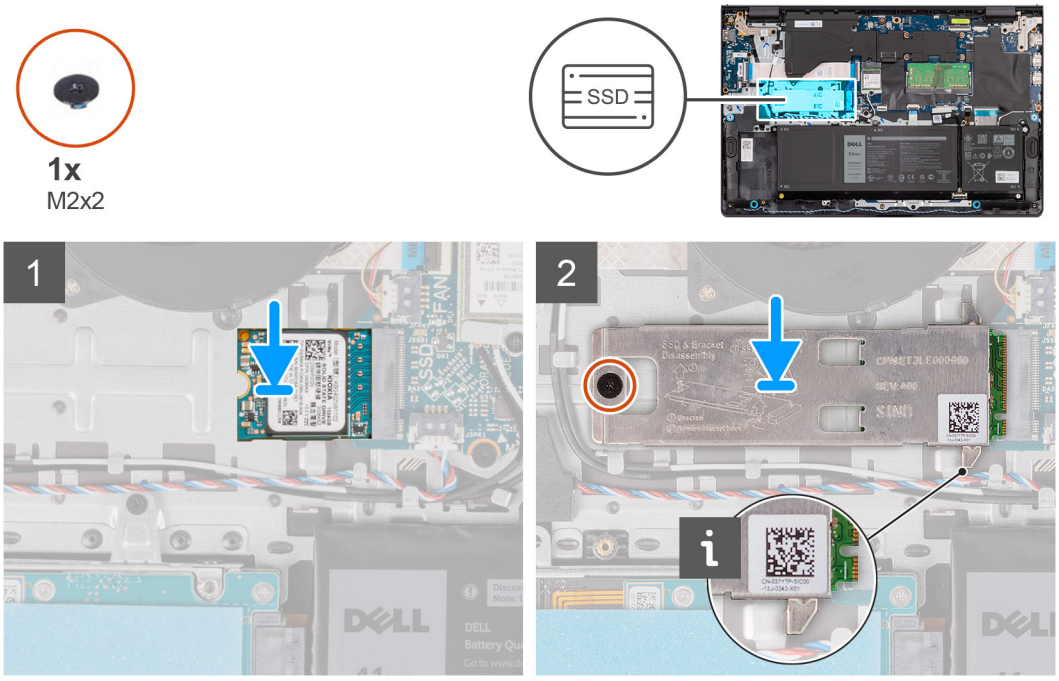
Installing the M.2 2230 solid-state drive

Prerequisites

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

About this task

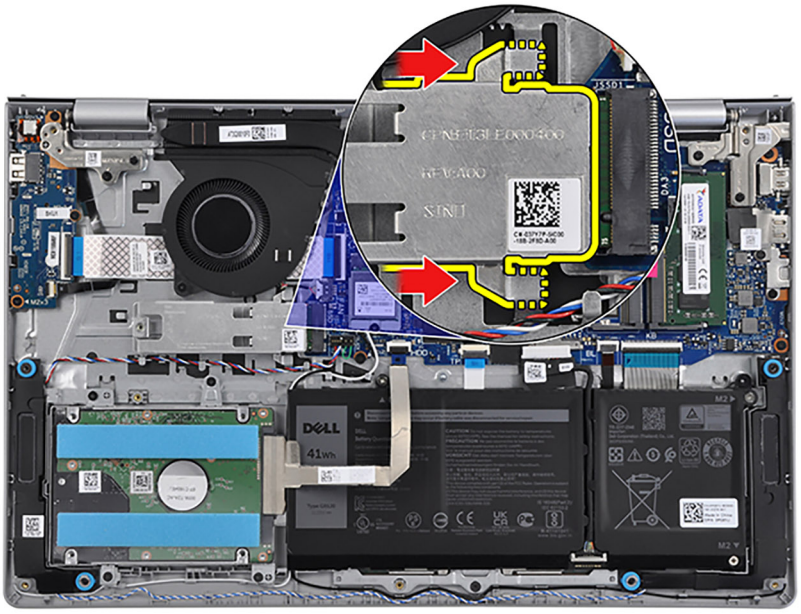
The following images indicate the location of the M.2 2230 solid-state drive and provide a visual representation of the installation procedure.



Steps

1. Align the notch on the M.2 2230 solid-state drive with the tab on the M.2 card slot on the system board.
2. Slide the M.2 2230 solid-state drive into the M.2 card slot on the system board.
3. Place the M.2 2230 solid-state drive thermal plate on the M.2 2230 solid-state drive.

   NOTE: When installing the M.2 2230 solid-state drive thermal plate on the system, tuck the tabs on the M.2 2230 solid-state drive thermal plate under the hooks on the palm-rest and keyboard assembly.



4. Align the screw hole on the M.2 2230 solid-state drive thermal plate with the screw hole on the palm-rest and keyboard assembly.
5. Replace the screw (M2x2) to secure the M.2 2230 solid-state drive thermal plate to the palm-rest and keyboard assembly.

Next steps

1. Install the base cover.

2. Install the secure digital card.
3. Follow the procedure in After working inside your computer.
4. Verify if the storage device is installed correctly:
   a. Turn on or restart your system.
   b. Press F2 when the Dell logo is displayed on the screen to enter the system setup (BIOS) program.
      NOTE: A list of storage devices is displayed under the **System Information** in the **General** group.
   c. If you have replaced the primary storage device that had the operating system installed, see **Reinstall Windows 11 to the Dell factory image using recovery media** in the knowledge base article 000192698.

Removing the M.2 2280 solid-state drive

Prerequisites

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

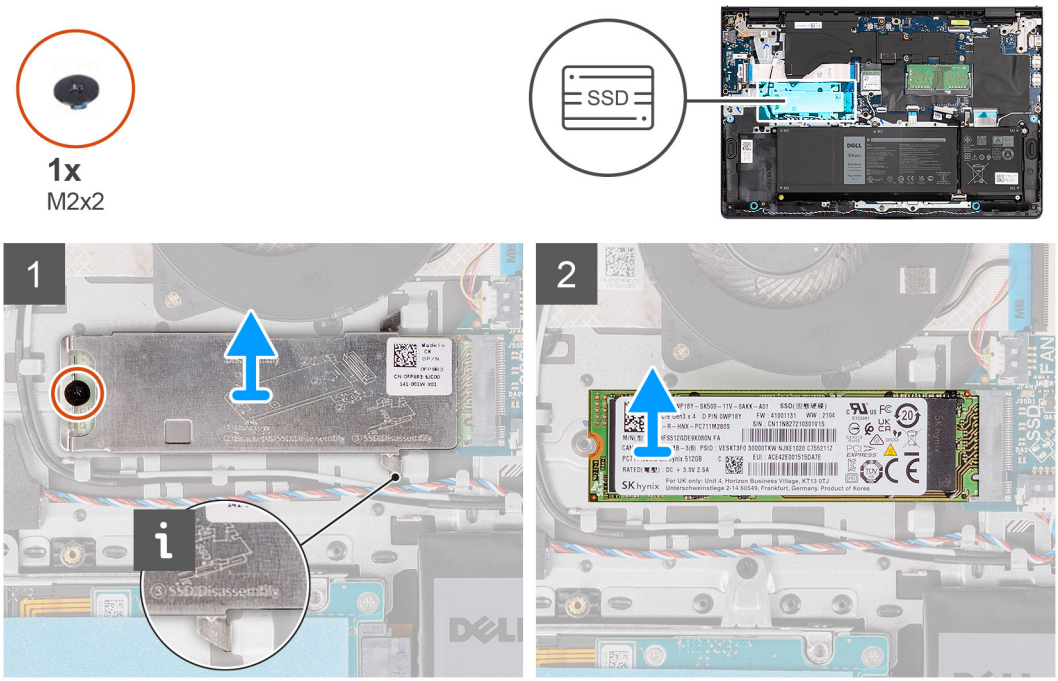
About this task

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

NOTE: The M.2 card that is installed on your system depends on the configuration ordered. Supported card configurations on the M.2 card slot are:

- M.2 2230 solid-state drive
- M.2 2280 solid-state drive

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



Steps

1. Remove the screw (M2x2) that secures the M.2 2280 solid-state drive thermal plate to the palm-rest and keyboard assembly.
2. Slide and lift the M.2 2280 solid-state drive thermal plate off 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.

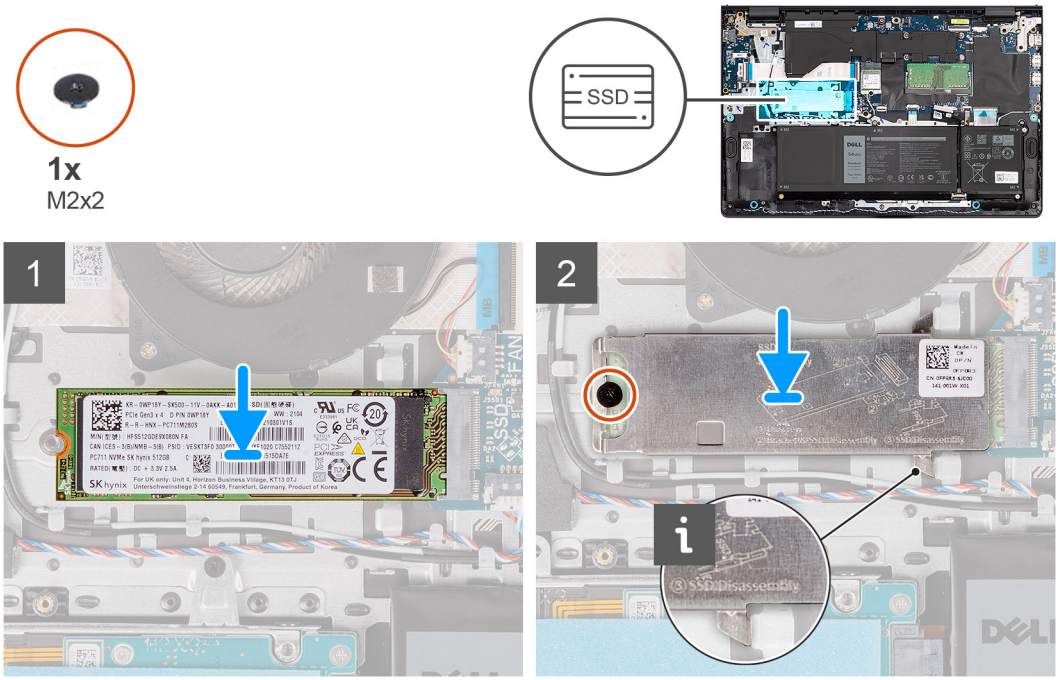
Installing the M.2 2280 solid-state drive

Prerequisites

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

About this task

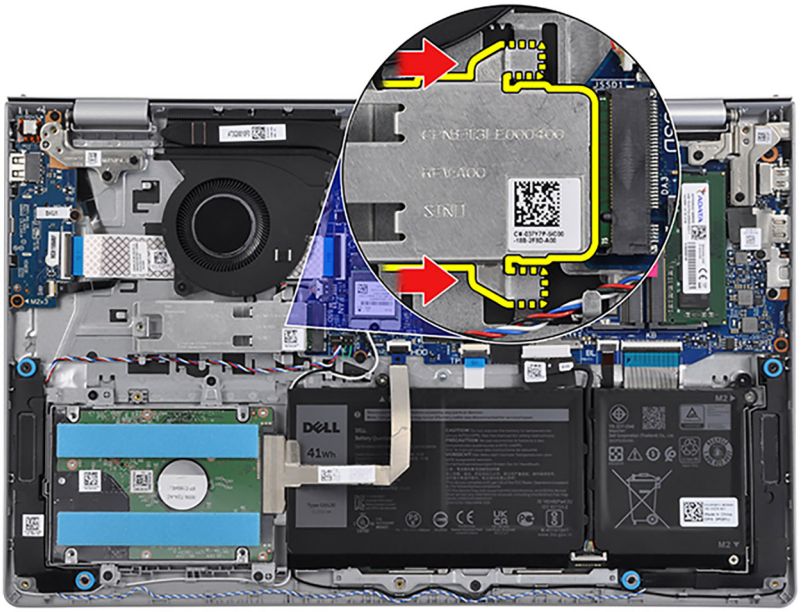
The following images indicate the location of the M.2 2280 solid-state drive and provide a visual representation of the installation procedure.



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 2280 solid-state drive thermal plate on the M.2 2280 solid-state drive.

   NOTE: When installing the M.2 2280 solid-state drive thermal plate on the system, tuck the tabs on the M.2 2280 solid-state drive thermal plate under the hooks on the palm-rest and keyboard assembly.



4. Align the screw hole on the M.2 2280 solid-state drive thermal plate with the screw hole on the palm-rest and keyboard assembly.
5. Replace the screw (M2x2) to secure the M.2 2280 solid-state drive thermal plate to the palm-rest and keyboard assembly.

Next steps

1. Install the base cover.
2. Install the secure digital card.
3. Follow the procedure in After working inside your computer.
4. Verify if the storage device is installed correctly:
   a. Turn on or restart your system.
   b. Press F2 when the Dell logo is displayed on the screen to enter the system setup (BIOS) program.
      NOTE: A list of storage devices are displayed under the **System Information** in the **General** group.
   c. If you have replaced the primary storage device that had the operating system installed, see **Reinstall Windows 11 to the Dell factory image using recovery media** in the knowledge base article 000192698.

2.5-inch hard drive

Removing the 2.5-inch hard drive

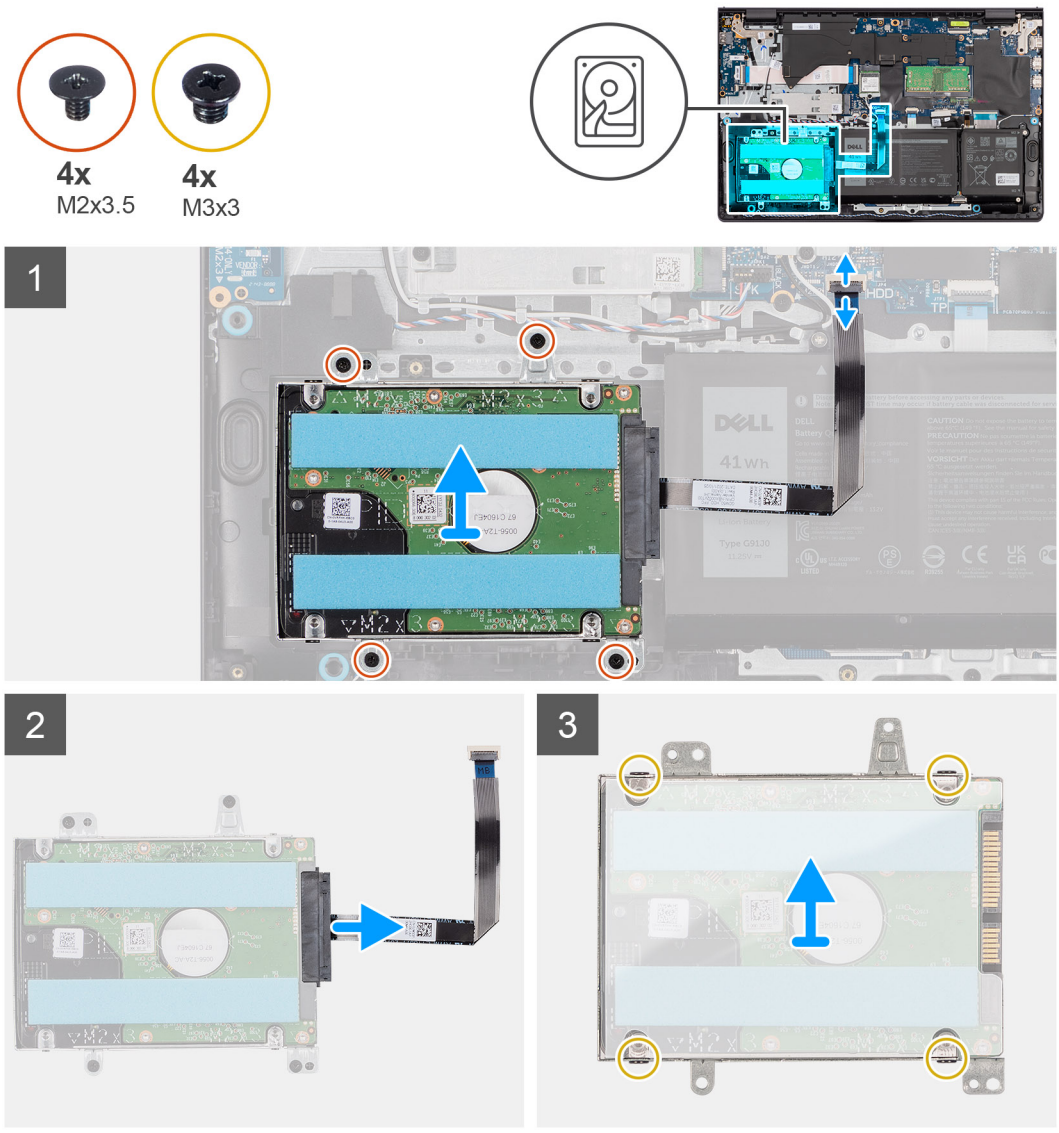
Prerequisites

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

About this task

NOTE: This procedure applies only to systems shipped with a 2.5-inch hard drive installed.

The following images indicate the location of the 2.5-inch hard drive and provide a visual representation of the removal procedure.



Steps

1. Lift the latch and disconnect the hard-drive flexible flat cable from the system board.
2. Remove the four screws (M2x3.5) that secure the hard-drive assembly to the palm-rest and keyboard assembly.
3. Lift the hard-drive assembly along with its interposer and flexible flat cable from the palm-rest and keyboard assembly.
4. Disconnect the interposer with the flexible flat cable from the hard drive.
5. Remove the four screws (M3x3) that secure the hard drive to the hard-drive bracket.
6. Remove the hard drive from the hard-drive bracket.

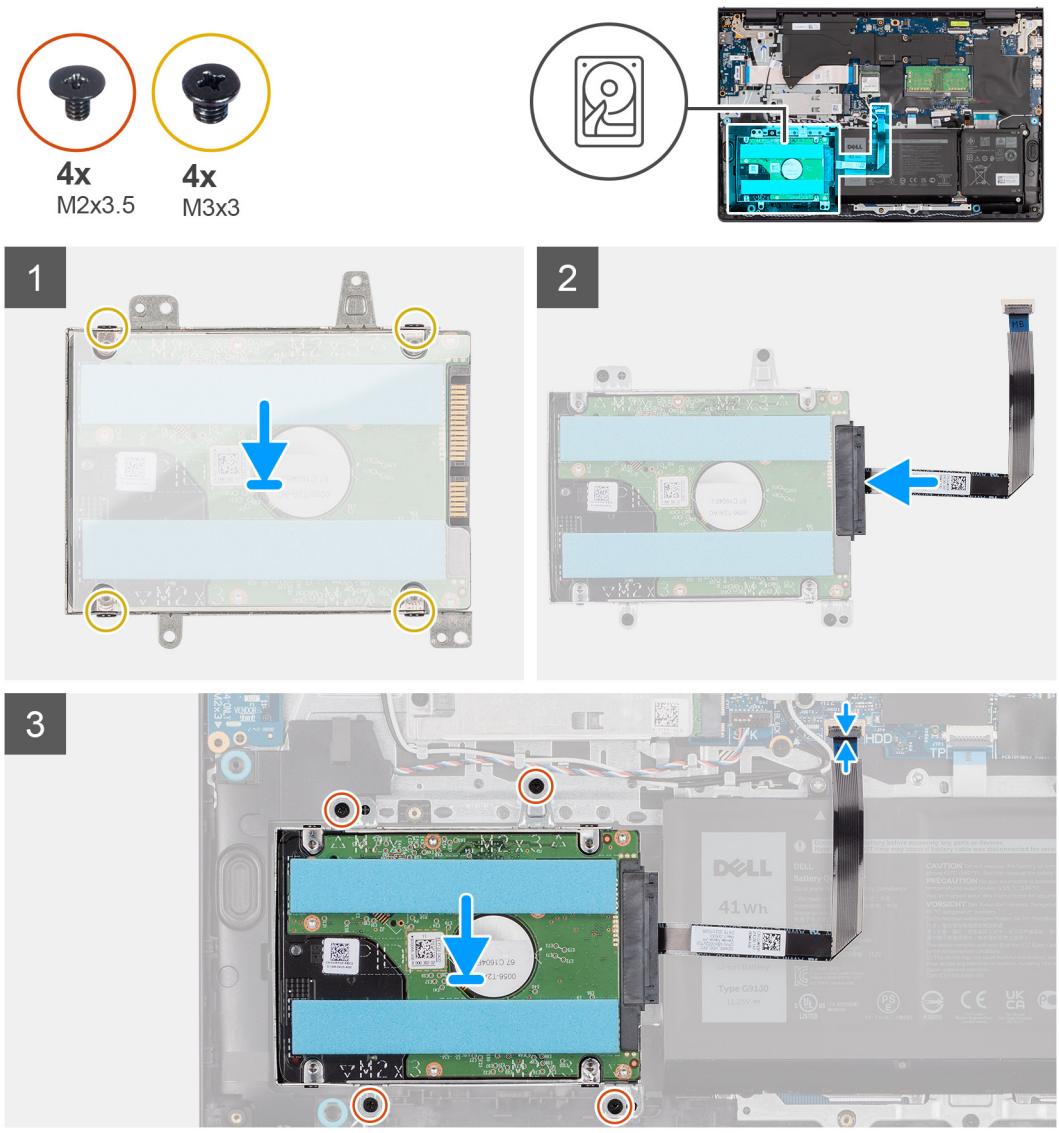
Installing the 2.5-inch hard drive

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 2.5-inch hard drive and provide a visual representation of the installation procedure.



Steps

1. Align 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) to secure the hard drive to the hard-drive bracket.
4. Connect the interposer with the cable to the hard drive.
5. Align and place the hard-drive assembly along with the interposer and cable on to 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 (M2x3.5) to secure the hard-drive assembly to the palm-rest and keyboard assembly.
8. Connect the hard-drive flexible flat cable to the system board and close the latch to secure the cable.

Next steps

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

Wireless card

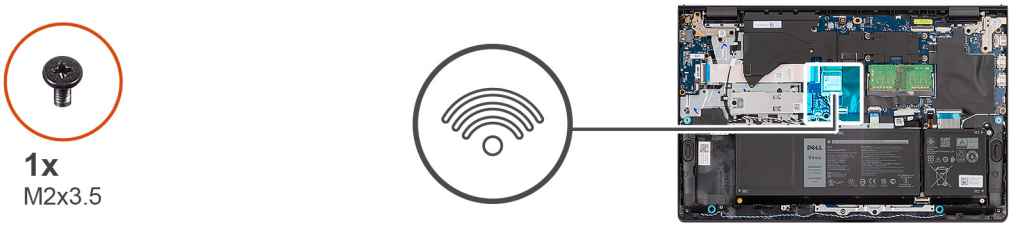
Removing the wireless card

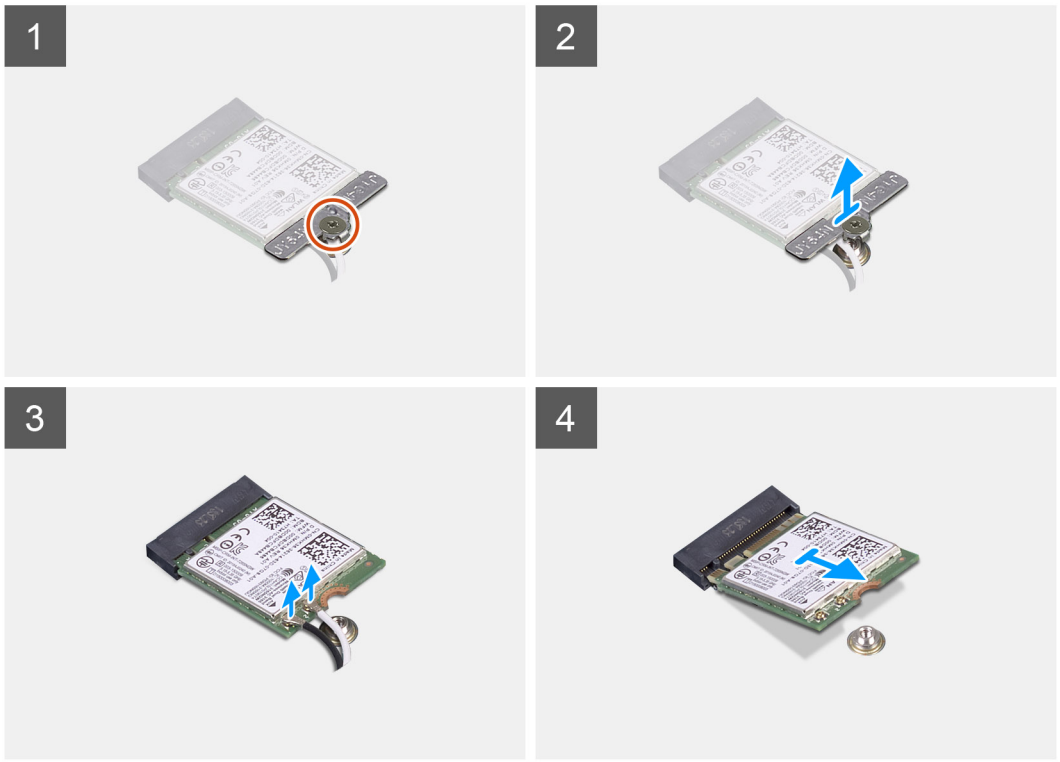
Prerequisites

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

About this task

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





Steps

1. Remove the screw (M2x3.5) that secures the wireless-card bracket to the system board.
2. Slide and remove the wireless-card bracket from the wireless card.
3. Disconnect the WLAN antenna cables from the connectors on the wireless card.
4. Slide and remove the wireless card from the wireless-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 procedure.

About this task

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



Steps

1. Connect the WLAN antenna cables to the wireless card.

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

   Table 2. WLAN Antenna-cable color scheme

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

2. At an angle, slide the wireless card into the wireless-card slot on the system board.
3. Place the wireless-card bracket on the wireless card.
4. Align the screw hole on the wireless-card bracket with the screw hole on the system board.
5. Replace the screw (M2x3.5) to secure the wireless-card bracket and the wireless card to the system board.

Next steps

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

Speakers

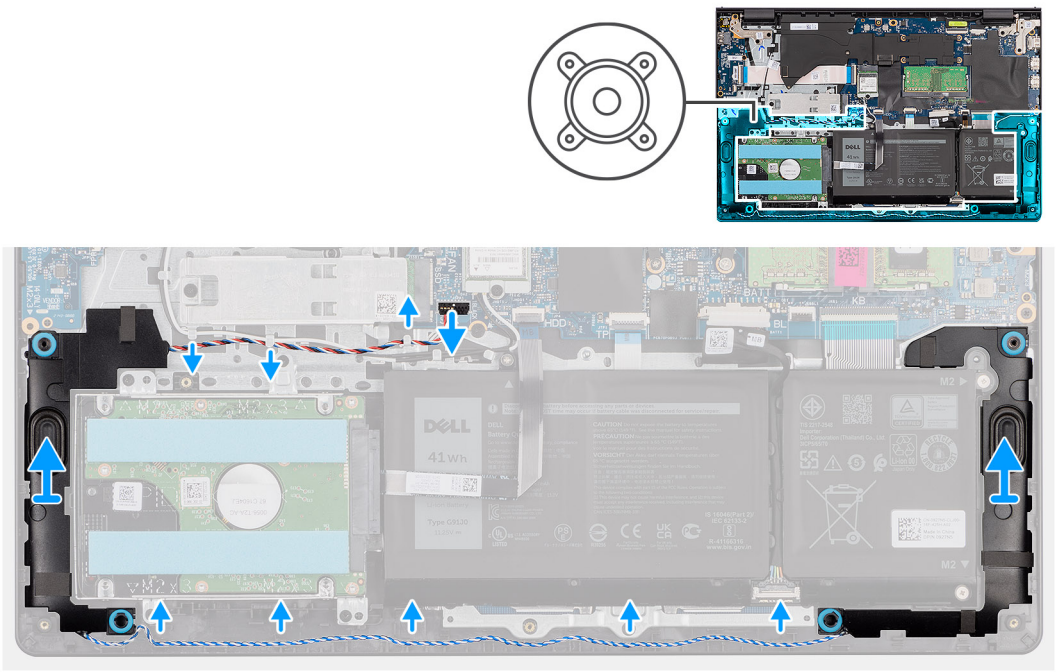
Removing the speakers

Prerequisites

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

About this task

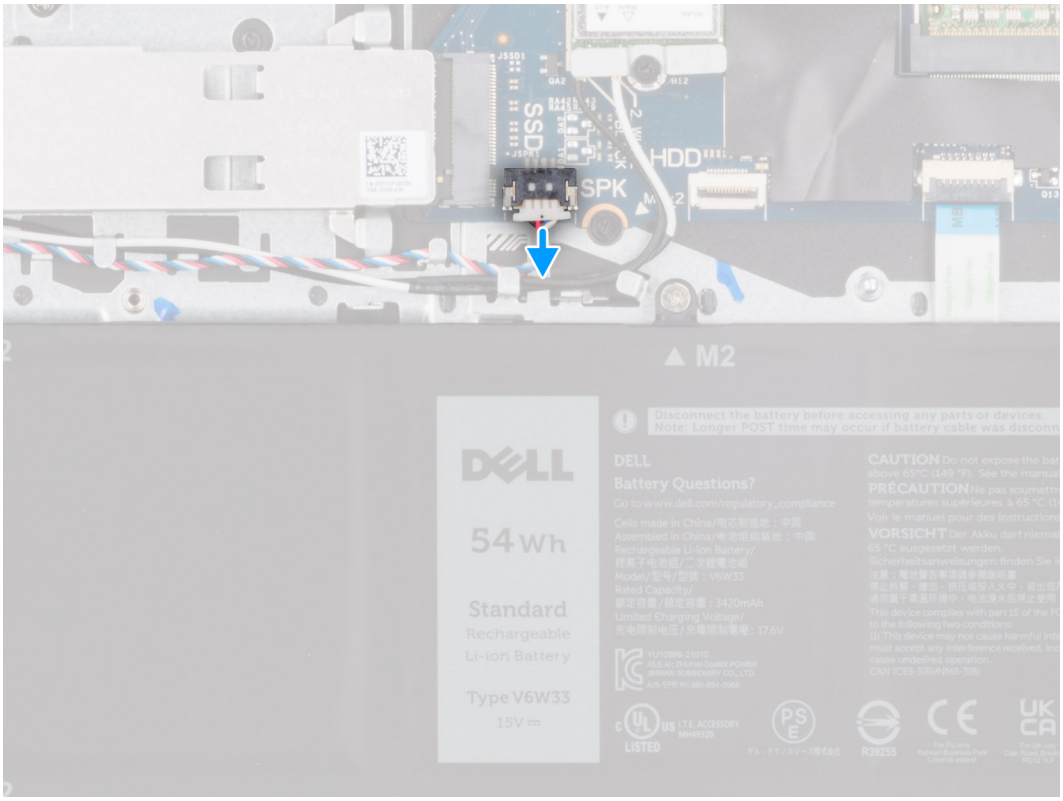
The following image indicates the location of the speakers and provides a visual representation of the removal procedure.



Steps

1. Disconnect the speaker cable from the connector on the system board.

   NOTE: To disconnect the speaker cable featuring an eight-pin connector from the system board, pry up the bottom side of the cable connector's head first and then pull it away from the connector.



2. Unroute and remove the speaker cable from the routing guides on palm-rest and keyboard assembly.
3. Lift the speakers along with the cable off the palm-rest and keyboard assembly.

Installing the speakers

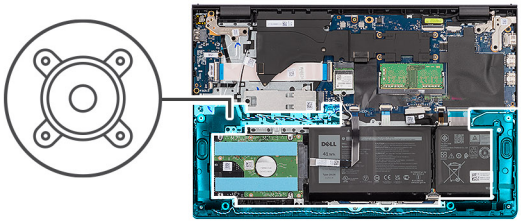
Prerequisites

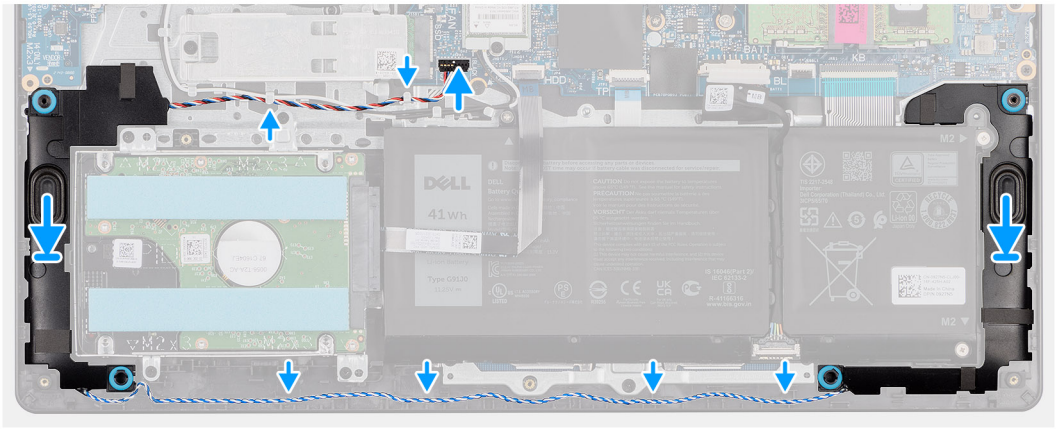
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

NOTE: If the rubber grommets are pushed out when removing the speakers, push them back in before replacing the speakers.

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





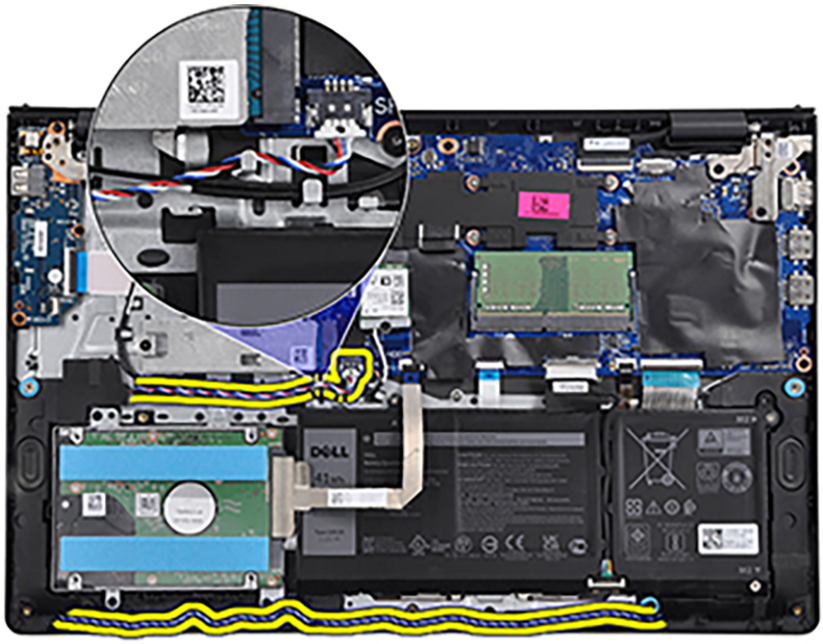
Steps

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

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

2. Route the speaker cable along the bottom side of the palm-rest and keyboard assembly, over the WLAN antenna cables. Then secure the speaker cable into the routing guides on the palm-rest and keyboard assembly.

   NOTE: The speaker cable must be routed through the routing guides to avoid damaging the speaker cable when installing the base cover.



3. Connect the speaker cable to the connector on the system board.

Next steps

1. Install the base cover.

2. Install the secure digital card.
3. Follow the procedure in After working inside your computer.

System board thermal plate

Removing the system board thermal plate

Prerequisites

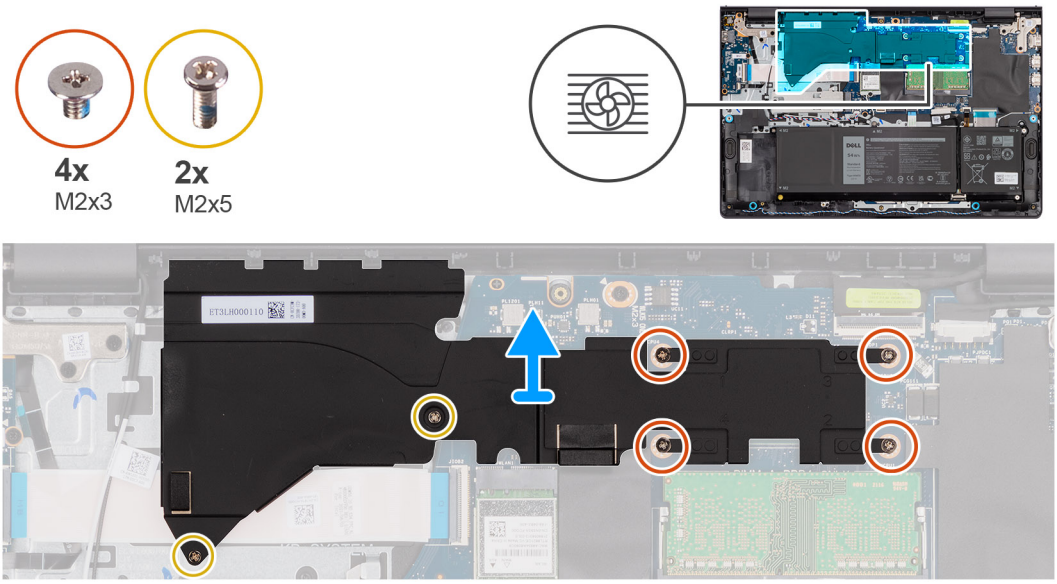
1. Follow the procedure in Before working inside your computer.
2. Remove the secure digital card.
3. Remove the base cover.

About this task

NOTE: The system board thermal plate may become hot during normal operation. Allow sufficient time for the system board thermal plate to cool before you touch it.

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

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



Steps

1. Remove the two screws (M2x5) and four screws (M2x3) that secure the system board thermal plate to the system board.

   NOTE: Loosen the four screws (M2x3) in the reverse sequential order mentioned on the system board thermal plate [4 > 3 > 2 > 1].

2. Lift and remove the system board thermal plate from the palm-rest and keyboard assembly.

Installing the system board thermal plate

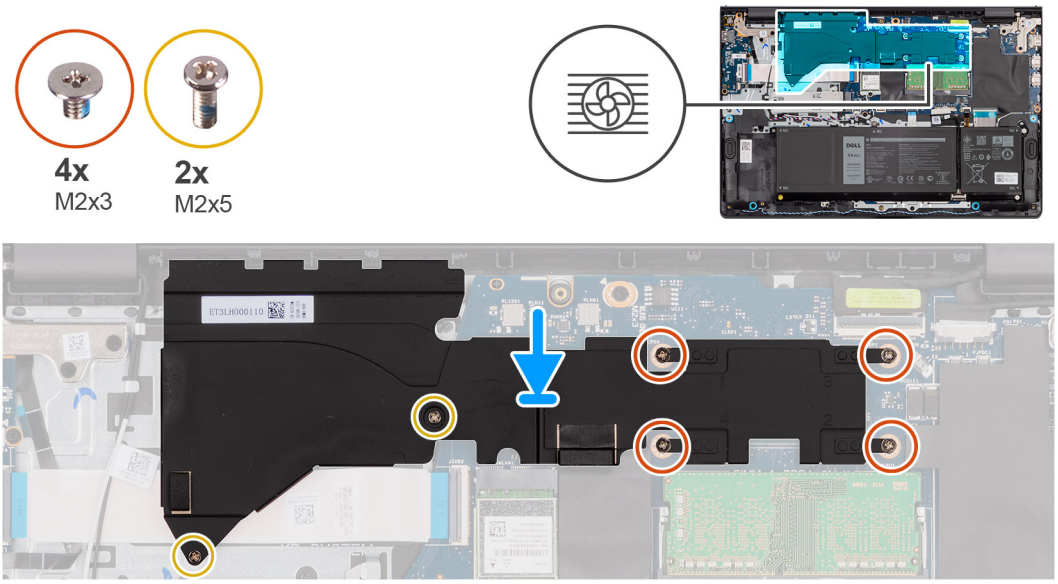
Prerequisites

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

About this task

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

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



Steps

1. Place the system board thermal plate on the palm-rest and keyboard assembly.
2. Align the screw holes on the system board thermal plate to the screw holes on the palm-rest and keyboard assembly.
3. Replace the two screws (M2x5) and four screws (M2x3) to secure the system board thermal plate to the system board.

   NOTE: Tighten the four screws (M2x3) in the sequential order mentioned on the system board thermal plate [1 > 2 > 3 > 4].

Next steps

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

Touchpad

Removing the touchpad

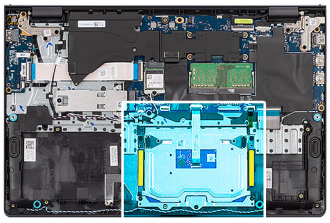
Prerequisites

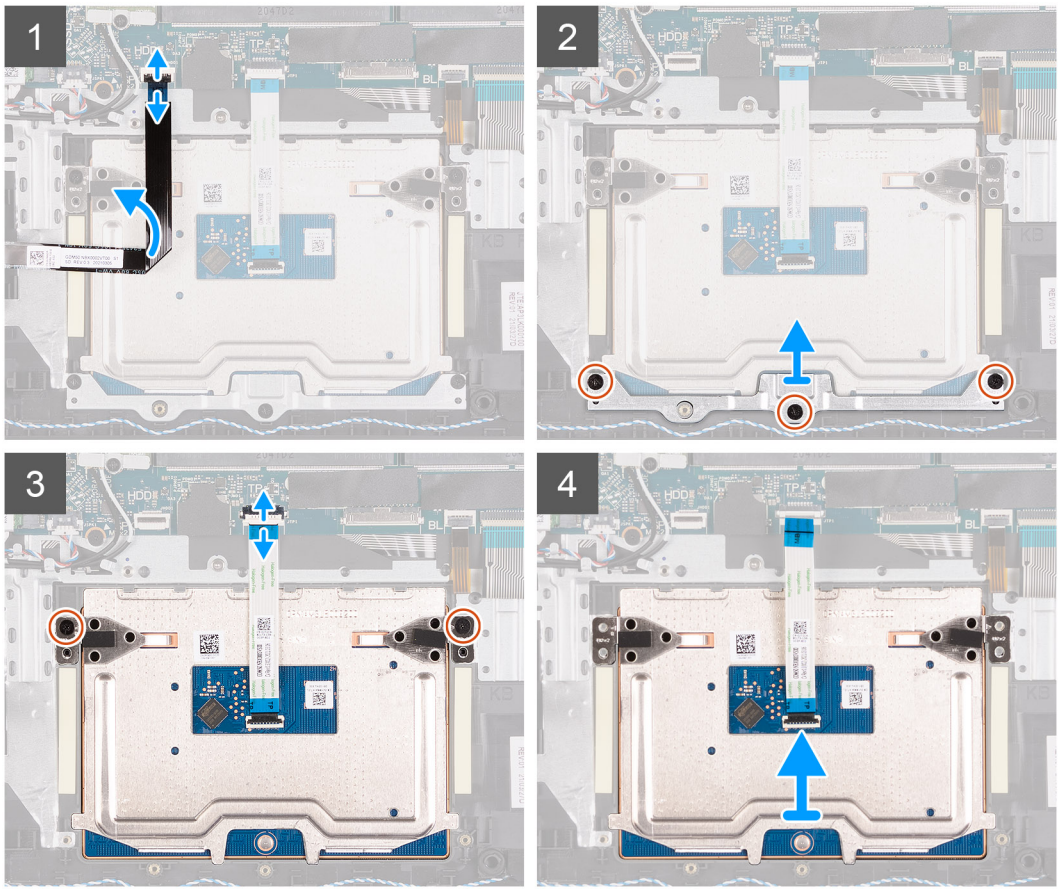
1. Follow the procedure in Before working inside your computer.
2. Remove the secure digital card.
3. Remove the base cover.
4. Remove the 3-cell battery or the 4-cell battery, whichever applicable .

About this task

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







Steps

1. Disconnect and remove the hard-drive flexible flat cable from the connector on the system board.
2. Remove the three screws (M2x2) that secure the touchpad bracket in place to the palm-rest and keyboard assembly.
3. Slide and lift the touchpad bracket off the touchpad assembly.
4. Remove the two screws (M2x2) that secure the touchpad in place to the palm-rest and keyboard assembly.
5. Disconnect the touchpad flexible flat cable from the connector on the system board.
6. Remove the touchpad along with the touchpad flexible flat cable from the system.

Installing the touchpad

Prerequisites

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

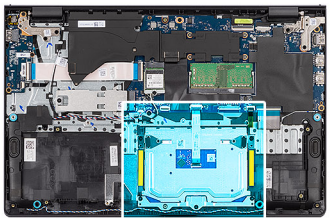
About this task

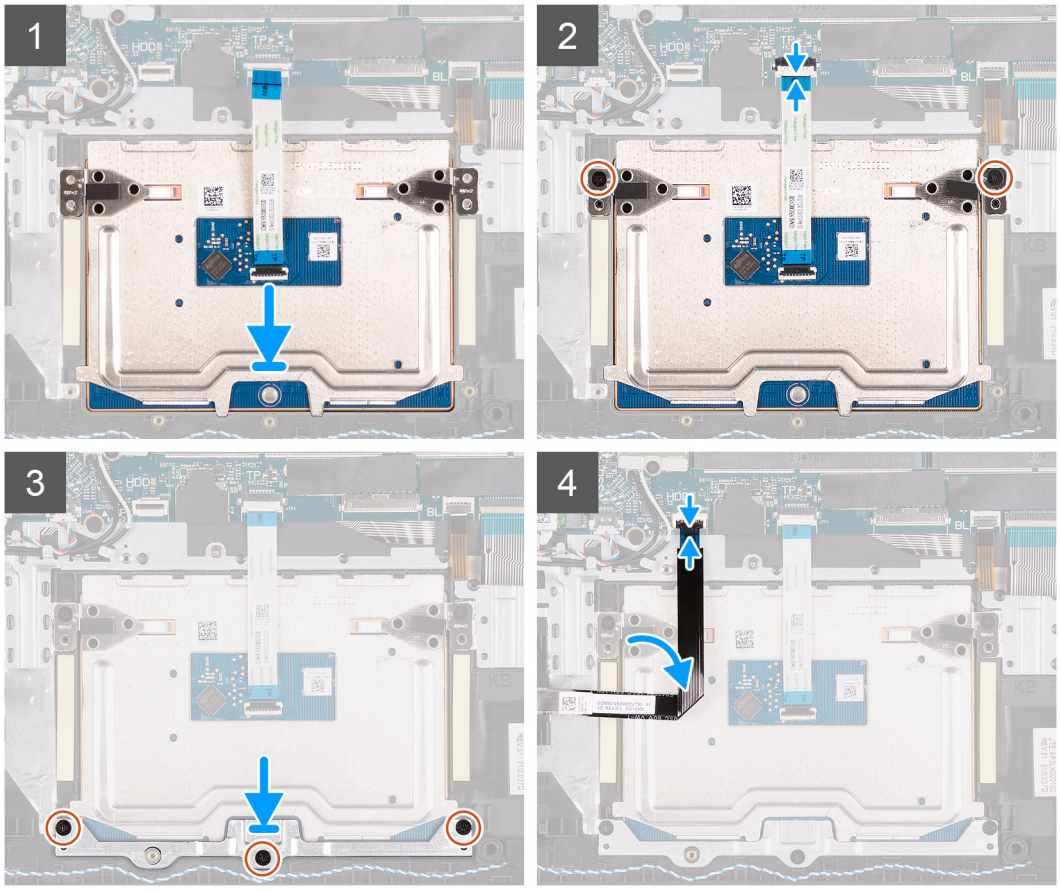
NOTE: Ensure that the touchpad is aligned with the guides available on the palm-rest and keyboard assembly, and the gap on either sides of the touchpad is equal.

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



5x
M2x2





Steps

1. Align and place the touchpad along with the touchpad flexible flat cable into its slot on the palm-rest and keyboard assembly.
2. Replace the two screws (M2x2) to secure the touchpad to the palm-rest and keyboard assembly.
3. Connect the touchpad flexible flat cable to the connector on the system board.
4. Place the touchpad bracket on the touchpad.
5. Align the screw holes on the touchpad bracket to the screw holes on the palm-rest and keyboard assembly.
6. Replace the three screws (M2x2) to secure the touchpad bracket to the palm-rest and keyboard assembly.
7. Connect the hard-drive flexible flat cable to the connector on the system board.

Next steps

1. Install the 3-cell battery or the 4-cell battery, whichever applicable.
2. Install the base cover.
3. Install the secure digital card.
4. Follow the procedure in After working inside your computer.

Display assembly

Removing the display assembly

Prerequisites

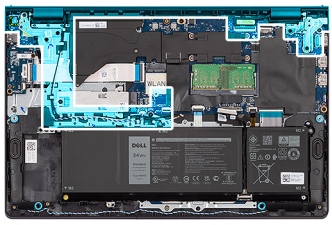
1. Follow the procedure in Before working inside your computer.
2. Remove the secure digital card.
3. Remove the base cover.
4. Remove the wireless card.

About this task

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

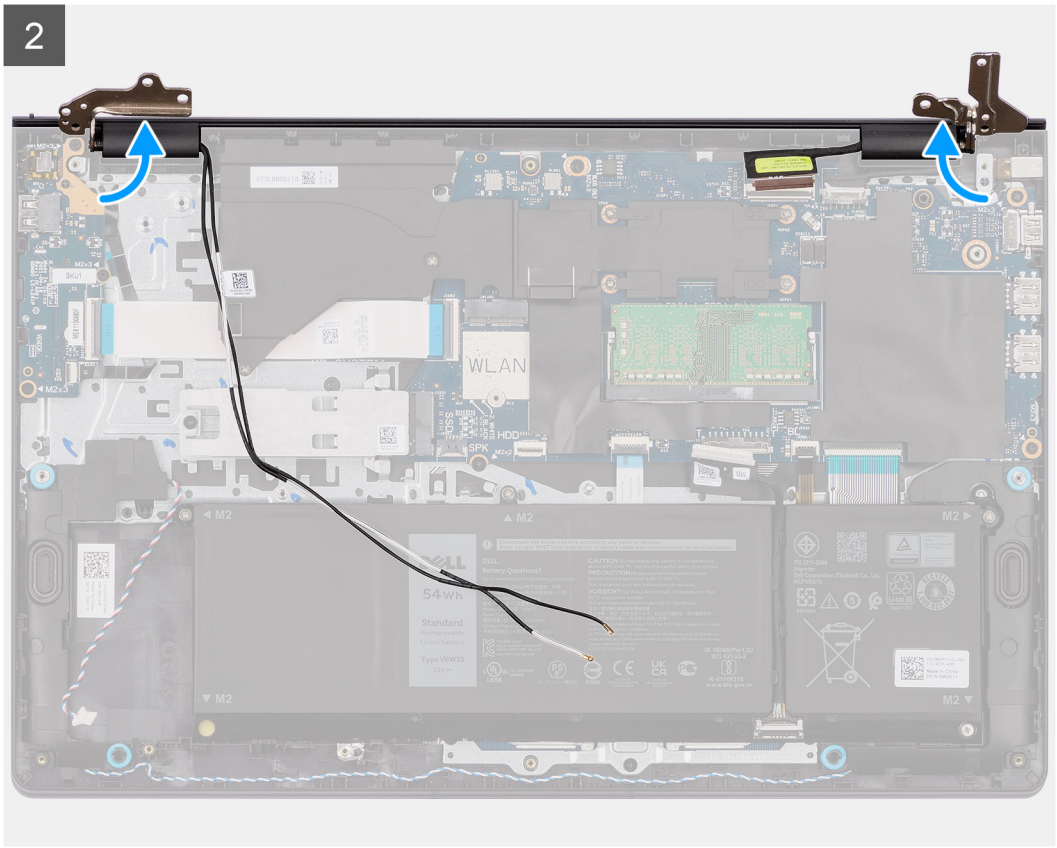


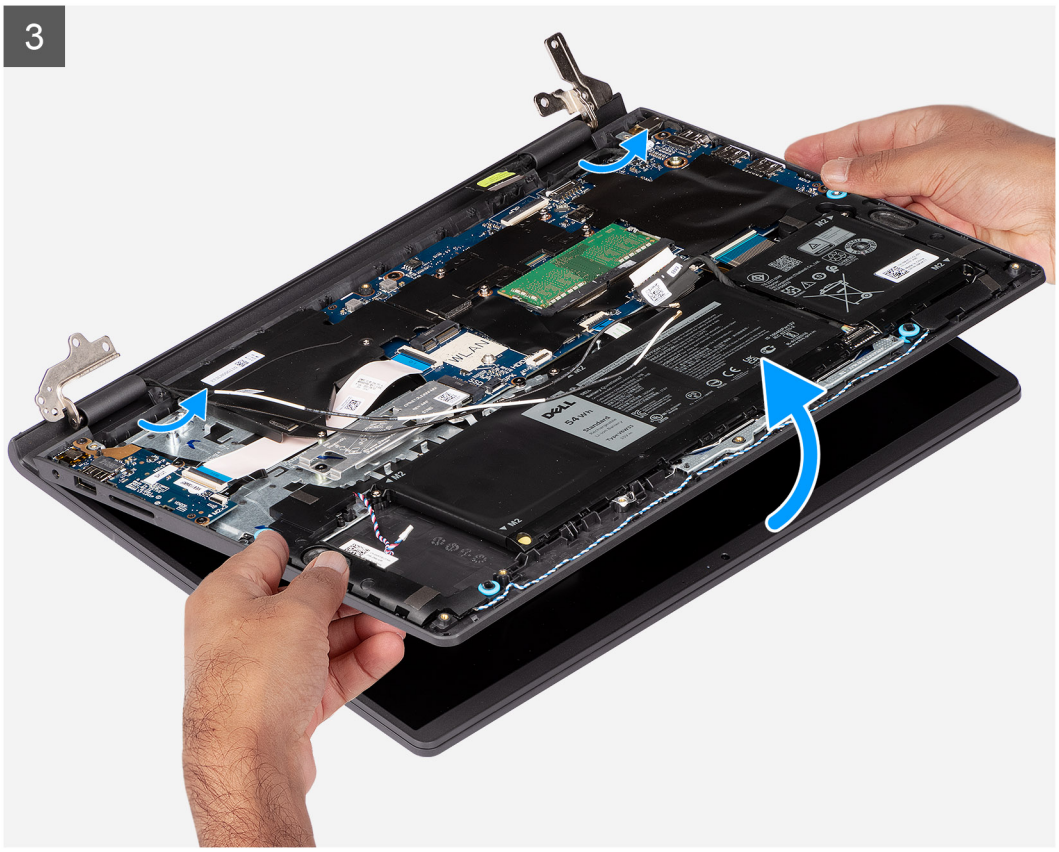
4x
M2.5x5



1







Steps

1. Disconnect the display cable and the speaker cable from the respective connectors on the system board.

2. Unroute the speaker cable and WLAN antenna cables from the respective routing guides on the palm-rest and keyboard assembly.
3. Open the display assembly at an angle of 90 degrees and place the system on the edge of a flat surface such that the palm-rest and keyboard assembly lay flat on the surface and the display assembly is over the edge.
4. Remove the four screws (M2.5x5) that secure the display hinges to the palm-rest and keyboard assembly.
5. Fold the left and right hinges away from the palm-rest and keyboard assembly.
6. Lift the palm-rest and keyboard assembly at an angle to free it from the hinges and remove it from the display assembly.

NOTE: The power-adapter port is secured in place by the left display hinge. There is no screw, tape, or adhesives securing the power-adapter port to the palm-rest. As a result, technicians should take note of whether the power-adapter port has fallen out of the system during subsequent removal procedures.

Installing the display assembly

Prerequisites

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

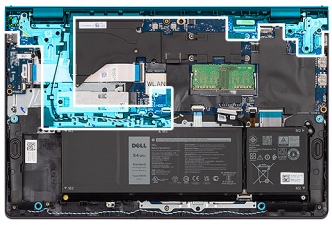
About this task

NOTE: Ensure that the hinges are opened to the maximum before replacing the display assembly on the palm-rest and keyboard assembly.

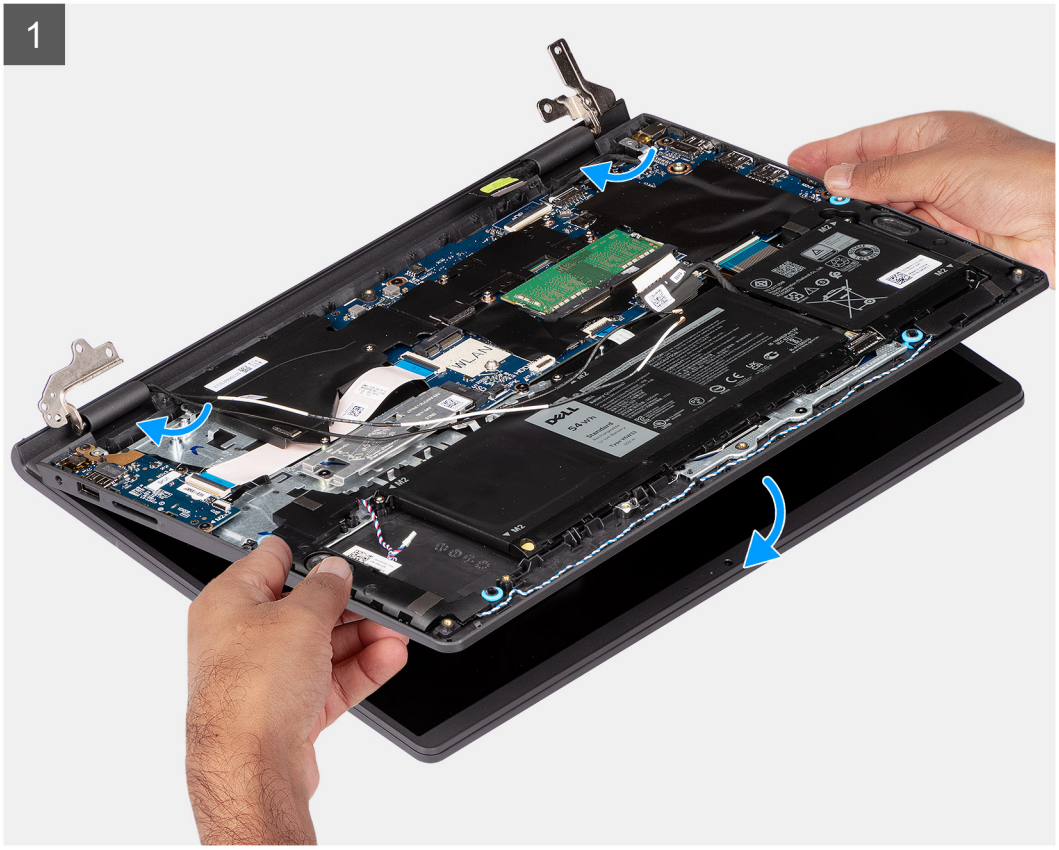
The following images indicate the location of the display assembly and provide a visual representation of the installation procedure.

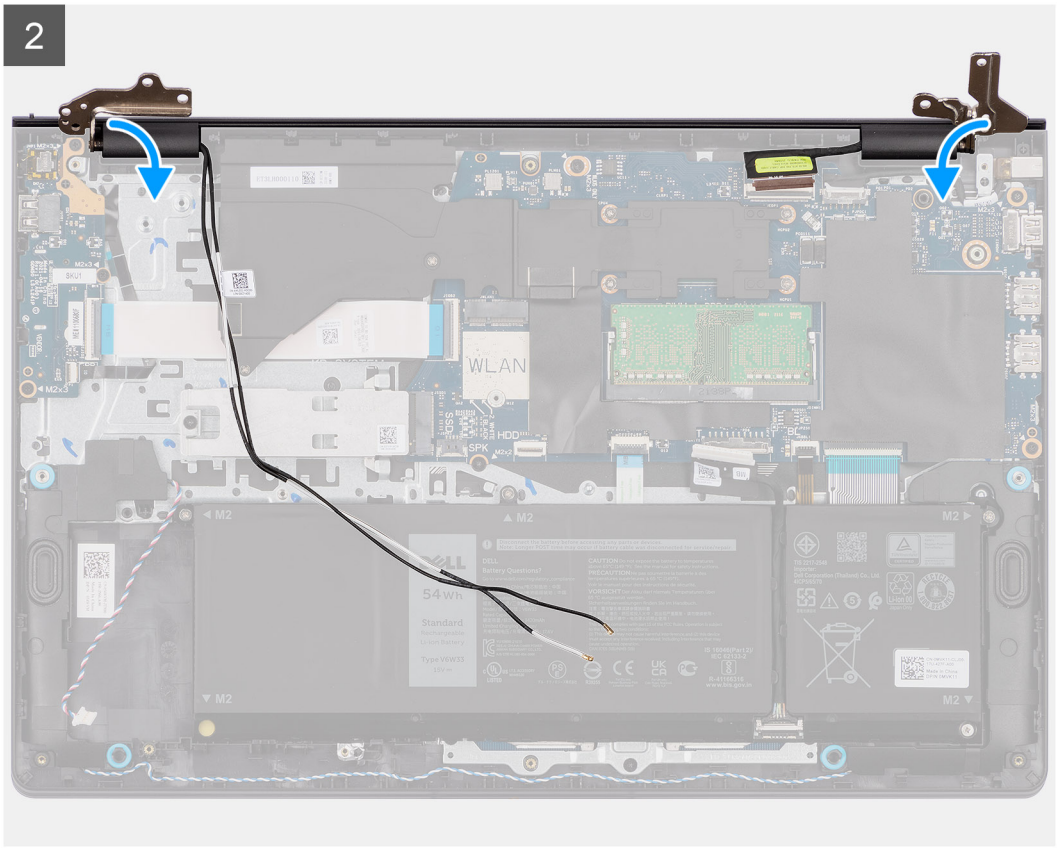


4x
M2.5x5



1





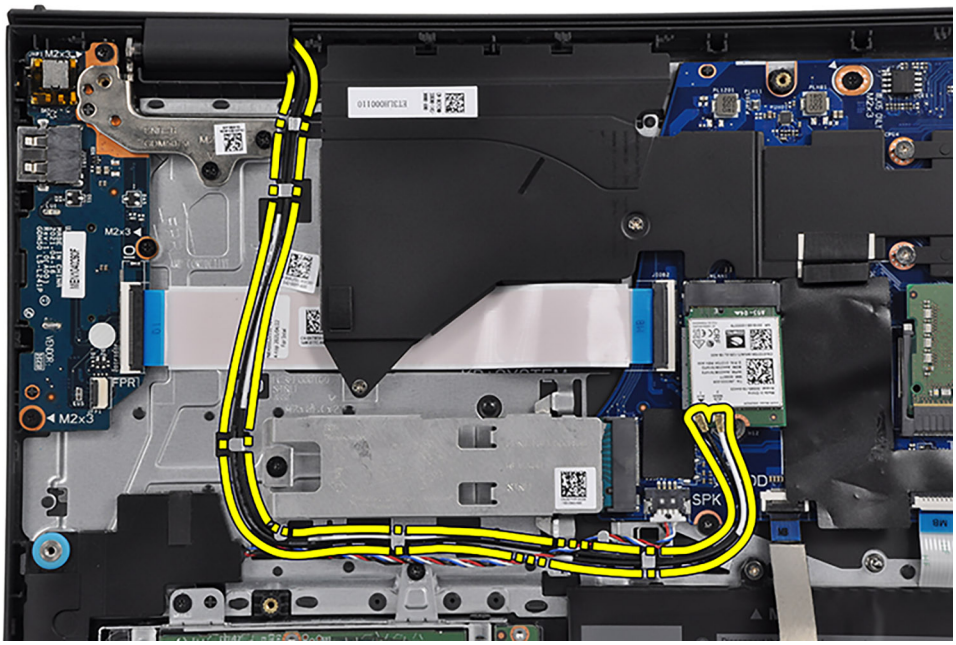


Steps

1. Place the palm-rest and keyboard assembly on a flat surface.

NOTE: The power-adapter port is secured in place by the left display hinge. There is no screw, tape, or adhesives securing the power-adapter port to the palm-rest. As a result, technicians should take note of whether the power-adapter port has fallen out of the system during subsequent removal procedures.

2. Slide the display assembly at an angle and place the display assembly on the palm-rest and keyboard assembly.
3. Gently press down on the display hinges to align the screw holes on the display hinges with the screw holes on the palm-rest and keyboard assembly.
4. Replace the four screws (M2.5x5) to secure the display hinges to the palm-rest and keyboard assembly.
5. Route the speaker cable through the routing guides on the palm-rest and keyboard assembly.
6. Route the WLAN antenna cables into the routing hooks, on the palm-rest and keyboard assembly, and under the speaker cable.



7. Connect the display cable and speaker cable to the respective connectors on the system board.

Next steps

1. Install the wireless card.
2. Install the base cover.
3. Install the secure digital card.
4. Follow the procedure in After working inside your computer.

Display hinge caps

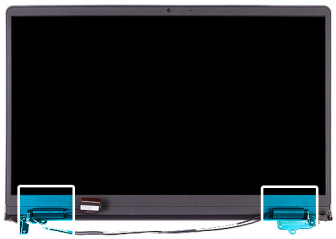
Removing the display hinge caps

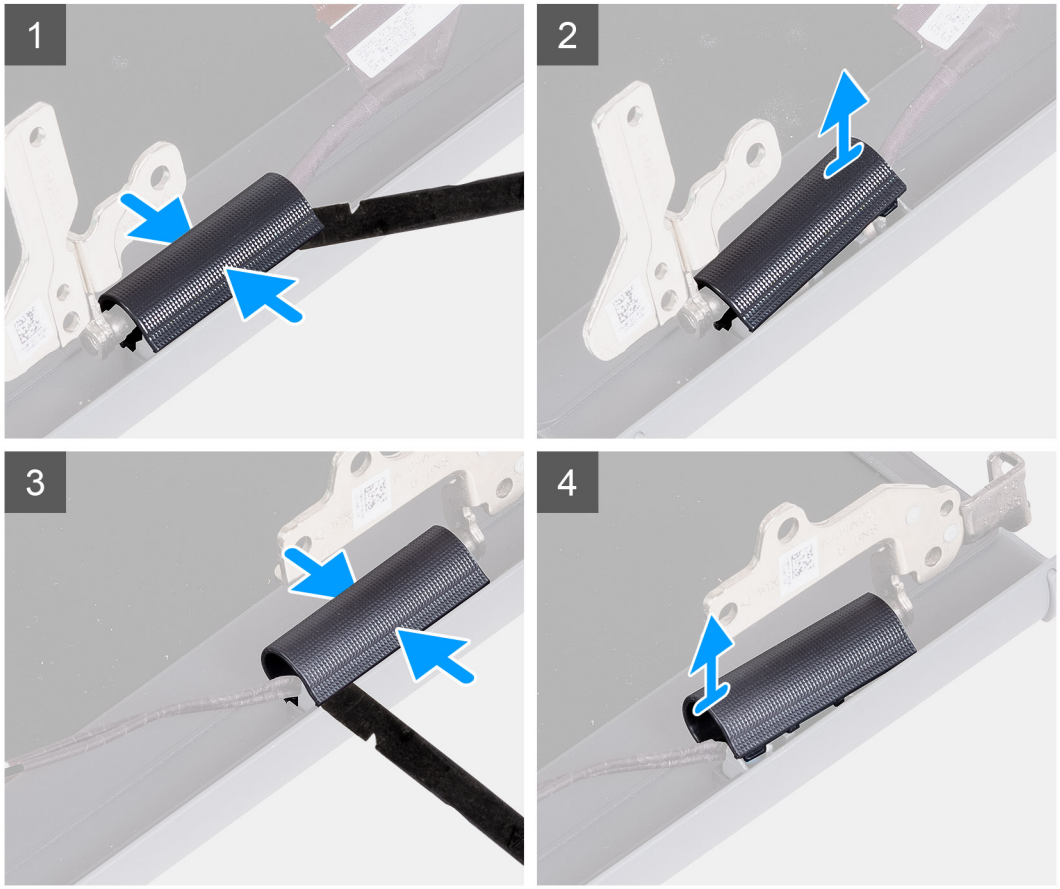
Prerequisites

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

About this task

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





Steps

1. Place the system on the edge of a flat surface and gently open the display hinges to at least 90 degrees.
2. Pinch the left-hinge cap in the center.
3. Using a plastic scribe, pry open the left-hinge cap from its right side and remove it from the left hinge.
4. Pinch the right-hinge cap in the center.
5. Using a plastic scribe, pry open the right-hinge cap from its left side and remove it from the right hinge.

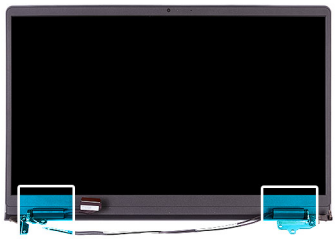
Installing the display hinge caps

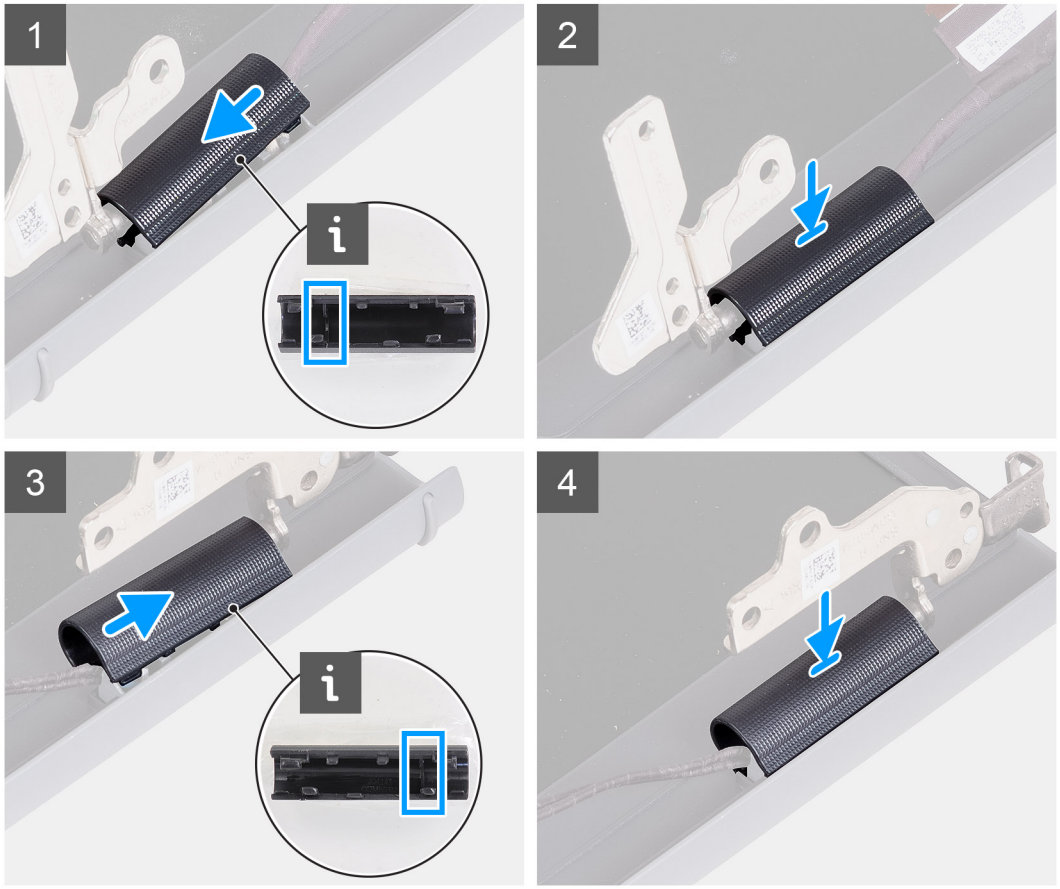
Prerequisites

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 hinge caps and provide a visual representation of the installation procedure.





Steps

1. Align the rib inside the right-hinge cap to the left-outer side of the right hinge.
2. Push the right-hinge cap down on the right hinge until it clicks in place.
3. Align the rib inside the left-hinge cap to the right-outer side of the left hinge.
4. Push the left-hinge cap down on the right hinge until it clicks in place.

Next steps

1. Install the display assembly.
2. Install the wireless card.
3. Install the base cover.
4. Install the secure digital card.
5. Follow the procedure in After working inside your computer.

Display bezel

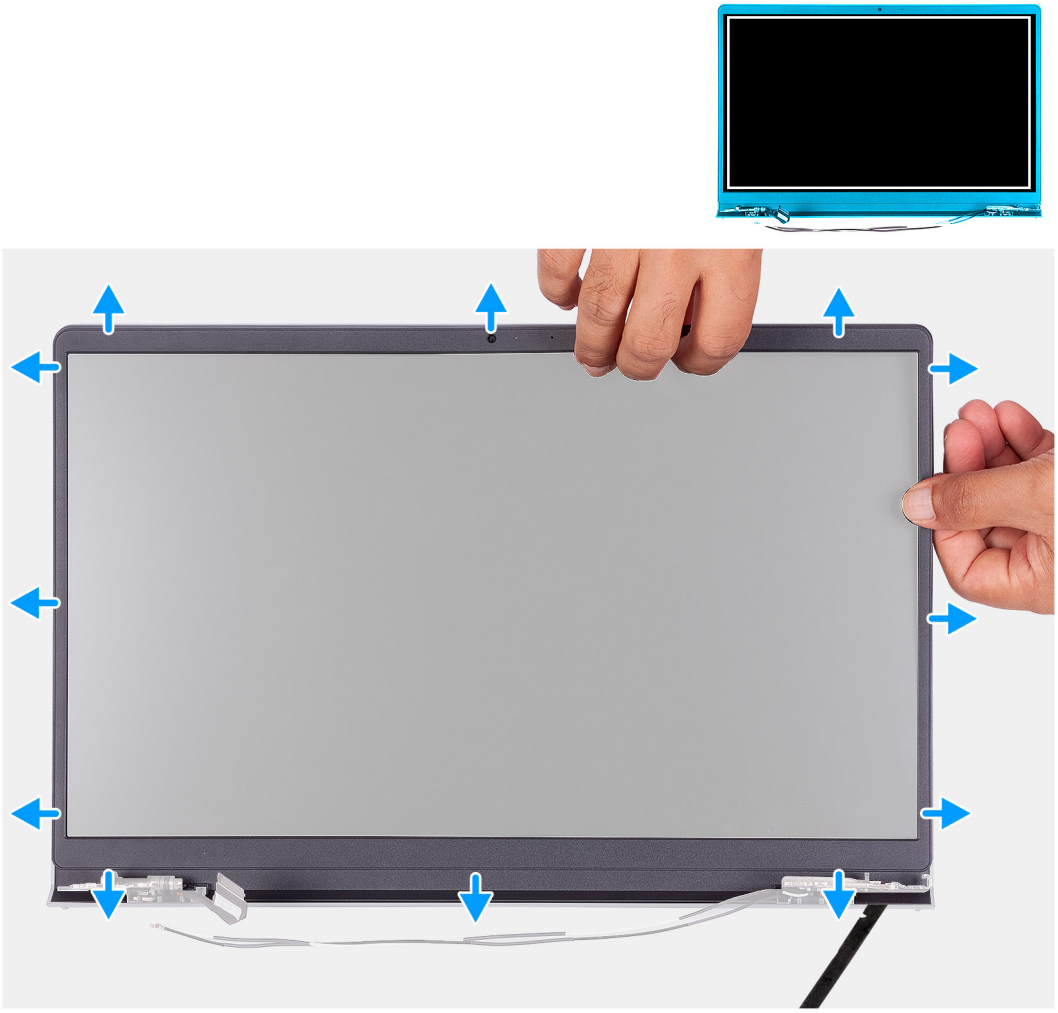
Removing the display bezel

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the secure digital card.
3. Remove the base cover.
4. Remove the wireless card.
5. Remove the display assembly.
6. Remove the display hinge caps.

About this task

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



Steps

1. Using a plastic scribe, pry open the display bezel from the outer edge of openings at the bottom side of the display assembly, near the display hinges.
2. Carefully pry open the outer edge of the bottom side of the display bezel.
3. Using the plastic scribe, pry open the outside edge of the left, right, and top sides of the display bezel.
4. Lift and remove the display bezel from the display assembly.

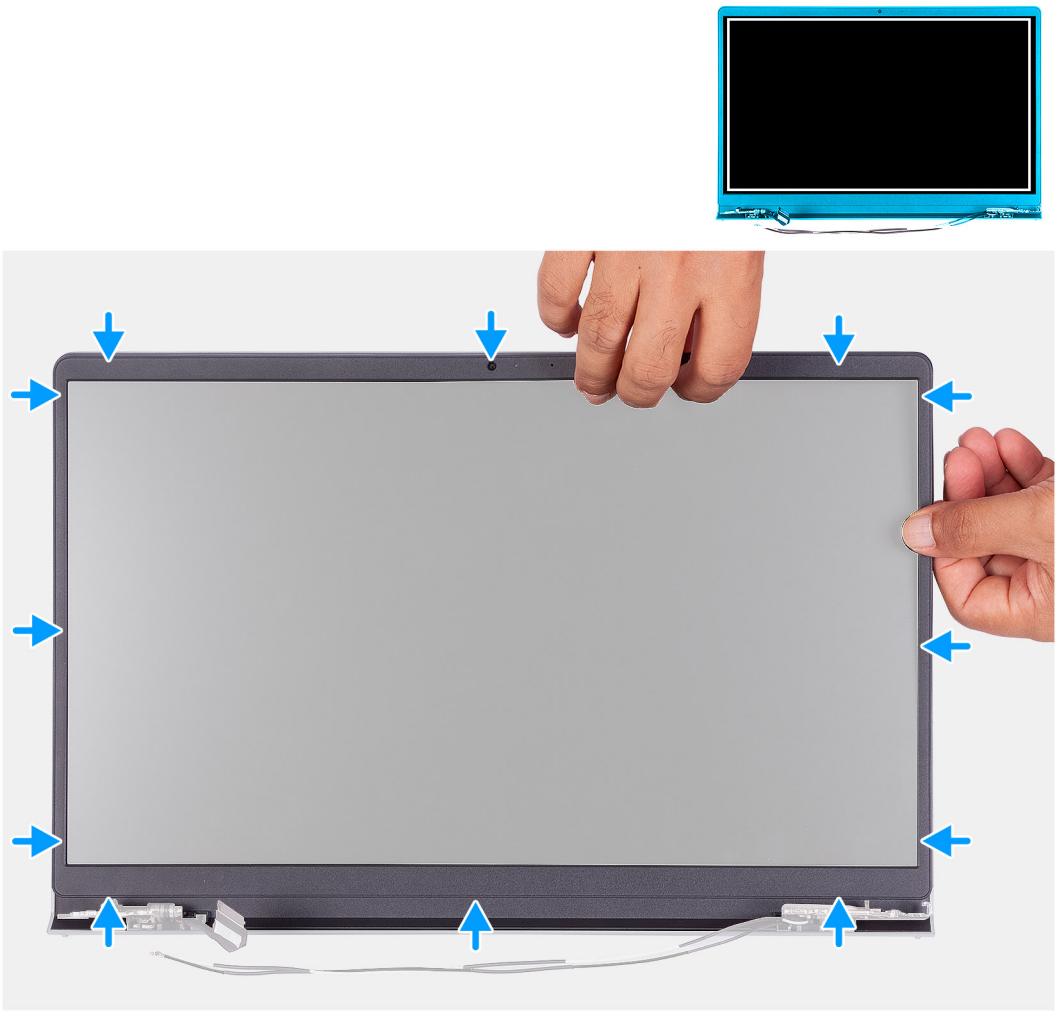
Installing the display bezel

Prerequisites

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

About this task

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



Steps

1. Place the display panel and display assembly on a clean and flat surface.
2. Align and place the display bezel on the display assembly.
3. Starting from the top corner, press on the display bezel and work around the entire bezel until it clicks onto the display assembly.

Next steps

1. Install the display hinge caps.
2. Install the display assembly.
3. Install the wireless card.
4. Install the base cover.
5. Install the secure digital card.
6. Follow the procedure in After working inside your computer.

Display hinges

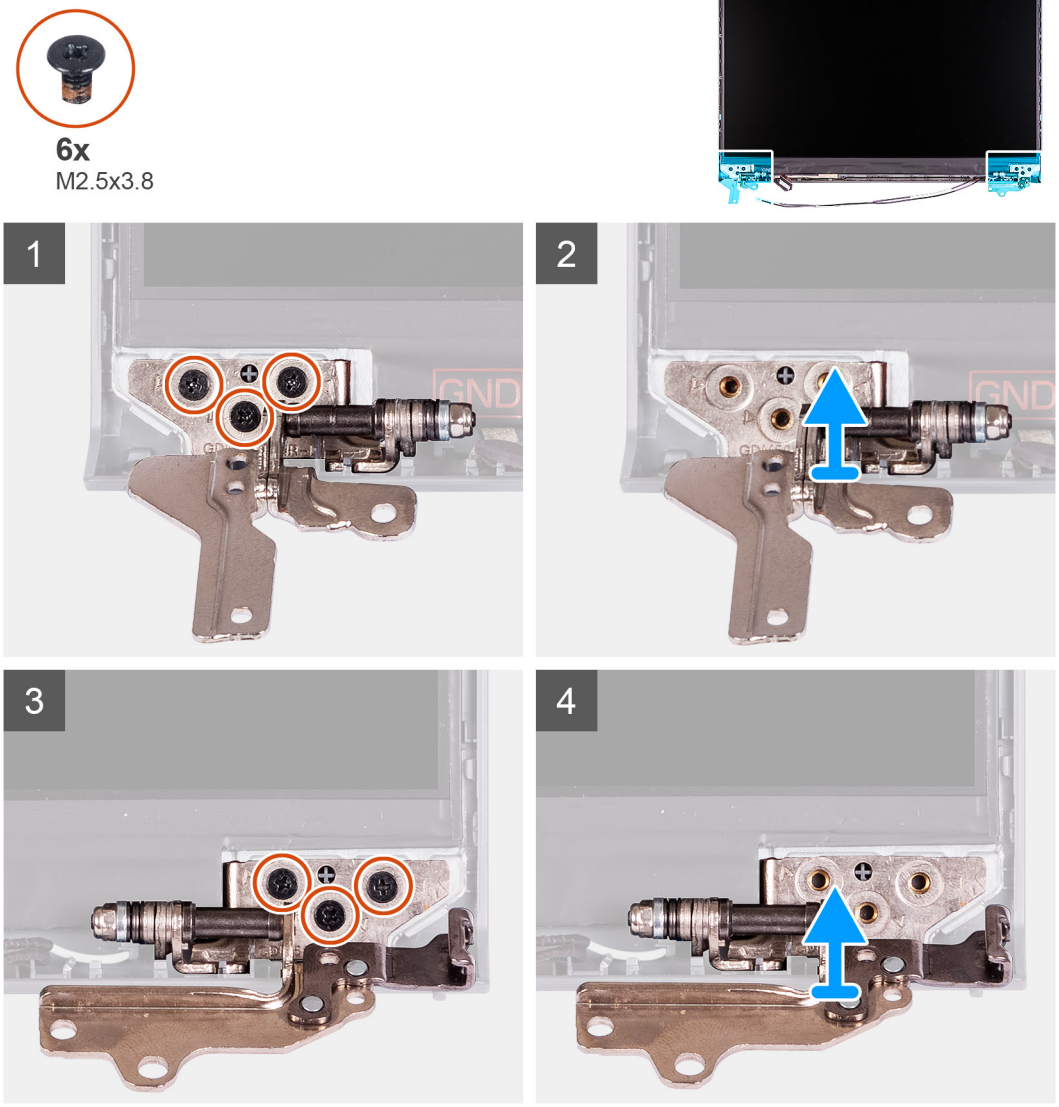
Removing the display hinges

Prerequisites

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

About this task

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



Steps

1. Remove the three screws (M2.5x3.8) that secure the left hinge to the display panel and back cover.

2. Lift and remove the left hinge from the display assembly.
3. Remove the three screws (M2.5x3.8) that secure the right hinge to the display panel and back cover.
4. Lift and remove the right hinge from the display assembly.

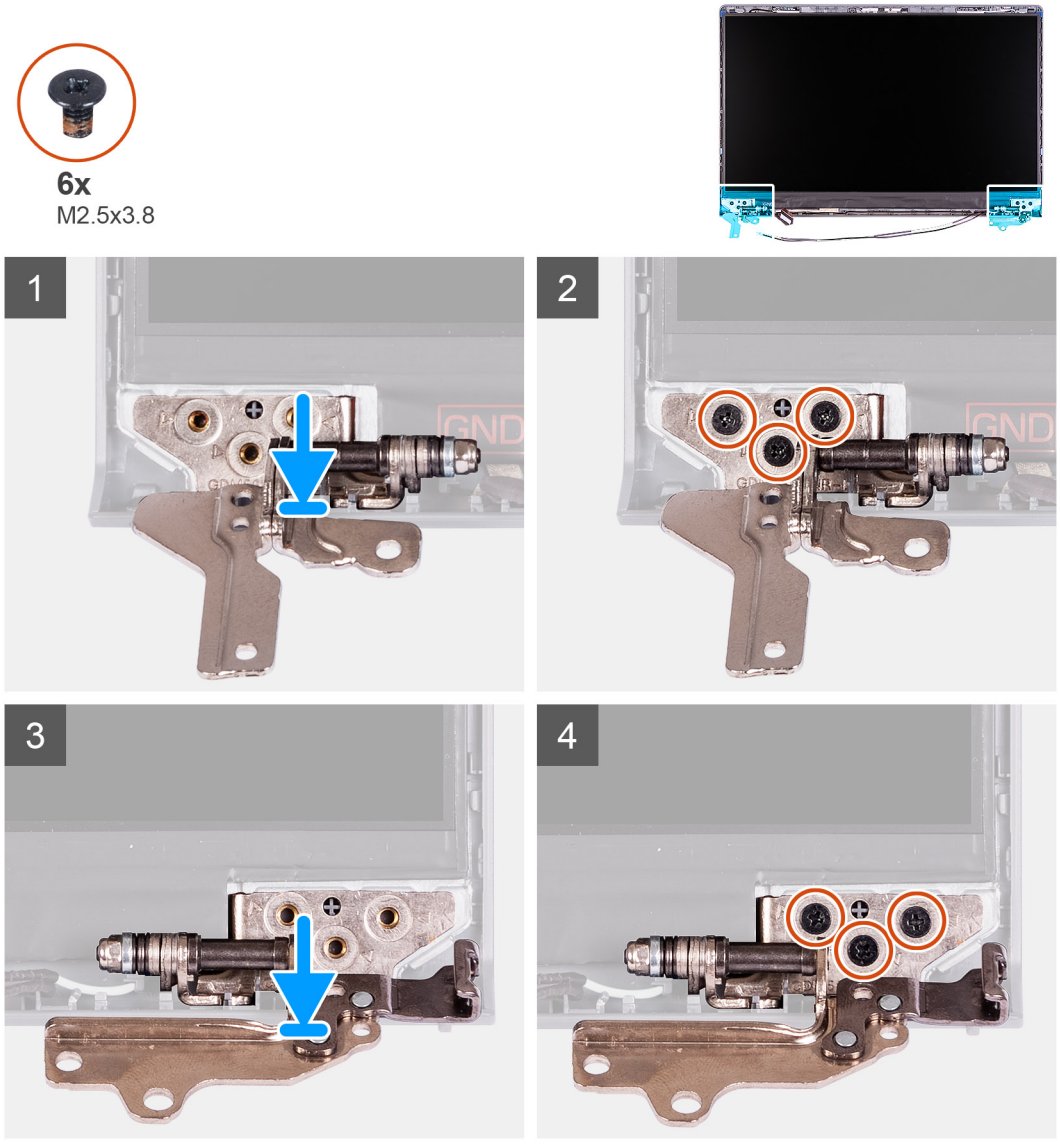
Installing the display hinges

Prerequisites

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

About this task

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



Steps

1. Align and place the left hinge on the display assembly.
2. Replace the three screws (M2.5x3.8) to secure the left hinge to the display panel and back cover.
3. Align and place the right hinge on the display assembly.
4. Replace the three screws (M2.5x3.8) to secure the right hinge to the display panel and back cover.

Next steps

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

Display panel

Removing the display panel

Prerequisites

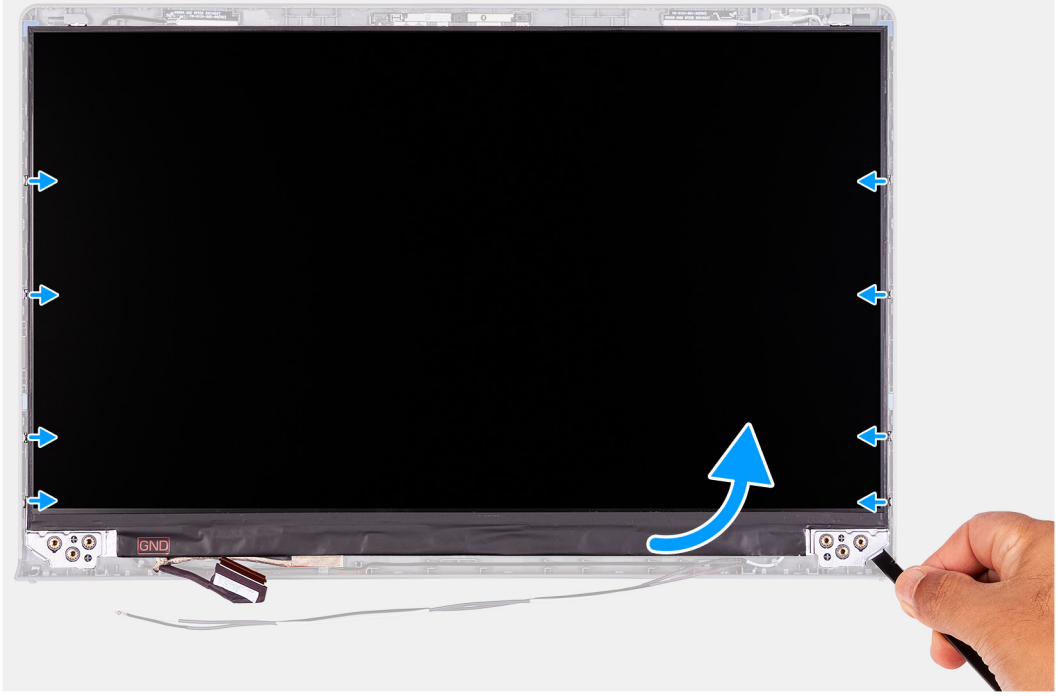
1. Follow the procedure in Before working inside your computer.
2. Remove the secure digital card.
3. Remove the base cover.
4. Remove the wireless card.
5. Remove the display assembly.
6. Remove the display hinge caps.
7. Remove the display bezel.
8. Remove the display hinges.

About this task

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



1



2





Steps

1. Using a plastic scribe, pry the display panel from the bottom-right corner.
2. Using your hands, gently pry the display panel from the tabs along the right side of the display back-cover.
3. Repeat step 1 and 2 for the left side of the display panel assembly.
4. Lift the bottom side of the display panel and slide it downward to release the display brackets from the slots at the top side of the display cover.
5. Gently flip the display panel assembly forward, peel back the Mylar tape securing the display cable on the rear of the display panel.

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

6. Disconnect the display cable from the display panel assembly and lift the display panel away from the system.

   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 procedure.

About this task

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



1



2





Steps

1. Place the display panel and display assembly on a clean and flat surface.
2. Connect the display cable to the connector at the back of the display panel and close the latch to secure the cable.
3. Adhere the tape to secure the display-cable connector latch to the back of the display panel.
4. Turn the display panel over and place the display panel on the display back-cover.
5. Lift the bottom side of the display panel and slide the top side into the slots at the top of the display back-cover.
6. Gently push down on the edges of the display panel until it clicks into the tabs on the display back-cover.

Next steps

1. Install the display hinges.
2. Install the display bezel.
3. Install the display hinge caps.
4. Install the display assembly.
5. Install the wireless card.
6. Install the base cover.
7. Install the secure digital card.
8. Follow the procedure in After working inside your computer.

Camera

Removing the camera

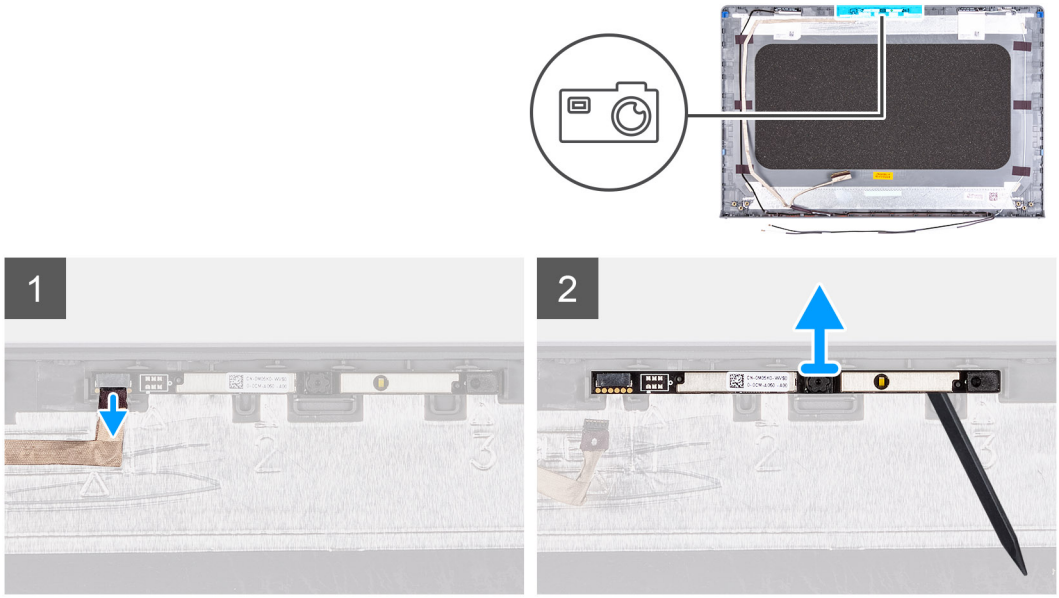
Prerequisites

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

6. Remove the display hinge caps.
7. Remove the display bezel.
8. Remove the display hinges.
9. Remove the display panel.

About this task

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



Steps

1. Using the pull tab, disconnect the camera cable from its connector on the camera module.
2. Using a plastic scribe, gently pry the camera off the display back-cover and antenna assembly.
3. Remove the camera module from the display assembly.

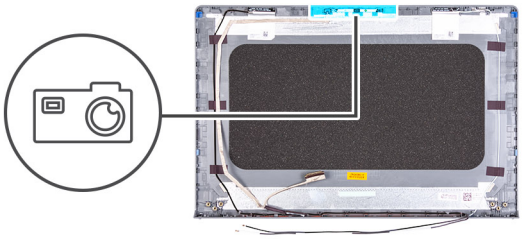
Installing the camera

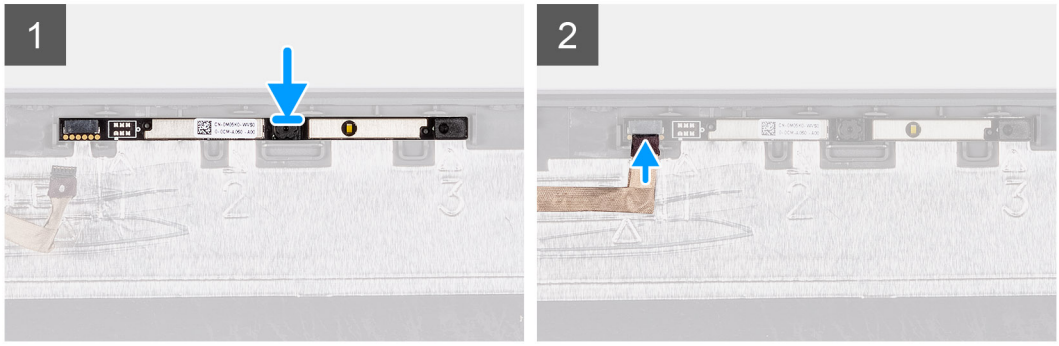
Prerequisites

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 camera module and provide a visual representation of the installation procedure.





Steps

1. Using the alignment post, adhere the camera module on the display back-cover and antenna assembly.
2. Connect the camera cable to its connector on the camera module.

Next steps

1. Install the display panel.
2. Install the display hinges.
3. Install the display bezel.
4. Install the display hinge caps.
5. Install the display assembly.
6. Install the wireless card.
7. Install the base cover.
8. Install the secure digital card.
9. Follow the procedure in After working inside your computer.

Display cable

Removing the display cable

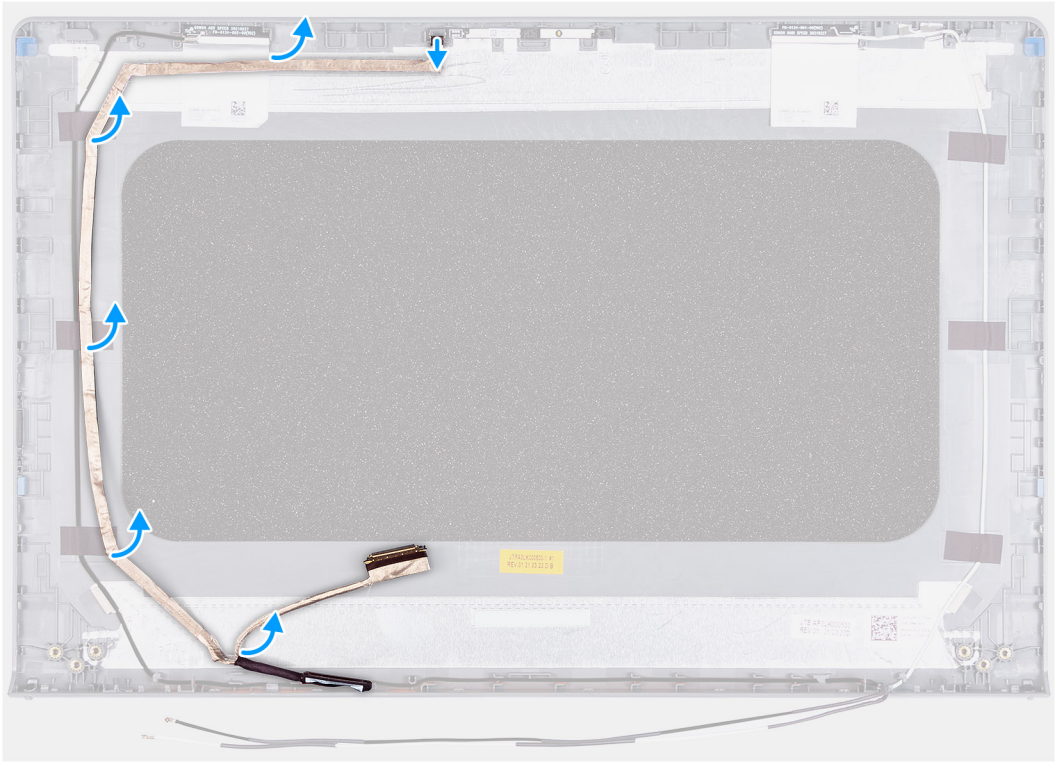
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the secure digital card.
3. Remove the base cover.
4. Remove the wireless card.
5. Remove the display assembly.
6. Remove the display hinge caps.
7. Remove the display bezel.
8. Remove the display hinges.
9. Remove the display panel.

About this task

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





Steps

1. Disconnect the display eDP cable from its connector on the camera module.
2. Carefully peel off and remove the display eDP cable from the display back-cover.

Installing the display cable

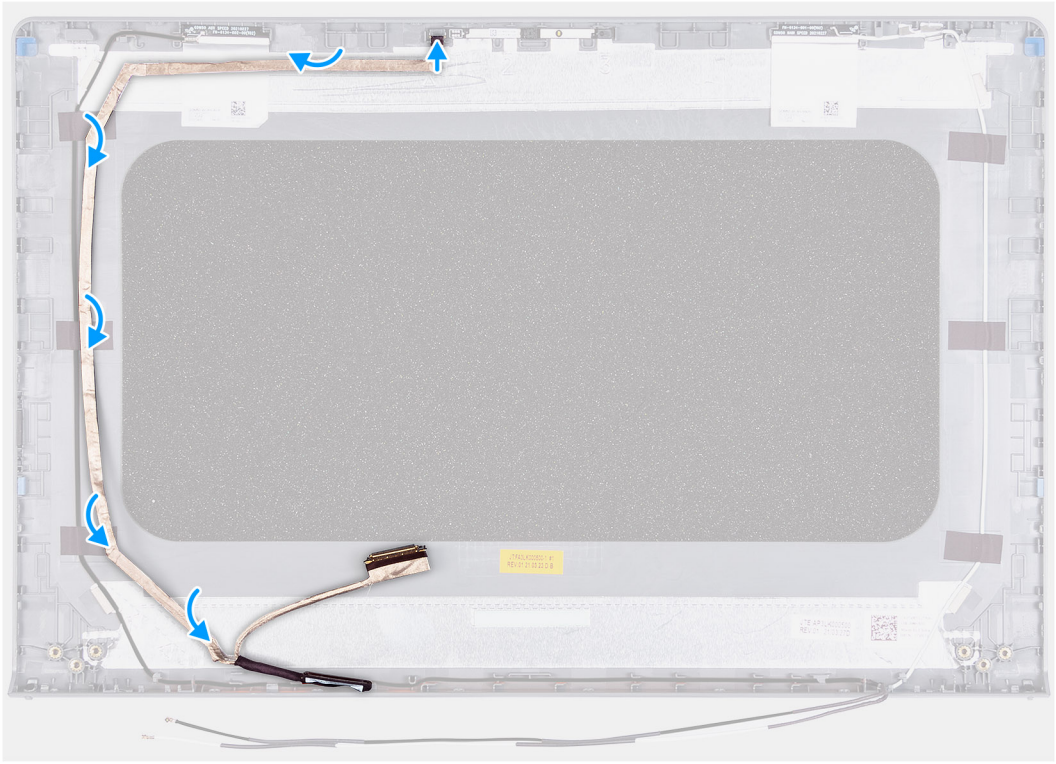
Prerequisites

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

About this task

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





Steps

1. Adhere the display eDP cable to the display back-cover.
2. Connect the display eDP cable to its connector on the camera module.

Next steps

1. Install the display panel.
2. Install the display hinges.
3. Install the display bezel.
4. Install the display hinge caps.
5. Install the display assembly.
6. Install the wireless card.
7. Install the base cover.
8. Install the secure digital card.
9. Follow the procedure in After working inside your computer.

System board

Removing the system board

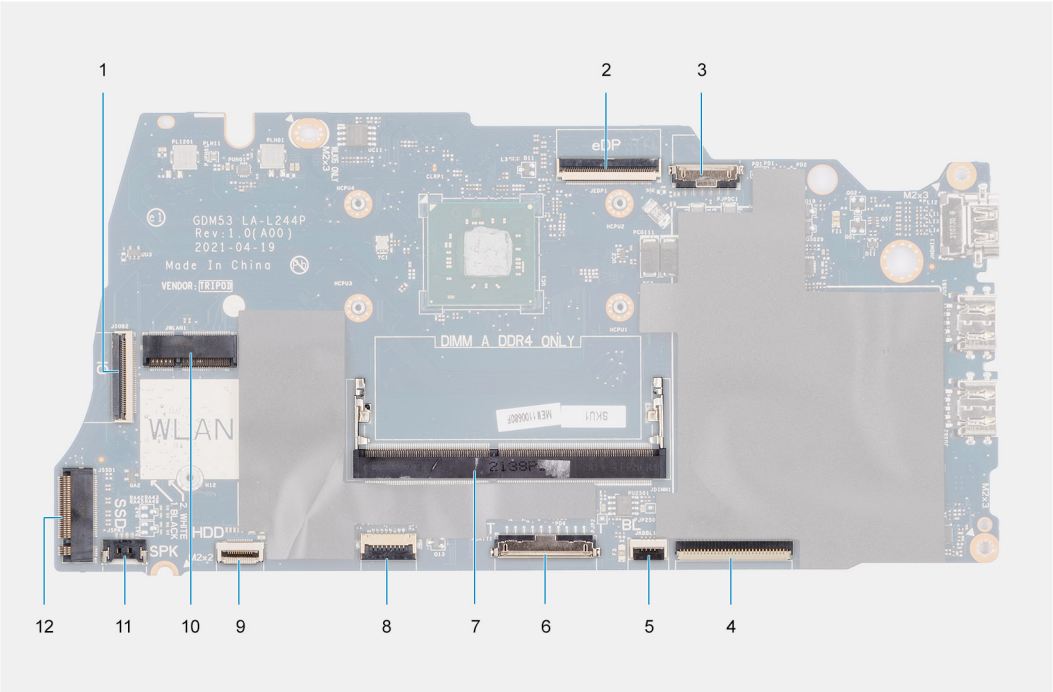
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the secure digital card.
3. Remove the base cover.
4. Remove the memory module.
5. Remove the M.2 2230 solid-state drive or the M.2 2280 solid-state drive, whichever applicable.

   NOTE: This procedure applies only to systems shipped with a M.2 solid-state drive installed.
6. Remove the wireless card.
7. Remove the system board thermal plate, if required.
8. Remove the display assembly.

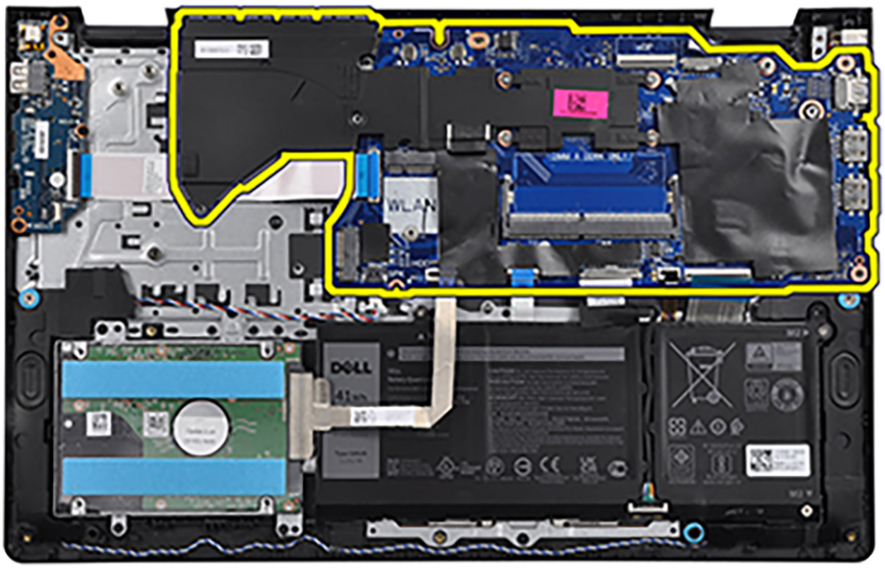
About this task

The following image indicates the connectors on your system board.

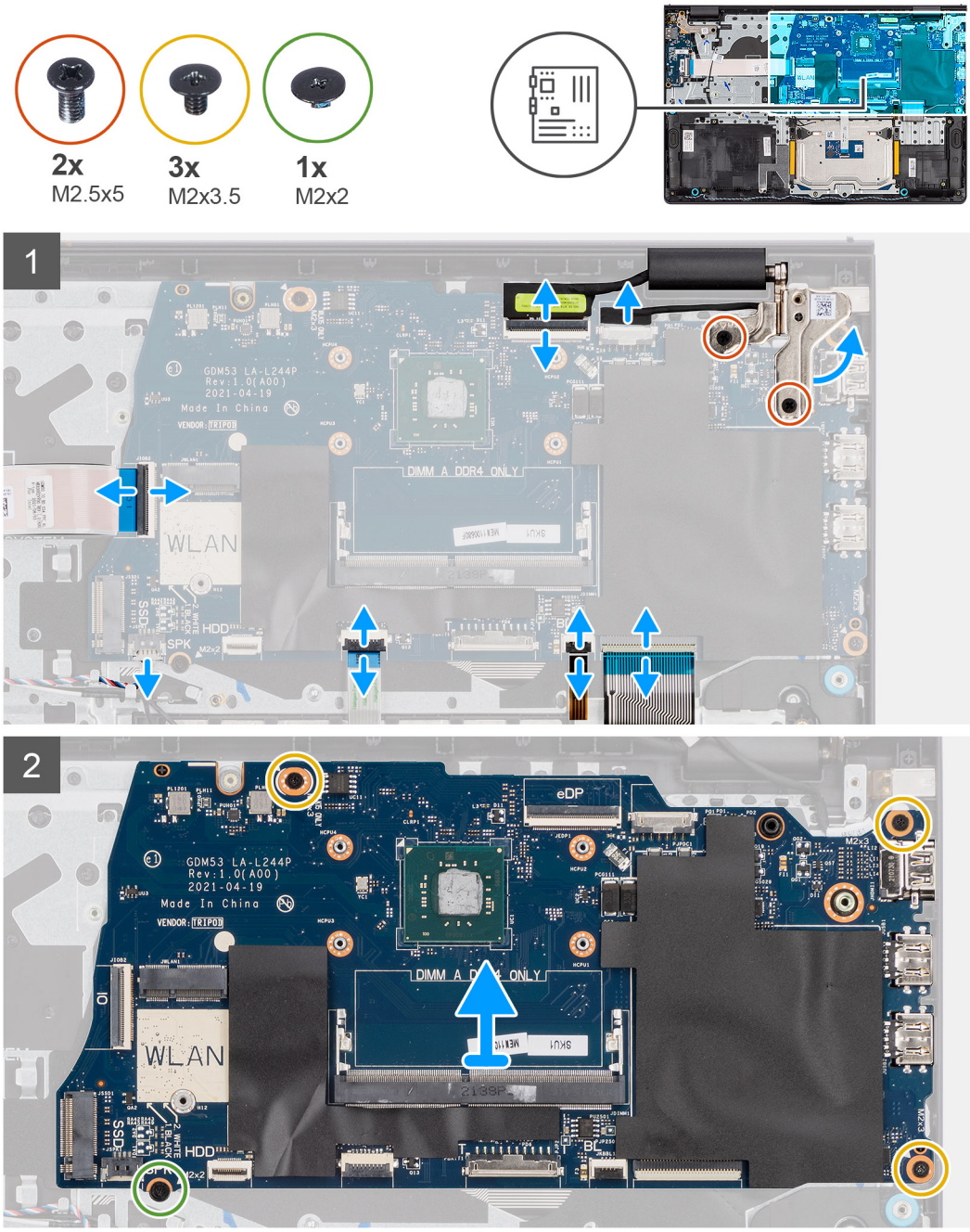


1. I/O daughter-board FFC connector
2. eDP connector
3. DC-in port connector
4. Keyboard FFC connector
5. Keyboard-backlight FFC connector
6. Battery connector
7. Memory module connector
8. Touchpad FFC connector
9. Hard-drive FFC connector
10. Wireless card connector
11. Speaker cable connector
12. Solid-state drive connector

NOTE: When removing the system board to replace/access other parts, the system board can be removed with the system board thermal plate attached to it in order to simplify the procedure and preserve the thermal bond between the system board and system board thermal plate.



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



Steps

1. Disconnect the following cables from the system board:
   a. I/O daughter-board FFC
   b. Power-adapter port cable
   c. Keyboard FFC
   d. Keyboard-backlight FFC, if applicable

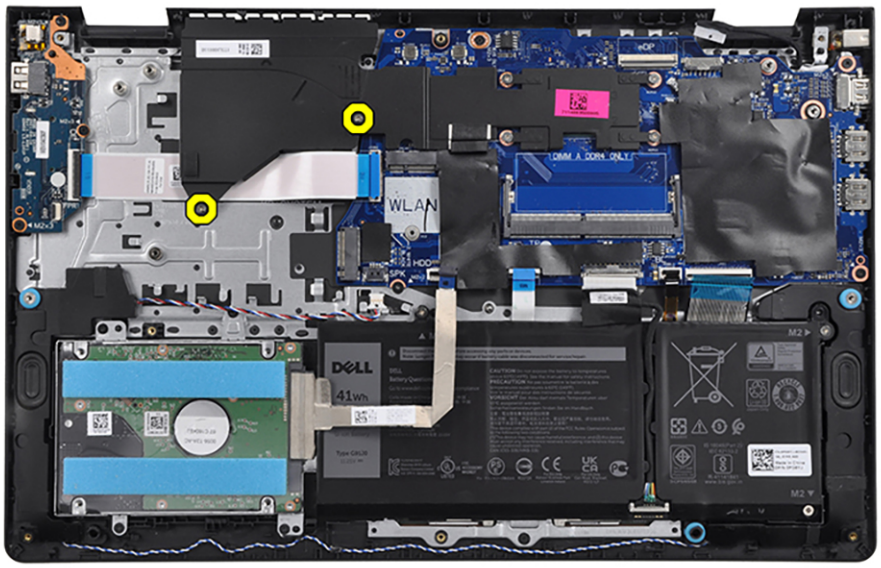
      NOTE: This step applies only to systems shipped with a keyboard backlight installed.

   e. Touchpad FFC
   f. Hard-disk drive FFC, if applicable

      NOTE: This step applies only to systems shipped with a 2.5-inch hard-disk drive installed.

2. Remove the screw (M2x2) and the three screws (M2x3.5) that secure the system board to the palm-rest and keyboard assembly.

   NOTE: When removing the system board with the system board thermal plate, remove the two screws (M2x5) that secure the system board thermal plate to the palm-rest and keyboard assembly.



3. Carefully lift and remove the system board away from the palm-rest and keyboard assembly.

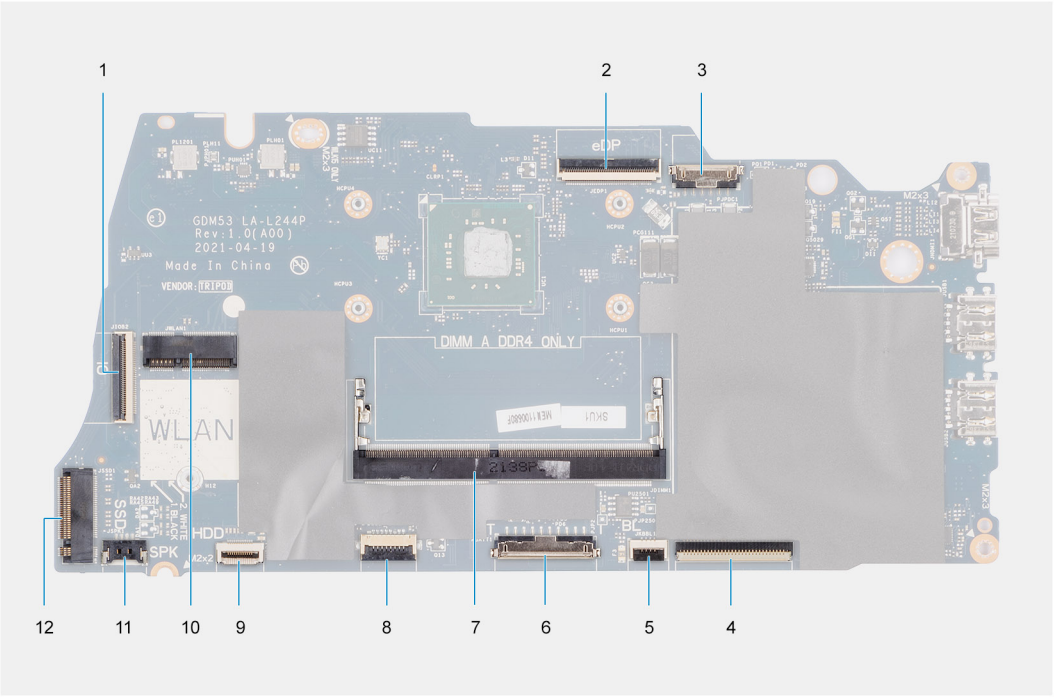
Installing the system board

Prerequisites

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

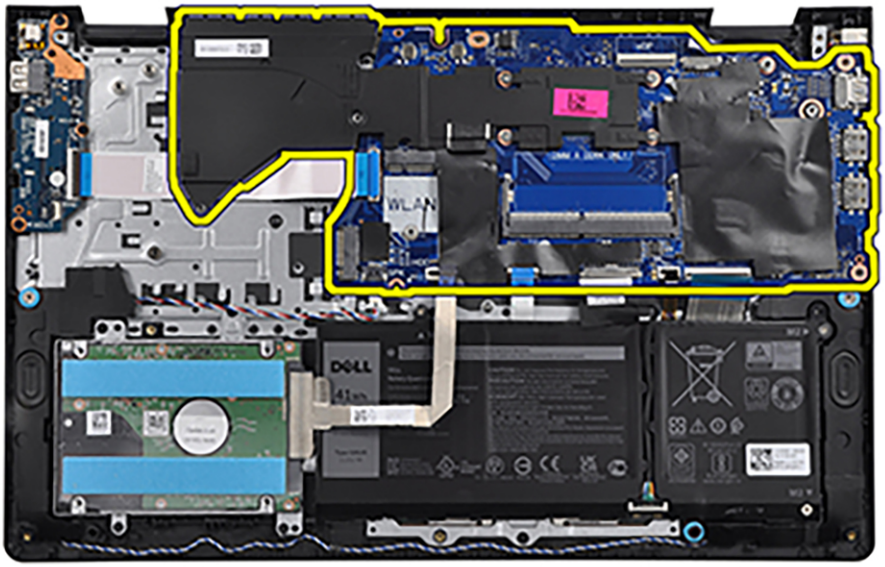
About this task

The following image indicates the connectors on your system board.



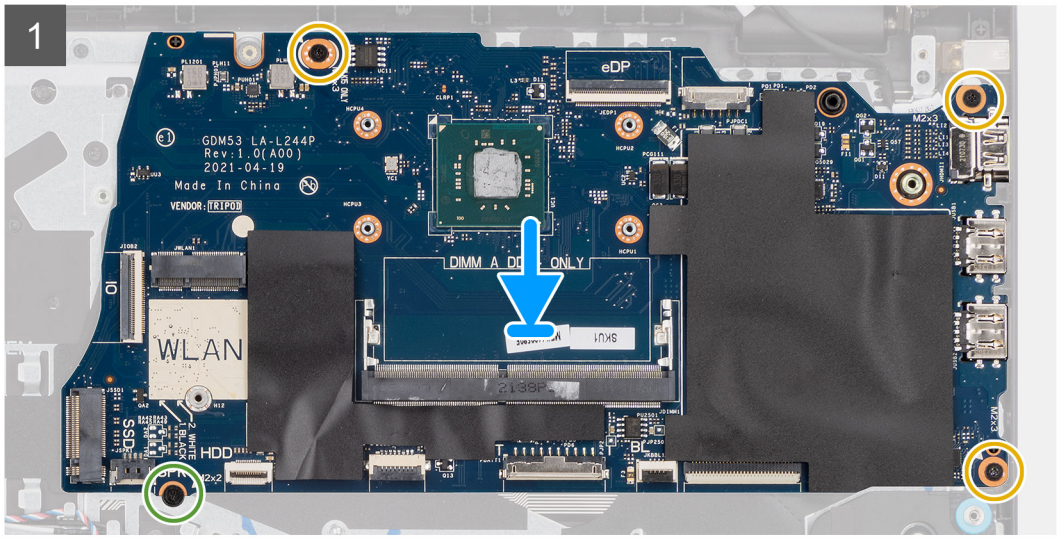
1. I/O daughter-board FFC connector
2. eDP connector
3. DC-in port connector
4. Keyboard FFC connector
5. Keyboard-backlight FFC connector
6. Battery connector
7. Memory module connector
8. Touchpad FFC connector
9. Hard-drive FFC connector
10. Wireless card connector
11. Speaker cable connector
12. Solid-state drive connector

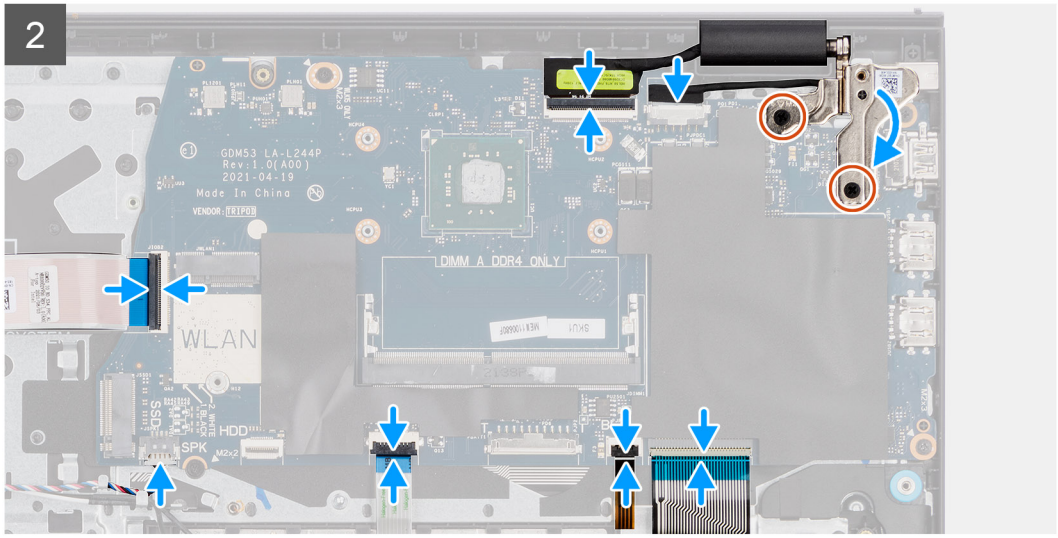
NOTE: When removing the system board to replace/access other parts, the system board can be installed with the system board thermal plate attached to it in order to simplify the procedure and preserve the thermal bond between the system board and system board thermal plate.



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



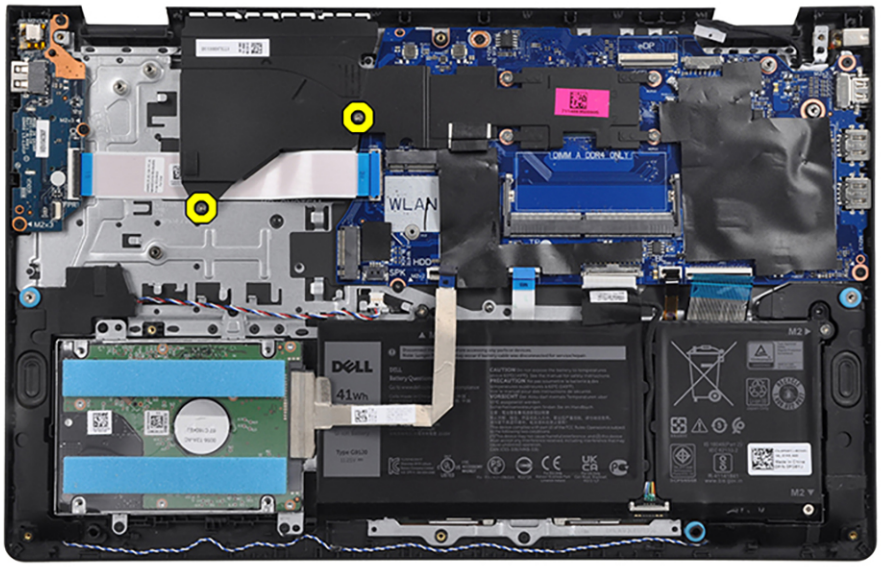




Steps

1. Place the system board (with the system board thermal plate, if applicable) on the palm-rest and keyboard assembly.
2. Align the screw holes on the system board with the screw holes on the palm-rest and keyboard assembly.

NOTE: When installing the system board with the system board thermal plate, replace the two screws (M2x5) to secure the system board thermal plate to the palm-rest and keyboard assembly.



3. Replace the screw (M2x2) and the three screws (M2x3.5) to secure the system board to the palm-rest and keyboard assembly.
4. Connect the following cables to the system board:
   a. I/O daughter-board FFC
   b. Power-adapter port cable
   c. Keyboard FFC
   d. Keyboard-backlight FFC, if applicable

      NOTE: This step applies only to systems shipped with a keyboard backlight installed.

   e. Touchpad FFC
   f. Hard-disk drive FFC, if applicable

      NOTE: This step applies only to systems shipped with a 2.5-inch hard-disk drive installed.

Next steps

1. Install the display assembly.
2. Install the system board thermal plate, if applicable.
3. Install the wireless card.
4. Install the M.2 2230 solid-state drive or the M.2 2280 solid-state drive, whichever applicable.

   NOTE: This procedure applies only to systems shipped with a M.2 solid-state drive installed.
5. Install the memory module.
6. Install the base cover.
7. Install the secure digital card.
8. Follow the procedure in After working inside your computer.

I/O daughter-board flexible flat cable

Removing the I/O daughter-board flexible flat cable

Prerequisites

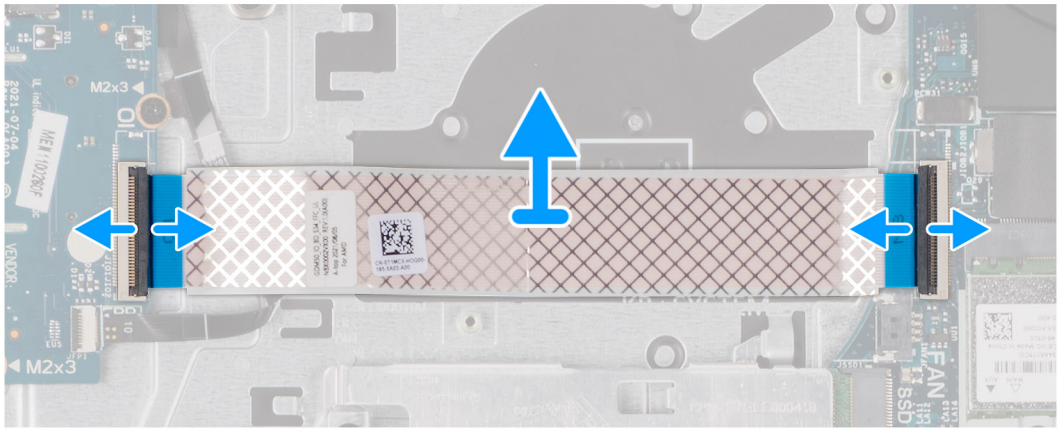
1. Follow the procedure in Before working inside your computer.
2. Remove the secure digital card.

3. Remove the base cover.

About this task

The following image indicates the location of the I/O daughter-board flexible flat cable and provides a visual representation of the removal procedure.





Steps

1. Lift the latch and disconnect the I/O daughter-board flexible flat cable from the connector on the I/O daughter-board.
2. Lift the latch and disconnect the I/O daughter-board flexible flat cable from the connector on the system board.
3. Lift the I/O daughter-board flexible flat cable off the palm-rest and keyboard assembly.

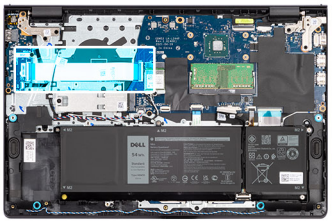
Installing the I/O daughter-board flexible flat cable

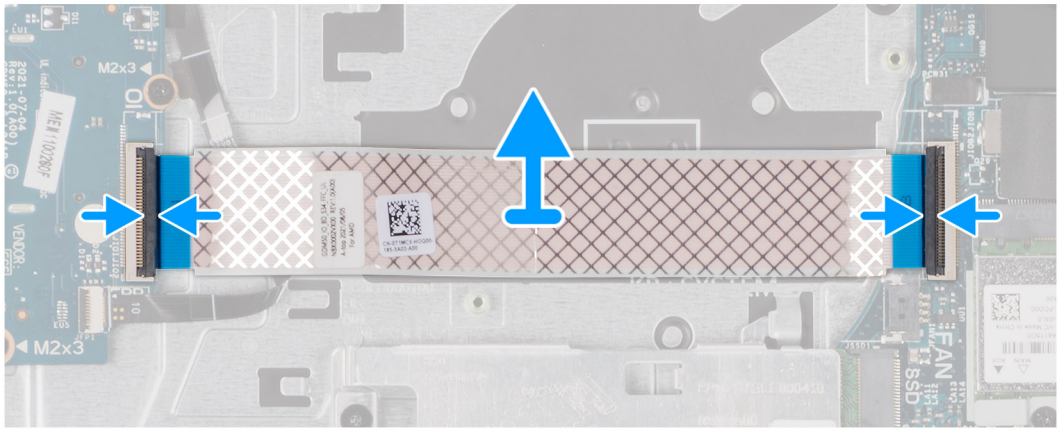
Prerequisites

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

About this task

The following image indicates the location of the I/O daughter-board flexible flat cable and provides a visual representation of the installation procedure.





Steps

1. Place the I/O daughter-board flexible flat cable on the palm-rest and keyboard assembly.
2. Connect the I/O daughter-board flexible flat cable to the connector on the system board.
3. Close the latch on the I/O daughter-board flexible flat cable connector to secure it to the system board.
4. Connect the I/O daughter-board flexible flat cable to the connector on the I/O daughter-board.
5. Close the latch on the I/O daughter-board flexible flat cable connector to secure it to the I/O daughter-board.

Next steps

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

I/O daughter-board

Removing the I/O daughter-board

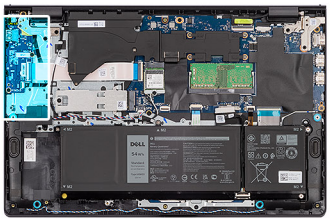
Prerequisites

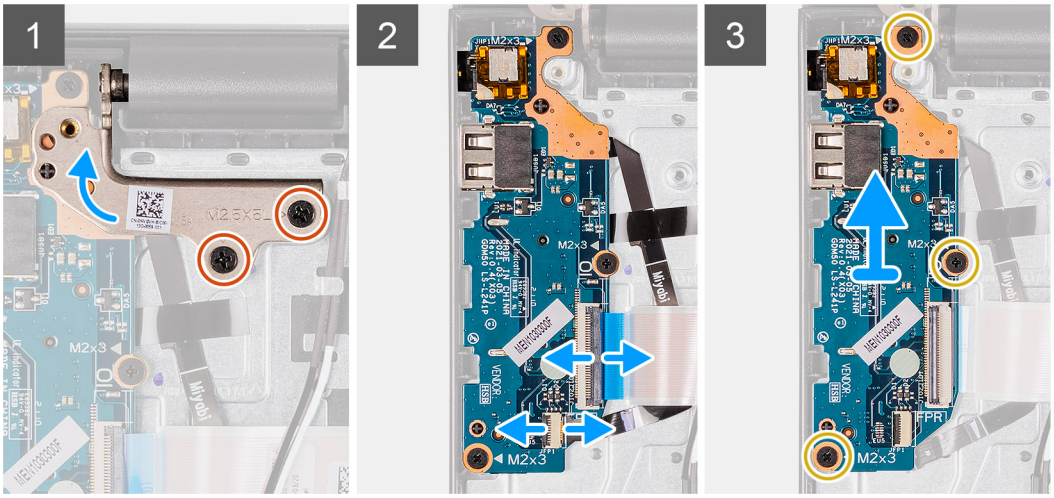
1. Follow the procedure in Before working inside your computer.
2. Remove the secure digital card.
3. Remove the base cover.
4. Remove the wireless card.
5. Remove the display assembly.

About this task

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







Steps

1. Remove the two screws (M2.5x5) that secure the right hinge in place to the palm-rest and keyboard assembly.
2. Lift the right hinge away from the palm-rest and keyboard assembly to access the I/O daughter-board.
3. Lift the latch and disconnect the I/O daughter-board flexible flat cable from the connector on the I/O daughter-board.
4. Lift the latch and disconnect the fingerprint reader flexible printed cable from the I/O daughter-board, if applicable.

   NOTE: This step applies only to systems shipped with a fingerprint reader installed.

5. Remove the three screws (M2x3.5) that secure the I/O daughter-board in place to the palm-rest and keyboard assembly.
6. Lift the I/O daughter-board off the palm-rest and keyboard assembly.

Installing the I/O daughter-board

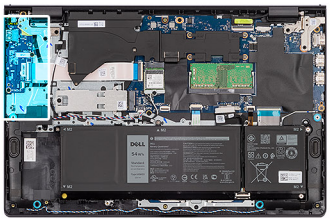
Prerequisites

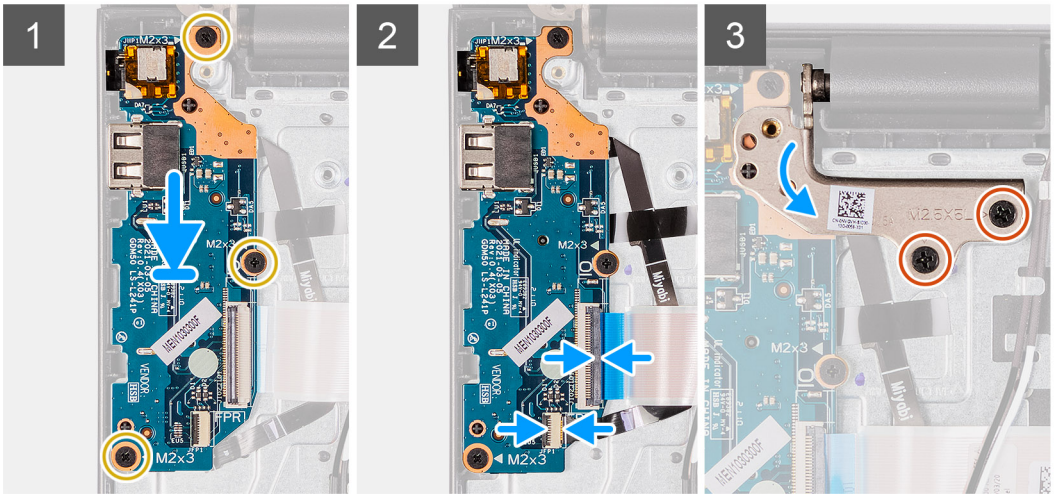
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

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







Steps

1. Place the I/O daughter-board under the right hinge and on the palm-rest and keyboard assembly.
2. Align the screw holes on the I/O daughter-board to the screw holes on the palm-rest and keyboard assembly.
3. Replace the three screws (M2x3.5) to secure the I/O daughter-board to the palm-rest and keyboard assembly.
4. Connect the fingerprint reader flexible printed cable to the connector on the I/O daughter-board, if applicable.

   NOTE: This step applies only to systems shipped with a fingerprint reader installed.

5. Close the latch on the fingerprint reader flexible printed cable connector to secure it to the I/O daughter-board, if applicable.

   NOTE: This step applies only to systems shipped with a fingerprint reader installed.

6. Connect the I/O daughter-board flexible flat cable to the connector on the I/O daughter-board.
7. Close the latch on the I/O daughter-board flexible flat cable connector to secure it to the I/O daughter-board.
8. Close the right hinge towards the I/O daughter board on the palm-rest and keyboard assembly.
9. Replace the two screws (M2.5x5) to secure the right hinge in place to the palm-rest and keyboard assembly.

Next steps

1. Install the display assembly.
2. Install the wireless card.
3. Install the base cover.
4. Install the secure digital card.
5. Follow the procedure in After working inside your computer.

Power button

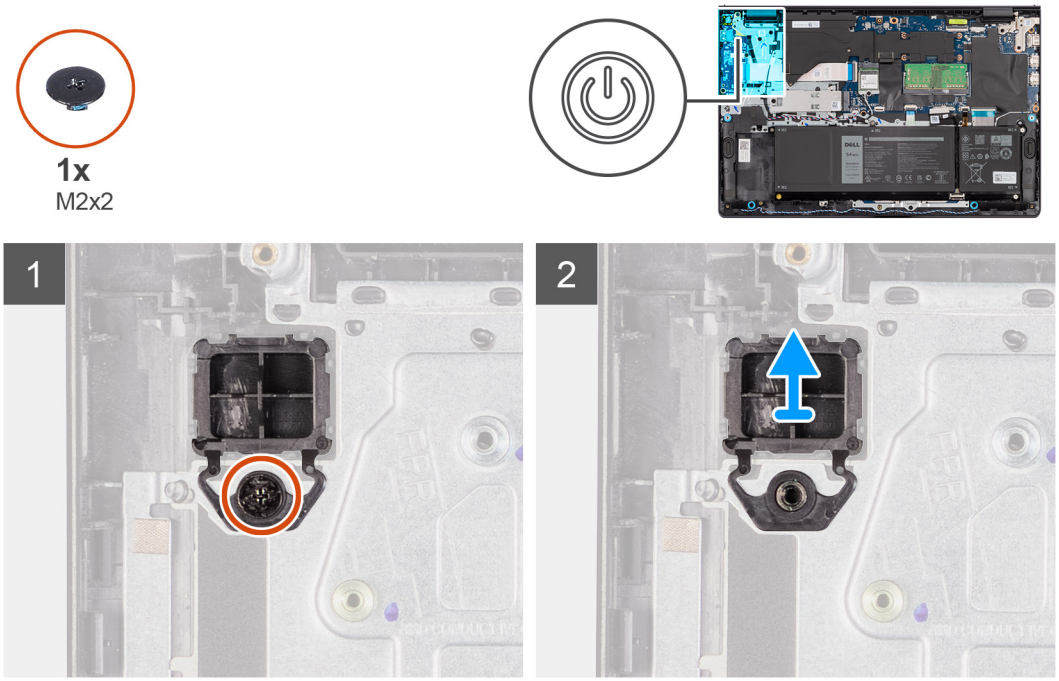
Removing the power button

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the secure digital card.
3. Remove the base cover.
4. Remove the wireless card.
5. Remove the display assembly.
6. Remove the I/O daughter-board.

About this task

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



Steps

1. Remove the screw (M2x2) that secures the power button to the palm-rest and keyboard assembly.
2. Lift the power button off the slot on the palm-rest and keyboard assembly.

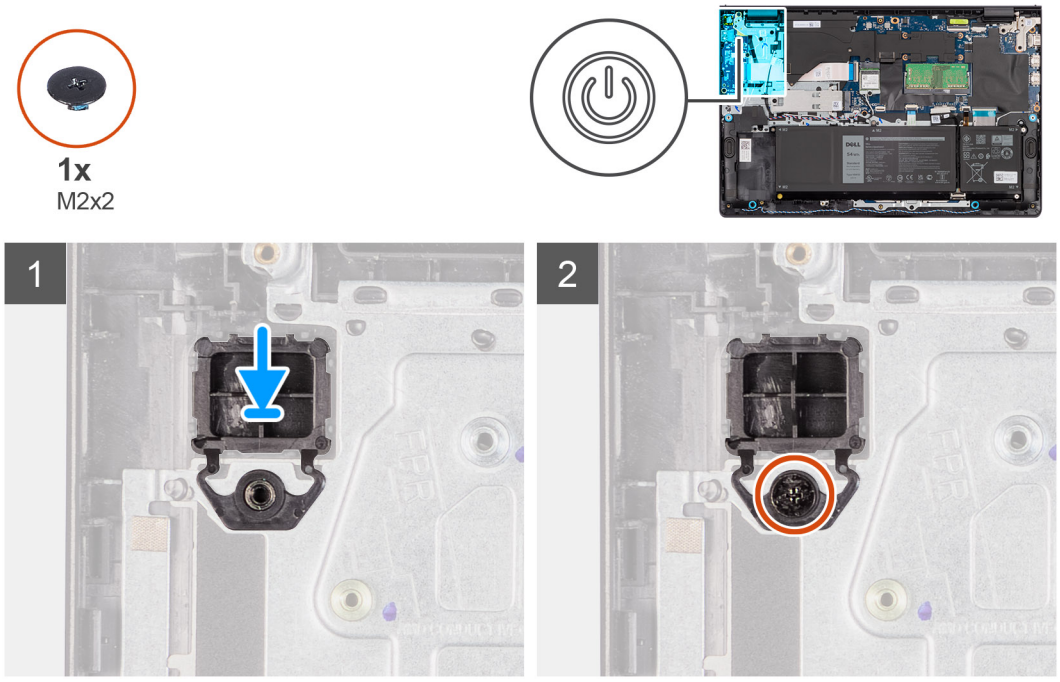
Installing the power button

Prerequisites

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

About this task

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



Steps

1. Place the power button into its slot on the palm-rest and keyboard assembly.
2. Align the screw hole on the power button to the screw hole on the palm-rest and keyboard assembly.
3. Replace the screw (M2x2) to secure the power button to the palm-rest and keyboard assembly.

Next steps

1. Install the I/O daughter-board.
2. Install the display assembly.
3. Install the wireless card.
4. Install the base cover.
5. Install the secure digital card.
6. Follow the procedure in After working inside your computer.

Power button with optional fingerprint reader

Removing the power button with optional fingerprint reader

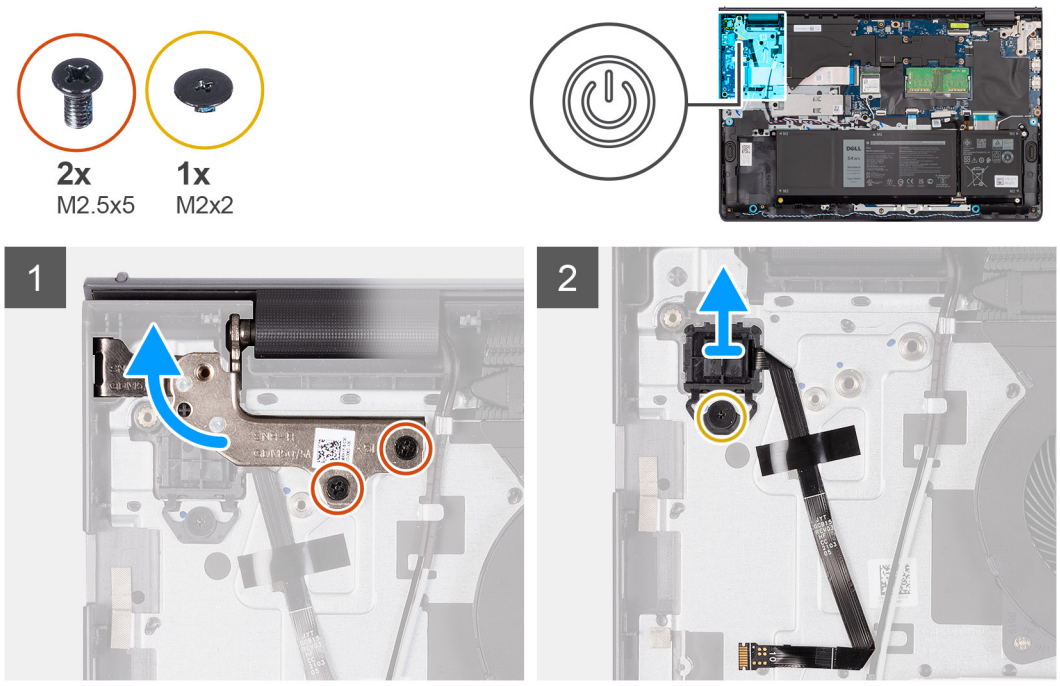
Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the secure digital card.
3. Remove the base cover.
4. Remove the wireless card.
5. Remove the display assembly.
6. Remove the I/O daughter-board.

About this task

NOTE: This procedure applies only to systems shipped with a power button with optional fingerprint reader installed.

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



Steps

1. Remove the two screws (M2.5x5) that secure the right hinge in place to the palm-rest and keyboard assembly.
2. Lift the right hinge away from the palm-rest and keyboard assembly to access the power button with optional fingerprint reader.
3. Peel back the tape holding the optional fingerprint-reader flexible printed circuit to the palm-rest and keyboard assembly.
4. Remove the screw (M2x2) that secures the power button with optional fingerprint reader to the palm-rest and keyboard assembly.
5. Lift the power button with optional fingerprint reader off the slot on the palm-rest and keyboard assembly.

Installing the power button with optional fingerprint reader

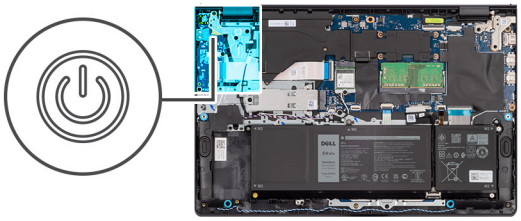
Prerequisites

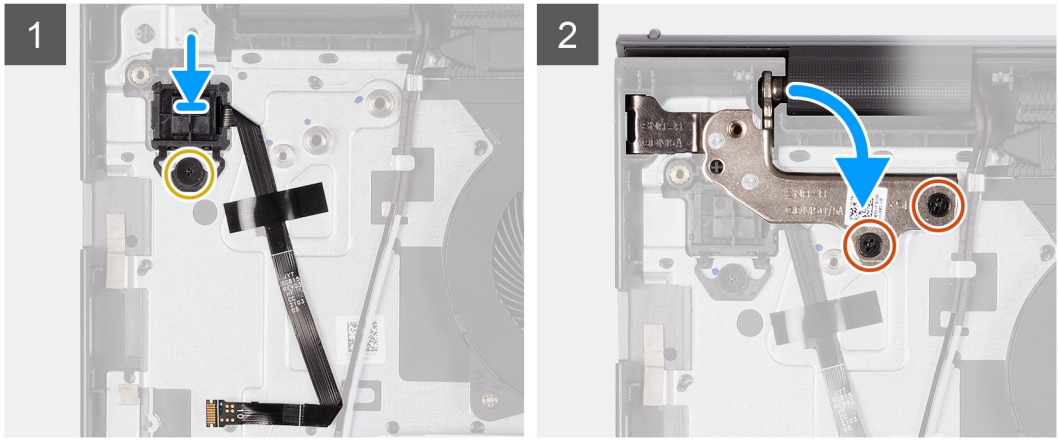
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

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







Steps

1. Place the power button with optional fingerprint reader into its slot on the palm-rest and keyboard assembly.
2. Align the screw hole on the power button with optional fingerprint reader to the screw hole on the palm-rest and keyboard assembly.
3. Replace the screw (M2x2) to secure the power button with optional fingerprint reader to the palm-rest and keyboard assembly.
4. Adhere the tape to secure the optional fingerprint-reader flexible printed circuit to the palm-rest and keyboard assembly.
5. Close the right hinge towards the power button with optional fingerprint reader on the palm-rest and keyboard assembly.
6. Replace the two screws (M2.5x5) to secure the right hinge in place to the palm-rest and keyboard assembly.

Next steps

1. Install the I/O daughter-board.
2. Install the display assembly.
3. Install the wireless card.
4. Install the base cover.
5. Install the secure digital card.
6. Follow the procedure in After working inside your computer.

Power-adapter port

Removing the power-adapter port

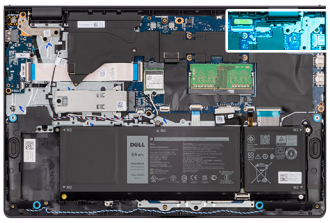
Prerequisites

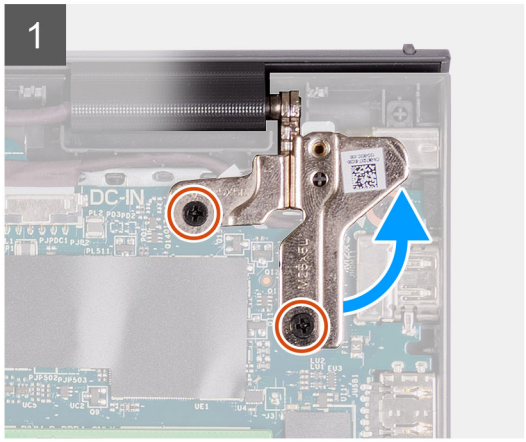
1. Follow the procedure in Before working inside your computer.
2. Remove the secure digital card.
3. Remove the base cover.
4. Remove the wireless card.
5. Remove the display assembly.

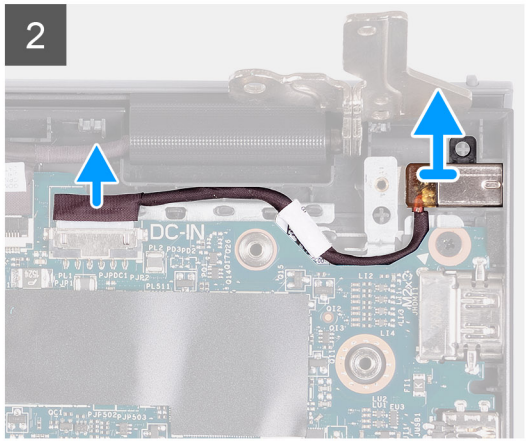
About this task

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









Steps

1. Remove the two screws (M2.5x5) that secure the left hinge in place to the palm-rest and keyboard assembly.
2. Lift the left hinge away from the palm-rest and keyboard assembly to access the power-adapter port.
3. Disconnect the power-adapter port cable from the connector on the system board.
4. Remove the power-adapter port from its slot on the palm-rest and keyboard assembly.

NOTE: The power-adapter port is secured in place by the left display hinge. There is no screw, tape, or adhesives securing the power-adapter port to the palm rest. As a result, technicians should take note of whether the power-adapter port has fallen out of the system during subsequent removal procedures.

Installing the power-adapter port

Prerequisites

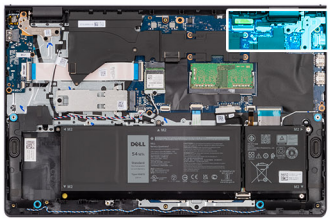
If you are replacing a component, remove the existing component before performing the installation procedure.

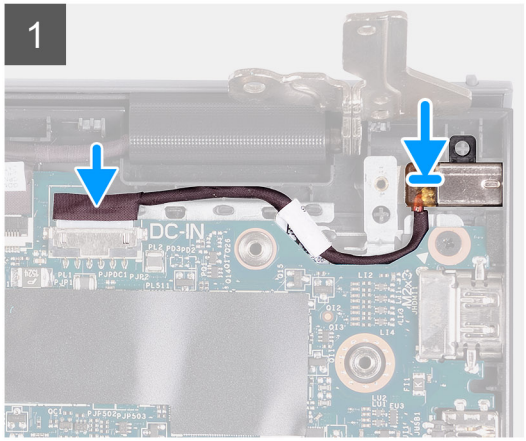
About this task

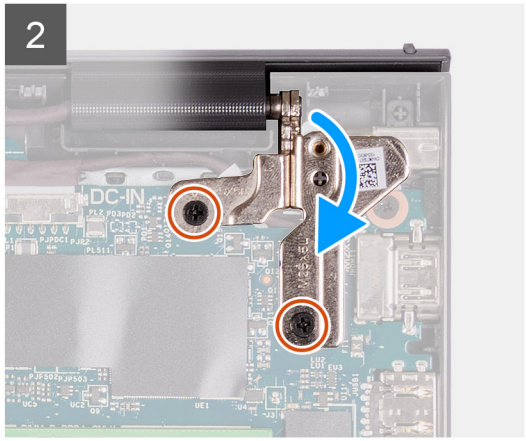
The following images indicate the location of the power-adapter port and provide a visual representation of the installation procedure.



2x
M2.5x5







Steps

1. Align and place the power-adapter port into its slot on the palm-rest and keyboard assembly.

   NOTE: The power-adapter port is secured in place by the left display hinge. There is no screw, tape, or adhesives securing the power-adapter port to the palm rest. As a result, technicians should take note of whether the power-adapter port has fallen out of the system during subsequent removal procedures.

2. Connect the power-adapter port cable to the connector on the system board.
3. Close the left hinge towards the palm-rest and keyboard assembly.
4. Replace the two screws (M2.5x5) to secure the left hinge in place to the palm-rest and keyboard assembly.

Next steps

1. Install the display assembly.
2. Install the wireless card.
3. Install the base cover.
4. Install the secure digital card.
5. Follow the procedure in After working inside your computer.

Display back-cover and antenna assembly

Removing the display back-cover and antenna assembly

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the secure digital card.
3. Remove the base cover.
4. Remove the wireless card.
5. Remove the display assembly.
6. Remove the display hinge caps.
7. Remove the display bezel.
8. Remove the display hinges.

9. Remove the display panel.
10. Remove the camera.
11. Remove the display cable.

About this task

NOTE: The display back-cover and antenna assembly cannot be further disassembled once all the pre-removal parts procedures are completed. If the wireless antennas are malfunctioning and are required to be replaced, replace the entire display back-cover and antenna assembly.

The image below shows the display back-cover and antenna assembly after the pre-removal parts procedures have been performed for any display back-cover and antenna assembly replacement.



Steps

After performing the pre-requisites, you are left with the display back-cover and antenna assembly.

Installing the display back-cover and antenna assembly

Prerequisites

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

About this task

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



Steps

Place the display back-cover and antenna assembly on a flat surface and perform the post-requisites to install the display back-cover and antenna assembly.

Next steps

1. Install the display cable.
2. Install the camera.
3. Install the display panel.
4. Install the display hinges.
5. Install the display bezel.
6. Install the display hinge caps.
7. Install the display assembly.
8. Install the wireless card.
9. Install the base cover.
10. Install the secure digital card.
11. 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 secure digital card.
3. Remove the base cover.
4. Remove the memory module.
5. Remove the M.2 2230 solid-state drive or the M.2 2280 solid-state drive, whichever applicable.

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

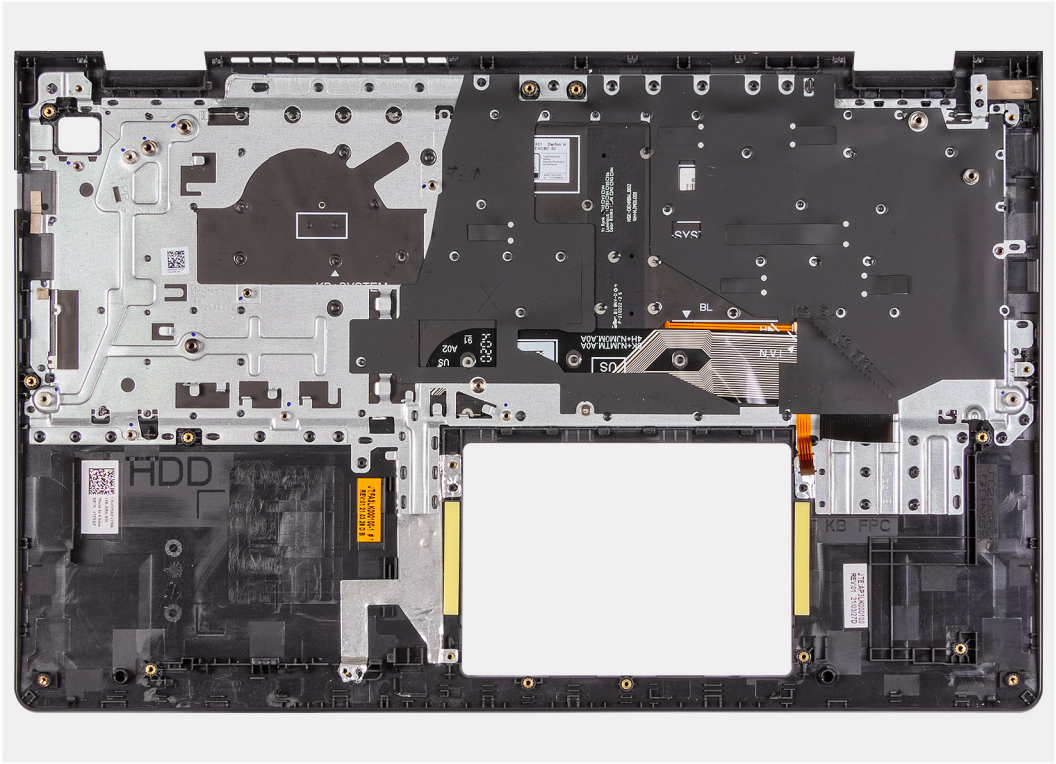
6. Remove the 2.5-inch hard-disk drive, if applicable.
   NOTE: This procedure applies only to systems shipped with a 2.5-inch hard-disk drive installed.
7. Remove the wireless card.
8. Remove the speakers.
9. Remove the 3-cell battery or the 4-cell battery, whichever applicable.
10. Remove the display assembly.
11. Remove the touchpad.
12. Remove the I/O daughter-board flexible flat cable.
13. Remove the I/O daughter-board.
14. Remove the power-adapter port.
15. Remove the power button or the power button with optional fingerprint reader, whichever applicable.
16. Remove the system board.

About this task

NOTE: The system board can be removed with the system board thermal plate attached to it in order to simplify the procedure and preserve the thermal bond between the system board and system board thermal plate.

NOTE: The palm-rest and keyboard assembly cannot be further disassembled once all the pre-removal parts procedures are completed. If the keyboard is malfunctioning and is required to be replaced, replace the entire palm-rest and keyboard assembly.

The image below shows the palm-rest and keyboard assembly after the pre-removal parts procedures have been performed for any palm-rest and keyboard assembly replacement.



Steps

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

Installing the palm-rest and keyboard assembly

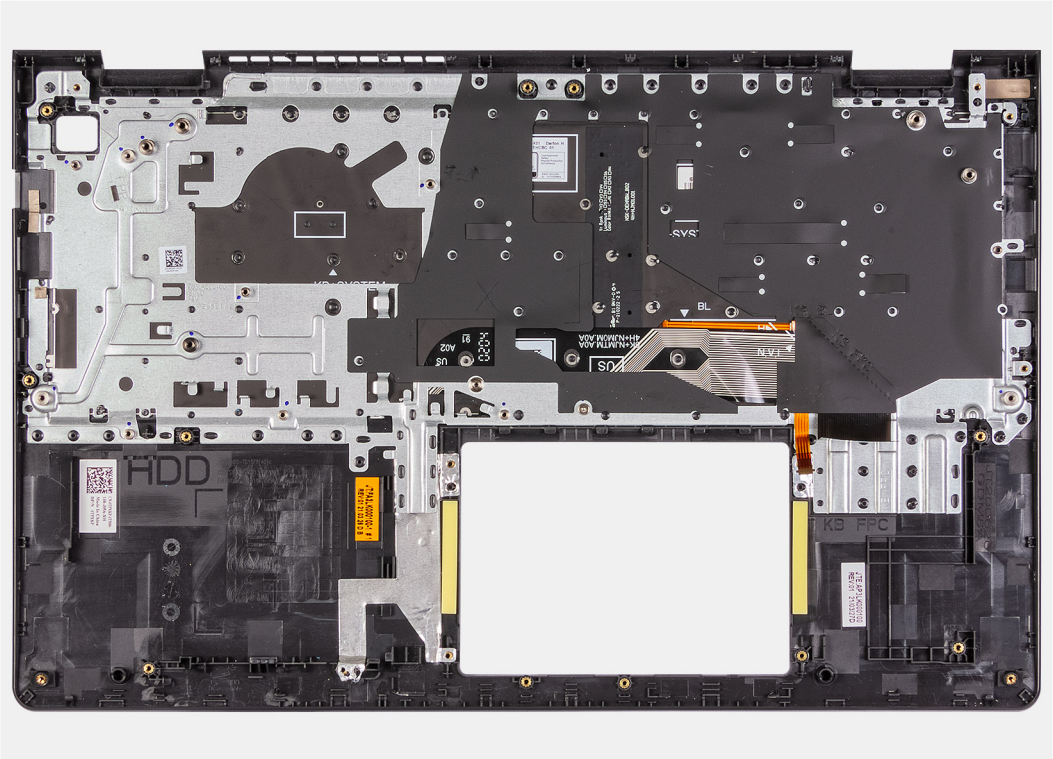
Prerequisites

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

About this task

NOTE: The system board can be installed with the system board thermal plate attached to it in order to simplify the procedure and preserve the thermal bond between the system board and system board thermal plate.

The following image indicates 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 surface and perform the post-requisites to install the palm-rest and keyboard assembly.

Next steps

1. Install the system board.
2. Install the power button or the power button with optional fingerprint reader, whichever applicable.
3. Install the power-adapter port.
4. Install the I/O daughter-board.
5. Install the I/O daughter-board flexible flat cable.
6. Install the touchpad.
7. Install the display assembly.
8. Install the 3-cell battery or the 4-cell battery, whichever applicable.
9. Install the speakers.
10. Install the wireless card.
11. Install the 2.5-inch hard-disk drive, if applicable.

    NOTE: This procedure applies only to systems shipped with a 2.5-inch hard-disk drive installed.
12. Install the M.2 2230 solid-state drive or the M.2 2280 solid-state drive, whichever applicable.

    NOTE: This procedure applies only to systems shipped with a M.2 solid-state drive installed.
13. Install the memory module.
14. Install the base cover.
15. Install the secure digital card.
16. Follow the procedure in After working inside your computer.

3

Drivers and downloads

When troubleshooting, downloading or installing drivers it is recommended that you read the Dell Knowledge Based article, Drivers and Downloads FAQ 000123347.

4

BIOS setup

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

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

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

Use the BIOS Setup program for the following purposes:

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

BIOS overview

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

Entering BIOS setup program

Steps

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

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

Navigation keys

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

Table 3. Navigation keys

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.
Enter	Selects a value in the selected field (if applicable) or follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
Tab	Moves to the next focus area. **NOTE:** For the standard graphics browser only.

Table 3. Navigation keys (continued)

Keys	Navigation
Esc	Moves to the previous page until you view the main screen. Pressing Esc in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.

One time boot menu

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

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

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

- Removable Drive (if available)
- STXXXX Drive (if available)

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

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

System setup options

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

Table 4. System setup options—Main menu

Main	
System Time	Displays the current time in hh:mm:ss format.
System Date	Displays the current date in mm/dd/yyyy format.
BIOS Version	Displays the BIOS version.
Product Name	Displays the model number of your system.
Service Tag	Displays the service tag of your system.
Asset Tag	Displays the asset tag of your system.
CPU Type	Displays the processor type.
CPU Speed	Displays the processor speed.
CPU ID	Displays the processor identification code.
CPU Cache	
L1 Cache	Displays the processor L1 cache size.
L2 Cache	Displays the processor L2 cache size.
L3 Cache	Displays the processor L3 cache size.
First HDD	Displays the type of hard drive installed.
AC Adapter Type	Displays the type of AC adapter.
System Memory	Displays the size of memory installed.
Memory Speed	Displays the speed of memory.

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

Main	
Keyboard Type	Displays the type of keyboard installed on the system.

Table 5. System setup options—Advanced menu

Advanced	
Virtualization	Enables or disables the Virtualization technology. Default: Enabled
VI for Direct I/O	Enables or disables the Virtualization technology for Direct I/O. Default: Enabled
Integrated NIC	Enables or disables the on-board LAN controller. Default: Enabled
USB Emulation	Enables or disables the USB emulation feature. This feature defines how the BIOS, in the absence of a USB-aware operating system, handles USB devices. USB emulation is always enabled during POST. **NOTE:** You cannot boot any type of USB device (floppy, hard drive, or memory key) when this option is off. Default: Enabled
USB Wake Support	Allows you to enable USB devices to wake the system from standby or to disable the USB wake support feature. **NOTE:** If USB PowerShare is enabled, a device that is connected to the USB PowerShare connector may not wake the system. **NOTE:** To enable wake support for the fingerprint reader the USB Wake Support is required to be enabled in the BIOS. To enable USB wake support, complete the steps in the knowledge base article 000131547. Default: Disabled
SATA Operation	Allows you to configure the operating mode of the integrated SATA hard drive controller. Default: AHCI
Adapter Warnings	Allows you to choose if the system should display warning messages when you use AC adapters that are not supported by your system. Default: Enabled
Function Key Behavior	Allows you to set function key or multimedia key as the default function key behavior. Default: Multimedia key
Keyboard Illumination	Selects the operating mode of the keyboard illumination feature. Default: Bright
Keyboard Backlight with AC	Selects the timeout value for the keyboard backlight when an AC adapter is plugged into the system. Default: 1 minute

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

Advanced	
Keyboard Backlight with Battery	Selects the timeout value for the keyboard backlight when the system is running on battery power. Default: 1 minute
Battery Health	Displays the battery health.
Camera	Enables or disables the camera. Default: Disabled
Battery Charge Configuration	Set the battery charge settings with a preselected custom charge start and stop. Default: Adaptive
Advanced Battery Charge Configuration	Enable Advanced Battery Charge Configuration from the beginning of the day to a specified work period. Default: Disabled
Maintenance	
Data Wipe on next boot	Enables or disables data wipe on the next boot. Default: Disabled
BIOS Recovery from Hard Drive	Enables the user to recover from certain corrupted BIOS conditions from a recovery file on the user primary hard drive or an external USB key.
BIOS Auto-Recovery	Enables BIOS to automatically recover BIOS without user actions. Default: Disabled
SupportAssist System Resolution	
Auto OS Recovery Threshold	Controls the automatic boot flow for SupportAssist System Resolution Console and for the Dell OS Recovery tool. Default: 2
SupportAssist OS Recovery	Enables or disables the boot flow for the SupportAssist OS Recovery tool in the even of certain system errors. Default: Disabled

Table 6. System setup options—Security menu

Security	
Admin Password Status	Displays if the administrator password is clear or set. Default: Not Set
System Password Status	Displays if the system password is clear or set. Default: Not Set
HDD Password	Displays if the system password is clear or set. Default: Not Set
Service Tag	Set your system's Service Tag.
Asset Tag	Set your system's Asset Tag.
Admin Password	Allows you to set the administrator password. The administrator password controls access to the system setup utility.

Table 6. System setup options—Security menu (continued)

Security	
System Password	Allows you to set the system password. The system password controls access to the system at boot.
HDD Password	Allows you to set the HDD password. The HDD password controls access to the system's hard disk drive.
Password Change	Allows you to permit or deny system password or hard disk drive password changes. Default: Permitted
Absolute®	Allows you to track your system Default: enabled
Absolute® Status	Allows you to activate or deactivate the Absolute® feature Displays if the system password is clear or set. Default: Deactivate
WINDOWS SMM SECURITY MITIGATIONS TABLE (WSMT)	Enables or disables configuration of platform features on Dell Client Systems with WSMT-enabled BIOS. Default: Enabled
Firmware TPM	Enable or disable the firmware TPM. Default: Enabled
PPI Bypass for Clear Command	Allows you to control the TPM Physical Presence Interface (PPI). When enabled, this setting allows the operating system to skip BIOS PPI user prompts when issuing the Clear command. Changes to this setting take effect immediately. Default: Disabled
TPM Security	TPM 2.0 Security options.
UEFI Firmware Capsule Updates	Enables or disables BIOS updates through UEFI capsule update packages. Default: Enabled
Secure Boot	Enables or disables Secure Boot. Default: Enabled

Table 7. System setup options—Boot menu

Boot	
File Browser Add Boot Option	Allows you to add boot options.

Table 8. System setup options—Exit menu

Exit	
Exit Saving Changes	Allows you to exit system setup and save your changes.
Save Change Without Exit	Allows you to save your changes without exiting the BIOS setup.
Exit Discarding Changes	Allows you to exit the BIOS setup without saving the changes.
Load Optimal Defaults	Allows you to restore default values for all system setup options.

Table 8. System setup options—Exit menu (continued)

Exit	
Discard Changes	Allows you to load previous values for all system setup options.

Updating the BIOS

Updating the BIOS in Windows

About this task

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress and the system will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system re-install. For more information on this subject, see Knowledge Article: https://www.dell.com/support/kbdoc/000134415

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

About this task

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress and the system will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system re-install. For more information on this subject, see Knowledge Article: https://www.dell.com/support/kbdoc/000134415

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.

Updating the BIOS from the F12 One-Time boot menu

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

About this task

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress and the system will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system re-install. For more information on this subject, see Knowledge Article: https://www.dell.com/support/kbdoc/000134415

BIOS Update

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

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

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

Updating from the One-Time boot menu

To update your BIOS from the F12 One-Time boot menu, you need the following:

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

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

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

Steps

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

System and setup password

Table 9. System and setup password

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

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

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

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

NOTE: System and setup password feature is disabled.

Assigning a system setup password

Prerequisites

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

About this task

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

Steps

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

Deleting or changing an existing system setup password

Prerequisites

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

About this task

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

Steps

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

   NOTE: If you change the System and/or Setup password, reenter the new password when prompted. If you delete the System and/or Setup password, confirm the deletion when prompted.
5. Press Esc and a message prompts you to save the changes.
6. Press Y to save the changes and exit from System Setup.

The computer restarts.

Clearing BIOS (System Setup) and System passwords

About this task

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

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

5

Troubleshooting

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.

Built-in self-test (BIST)

M-BIST

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

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

How to run M-BIST

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

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

Table 10. LED error codes

Blinking Pattern		Possible Problem
Amber	**White**	
2	1	CPU Failure
2	8	LCD Power Rail Failure
1	1	TPM Detection Failure
2	4	Unrecoverable SPI Failure

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

LCD Power rail test (L-BIST)

L-BIST is an enhancement to the single LED error code diagnostics and is automatically initiated during POST. L-BIST will check the LCD power rail. If there is no power being supplied to the LCD (i.e., the L-BIST circuit fails), the battery status LED will flash either an error code [2,8] or an error code [2,7].

NOTE: If L-BIST fails, LCD-BIST cannot function as no power will be supplied to the LCD.

How to invoke L-BIST Test:

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

LCD Built-in Self Test (BIST)

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

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

How to invoke LCD BIST Test

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

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

System-diagnostic lights

This section lists the system-diagnostic lights of your Inspiron 15 3521.

Table 11. System-diagnostic lights

Blinking pattern		Problem description	Suggested resolution
Amber	**White**		
2	1	CPU failure	Replace the system board.
2	2	System board failure (included BIOS corruption or ROM error)	• Flash latest BIOS version. • If problem persists, replace the system board.

Table 11. System-diagnostic lights (continued)

Blinking pattern		Problem description	Suggested resolution
Amber	**White**		
2	3	No memory/RAM detected	• Confirm that the memory module is installed properly. • If problem persists, replace the memory module.
2	4	Memory/RAM failure	Replace the memory module.
2	5	Invalid memory installed	Replace the memory module.
2	6	System board/chipset error	Replace the system board.
2	7	LCD failure	Replace the LCD module.
2	8	LCD power rail failure	Replace the LCD module.
3	1	RTC power failure	Replace the battery.
3	2	PCI or video card/chip failure	Replace the system board.
3	3	BIOS Recovery image not found	• Flash latest BIOS version. • If problem persists, replace the system board.
3	4	BIOS Recovery image found but invalid	• Flash latest BIOS version. • If problem persists, replace the system board.
3	5	Power rail failure	• Flash latest BIOS version. • If problem persists, replace the system board.
3	6	SBIOS flash corruption	• Flash latest BIOS version. • If problem persists, replace the system board.
3	7	ME error	• Flash latest BIOS version. • If problem persists, replace the system board.

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

Recovering the operating system

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

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

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

For more information about the Dell SupportAssist OS Recovery, see *Dell SupportAssist OS Recovery User's Guide* at www.dell.com/serviceabilitytools. Click **SupportAssist** and then, click **SupportAssist OS Recovery**.

Real-Time Clock (RTC Reset)

The Real Time Clock (RTC) reset function allows you or the service technician to recover Dell 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.

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.

6

Getting help and contacting Dell

Self-help resources

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

Table 12. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	www.dell.com
My Dell app	
Tips	
Contact Support	In Windows search, type `Contact Support`, and press Enter.
Online help for operating system	www.dell.com/support/windows
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals and documents.	Your Dell computer is uniquely identified by a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, enter the Service Tag or Express Service Code at www.dell.com/support. For more information on how to find the Service Tag for your computer, see Locate the Service Tag on your computer.
Dell knowledge base articles for a variety of computer concerns	1. Go to www.dell.com/support. 2. On the menu bar at the top of the Support page, select **Support** > **Knowledge Base**. 3. In the Search field on the Knowledge Base page, type the keyword, topic, or model number, and then click or tap the search icon to view the related articles.

Contacting Dell

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

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

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